

# *Facilitating Inquiry-Based Learning: From Resilience to Mindfulness*

SEAN PARK

*McMaster University, Canada*

## Abstract

This work in progress paper will explore the evolution of my thinking over the course of writing a Masters thesis at the Ontario Institute for Studies in Education at the University of Toronto (OISE/UT). Building loosely from a narrative and an essay that describes my understanding of complexity over the thesis experience, I present some ideas that frame how I approached facilitating an inquiry-based learning (IBL) course with complexity. Starting with competence and capability as part of educating for resilience, I move to a graduate course essay arguing that complexity thinking is required to put four acts of engagement into classroom practice; connected knowing, inter-subjectivity, democratic relationships, and narrative-based evaluation. After finishing the IBL course and returning from the 2007 Complexity Science and Education Research conference in Vancouver, BC, I undertake an exploratory critique and reflection that examines the ethics of facilitating with complexity thinking and the role of inner work and mindfulness.

## Coming to Complexity

I am a graduate of the undergraduate health sciences programme in which I currently work as an Inquiry facilitator. After dropping out of law school I returned to the programme as a peer mentor and course assistant in 2004. I learned a great deal about becoming an educator and was eventually granted the opportunity by my mentors to work as a facilitator. Over my time in the programme I have had many discussions with faculty and students that lead towards an interest in Complexity Science as a framework for understanding how the programme approached Inquiry-Based Learning (IBL).

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IBL is an approach to teaching that has become a prominent feature in undergraduate course offerings in the Health Sciences. As an educational approach, it is closely related to Problem-based Learning (PBL). PBL and IBL both use students' prior knowledge to understand and structure new knowledge and the context of real-life situations/problems to make the transfer of knowledge between the problem and real-life more likely. The structuring of new knowledge is brought about by discussion, asking and answering questions, peer teaching and critiquing (Biley and Smith, 1998). According to Magnussen, Ishida & Itano (2000) and Feletti (1993), IBL is more holistic and flexible than PBL, less dependent on using specific clinical problems, can make better use of systems theories, and can provide a wide variety of learning methods to accommodate a diversity student learning styles.

My thinking about how knowledge is constructed through this process of asking questions, finding and integrating information, and soliciting feedback was influenced by the complexivist sensibilities I was reading about in the works of Brenda Zimmerman, Mary-Catherine Bateson, Stuart Kauffman, and Ralph Stacey. I wanted to pursue and refine the two following questions in my work with the programme:

*How is the field of complexity science relevant to conceptualizing and researching student experience in higher education?*

*How can complexity science been interpreted as a framework for skills and knowledge development, pedagogical practices and curriculum design?*

I was encouraged by the programme to put my ideas together and apply to the Ontario Institute for Studies in Education at the University of Toronto (OISE/UT) for an MA in Higher Education. The Higher Education program rejected my application, but I was accepted into the Education Administration program. I accepted the offer knowing that I could still pursue my questions.

After the first year of studies I was almost ready to give up. A year had gone by and I had not been able to find a thesis supervisor after meetings with over a dozen faculty members within and beyond OISE/UT. Very few people understood what complexity science was and as I started to talk about it, the look on the faces of a few faculty members told me that I was speaking a different language. This difficult experience, I would later see, forced me to abandon my initial questions and perturb me to 'go inside' my own experience as a facilitator to really understand what complexity means for understanding education.

## What is Complexity?

Complexity, for the purposes of thinking about education, is best captured in terms of *complexity thinking*, "a belief in a fixed and fully knowable universe and a fear that meaning and reality are so dynamic that attempts to explicate are little more than self-delusions" (Davis & Sumara, 2006, p. 4). The capacity to hold paradox in mind and sustain the contradictory is vital for seeing the mind, life and the cosmos as being simultaneously stable and unstable, knowable and unknowable.

There are three distinct, yet overlapping themes that I see as important to understanding the relationship between education and complexity. The first theme

is *emergence*. Bereiter (2002), in speaking about analyzing how groups of students work together, said:

The mark of a really successful design or problem-solving meeting is that something brilliant comes out of it that cannot be attributed to an individual or to a combination of individual contributions. It is an emergent, which means that if you look at a transcript of the meeting you can see the conceptual object taking shape but you cannot find it in the bits and pieces making up the discourse. (p. 183)

Bereiter is referring to a phenomena (a conceptual object) emerging through the mutual constitution of participants in a dialogue. The system (perhaps a small group of students), the individual participants, and the phenomena are interrelated or 'structurally coupled' (Maturana and Varela, 1987). In other words, systems and participants are bringing forth and brought into being because of their relationships to each other. The notion of the *self*, for example, can only emerge in relation to the *other*. The simultaneous, paradoxical, and two-way relationship of bringing forth and brought into being means that participants are 'mutually specifying' (Varela, Thompson, and Rosch, 1991). The change in one participant or system is always coupled with a response from interconnected parts, which is fed back to the contributor.

Uncertainty, the second theme, concerns the unpredictability of complex phenomena. *Complex* is used to refer to the tangled and dynamic web of participants, systems, and relationships that influence (and are influenced by) an object of study. If we could account for everything in this web, we would have a description of the entire system itself. This is not possible, however, because as observers we are necessarily part of the system and cannot remove ourselves from 'it' to describe it fully or objectively. Because of this complexity, change is non-linear such that small shifts and perturbations can ripple through a web of relationships causing major transformations. Similarly, large shifts may only result in small transformations to interrelated systems. Student learning is largely non-linear and unpredictable to the degree that one can never know with much precision when shifts and leaps in worldview or self-awareness, for example, will happen. The so-called 'aha' and 'eureka' moments educators often look for in their students occur in unexpected contexts, like on a walk to the park or in the shower at the end of the day. These moments cannot be controlled or expected to occur more frequently by sitting in class for longer hours.

Finally, the *adaptive* in complex adaptive systems (CAS), refers to the capacity for participants and systems (like a brain or an ecosystem) to learn. *Learners* can include social and classroom groupings, programmes, faculties, communities, bodies of knowledge, languages, cultures, species, and individuals among other things (Davis & Sumara, 2006). Adaptive learning is not inherently 'good' learning as learners can adapt destructive behaviours in response to their environment or internal dynamics. More interestingly is that the learning process is not controlled or directed by external agents or some sort of internal homunculus, but through a process of *self-organization* whereby a system increases in complexity (becomes more organized). A self-organizing system can maintain a coherent, enduring identity while the parts constituting the system are continuously undergoing transformation. What this means is that phenomena appearing to have some essential core or identity are actually patterned relationships and exchanges between the parts. As the relationships between the parts change, the complexity of the system can change.

## Evolution of Thought

My early thinking into developing my thesis was how I could apply complexity to understanding learning in the Inquiry classroom. How does an understanding of complexity apply to working with students? Given a facilitator's mutual coupling with students, are there any insights from complexity for how to facilitate? If there is no central controller, how is student learning a process of self-organization?

I facilitate a fourth-year Inquiry course on Complex Adaptive Systems and wanted to use the course as a context for developing my ideas. I started by thinking about Inquiry in terms of educating, broadly speaking, for *competence* and *capability*, two terms that have particular meanings in the literature. *Capability* came out of the United Kingdom over twenty years ago in response to the need for "increasing organizational competitiveness and the rapid changes in the nature of work" (Hase & Davis, 1999). *Capability* is defined by Cairns (2000) as "... having justified confidence in your ability to take appropriate and effective action to formulate and solve problems in both familiar and unfamiliar and changing settings". It is "an all-round human quality, an integration of knowledge, skills and personal qualities". Capable people know how to direct their own learning, work well with others and can apply themselves in both novel and familiar situations (Hase & Kenyon, 2000).

*Capability* is compared to *competency* and is defined by Cairns (2000) as "individual and measurable skills demonstrated and assessed against agreed standards of competence". According to Velde (1999) and Mulcahy (2000), educating for competency has tended to result from economic and social changes as it focuses on abilities to perform specific tasks and roles in the workplace. The problem, Wildman (1996) said, is that "competencies tend to be prescriptive and are designed for a more stable environment with familiar problems" (p. 86). That is, competencies are concerned with known and predictable contexts and not the messy, unknown, complex, and unpredictable reality of the interaction between a person and the world around them. Although competencies may be a part of capability, unpredictability and variability present challenges to educating students solely or primarily for competence (Phelps et. al.)

They contend that educators should facilitate learning or work within the 'zone of complexity', a fuzzy area between capability and competence. It is in this zone that I first thought of situating the idea of *resilience* – the ability of a living system to sense out and adapt dynamically to changing circumstances while still maintaining integrity. I saw integrity as the coherence, solidarity and the 'togetherness' of something, but also as honor, ethics, morals, fairness, and truthfulness, and other sets of human qualities that lend to coherence during great shifts. I did not expand this definition or ground it in the literature as my thinking unfolded, but the theme of resilience was one that helped me to think of the tension between the known and the unknown.

I like what one university instructor, who made the following list of things he sees students dealing with on a daily basis, saw as the complexity in education:

... roommates, friends, jobs, pregnancies, self-discipline needs, sickness, betrayal, fatigue, alarm clocks, parents, grandparents, cars, self-confidence issues, court appearances, sleep, self-esteem issues, boyfriends, time-management, confusion,

divorce, discouragement, depression, children, girlfriends, partying, sex, alcohol, sexual preference, Facebook, working out, concerts, holidays, weddings, pets, sorority, fraternity, computer crashes, finances, food, grades, gender issues, drugs, accidents, disease, death, tests, papers, parking, femininity, boredom, masculinity, excitement, homesickness, weather, aloneness, loneliness, crushes, love lost, love gained, distance relationships, being "single," physical abuse, verbal abuse, tanning, prejudice, getting together, nails, breaking up, studying, weight, professors, coaches, GPAs, athletics, majors, hair, career futures.... (Schmier, 2006)

These issues comprise the 'complexity' of being a student and I saw the role of the IBL facilitator as facilitating, to some extent, the development of resilience within this complexity, not just the learning objectives outlined in course syllabi.

I have abandoned some of this thinking as I have since evolved my understanding of complexity and inquiry, but I feel it is important that I capture changing perspectives. There are elements to this way of thinking that would later be challenged and revised as I started to critique my own ideas and reflect on comments and criticisms from peers and colleagues over the past year. Having briefly outlined my early thinking on inquiry and complexity, I can now delve more deeply into describing what inquiry facilitation and complexity are so as to set the frame for how my thinking has since changed.

### The Inquiry Facilitator

PBL and IBL facilitators are not lecturers. Students must determine their direction of their learning, construct knowledge and reflect upon how far they have come. The facilitator is also not a 'wallflower' Neville (1999). According to Neville facilitators can serve a number of functions that include acting as a resource, setting classroom climate, assistance with the framing learning objectives, and giving feedback. These functions are achieved primarily by asking questions that probe, critique or lead students to construct knowledge in context of the questions they are asking themselves.

The IBL educator may also be a *teacher* and an *evaluator* in addition to being a facilitator. Teachers are typically considered 'knowledgeable' (sometimes 'experts') in a particular field of study and traditionally 'impart' this knowledge to students. When a PBL discussion between students is dealing with basic conceptual issues in the facilitator's area of expertise, the facilitator may step in "to correct basic misconceptions that might be leading individuals (or the group as a whole) astray" (Neville, 1999, p. 396). Questions of *how* and *when* to step in appear to be highly contestable issues in the literature partly because facilitators with 'expertise' are more likely to direct tutorials, speak more frequently and longer, and answer questions more directly compared to 'non-experts'. These findings call into question the impact that expertise can have on developing self-directed learning skills.

The role of a facilitator's knowledge in an IBL context (compared to PBL), however, is not as central to a student's learning. It is often peripheral and always contingent. The outcome of IBL is not necessarily about mastering a specific body of knowledge. The outcome is for students to create knowledge through the pursuit and refinement of questions and to develop self-directed learning, group, and com-

munication skills along the way. The context of these questions may require learning specific bodies of knowledge, but this knowledge is not an end in itself. What matters is how those questions are developed, pursued, answered, and furthered. The facilitator's role is to hold them accountable to agreed-upon objectives about how to proceed in this process. This accountability is perhaps one of the most complex and problematic issues in IBL. Some IBL facilitators are empowered to assign grades and both facilitators and students bring have a diversity of conceptions and motivations about performance for grades. In some contexts grades are negotiated with students. In this negotiation, students and facilitators can draw from peer and self-evaluation as well as observations of performance over the course to evaluate the extent to which the course objectives were or were not met.

### Complexity and Facilitation

What follows is an adapted version of an essay written for a graduate course that I took concurrently with facilitating the Inquiry course. My goal was to translate complexity into something that fit with my role as an Inquiry facilitator.

#### *An essay on complexity thinking and acts of engagement*

Coherence is defined as state of a CAS in which meaning is shared among agents, internal tension is reduced, actions and patterns of actions are consistent with other parts of the CAS and a minimum amount of energy is dissipated in internal interactions (Eoyang, 2004). In other words, a coherent system is one in which there are strong relationships between the people (the elements of a group) and it takes a lot of energy to break those bonds. Incoherence can occur in the context of *significant difference*, described by Eoyang (2004) as "a distinction within a system that establishes a potentially generative tension, which represents the potential for change" (p. 11). Meeting group members for the first time, resistance to new ideas, showing up late to a meeting, and critical feedback are examples of distinctions that can generate tension and potential for change. Educating for resilience, in the zone between competence and capability involves working with coherence and incoherence in the classroom.

My understanding of what coherence and incoherence means in educational terms is captured in the practice *complexity thinking*, which I see in the use of four acts of engagement – the cultivation of *connected knowing*, *inter-subjectivity*, *democratic relationships* and *narrative-based evaluation*. These four acts bring about interactions that enable, paradoxically, the creation of coherence (integrity) and incoherence (change and difference). For a facilitator to consciously act in this way, they need to value their capacity for *complexity thinking*, a concept developed by Davis & Sumara (2006) that concerns questions oriented not by the "fact seeking 'what is?' nor the interpretation-seeking 'what might be?', but the practice-oriented 'how should we act?' (p. 25). Truth from this perspective is concerned with *adequacy* and not *optimality* such that "in contrast to the demands for validity, reliability, rigour, and generalizability, complexity thinking is more oriented towards truths that are viable, reasonable, relevant and contingent" (p. 26).

From this perspective, there must be an acknowledgement that information is 'compressed' and 'reduced' by humans to make sense of their experiences.

Any consideration of 'knowing' and 'knowledge' in this context often requires jumping between levels – e.g. individual, group, biological, cognitive, emotional, experiential, material, symbolic, cultural, and ecological levels. These levels are thought to be either enfolded within or from each other in a co-evolving web such that the *complexity* of the entire 'system' is the system itself and cannot be reduced.

The entire complexity of a system can never be determined because the facilitator is both embedded within and co-evolving with the students; as a facilitator interacts with any of the aforementioned levels, the levels respond or change in some way, subsequently affecting the facilitator and other levels. The practice of complexity thinking involves correcting what Dell (1982), in the context of family therapy, and Burris (2005) in viewing classrooms as living systems, refer to as 'epistemological errors'. These are errors that involve a misunderstanding or refusal of 'reality' and come in two basic forms; passive and active. 'Passive' epistemological errors are failures to acknowledge reality, also known as 'denial' (Burris, p. 6). 'Active' epistemological errors involve attempts to conform others to one's expectations or needs. I think it could also be argued it involves trying to get others to conform to one's very conception of reality.

Burris argues that teachers commit passive errors in valuing course content over relationships when they treat knowledge as something independent from the knower, locatable only within an individual brain, and transmittable between minds. These assumptions are considered 'errors' because, in viewing the classroom as a living system, learning and content happen through interaction and "it is *relating* to people and texts and ideas that individuals learn; it is through these relationships that individuals embrace and change content and, importantly, help to generate innovative *collective* knowledge (emphasis Davis & Simmt, 2003 in Burris, p. 9).

Active epistemological errors are rooted in three objectivist assumptions that Burris considers flawed when seen from a living systems perspective, namely that; control is determined by cause and effect, students' behaviours and learning are caused by teachers' actions, and chaos is to be avoided. From a living systems perspective teachers are unable to force compliance and learning because they can only influence and perturb the system to invite actions from others – "the nature of others' actions is never determined by what I do, only by their [students'] own particular structures" (Burris, p. 12). Control and direction, from this perspective, are emergent from the gestures and responses occurring *between* teachers and students and demands that "*we must fit ourselves to the situation*" (Dell, 1982, p. 9, emphasis in the original) and create the conditions that enable students to connect with each other, the teacher, and the content.

The implications of fitting ourselves to the reality of the situation means that educators cannot *manage* learning, they can only *engage*. Differentiating between the notions of management and engagement is critical because they represent perspectives on how change occurs in simple and complicated versus complex systems. Epistemological errors are committed in treating students as objects that can be managed because teachers' actions are mutually constituted with students'.

Complexity thinking as going with the reality of the classroom requires at least four acts of engagement; connected knowing, inter-subjectivity, democratic

relationships and narrative-based evaluation. First, commenting on her work with undergraduate women, Clinchy (1989) points out that when she asked them about teachers who helped them grow,

they told stories of teachers who had 'believed' them, seen something 'right' in their essays, tried to discern the embryonic thought beneath the tangled prose or the beautiful sculpture within the contorted lump of clay. These teachers made connections between their own experiences – often, their own failures – and the student's efforts. Once this had occurred, once the teacher had established a context of connection, the student could tolerate – even almost welcome – the teacher's criticism (p. 194)

These actions are part of *connected knowing*, a process of 'imaginative attachment' that requires the educator to suspend disbelief and enter into a student's point of view. Connected knowing is critical to growth because it begins with what makes sense and creates a consensual frame for the educator to point out or question what the next step might be. A connected knowing relationship is one place where productive and memorable learning experiences can emerge from because the relationships is defined in terms of the experiences, issues and questions of students as the 'growing edges' (ibid, p. 194).

We must also consider the educator because her experiences, issues and questions can help address questions of identity and living well together. Kelly (1986) argues that educators should take on the role of *democratic authorities* to give students the experience of both facing the ideas of authority and being encouraged to push beyond those ideas. By virtue of their formal relationship with students, teachers have 'authority', which I see as the legitimacy and justification for exercising power. As persons, teachers also have experiences with identity and living with others and by putting both their authority and experiences in a democratic relationship with students, students can learn to see their own lives as legitimate and justifiable bases for exercising power. Bai's (2001a) conception of democracy as *mutual governance* and *inter-subjectivity* is important to understanding what kind of relationships educators need to cultivate in the role of democratic authorities:

The kind of power that makes mutual governance possible is, precisely, one that emerges from the relationality of a mutually functioning body of people. Here, power does not lie in the individual beings but in their mutual interaction; hence democratic power is found in the relationships themselves ... and in the collective wisdom that emerges from mutual inquiry, consultation, and deliberation. (p. 308)

One way of realizing mutual governance in a classroom can be through the use of *wicked questions*. Zimmerman, Lindberg and Plsek (1998) describes a question as 'wicked':

if there is an embedded paradox or tension in the question. The embedded tension or paradox is an opportunity to tune to the edge of chaos. Their value lies in their capacity to open up options, inquiry and surface the fundamental issues that need to be addressed.... The paradoxes or tensions are often found in the implicit assumptions we hold about a context, issue or person. Exposing these assumptions in a question is often both uncomfortable and a relief. It is uncomfortable because the myths we create to bury our assumptions often seem more acceptable and defensible." (p. 151)

Bai points out that inquiry, consultation and deliberation are erroneously conceived as bargaining for personal benefit because the notion of an emergent collective wisdom requires a commitment to a common good. I would interpret wicked questions to carry

the same kind of commitment. This commitment, Bai argues, can be accomplished by educators through the practice of inter-subjectivity, a moral disposition not unlike connected knowing that uses self-transcending modes of activity for “entertaining someone else’s experiences and views *as if* our own” (emphasis Bai, *ibid*, p. 311). The obstacle to cultivating inter-subjectivity, she concludes, is the view of school as a service industry that caters to competing ‘clients’ that demand efficient service for payment.

Finally, developing resilience cannot be accomplished when we categorize and compare students to each other. If we are interested in understanding why students fail or succeed in learning we would be better served by seeing people, and groups of people, in relation to themselves. Haggis (2005) points on that student learning outcomes are only “mysterious, different and unpredictable...when students are compared to each other. Outcomes appear to be surprisingly coherent when seen in relation to the histories and multiple presents of individuals” (p. 11). Seeing people in relation to themselves and others is all about seeing an immediate and daily world and requires ‘histories’ and ‘multiple presents’ to understand the impact that relationships between people are creating over time. The practice of personal reflection, for example, can lead to insights about one’s self and the world, but cannot be fairly judged in relation to another’s practice because their lived experiences are unique. Instead of aspiring to some notion of the perfect, well-oiled machine (and comparing ourselves relative to that ideal), we are better served by using our own stories of success and failure in learning to tell us how to live well with each other in the world.

Narrative is an essential tool and mode of inquiry for capturing the above elements. Baskin (2005) perceives storytelling as a biological imperative for human beings and “the psychological mechanism by which they can capture the coherent perceptions of an unknowably complex world” (p. 32). He argues that we create internal stories as a way of reducing the complexity of the world around us into a form that allows us to effectively make choices. There is so much information and noise from our environments that must be pre-consciously filtered that these stories become the “human survival tool” (p. 32). This attempt to reduce the world’s complexity is, of course, not always successful – the map is not the territory. The creation of mental maps, which Baskin called the act of ‘storying’, occurs in the context of experiences that can confirm or contradict the stories created. Stories, as they interact with experience, can become stronger or are revised.

### Towards Mindfulness in Education

As I try to listen to myself and the experiencing going on in me, and the more I try to extend the same listening attitude to another person, the more respect I feel for the complex processes of life. So I become less and less inclined to hurry in to fix things, to set goals, to mold people, to manipulate and push them in the way that I would like them to go...The more I am simply willing to be myself, in all this complexity of life, and the more I am willing to understand accept the realities in myself and the other person, the more change seems to be stirred up. (Rogers, 1995, pp. 21–22)

The previous essay led me to produce an autoethnographic narrative of facilitating the course for my thesis. I wanted to see how facilitation with these acts of engagement in

mind played out. I initially struggled, however, with using narrative to communicate my understanding of how complexity and IBL interact. Although complexity thinking compels us to action (what should we do?) and to examine how the researcher and the educator are co-implicated in the creation of knowledge, the notion of representing research through the self was troubling because it conflicted with what I felt 'others' would constitute as valid, rigorous and legitimate research.

This conflict was taking place during a very miserable time in my life. Much of the misery was associated with not being able to find a thesis supervisor for this work. I met with a number of faculty members from my department, other parts of OISE/UT and two others in other faculties. One faculty member said that my work with complexity was too colonial for her. Another 'just wasn't interested' while I felt the impression from at least four others that they did not know what I was talking about when I used the words 'emergence' and 'self-organization'. I did find one person who was interested in my work, agreed to take me on for a few months, and then pulled out because he had a book to write and a world tour to embark upon.

I quickly felt out of touch with why I had come to graduate school and why I was pursuing a new path of inquiry that few around me seemed to be walking on. Every morning I would struggle to wake up and find the motivation to continue reading, writing, and tracking down potential supervisors. The more I would think about what was going on and the harder I worked to make something happen, the weaker I felt. During my misery it was two close friends, Joanne and Jake, who suggested that I check out a ten-day mindfulness meditation retreat. Mindfulness, it is said, "is the final common pathway of what makes us human, our capacity for awareness and self-knowing" (Kabat-Zinn, 2005, p.11). As a mental training, mindfulness enhances awareness of one's response to stress and develops "the ability to disengage from maladaptive patterns of mind that make one vulnerable to stress responses and psychopathology (Shapiro, Astin, Bishop & Cordova, 2005, p. 168).

I was unsure that cultivating mindfulness would change how I was feeling about my graduate school experience or help me find a supervisor. However as other challenges presented themselves to me and as I saw myself reacting to the ebb and flow of life in unhealthy ways, I knew that I needed a clarity that could not come about by working harder than I already was.

The particular approach to meditation taught at the retreat my friends recommended is referred to as Vipassana (insight in Pali), but like all mindfulness meditation, is a path of self-transformation through self-observation. Defined in a number of ways, mindfulness is thought of as; "keeping one's consciousness alive to the present reality" (Hanh, 1976, p. 11); "the clear and single-minded awareness of what actually happens to us and in us at the successive moments of perception" (Nyanaponika Thera, 1972, p. 5); attention control (Teasdale, Segal & Williams, 1995); "keeping one's complete attention to the experience on a moment-to-moment basis" (Marlatt & Kristeller, 1999, p. 68) (in Germer, Siegel, & Fulton, 2005). Although mindfulness meditation is at the heart of Buddhism, the point behind Buddhist meditation is not the Buddhism, for cultivating awareness transcends cultural and geographical boundaries (Kabat-Zinn, 2005). Both Vipassana, in the way I learned it, and the meditation techniques taught in programs like mindfulness-based stress reduction (MBSR) in hospitals and clinics around the world, are

explicitly non-sectarian approaches to mindfulness without any rites and rituals one might associate with meditation. This aspect was vitally important because I was not interested in seeking a religion or a god to bring me clarity.

Joanne and Jake described the experience as possibly the most difficult ten days of their life, but the insights resulting from deeply experiencing the subtle relationship between mind and body had profound impacts. I was interested in at least giving it a trial and enrolled at the end of the summer. The retreat reframed my entire perspective on the relationship between Complexity and Education, although I did not conceptually make the connection until many months later as the analysis section shows.

I have been meditating for two hours a day since the ten day retreat ended. The practice was working away in the background of my thesis writing and my thinking started moving away from educating for resilience and the four acts of engagement. I eventually found a supervisor and a second reader willing to support my academic journey. As the summer ended and the course I was to facilitate began, the insights of my practice were slowly being realized as an embodied exploration of experiencing complexity as a facilitator.

Over the past few months since finishing the course and looking at my evolution as a learner and scholar, I have come to see that the most pressing questions I need to address in the analysis section of my thesis are of an ethical nature. I attended and presented at the 2007 Complexity Science and Education Research Conference at UBC where I was struck by a presentation by Tara Fenwick from the University of Alberta. She pointed out that complexity science does not address issues of power relations, political interests, desires and other dynamics in social systems that affect the responsibilities of an educator. There is a danger, she said, in making complexity prescribe forms of pedagogy. I was aware of these concerns, but only peripherally as I was still learning a great deal about the field.

Tara, along with a number of other thinkers in the field, prompted me to question what I was doing. Are there dangers to applying complexity to human interaction? If complexity does not suggest what kinds of self-organizing systems or what kinds of emergent properties are desirable beyond the survival of the system, why do I think resilience is so important to education? How does complexity help or hinder my sense of what my responsibility is as a facilitator, to whom, and to what ends? With these questions in mind, the goal of my analysis section will be to tie together, in an exploratory way, complexity, acts of engagement, and my experience in terms of an *educational ethics of complexity*. I make space in this exploration to take a more critical stance towards complexity because not only does it reflect the direction of my current thinking, but also touches upon some more perennial issues with the relationship between theory and practice.

### Facilitating the classroom as a living system?

‘We can’t control people, but we can control the conditions which in turn control people’. We might call this determinism, once removed. (Richmon, 2006, p. 17)

Cathy Risdon, who is currently completing her DMan in Complexity with Ralph Stacey’s group in Hertfordshire, UK read some of my work and questioned me a

few months ago if it was problematic to approach facilitation from a living systems perspective. She pointed me to Douglas Griffin's (2002) *The Emergence of Leadership: Linking self-organization and ethics*.

Griffin's main argument is that much of the popular writing on applications of complexity to leadership in organizations and human interactions (e.g. Wheatley, Gell-Mann, Holland, and Senge) problematically avoids paradox and falls into a Kantian 'both...and' conception of ethics. He uses Sennett's *The Corrosion of Character*, a book on how corporations have eroded the quality of life and communities throughout the US, as an example of a common perception that systems like capitalism and corporations can hold ethical responsibilities. These systems are conceived as entities unto themselves that can be responsible for 'their' actions. However, blame and punishment has to be located so we adopt a view that it is also particular individuals (leaders) that are ethically responsible. This is a 'both...and' way of thinking in that it is both the 'system' and a few individuals that are responsible. He posits that everyone is labeled as a victim of the system and of leaders, leaving our deliverance to heroes and obscuring our collective co-implication in actions that bring about suffering.

Griffin offers an account of how seeing action as *both* subject to the laws of nature *and* free will, a basis for Immanuel Kant's ethics, has influenced our thinking about systems and ethics in problematic ways.

Kant held that we are truly human in setting on-going goals for our actions, but that we can also think about nature using a particular understanding of on-going goal setting. That particular understanding amounts to an 'as if' way of thinking ... the system dynamically unfolds a form, a goal of its own, namely, to realize a mature form of itself. But that is not to say that the dynamic is setting the goal. It is the human scientist observing and hypothesizing who is thinking and testing 'as if' the system were setting and unfolding such a goal itself. (p. 5)

Nature was seen by Kant as self-organized wholes that realized these human-postulated 'as if' goals. The parts exist to create the whole. Human action is considered separate and autonomous from this self-organization because it is the human that ascribes the 'as if' goal to the system. Kant, however, stated that human action could not be understood in 'as if' terms because such a move would remove autonomy from the individual to some human system trying to achieve a goal. The autonomy of the individual was to be maintained, important to Kant because he lived in an age of extreme religious dogma. Instead, an individual's ethics were guided by the *categorical imperative* – act 'as if' all could do our actions universally.

This 'both ... and' approach is problematic for Griffin on at least three levels. First, it proposes that we can have both external observers and self-organizing systems (e.g. nature, organizations, classrooms) in which the observer is taking part. This perspective avoids the very paradox of the observer being part of the system. Second, it describes the movement and change of a system as a consequence of the observer's hypotheses and not because the system is itself the cause of change. Third, paradox is eliminated so that the entire system can be described, thus avoiding the limitations of being locally situated in a system.

Malcom Richmon, my second reader and a philosopher on complexity and education administration, pointed to how this 'both...and' approach is taken up

in educational leadership. He points to the very popular complexity-inspired work of Michael Fullan (2003), who said:

the eventual solution for ... educational reform is that the vast majority of people in the system must end up 'owning the problem' and be agents of the solutions ... this is absolutely not to say that the problem should be handed over to people; we need instead to create the conditions and processes that will enhance the likelihood that we move down the path of increasingly greater ownership and commitment. (p. 23)

Richmon (2006) commented that Fullan avoids the paradox by suggesting that if reform cannot be accomplished through the will of the few, then the will of the few can enable the conditions whereby the many will adopt the will of the few. Richmon aptly terms this 'determinism once removed'. Complexity and living systems is, in this way, interpreted to fit the needs of purposeful organizational determination.

I take all of this in consideration of what I am trying to do as an IBL facilitator. If I cannot control the learning directly, do I still think that I can step in and out of the classroom system and set the conditions that will cause students to learn? Am I trying to point to what students did themselves, but then say it was because of what I did or didn't do that caused them to perform in certain ways? As an evaluator, what do I do about issues of power and legitimacy?

I find it illuminating to reiterate what Bai (2001a) wrote on issues of power:

... power does not lie in the individual beings but in their mutual interaction; hence democratic power is found in the relationships themselves...and in the collective wisdom that emerges from mutual inquiry, consultation, and deliberation. (p. 308)

'Going with the reality' is not a case of handing problems and control over to students because educators never have it in the first place. The challenges of mutual governance are, *de facto*, collective ones. The 'collective wisdom' that emerges from this governance needs mutual inquiry, consultation, and deliberation. Dewey's distinctions between *knowing*, *knowledge*, and *intelligence* help here. For Dewey, knowing is a process of inquiry (e.g. asking questions and solving problems), knowledge is the stable outcomes of an inquiry; and intelligence is the capability to act (to inquire) in specific ways (Boyles, 2006). Boyles (2006) advocates an epistemology based on Dewey's *warranted assertability*, the interdependency of 'truths' and the processes of inquiry. Dewey saw that inquiry meant:

...experimenting with solving problems such that the action of solving problems is inquiry, such that "warrant" is a property of assertions made about the problem when it is solved (where "solved" is understood as a temporal phase which is also a portal to further inquiry)... "Knowledge" represents the end of inquiry, but, according Dewey, it is also supposed to have a meaning of its own – disconnected from inquiry [knowing]. The result is that inquiry is subordinated to that fixed end called "knowledge". (p. 61)

This is the struggle that I face as an Inquiry facilitator. There is great comfort in thinking we have fixed ends. Being in a state of departure while always arriving, however, is the unsettled world of IBL. Claims to knowledge are understood as tentative and dependent upon the interconnectedness of those claims in a process of inquiry. It is in the questioning and challenging this knowing, the process, where facilitators must be the most active in inviting students to be accountable to self and the collective.

## Relational Ethics

Let us not forget that patterns are something that is perceived. Patterns are not independent of perception, which means that the perceiver's act of perception and interpretation is part of the pattern perceived ... [perceiving patterns] is an act that psychologically transcends the subject-object duality ... [and] brings about a sense of co-emergence or unity of the subject and object. Through such acts of intersubjectivity, a relational ethic is born. (Bai, 2003, p. 25)

Ethics, Bai says, is not just about how we act because how we act is connected to how we think and perceive (epistemology). Thinking of inter-subjectivity as something a subject (teacher) uses to control an object (student), she holds, leads to exploitation and violence. Complexity draws our attention to the co-emergence of subject and object and ultimately to a 'relational ethics'. Bai proposes three aspects of such an ethics; inter-being, generosity, and universal beneficence. I want to draw attention to the first aspect in this paper. If we are 'structurally coupled' in that our actions affect, and are affected by others, we can see the 'other' as "an interpenetrating matrix of relationships, and thus forming an *inter-being* with the self" (p. 27). There is an inter-connectedness amongst all beings. Working with this inter-being, the relationships between beings, is where will find the emergence of patterns desirable to self and other.

Inquiry understood as relational processes of knowing helps me understand how Bai (2003) conceives of inter-being as including the awareness that "one knows that how one acts in response to the world changes the world" (p. 27). Indeed, non-linearity brings attention to the small things we do (or do not do) on a daily basis in each interaction with the world. Seeing things as living systems and complexity thinking bring attention to both what is happening and how one is an active participant in that very same happening – we can describe things as emerging, having coherence, or being in a state of dissonance and chaos. In looking at reality as an open, non-linear unfolding, we can shape our actions within emergence, coherence, chaos and uncertainty by developing theories, narratives, and even 'acts of engagement'. But if complexity represents a complete and total *description* of reality itself, complexity thinking is still one step removed from, but an important finger pointing towards, what is actually happening.

I see complexity thinking, even with an emphasis on 'what should we do', as part of what Kabat-Zinn (2005) calls 'scaffolding' – instructions, guidelines, contexts, relationships, and languages that give meaning to a journey into experience, nature and the cosmos. Kabat-Zinn, in talking about the role of instructions for meditation, makes his point about scaffolding through the example of James Clerk Maxwell, the physicist credited with developing the four profound equations that describe the proliferation of electromagnetic fields through space. To do so,

... Maxwell employed a mechanical analogy, a mental model of turning gears to explain to himself how these mysterious, never-before-visualized, incorporeal forces of electricity and magnetism might actually be related to each other. The model was entirely wrong, but it served him as a kind of scaffolding, allowing him to climb to where he was finally able to see, to reach a point where true insight into the nature of the forces he was attempting to understand was possible...the scaffolding was no longer important. (p. 97)

To interpret this statement as saying that any thinking framed by complexivist sensibilities, the scaffolding, is not important is to miss the paradox of complexity being

simultaneously important and not important. Over the past few years I have thought of complexity as a mental model of resilience, living systems, and acts of engagement to explain how inquiry and facilitation 'works'. Perhaps this is better than a mechanistic model, but I feel that any exclusively conceptual model is still wholly insufficient for achieving insight into Inquiry and my experience as a facilitator. The insufficiency is not a consequence of failing to build better conceptual models, a critical element in and of itself, but from the nature of this conceptual knowledge. An epistemology of complexity, how we come to know what we know about the universe as complex, must include much more than the enabling constraints of the linguistic-conceptual mind.

### My Growing Edge

My current perspective, and I suspect there are others who have written on this, is that complexity offers a compelling way of thinking about education, particularly IBL, yet it remains only another intellectual exercise when seen as something that is separate from our experience and can be externally manipulated. The insights from complexity point to our experience and reality as a paradoxical, co-evolving and emergent universe, yet on its own complexity remains a pointing stick. The scaffold of complexity can get us to a place where we are examining direct experience itself and the scaffold is no longer required. In other words, complexity is and is not important.

If complexity is to have any value in educational contexts, it must help us to address the destructive path humanity is carving through itself and the flesh of our planet is bringing about horrific consequences. Although necessary, it is not sufficient to educate for resilience or practice the four engagements I started to develop, because in the words of David Orr (1991):

The plain fact is that the planet does not need more "successful" people. But it does desperately need more peacemakers, healers, restorers, storytellers, and lovers of every shape and form. It needs people who live well in their places. It needs people of moral courage willing to join the fight to make the world habitable and humane. And these needs have little to do with success as our culture has defined it. (p. 52)

In a relational and complex universe, I agree with Bai that we need to take responsibility to the extent that we know how our actions change the world. Given how humanity has treated the planet and immense suffering caused by our actions, the world needs people who are mindful of relationships, all the kinds of people Orr is referring to. Non-linearity points to the unpredictable and massive impact of our small, seemingly insignificant actions performed day after day, moment by moment. We must "worry about the consequences of our responses to the world" (Bai, 2003, p. 27).

In the examination of direct experience itself through mindfulness, a relational ethic emerges to show us that we have a responsibility as educators to hold space for paradox, compassion, change and uncertainty. Holding this space is something involving the intellect, but is wholly an embodied practice that compels facilitators to undergo forms of inner work if they are to be part of creating meaningful and productive relationships with students. This inner work is essential for being able to listen to and go with the changing and uncertain, moment-to-moment reality of every encounter with students.

## Mindfulness and Inner Work

I had a brief opportunity to meet Heesoon Bai at the Complexity Science and Education Research Conference and she put me in contact with her partner, Avraham Cohen, who had just completed his PhD dissertation concerning the ‘inner life’ of an educator. Cohen (2006) argues that to better engage with students, educators need to look at the ‘gap’ between how they present themselves and what they are experiencing within. His position is that as the gap increases, effectiveness diminishes. As the gap decreases, effectiveness increases. He defines effectiveness as the capacity to personally engage with students, have students personally engage with each, develop a classroom atmosphere of animation and community, and engagement with the material. A significant proportion of the phenomenal success of educators who close this gap, he argues, “is connected to the self-knowledge gained from *attention to and work with their inner life* that allows them to have advanced ability to be fully present in the moment” (emphasis Cohen, p. 31).

Cohen uses the concept of *inner work* to refer to reflective practices that involve a conscious, developed capacity to observe and witness one’s own experience.

Inner work is a way of working on and with perceptions, sensations, memories, and cognitions, all of which constitute a person’s experience. Inner life consists of inner awareness and inner reflections on thoughts, feelings, images, dreams, reactions, ruminations, and processes that can be either internally generated and/or generated in response to an external event. Central to these ideas is that there are internal, private processes occurring all the time within educators in response to experiences, both internal and external, and that these internal experiences are recognizable by that person. (pp. 34–35)

I see this inner work as being closely connected to embodied knowing, something I have started to learn more about after taking up Tara Fenwick’s suggestion to read Francisco Varela’s (1999) *Ethical Know-How: Action, Wisdom, and Cognition*. Varela differentiates between ethical *know-how* and ethical *know-what* to highlight ethics as something both unintentionally embodied in our organism and something that is purely abstract, intentional, and rational. He uses embodied to refer both to the biological basis of cognition, the body with all of its sensorimotor capacities, and the embeddedness of these capacities in biological and cultural contexts. He points out that most of our everyday behaviour is not mediated by a deliberating mind that has to think everything through. Brain research on free will by Benjamin Libet (1999), for example, showed that people are aware of the intention to act 350–400 ms after the brain has prepared itself to act and about 200 ms before motor activity. Our intention to act is formulated before we even become aware of it. Varela argues that behaviour has more to do with this immediate coping, this preparing to act, than deliberately willed action. We get up in the morning and put our socks on without thought given to how to do it because we have done it so many times – this is our embodied know-how. In more ethical pressing situations, perhaps when a someone has fallen, action towards helping this person does not result from judgment and reason, but from what Varela describes as an *immediate coping* with what is confronting us. Relational ethics, then, is not about universal principles and ethical laws, but about exploring what goes on in this immediate coping in everyday life.

Varela, Cohen and Bai (2001b) point directly at the importance of mindfulness meditation practice, a form of inner work, as a way of knowing embodied and rela-

tional ethics, because it is means for cultivating 'non-conceptual awareness'. Beyond what we know in an intellectual way, knowing how one acts in response to the world requires direct knowledge of our experience in the world, unmediated by language and concept. Burris' urging to 'go with the reality' of the classroom necessitates a non-conceptual awareness cultivated by some form of mindfulness practice.

It would be hard for me not to agree on the importance of mindfulness, seeing as a significant amount of my week is devoted to Vipassana meditation. As I was facilitating the course and developing my ideas for the thesis I had only started to understand, in both an intellectual and in an embodied way, the relationship between complexity and inquiry facilitation. I did not clearly see how meditation, a disciplined way of cultivating mindfulness, could be a frame through which that relationship could be explored and explicated. To get here, my ideas on educating for resilience and practicing acts of engagement served as the scaffolding to climb. I have not abandoned the scaffolding, but I recognize that it does not address what prevents us from listening to ourselves. I think we all have caught ourselves at one point or another in our lives wanting to set goals and fix things for people. I am also beginning to explore what supports and practices help us to 'go with the reality'. Mindfulness meditation has enabled me to explore this question, but how do other educators with similar goals approach this challenge?

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