

# Preparing for practice in the age of complexity

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In *The university of learning*, John Bowden and Ference Marton explore the idea that being able to handle varying and unfamiliar conditions is fundamental to effective practice in ‘real-life’. They suggest that in an age of rapid change and complexity, the challenge for educators and students is to ‘prepare for the unknown by means of the known’, and they offer the powerful proposition that the educational experience itself should provide rich diversity in the ways in which learning encourages engagement with phenomena. Variation, they suggest, is fundamental to what they call the ‘whole idea’ of the university.

This paper is a tribute to John Bowden, reflecting upon the significance of his thinking for the development of teaching and learning practice. In particular, it explores the practical possibilities and the fruitful, though considerable, challenges of deliberately introducing variation into teaching and learning in the university context.

## Introduction

*The university of learning* (Bowden & Marton, 1998) highlights the generative paradox that universities must try to prepare students to engage effectively with situations in their professional lives that are increasingly difficult to predict or define in advance.

By definition, professions are about the application of knowledge to a range of varying situations and problems, but the range of that variation is now susceptible to speed of change (and sometimes scale of complexity) that defies prediction. The challenge for educators and students is to ‘prepare for the unknown by means of the known’ (Bowden & Marton, 1998, p. 278).

One of their key propositions is that being able to handle varying conditions is essential for effective practice in ‘real life’. With it goes the powerful suggestion that educational experience itself should provide rich diversity in the ways in which learning encourages engagement with phenomena. For Bowden and Marton, variation, in

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these terms, is fundamental to the whole idea of the university and is important in research, in teaching and in learning. Nor is the significance of variation restricted to issues of pedagogy and ontology. It is also framed in terms of ethical and value perspectives.

This paper explores some of the practical possibilities—and the considerable impact—of deliberately introducing variation into learning spaces, particularly in the university context.

### **Practice in the age of complexity**

It has become almost a cliché to observe that human societies and economies across the globe are rapidly evolving under the influence of constant and significant changes in technology of every kind. The consequences are profound, the opportunities and challenges both exciting and disturbing. Every day, we see the creation and convergence of new and diverse knowledge streams from a range of disciplines and fields. Every day, human beings must find ways to translate this knowledge and capability into effective practice. Their success in doing this might even determine the survival of current and future generations of all forms of life.

Freed (1992) has coined the term ‘relentless innovation’ to describe humankind’s voracious energy and capacity to invent—and effectively implement—new ideas and possibilities which impact almost every facet of human life, as well as the ecology it shares with other life forms. With the use of computers to invent computers, technology itself is now powerfully harnessed for the process of innovation.

This ‘post-industrial age’ is essentially the age of information and information technology. It is defined by interactive multi-media, global knowledge networks and information ‘super-highways’; and by a rate of innovation so prolific that most of the knowledge which will be used by the end of the first decade of the twenty-first century has yet to be invented (Oliver, 2000).

The post-industrial age is rapidly evolving into the next ‘age’, that of biotechnology. This age is characterized by the convergence of biology, agriculture, hard systems technology, information technology and the power of miniaturization. It is exemplified by the human genome project, with all its possibilities and ethical dilemmas, and the invention of radical new materials, both organic and inorganic (Oliver, 2000). It is predicted that it will merge into the age of ‘nanotechnology’, and its accompanying ‘mindware’, which envisages new ways of working with the human mind.

Whatever name we give it, this global age brings with it generic uncertainty and deep instability. Its critical commodity is knowledge; its critical skill requirement is creating, identifying and applying the right knowledge; and its key challenge for all of us is the ability to learn, and to act on the learning, individually and collectively.

This is not startling news. We have always known that some of the most exciting and significant forms of creative and innovative effort emerge from the ‘white spaces’ between existing domains of knowledge. And for more than a decade governments, corporations and universities have been urged to create the conditions under which individuals—even whole societies—can go beyond traditional learning into the whole

business of knowledge creation and application (Nonaka, 1991). Isaacs (1993) has captured this eloquently:

Given the nature of global and institutional problems, thinking alone at whatever level of leadership is no longer adequate. The problems are too complex, the interdependencies too intricate, and the consequences of isolation and fragmentation too devastating. Human beings everywhere are being forced to develop their capacity to think together—to develop collaborative thought and coordinated action. (Isaacs, 1993, p. 24)

### The challenge for educators

In his book, *Educating the reflective practitioner*, Schön (1987) describes the challenge confronting educators in this context:

in the varied topography of professional practice, there is a high hard ground overlooking a swamp. On the high ground, manageable problems lend themselves to solution through the application of research-based theory and technique. In the swampy lowland, messy, confusing problems defy technical solution. The irony of the situation is that the problems of the high ground tend to be relatively unimportant to individuals or society at large, however great their technical interest may be, while in the swamp lie the problems of greatest human concern. (Schön, 1987, p. 3)

In what can be dubbed the ‘white spaces’ of existing knowledge or procedure (that is, the blanks between the lines of known text), we have no obvious solutions or even rules for engagement. There might be very little data about the issues we are concerned with. Or the data that do exist might be ambiguous or even contradictory. The debate over global warming has been a case in point. It has been difficult to mobilize action when the data are patchy and sometimes at odds.

To make matters worse, issues that occupy the white spaces are often systemic. This means that the connections between causes and symptoms are not obvious and individuals or even groups find it difficult to accept, take up or sustain accountability for dealing with them.

As Schön puts it, these messy, problematic situations arise when we are confronted with things that fall outside the categories of existing theory and technique, when there are serious conflicts among the values that are being brought to bear on the situation, or when there are varying multi-disciplinary perspectives available to us. These indeterminate zones of practice—characterized by uncertainty, uniqueness, conflict and confusion—sit apart from what he calls the canons of technical rationality. Yet, in an age of discontinuity, arguably these are precisely the sorts of situations that become central to personal and professional practice.

To engage helpfully with this complexity is to sometimes challenge the fundamental paradigms and ‘disciplines’ which define and organize what we think we ‘know’ and can ‘do’. Conceptually, this means being able to bring multi-disciplinary perspectives to bear on issues and possibilities, and to think outside the existing boxes altogether in order to invent new ones.

Practically, the convergence of existing knowledge paradigms and the creation of new ones impacts every aspect of our lives: not just what we think, but what we feel,

what our senses and imagination engage with. Relentless physical and social change is as much an emotional and spiritual experience as it is an intellectual one. The creation and effective application of knowledge through practice is therefore the great learning work which engages us all, whether at the conceptual level at which innovation happens or at the level of application on a day-to-day basis.

### **The university of learning**

The work of Bowden and Marton (1998) speaks directly to this great learning challenge. Universities, they argue, sit squarely in the centre of the challenge. Because the university (at least at the time of writing) comprises both teaching and research, it triggers learning at both the individual and collective level:

Conceptualised in this way, the university is not primarily about the reproduction of the collective mind (i.e. the complex of all the different ways in which we are capable of thinking about the world), but it is about expanding, widening and transforming the collective mind ... the university is the most vital instrument in the process by which the collective mind is formed and transformed through its diverse ways of grasping the world. (Bowden & Marton, 1998, p. 5)

This is a pivotal idea because ‘the collective mind is universal in the sense that it cuts across and comprises cultural differences distributed in space as well as in time. The collective mind is the home of everyone: we all contribute to it, we live in it, we are it’ (Bowden & Marton, 1998, p. 5).

*The university of learning* continually poses—and wrestles with—that striking and practical question posed at the beginning of this piece: how do we prepare others (and ourselves, for that matter) for situations that are highly variable and novel and that do not neatly match up with the boundaries that we try to maintain between discipline or knowledge areas?

Bowden and Marton explore several significant ways of engaging with that question: shifting the focus from teaching to learning; concentrating on developing capabilities and on student learning outcomes; moving from highly differentiated and fragmented curricula to integrated learning programs; and from individuals owning and defending their particular slice of turf to academic teams working together.

While these ideas are easy to write down, arguably their challenge to prevailing practice is enormous, and the book goes to some lengths to work through the practicalities of changing academic structures and practices to create a ‘university of learning’.

### **Variation**

Bowden and Marton’s concept of variation arguably is a very interesting one in this context. To quote them yet again:

As we always act in relation to situations as we see them, effective actions spring from effective ways of seeing. Preparing students for situations in the future amounts to developing their capabilities for seeing in effective ways and developing the eyes through which these situations are going to be seen ...

Developing new ways of seeing (situations, phenomena) is, of course, not the only form of learning, but it is the most fundamental and neglected form of learning. The reason is that once we have developed certain ways of seeing, they become taken for granted: we believe that what we see is the world as it is, and not the world as it is seen by us. We all take our ways of seeing the world for granted, and we see it differently from each other, mostly without being aware of these differences. This is perhaps the most serious dilemma of the university ... When the different ways of seeing are not shared by teachers and students or by researchers representing somewhat different specialisations, it is a most serious and often unseen problem. It is serious precisely because it is unseen. (Bowden & Marton, 1998, p. 278)

Yet in a complex, changing, exciting and dangerous world, the imperative is, through learning, to

widen the range of possibilities of seeing the same thing. Our world grows richer and we have more options for our actions ... Thanks to having experienced a varying past, we become capable of handling a varying future. (Bowden & Marton, 1998, pp.7–8)

Bowden and Marton go on to define variation in a very precise way as enabling discernment of different aspects of a phenomenon or situation. They describe curriculum design that systematically introduces variation in such a way as to highlight what they call the essential or critical aspects of the situation or phenomenon to be handled.

John Bowden said to me one day:

imagine what would happen if a group of law students was asked to apply some concepts and practices from nursing to a legal negotiation. Imagine if they were not only taught something from the nursing curriculum, and challenged to think and act like nurses, but assessed by nursing criteria. That would be variation in action! The law students' understanding of the legal way of seeing a situation is likely to become richer as they realize that there are other legitimate ways of seeing the same situation. They can appreciate and better understand their own way of seeing but also accommodate other ways of seeing in the social world in which they act professionally and personally.

So let's imagine ...

### **Variation in practice: an approach to teaching and learning**

Imagine a class in which a group of business students has been set the task of preparing a strategic plan for a young company. The company is real: one of the students is the Managing Director. It is clear that there is a market for her product and she has been quick to respond by hiring more people and more space. The lecturer for this subject has invited her to offer her business as a case study.

Other students not only learn from her experience, but also help plan the next stage in the life of her business. They have offered her the best of what they know: detailed projections of sales, the cost of infrastructure, the management of staff and the governance of the organization. Much of the focus is on growing the business, so that it can be sold for significant profit.

There is nothing unusual in this scenario: it is enacted in business schools across the world every day of the week. What is less usual is what happens the day the

lecturer asks them to pretend that they are not business students but designers. They are given exactly the same experience that first-year students enrolled in the introductory 'Design awareness' course receive in their first one-hour class. A lecturer stands in front of the group and puts up on a screen image after image of buildings, objects, paintings and symbols: some familiar, some not, spanning all periods of history and many diverse cultures and communities. Hundreds of images are briefly presented, mostly without commentary, some with no words at all. They are then set the task of making an object—any object—a diverse range of materials, which are brought into the room. These materials include paper, wood, discarded plastics, string, fabric and metals. Some choose to work individually, some in groups. Their designs are presented for critique against parameters of functionality, ecological alignment, cost, sustainability and aesthetics.

The group is then asked to go back to the task of preparing a strategic plan for the growing business. But this time, they are asked to maintain the mindset that they are designers and to approach the task as an exercise in design. And they are told that they will be formally assessed on this design. The criteria for assessment are the same as those used for the critique of their designed objects.

One group makes a strategic plan that is a model airship: a strategy that avoids being bogged down in one location, with massive, rigid and heavy infrastructure, but is mobile, easy to move, involves a virtual workforce and remains streamlined and contained. The focus of this strategy is on not locking up money in manufacturing processes, but shifting effort to designing and selling product. In business strategy terms, this would be called a shift in the company's position in the supply chain. There is a greater focus on thinking, creating and the management of intellectual property and relationships than on making. Another group builds a plan that is a very large board-game. This strategy is focused on competitor analysis, both learning from what others are doing and trying to out-manoeuvre them. In this strategy, there is little room for dreaming. The game calls for alert attention to detail, quick wits, decisiveness and nimble action.

In both cases, the process of design and construction has been messy. The introduction of the task, its rationale and assessment implications have been followed by great anxiety, even anger, for many students. Some protest that they are business people, not artists, have no interest in ever becoming artists, and do not want to waste their time and money on something that bears no relationship to their learning needs. Even those whose initial reaction was that 'it might be fun' start to look doubtful when told that their work will be judged by design criteria. The academics leading the class answer questions and respond to comments calmly and good humouredly, but are quite firm that the approach is not negotiable. The initial 'design awareness' class then begins.

About half-way through the presentation of images, the designer who is leading the class asks them to brainstorm some criteria for assessing or critiquing designed objects. Some of the criteria suggested are about the aesthetics of the objects: where and how the eye is drawn, the tactile sensation of handling the object, the effect on mood of the colour, the sense of space or enclosure. Others have to do



with functionality: how easy it is to use the object, to maintain, clean and repair it. Still others have to do with the impact on the environment of constructing, moving, using and disposing of the object. And others raise questions of impact on community and family; and of costs, both hidden and obvious.

The presentation of the rest of the images is more rapid, but by now most of the class is quite absorbed. When the opportunity to begin designing is offered, groups form quite quickly. It takes three classes before the designed objects are constructed and submitted for assessment. During that time, the legitimacy of the task is seriously challenged by a group of students who find the painstaking task of 'making' very frustrating. The academic who is expert in business strategy resists the temptation to take them aside to discuss the finer points of business development with them. He insists that they stay focused on what it takes to make something well, by hand.

The student whose need for a business strategy triggered the whole exercise is completely absorbed with the construction of the board-game and refuses to answer any questions about her business requirements. But she plays a very important role following the assessment of the constructed objects. These designed objects are not just powerful metaphors for a business strategy; they also bring to life the skills that are required to create and implement the strategy. The airship floats the business as a container of ideas, and skill in keeping it airborne demands a big-picture perspective, a head for heights and a focus on new horizons. The board-game transforms the business into just that—a game to be played hard and energetically, with stamina as well as skill. She decides to get fit and play the game.

### **Bridging the reality gap**

In my imagination, the class now has several 'frames' to put around their work: business strategy design and action-reflection learning. Hopefully, they can see the world of business strategy through eyes that are alert to the whole value chain; to the individual and collective capacities (like care, craftsmanship and patience) that are required to execute, not just design, but a strategy; to the environmental and personal impacts of it; and to what it takes to make it sustainable.

But the road has been arduous and there have been many times when both students and staff have felt like walking away from the task. Each of the academics has struggled to understand the language the other uses, and there has been contention about what capabilities are being developed, as well as the pedagogy being used. Some of their disagreements have not been resolved, but have become a source of creative tension which they tried to use to inform their work, rather than destroy it. It has not been for the faint-hearted and both have serious doubts about whether many of their colleagues could or would do something similar. Apart from the time it has taken to develop this curriculum and pedagogy, their concern is how to 'sell' it to others, how to make it sound credible.

I'd suggest that this exercise in imagination has been tried in practice somewhere in a university. It would not sound at all unusual to those who regularly use drama,

music, art and design as forms of therapeutic healing. It would not sound bizarre to those consultants who use play-back theatre, opera composition and voice work to throw new light on organizational dilemmas and to build individual and team capability in some of the largest corporations in the world. Yet, I suspect it would make unusual reading in the prospectus for most business schools. Is it too far-fetched to conceive of it in that context?

Bowden and Marton's book suggests less overtly dramatic approaches to introducing variation into the curriculum and, admittedly, the scenario described here was triggered by the free-ranging conversations that John Bowden and I had sitting over coffee. Experimentation with variation does not have to be as dramatically 'different' as that. But I'd suggest that the 'safer' the exercise in terms of connection with the familiar, the less the range of variation that can be engaged and the less capability can be built to engage with an unknown future.

And the issue is taken to another level when pedagogy itself becomes the field of practice on which to play with variation; when variation is used to develop teaching and learning practice. In that scenario, the students in the class would be academics.

Schön's (1987) seminal work on creating teaching and learning environments which make it possible to learn while not knowing was mentioned earlier. Since then, many others have taken up this theme. The issue, for some at least, is not only about being able to fruitfully learn *despite* not 'knowing' (where 'not knowing' is framed as an obstacle to be overcome) but to deliberately cultivate and sustain a state of not-knowing as a learning strategy. This position not only values tacit knowledge (Polanyi's, 1967, notion of knowing more than one can say) but suggests that there is tremendous power in forgetting the name of the thing one sees (Weschler, 1982), making the familiar strange and new again (Emmett, 1998) and re-enchanting everyday life (Moore, 1996).

In this 'strange' space, nothing is taken for granted, everything can be seen with fresh eyes, some issues and experiences now become problematic, while others can be experienced without the clutter of previous expectations and baggage. Paradoxically, we may feel freer *and* more challenged. In this space, some things that were undiscussable become open to discourse, while the need to justify and explain other things simply falls away. Here we might come to experience both our inner and outer worlds in different ways, and even the distinction between those worlds in different ways.

This space can become a container or site for tremendously creative activity. It was in this space that Schön (1987) located the design studio and the master class in which the novice architect and the trainee psychotherapist learn through reflective practice. This is the site for 'aesthetic modes of knowing' (see Eisner, 1985). Is this a space or site for learning that is easily entered and occupied by those of us who are not artists, or psychologists, drawn to the complexity of the human condition? For many of us, to tolerate, let alone deliberately sustain, a state of not knowing might not be easy in any area of life, least of all in our professional domains, where we might be expected to be competent, or at least to have some basic idea of what we are doing. As well as having egos and reputations to defend, human beings are 'sense making'



organisms, and in the face of uncertainty that challenges or threatens us, we have an extensive repertoire of responses designed to reduce the uncertainty. These include denial, projection of our concerns on to others, scapegoating those who appear to be different, blaming an external and 'alien' group of people for our problems, and entrenched cynicism of the kind that declines to get excited about anything. Politicians over many ages have known how to exploit our collective intolerance for uncertainty.

These are the responses that are most obvious and disturbing when witnessed and recognized in others, and in other societies. Less easily spotted are the small, day-to-day attempts to 'keep things simple', to look immediately for 'obvious' explanations, to create rules and formulae for trying to control and fix things. And even harder to recognize—in ourselves as well as others—are the efforts to limit our range of experience and so limit our potential to be wounded, to lose face, look and feel stupid, or feel anxious: the desire to stay safe instead of staying connected.

Being able to engage with the unfamiliar, the complex and the frightening, in ways that are not dysfunctional, being able to learn from a position of 'not knowing': these are demanding capabilities. In Bleakley's (1999) words, such capability asks us to develop an individual and collective consciousness about how we 'are' in the world that is both critical and holistic; that is, reflexive (able to think against itself), ethical, aesthetic, worldly (rather than personal) and ecological or sensitive to difference. As a result, we learn richer ways in which to develop our culture and our private and public discourse. Such deeply reflective activity encourages us to examine our values, and particularly the value bases of what we think we 'know' and how we come to know it.

To have fun in the process seems to be asking a lot. To actively adopt a stance of 'not knowing' and take pleasure in it would seem to be asking too much. Yet that is the challenge for pedagogy. And it has been answered by some educators. Howard Gardner's (1983) work on multiple intelligences has inspired educators of children, in particular, to explore the many rich channels by which we can come to both know and be comfortable to not know. Jean Houston (2000) has explored similar ground for adult learning, adding to it the idea of drawing upon the many global sources of wisdom contained in our diverse cultures.

And in the field of management education itself—the context for my imaginary scenario—there are very interesting developments in thinking about pedagogy. For example, Cunliffe's (2002) starting-point was to explore how managers work and learn in uncertain environments. As a result of her research, she construes learning as an active and embodied process in which we are 'struck' and moved to make sense of our experience in different ways. Reflective/reflexive dialogue facilitates learning by helping to connect tacit knowing and explicit knowledge; and by encouraging us to reflexively question our ways of being and understanding.

She proposes that between tacit knowing and explicit knowledge is an area of 'muddy water' that creates a space in which possibilities for learning and constructing new understanding may open up. Our moment in which we are 'struck' often embodies a trigger for clearing the muddy water.

Learning involves encouraging reflexive dialogue (spoken or written) with self and others about those striking moments. It might also involve creating those striking moments. Such dialogue surfaces the tacit assumptions and ideologies which inform our actions, feelings, ways of talking and conversing and ways of making sense, and how all these may both create and be sustained by particular ways of relating and particular power relationships.

Like Schön (1987), she describes learning and practice as often being unstructured, messy processes of making connections, ones that involve both explicit knowledge (and theory) and tacit knowing. And in the field of business and management education, she challenges the systematic application of ‘theory’ and ‘technique’ to every situation, when practitioners in everyday life are often dealing with situations that are poorly defined, unique, emotional and complex.

Thinking about the development of managers in this way has parallels in some fine traditions of thinking about the practice of business management itself. Nearly 20 years ago, Henry Mintzberg (1987) framed the development of business strategy as *crafting*. And over the past decade, the Center for Creative Leadership in the USA has researched and articulated the leadership skills of kinaesthetic attention, engaging with negative space, serious play, crafting, cultivating a lively curiosity and switching attention between ‘high-gear’ to ‘low gear’ (Palus & Horth, 2002).

Set against this backdrop, my imaginary piece of theatre, inspired by those talks with John Bowden, is maybe not so fanciful.

### **But in conclusion: is it worth the effort?**

Is it worth pursuing pedagogies of variation, in the way that Bowden and Marton envisaged them and in the way I day-dreamed about them? For some time now, I have been thinking and writing about what might be called ‘juicy opportunities and wicked problems’. I define them in this way:

1. they occur in the ‘white spaces’ of existing knowledge or procedure (at least for the individual and sometimes for an entire group, a nation or humankind), so we have no obvious solutions or even rules for engaging with them;
2. the data about them are limited, ambiguous or even contradictory;
3. they are often systemic in the sense that causes and symptoms are not obviously connected, and there are many variables and stakeholders involved;
4. they won’t go away: we can re-frame them but we can’t dispose of them, they will reappear in other forms;
5. their timing and appearance are not of our choosing.

Juicy opportunities and wicked problems have serious consequences and impacts. They can damage us if we don’t engage with them (their potential to be wicked) and sometimes they can also be the drivers of whole new paradigms which liberate and empower us beyond our imagination (their juiciness). And they represent dilemmas. Whatever we do, there will be downsides as well as upsides, ‘losers’ as well as ‘winners’. We can only fix the wicked problem at some cost, and claiming the juicy opportunity

also comes at a price. There are no simple happy endings in the complexity I have in mind, although there may be huge developments in capability, wisdom and actual practice.

Truly juicy opportunities and wicked problems have one critical defining characteristic: delay in engaging with them often means that we have failed to develop the capability to engage, and meantime, the problem or opportunity has grown more challenging (the game has changed again). So what might have felt to us like simply ‘not getting involved’ has actually diminished us in a very practical way, without even considering the ethical or other dimensions of disengagement.

So the most complex issues of all are like the grit in an oyster: we must regress or grow in order to engage with them, but it is not an option to remain neutral or unchanged or uninvolved. Morgan (1983), among others, suggests that the really important questions in our lives and work—and indeed in research—need to be ‘lived’, a notion that is consistent with what I understand of Zen koan practice. As I understand it, a ‘koan’ is a test or dilemma that is not amenable to ordinary logical solution; and koan practice encourages us to deliberately hold the tension inherent in such dilemmas rather than rush to solution.

I think such situations are very like picking up a bouquet of beautiful but prickly roses or a heavy stone that we cannot put down: things that will challenge and even hurt while ever we engage with them. And others that hold the possibility of totally transforming and enriching our lives but which deeply frighten us because of what they ask us to give up.

I suggest that these dynamics can play out in a range of situations: people beginning their professional journeys; parents confronted with the challenges of relationship and mutual responsibility; scientists who struggle with the practical and ethical consequences of their discoveries and innovations; and whole societies troubled by the causes and consequences of global terrorism and ecological disaster.

But most of all, and on a much more mundane level, I suggest that the characteristics that I have attached to ‘juicy opportunities’ and ‘wicked problems’ describe very well what is going on when professional practice—individual and collective—enters that fertile and dangerous period of not knowing that triggers either growth or regression. Indeed, I would argue that significant development of practice is not possible without encounters with juiciness and wickedness.

In order to deal with complexity, we need to be able to dig really deep, as the saying goes. As societies, sometimes we need to be able to summon serious resources of time, money and other tangible resources. As individuals we need to mobilize significant internal resources to deal with them: resilience, energy, intellect, emotional intelligence, courage and imagination.

It takes energy to deliberately lean into the situation, pick up the ‘stone’ or koan, and hold the tension and burden of ‘not-knowing’: not knowing the best way to proceed, not knowing how long we can hold it and whether it will ultimately drop on one’s foot and cause injury. It requires the capacity to remain ‘optimistically confused’: holding the tension of not-knowing and its related vulnerability lightly; trusting that creative energy and the richest outcomes often flow from seeming

stuckness. It also takes courage to take on that sort of vulnerability; to endure confusion; to maybe look stupid; and to feel inadequate.

When Bowden and Marton referred to the creation of the collective mind, they were locating their work—and the work of the university—in precisely this territory.

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