ENACTIVE EDUCATION: DYNAMIC CO-EMERGENCE, COMPLEXITY,
EXPERIENCE, AND THE EMBODIED MIND

by

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A thesis submitted in conformity with the requirements
for the degree of Doctor of Philosophy
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ABSTRACT

The potential of a broad enactive approach in education has yet to be realized. This thesis contributes to the development of a well-rounded enactive educational theory and practice. This thesis argues that a broad enactive perspective has the potential to challenge, reframe and reconfigure problems, issues and practices in education in ways that improve teaching, learning and research communities. It establishes that a broad enactive approach as a theory of embodied mind, a dynamic co-emergence theory, and a method of examining human experience helps to realize the meaning, scope, and potential of enactive education. It takes as its point of departure Dewey's broad enactive philosophy of mind, cognition, embodiment, experience, and dynamic co-emergence. It shows, through an examination of an actual public classroom encounter, that a broad enactive approach has the potential to reconfigure responsibility, ethics and justice in education. It demonstrates using a case study of the enactment of impostor feelings in higher education how a broad enactive approach to education as the potential to reconfigure teaching, learning and research practices.

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INTRODUCTION

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THE NEED FOR A PROMISING, WELL-ROUNDED, ENACTIVE

EDUCATIONAL THEORY AND PRACTICE

Enaction is a growing paradigm in education in the nearly two decades since the publication of Varela, Thompson, and Rosch's (1991) celebrated book, *The Embodied Mind: Cognitive Science and Human Experience*. The enactive approach has helped to put self-organization, emergence, complexity, autopoiesis, nonlinearity, dynamical systems theory, and a new conception of embodiment, experience, and ethics at the forefront of educational theory, research, and pedagogy. However, current formulations of enactive education may not be promising. This may seem strange since enactivism, with its examination of the dynamic co-emergence of human subjectivity and world and study of intertwining of embodied cognition, emotion and experience, seems to be a particularly promising arena for understanding teaching and learning, for addressing unresolved problems in educational theory and practice.

The problem is that the enactive approach in education is currently limited by a narrow focus on emergence, complexity and dynamic systems. However, a broad enactive perspective in education has the potential to fundamentally rethink the ideas of teaching, learning, curriculum, leadership, epistemologies, and the purposes of schooling. My aim in this two-part thesis is to contribute to the development of a well-rounded, broad, enactive theory and practice. My goal is to propose a broad enactive

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perspective that has the potential to challenge, reframe and reconfigure problems, issues and practices in education in ways that improve teaching, learning and research communities.

The descriptive and prescriptive goals of my thesis mirror the intertwining of a theoretical and practical focus. As seen through a descriptive lens, this thesis chronicles the ways that the idea of enaction was taken up into scholarly conversations concerning educational theory, qualitative research, pedagogy, curriculum, leadership, epistemologies, and schooling. I describe the foundations, origins and theoretical roots of the enactive approach in a cognitive scientific theory of embodied mind; dynamical, nonlinear systems and complexity theory; and two phenomenological traditions of direct experience, continental European philosophy and the Buddhist discipline of mindfulness awareness. I outline the two historical phases of the enactive approach in education, broad and narrow or focused. I explain how the first, broad enactive phase in enactive education is founded on all three of the theoretical foundations of enactive philosophy, embodied mind, dynamic-co-emergence and a method of examining human experience. I analyze Dewey's philosophy as a comprehensive example of broad enactive theory view of mind, cognition, embodiment, experience, and dynamic co-emergence. I show that the second, narrow approach is focused on complexity and dynamic systems theory, the dynamic co-emergence aspect of enactive philosophy. I give an account of how the narrow complexity phase came to be the dominant, inherited view of the enactive approach in education.

As seen through a prescriptive lens, my thesis is a call to move beyond a narrow complexity heritage that focuses on complexity and teaching and learning as emergent phenomenon. My practical aim is to show that an enactive approach to education makes sense across a range of normative moral and political issues that philosophers of education have sought to deal with. In a prescriptive sense, my thesis aims to show that a broad enactive approach can account for personal subjectivities, justice, and ethics.

At this point I think it would be helpful if I gave the reader an outline of the thesis, chapter by chapter. Part I of this thesis, Chapters 1, 2, and 3, outlines the theory of the enactive approach in philosophy and examines the foundations, origins and history of the enactive approach in education.

Chapter 1 provides background reasoning for the arguments in Chapter 2. Chapter 1 concludes that understanding the broad enactive approach as a theory of embodied mind, a dynamic co-emergence theory, and a method of examining human experience helps to realize the meaning, scope, and potential of enactive education. Chapter 1's first premise is that the broad enactive view is a theory of embodied mind, a dynamic co-emergence theory, and a method of examining human experience. The second premise is that the broad enactive approach has its roots in embodied dynamicism, a cognitive scientific theory of mind; dynamical, nonlinear systems and complexity theory; and two phenomenological traditions of direct experience, continental European philosophy and the Buddhist discipline of mindfulness awareness.

Chapter 2 concludes that the potential of a broad enactive approach in education has yet to be realized. First, Chapter 2 argues that enactive education consists of two historical phases, broad and narrow or focused. The first, broad enactive phase in enactive education is founded on all three of the theoretical foundations of enactive philosophy, embodied mind, dynamic-co-emergence and a method of examining human experience. The second, narrow approach is focused on complexity and dynamic systems theory, the dynamic co-emergence aspect of enactive philosophy. Chapter 2 shows that the narrow, complexity phase came to be the dominant, inherited view of the enactive approach in education.

Next, Chapter 2 argues that this received or complexity heritage view generates a problem-space in educational theory, research, and practice that is characterized by two main areas of concern. First, the complexity view cannot account for personal subjectivities or the individual cognizing subject. Second, the complexity heritage view is unable to address central and inevitable issues in education, such as justice, ethical action, or power relations. Chapter 2 shows that the narrow, complexity phase of enactive education is limited by its narrow focus on emergence and dynamic systems (only one of the three foundations of the broad enactive approach), and its lack of consideration for the special importance of embodiment and human experience (the other two theoretical roots of the broad enactive approach).

In keeping with the theoretical focus of Part 1 of this thesis, Chapter 3 provides a comprehensive example of a broad, enactive educational theory. Chapter 3 concludes that Dewey's philosophy is a broad enactive view of mind, cognition, embodiment,

experience, and dynamic co-emergence. It cites the following reasons: Dewey's account of perception as embodied action; Dewey's broad enactive theory of cognition and mind; understanding of the meaning of experience and his phenomenological method of examining experience; embodiment thesis with reference to his solution to the mind-body problem; theory of dynamic co-emergence and self-other co-determination.

Chapter 3 forms part of the backdrop for Chapter 4's argument that Dewey's broad enactive standpoint of embodiment, experience, action, cognition, and mind can disentangle the problem space of the complexity heritage. In other words, Chapter 4 draws on Dewey's enactive theory to straighten out the problems of the inability of the narrow enactive view to account for experience, embodiment, and cognition, and its failure to address personal subjectivities or the individual cognizing subject.

Part II of this thesis, Chapters 4 and 5, explores the potential of a broad enactive approach to reconfigure educational practices.

Chapter 4 replies to two of the three criticisms against the enactive approach raised in Chapter 2: the personal agency objection and the justice and right action objection. Chapter 4 concludes, through an examination of an actual public classroom encounter, that a broad enactive approach has the potential to reconfigure responsibility, ethics and justice in education. It argues that a broad enactive perspective on embodied cognition, dynamic co-emergence, and human experience contributes to understanding how relations of power and domination are enacted and provides somatic resources that have the potential to develop moral responsibility and enable community building. With reference to Garrison's (2005-1, 2005-2, 2004-1, 2002,

2001, 1998, 1997 1995; Garrison & Watson, 2005) interpretation of Dewey's theory of functional trans-action and by highlighting limitations of complexity theory and traditional ethics in education, Chapter 4 shows how a broad enactive educational theory and pedagogy reconfigures the problem space of complexity theory in education and addresses "isms" such as racism, and issues of privilege and morality. It sketches an enactive view of ethics and justice by drawing on enactive concepts of intersubjectivity and participatory sense-making (De Jaegher & Di Paolo, 2007; Fuchs & De Jaegher, 2009; Thompson & Stapleton, 2009).

Chapter 5 concludes that a broad enactive approach to understanding the enactment of impostor feelings in higher education has the potential to reconfigure teaching, learning and research practices. It argues that the impostor phenomenon is not: an individual, internal, psychological trait, state or syndrome; neither a property of toxic cultures; nor the former in addition to the latter. Chapter 5 defines the impostor phenomenon anew as an ecologically specific *dynamic habitus signature,* dynamic co-emergence of one's lived body and the surrounding environment. It hypothesizes that *emergent processes* of aggressive competitiveness, scholarly isolation, lack of mentoring, and valuing of product over process give rise to impostor feelings in the context of higher education.

PART I:

THE ENACTIVE APPROACH IN EDUCATIONAL THEORY

CHAPTER 1

❧

ORIGINS AND CORE OF THE ENACTIVE APPROACH

The enactive approach has its roots in cognitive science; dynamical, nonlinear systems; complexity theory; and two phenomenological traditions of direct experience, continental European philosophy and the Buddhist discipline of mindfulness awareness. These origins indicate that the enactive approach is a theory of mind, a specific kind of emergence theory, and a method of examining experience. Understanding that the enactive approach is rooted in these three influences will help prevent us from limiting the meaning, scope, and potential of enactive education.

Before reading further, some readers may object that how the idea of the enactive approach originated is irrelevant to its viability in educational theory and practice. However, its origins matter to my argument for two reasons. First, the incompleteness of current interpretations of the enactive approach in education is due to a limited understanding of what kind of theory the enactive perspective is. Second, we can better understand the unique features of a broad enactive perspective by briefly sketching out its sources; exploring the theoretical provenance of the enactive perspective will tell us much about what kind of theory it is.

Chapter 1 consists of five sections. In the first section, I explain the enactive approach as a cognitive scientific theory of mind. I situate a discussion of why mind matters to education, and how cognitive science bears upon education, in a brief overview of the origins of enactive cognitive science as the third of three main

approaches or successive stages in cognitive science—cognitivism, connectionism, and embodied dynamicism (E. Thompson, 2007; Varela, Thompson, & Rosch, 1991). In the second section, I show how the enactive approach is also a method of examining experience that originates in the theory and practice of phenomenology, drawing deeply from two methods of examining experience: the tradition of continental European phenomenology; and Buddhist psychology and its discipline of mindfulness awareness. I point to the places in this dissertation where I suggest the implications for educational theory and practice of these ways of exploring experience. In the third section, I outline the roots of the enactive perspective in dynamic systems and complexity theory, and explain that the enactive approach is a specific kind of emergence theory called *dynamic co-emergence*. I indicate the places in this dissertation where I discuss the promise of dynamic co-emergence for teaching and learning. In the fourth section, I outline the three main theses at the core of the enactive approach: embodiment, dynamic co-emergence, and self-other co-determination. The fifth section consists of concluding remarks.

1   A Theory of Mind

The enactive approach is a theory of mind, with its origins in enactive cognitive science, a form of embodied dynamicism. Cognitive science, which aims to explain the act or process of knowing, arose in the late 20th century. It is a highly interdisciplinary field that includes linguistics, neuroscience, psychology, artificial intelligence, and philosophy, and comprises three main approaches or successive stages: cognitivism, connectionism, and embodied dynamicism (E. Thompson, 2007, p. 4; Varela et al., 1991,

p. 6). Conceptually speaking, these three stages move from the abstract towards the concrete (Varela, 1999, pp. 6–7). They are relevant to education because their metaphors for the mind and their understanding of cognition and knowing change with each stage, following a similar trajectory to cognitive conceptions of knowing and learning in cognitive orientations in educational theory, research, and pedagogy.

Conceptions of mind, knowing, and education are related in at least four ways (Sheppard, 2001). First, from the Western perspective, education is generally thought to be synonymous with the development of the mind (allowing that the nature of mind, development, and education are open to interpretation; Sheppard). Second, education may be seen as the acquiring of certain kinds of knowledge. What counts as knowledge depends upon the kind of mind such knowledge is assumed to develop. Third, "education may be viewed as the development of a particular sort of mind expressed by a guiding metaphor that 'fits' the interpretation" (Sheppard, p. 246). Fourth, educational practices, policies, and decisions may assume a prevailing metaphor of mind, one that is shaped by changing social and scientific developments. The above reasons suggest a fifth consideration, the question of whether a philosophy of education could get along without *any* theory of mind (McMurray, 1975, p. 237), which is doubtful. Educators, educational researchers, and theorists should care about the mind and cognitive science for all the above reasons.

1.1   Cognitivism

Cognitive science's first stages, *cognitivism* and the *cognitive revolution* against behaviourist psychology in the 1950s, continued through to the 1970s. For cognitivism,

the central metaphor of the mind was the computer; deductive reasoning was seen as the paradigm of intelligence (Dawson, 1998, pp. 13–35). These views have been incorporated into what have come to be called "cognitive" or "information-processing" learning theories (Bransford, Brown, & Cocking, 2000; Merriam, Caffarella, & Baumgartner, 2007). Cognitivism as both a cognitive scientific theory and an orientation in education followed parallel historical trajectories.

Cognitivism arose in response to the limitations of behaviourism, which explained all consciousness in terms of overt behaviour responses and/or covert dispositional states. It excluded any reference to mental states, thus abandoning the concepts of mind and consciousness and restricting both animal and human psychology to the study of behaviour (Angeles, 1981, pp. 24–25; Runes, 1960, p. 35).

Cognitivism saw the mind as a symbol-manipulating machine. A computer computes symbols—shapes or forms that stand for or represent something. Likewise, human mental processes were seen as computations made by the brain using an inner symbolic language. These symbols in the mind-brain stood for or represented objects, properties, events, and states of affairs in the world. Knowledge was viewed as symbolic mental constructions, and learning referred to the processing and memorizing of these symbolic representations. The act of knowing was therefore the act of information-processing and cognition was mental *re-presentation* of a pregiven world. These inner computations of the mind were taken to be entirely unconscious and subpersonal routines of the cognitive unconscious, and thus completely inaccessible to personal awareness (E. Thompson, 2007, pp. 6–8; Varela et al., 1991, pp. 7–8). Personal

consciousness was seen as having access to mere secondary manifestations resulting from and accompanying the computations of subpersonal processing.

A serious shortcoming of cognitivism and information-processing learning theories was their unmistakable neglect of the role of the physical body and the local environment or world in the act of knowing (Clark, 1997; Gallagher, 1995; Johnson, 1995; E. Thompson, 2007), due to a tendency to view mental or cognitive processes as *internal re-presentations* of an independent, *external* world. Thus, cognitivism divided the mind into two unbridgeable regions—personal, subjective, mental states and subpersonal cognitive routines implemented in the brain.

For the philosophy of mind, this severing of cognition from consciousness resulted in an "explanatory gap" (Levine, 1983; Roy, Petitot, Pachoud, & Varela, 1999; E. Thompson, 2007, p. 6) that came to be known as the "hard problem" (Blackmore, 2003; Chalmers, 1996). The gap is between self and world (Thompson, 2005, p. 409)—between subpersonal, computational cognition and subjective mental phenomena, "two radically different ontologies ('mental' and 'physical')" (Thompson, 2005, p. 409). This is the gap that William James called the "'chasm' between the inner and the outer worlds" (as quoted in Blackmore, 2003, p. 19). What could not be explained was the subjective experience of mentality.

Chalmers (1995a, 1995b, 1996) coined the term *hard problem* to refer to "the question of how physical processes in the brain give rise to subjective experience" (Chalmers, 1995b, p. 63). He distinguished it from the "easy problems" of consciousness, which included humans' ability to discriminate, categorize, and react to

stimuli; integrate information by cognitive systems; report on mental states; focus the

attention; deliberately control behaviour; and discern between wakefulness and sleep

(Blackmore, 2003, p. 19). The "really hard problem is *experience*: what it is like to *be* an

organism, or to *be in* a given mental state" (Blackmore, p. 20):

> If any problem qualifies as *the* problem of consciousness, it is this one. . . . Even
> when we have explained the performance of all the cognitive and behavioral
> functions in the vicinity of experience—perceptual discrimination,
> categorization, internal access, verbal report—there may still remain a further
> unanswered question: *Why is the performance of these functions accompanied by*
> *experience?* . . . Why doesn't all this information-processing go on "in the dark,"
> free of any inner feel? (Chalmers (1995a, pp. 201–203)

The hard problem can be seen as a contemporary version of the traditional mind-

body problem, now transformed into a "mind-mind" problem (Jackendoff, 1987, p. 20),

characterized as "the problem of the relation between the computational mind and the

phenomenological mind, between subpersonal, computational, cognitive processes and

conscious experience" (E. Thompson, 2007, p. 6). In this way cognitivism severed mind

and meaning from subjectivity and consciousness (Thompson, p. 5). Cognitively

oriented explanations of learning demonstrate this severing of the body and lived

experience from cognition.

1.2 Connectionism

The second major approach in cognitive science, "connectionism," challenged

cognitivism in the early 1980s, "revising and revitalizing ideas from the precognitivist

era of cybernetics" (E. Thompson, 2007, p. 8). Connectionism, a method of modelling

and of understanding cognitive processing, aimed to provide an alternative to the

physical symbol hypothesis of cognitivism (Newell, 1980, 1990). Connectionism's

central metaphor was the mind as neural network in the head; and the paradigm of intelligence was seen as pattern recognition.

Connectionism, like cognitivism, viewed the mind as a function of the cognitive unconscious and saw knowledge as an abstract, rather than as a concrete, embodied, incorporated, and lived function (Varela, 1999, p. 7). Based on a model of self-organizing neural networks called artificial neural networks (ANNs) or connectionist systems, the "typical connectionist network has an input layer and an output layer; the inputs are initially assigned by the observer outside of the system; and output performance is evaluated in relation to an externally imposed task" (E. Thompson, 2007, p. 43). Schneider and Graham (1992) explained:

> Connectionist models assume that information processing takes place through the interaction of large numbers of simple processing units that pass activation through connection weights. Knowledge is stored in connection weights that modulate the transfer of activity from one unit to the next. Learning occurs typically by presenting a network of units with a set of inputs and outputs and utilizing error-corrections algorithms to change the connection weights such that the input predicts the output. (p. 513)

Connectionists assumed that the architecture of cognition was more like that of the brain. Cognition resulted from the emergence of global patterns of activity in a network of neuronal or neuronal-like components. According to connectionism, mental processes were seen as the neural network's emergent pattern of activity. They were no longer seen as computations made by the brain using an inner symbolic language, but focused rather on self-organizing, dynamic systems; "abstract cognitive properties of neural networks in the brain" (E. Thompson, 2007, p. 9), rather than physical symbol systems.

Both connectionism and cognitivism left unquestioned the relation between cognitive processes and the body-environment or intersubjective world in which the mind was embedded. E. Thompson (2007) observed:

> Whereas cognitivism firmly lodged the mind within the head, connectionism offered a more dynamic conception of the relation between cognitive processes and the environment. . . . Despite these advances, connectionist systems did not involve any sensory and motor coupling with the environment. (p. 9)

In sum, both cognitivism and connectionism were disembodied, abstract, unsituated models that objectified the self or person as a cognitive entity or process lodged in the mind-brain (Thompson, 1999, p. 8; Varela, 1999, pp. 6–7). As E. Thompson (2007) observed, in both models "the mind and the world were thus treated as separate and independent of each other, with the outside world mirrored by a representational model inside the head" (p. 10). The relation between the act of knowing and the world and body of the knower or organism was left unquestioned and unaccounted for.

1.3   Embodied Dynamicism

The third major approach in cognitive science, embodied dynamicism, emerged in the 1990s. It critiqued both cognitivism and connectionism on the grounds that they "left unquestioned the relation between cognitive processes and the real world" (E. Thompson, 2007, p. 10). Embodied dynamicism saw knowledge as situated in a historical context, and embodied and living cognition as a dynamic system. As the name *embodied dynamicism* suggests, it took a dynamic systems and embodied approach to cognition. Its main metaphor was the mind as "embodied dynamic system in the world" (E. Thompson, 2007, p. 11). It agreed with the connectionist view that the mind was a self-organizing dynamic system rather than a physical symbol system, but it

extended connectionism with its belief that cognition emerged from the "nonlinear and circular causality of continuous sensorimotor interactions involving the brain, body and environment" (Thompson, p. 11). The enactive approach is a type of embodied dynamicism.

Embodied dynamicism recast in a non-Cartesian way the explanatory gap between self and world (that is, the hard or "mind-mind" problem) as a "body-body" problem (Thompson, 2005). The gap between mental and physical was now seen as a gap "between two types within one typology of embodiment (subjectively lived body and living body). The gap is no longer absolute, because in order to formulate it we need to make common reference to life or living being" (Thompson, p. 409). The body-body problem centred on the "relation between one's body as one subjectively lives it and one's body as an organism in the world" (Thompson, p. 409). This relation between one's self and one's body is further encompassed by the more general problem of the relation between one's self and the world. Embodied dynamicism offered an approach to the body's sensorimotor subjectivity by addressing the questions of how one's lived body relates to the world and how it relates to itself.

The dynamical systems foundation of embodied dynamicism viewed cognition as intrinsically temporal and thus was theoretically committed to using the tools and methods of dynamical systems theory to understand cognition (van Gelder, 1998, 1999; Port & van Gelder, 1995). Dynamical systems theory is an area of mathematics used to describe the behaviour over time of complex systems by employing differential and difference equations. (See "Theory of Emergence," below, for a further explanation of

dynamical systems theory.) The other theoretical foundation of embodied dynamicism is that of embodiment, an approach that views cognition as the "exercise of skillful know-how in situated and embodied action" (E. Thompson, 2007, p. 11; Varela et al., 1991). The main tenet of the embodied approach is that "cognitive structures and processes emerge from recurrent sensorimotor patterns that govern perception and action in autonomous and situated agents" (Thompson, p. 11).

2   A Method of Examining Experience

As outlined above, the enactive approach originated as a theory of mind that aimed to bring experience and consciousness to the forefront of cognitive science. The enactive approach is also a method of examining human experience, with roots in the theory and practice of phenomenology. It draws deeply from two methods of examining experience: the traditions of continental European phenomenology, and Buddhist psychology and its discipline of mindfulness awareness (Varela et al., 1991, pp. 21–31).

Like all phenomenological approaches, the enactive approach and enactive education privilege the fundamental nature and status of direct experience, or what Varela (1996) called "the basic ground" or "irreducible nature of conscious experience" (p. 294) as we actually live it. Central to enactive education is the assumption that direct experience is not private or inaccessible, but rather, ordinary, everyday, intersubjectively available, and describable; it is human lived experience.

Phenomenology is important for the enactive approach to mind and education for two main reasons (E. Thompson, 2007). First, consciousness and subjectivity are

inseparable from any study of mind and education. Since the goal of phenomenology is to describe, analyze, and interpret lived experience, accounts of direct experience are central to mind science, teaching, and learning: "any attempt to gain a comprehensive understanding of the human mind must at some point consider consciousness and subjectivity—how thinking, perceiving, acting, and feeling are experienced in one's own case" (Thompson, p. 16). Thompson's point suggests the phenomenological roots of enactive approaches to education, in that thinking, knowing, and learning are lived by someone and do not occur in a vacuum. Second, the lived body is intertwined with any study of mind and education: "The enactive approach puts the organism and the body center-stage in mind science, but the human body, unless it is dead, is always the *lived body*" (Thompson, p. 16). Both continental European phenomenology and Buddhist mindfulness awareness are philosophies of the lived body.

I will now go on, first, to introduce some key ideas of continental European phenomenology and the discipline of Buddhist mindfulness awareness as ways of exploring experience; and second, to outline the three phases of phenomenology, known as static, genetic, and generative phenomenology.

2.1   Western Traditions*:* Continental European Phenomenology

Continental European phenomenology, from Husserl (1970, 1991) through Heidegger (1975/1982, 1962/1996) to Sartre (1953) and Merleau-Ponty (1962, 1963, 1973), bears upon the enactive approach in two main ways. First, it is a philosophical method, both a "*style of thinking*" and a "*special type of reflection* or attitude about our capacity for being conscious" (Varela, 1996, pp. 334–35). The enactive approach draws

on phenomenology's disciplined way of examining human experience and its direct,

lived quality. Second, the central themes of phenomenology amount to an enactive

answer to the philosophical problem of the relation between oneself and the world

(Thompson, 2005). Phenomenology plays two roles in the enactive perspective.

Phenomenology as a "practical procedure" or "situated practice" for the enactive

approach (E. Thompson, 2007, p. 20) begins with "an attitude of mind" (Husserl, 1970,

p. 19)—the "phenomenological attitude" in contrast with the "natural attitude." The

unreflective, uncritical "*natural attitude of mind*" (Husserl, p. 13) is "straightforwardly

immersed in the world" (Thompson, p. 17). The natural standpoint is "unconcerned

with the critique of cognition" and "turned to *the objects* as they are given to us each

time and as a matter of course" (Husserl, p. 13). In contrast, the critical, nondogmatic,

phenomenological attitude "arises when we step back from the natural attitude, not to

deny it, but in order to investigate the very experiences it comprises" (Thompson, p.

18).

Phenomenological investigations are directed towards phenomena. Heidegger

(1962/1996) explained that "phenomenon," a Greek term, means "*that which shows itself

in itself*, the manifest." It is derived from a Greek verb signifying "to show itself"

(Heidegger, p. 51). The procedure of phenomenological investigations is known as the

"phenomenological reduction." E. Thompson (2007) noted that the enactive approach

draws on phenomenological reduction as a way of attending to *how* things appear to us

rather than *what* appears to us:

> [Reduction refers to] a "leading back" (*reducere*) or redirection of thought away
> from its unreflective and unexamined immersion in the world to the way in

which the world appears to us. To redirect our interest in this way does not mean we doubt the things before us or that we somehow try to turn away from the world to look elsewhere. Things remain before us, but we envisage them in a new way, namely, strictly as experienced. We . . . attend to things strictly as correlates of our experience, and the focus of our investigation becomes the correlational structure of our subjectivity and the appearance or disclosure of the world. (p. 18)

The heart of the phenomenological reduction is what Husserl called the *epoché* or

"bracketing," a suspension or stepping back from our ordinary ways of looking, "to set

aside our usual assumptions regarding things" (Ihde, 1986, p. 32). Bracketing involves

attending "to things strictly as correlates of our experience" and focusing on "the

correlational structure of our subjectivity and the appearance or disclosure of the

world" (E. Thompson, 2007, p. 18). The enactive perspective interprets Husserl's *epoché*

as a "flexible and trainable mental skill" (Thompson, p. 19) that involves "probing for

what is genuinely discoverable and potentially there, but not often seen" (Ihde, p. 26).

The phenomenological reduction consists of two movements: the *epoché* and the

reduction proper (Cogan, 2006; Fink, 1995). The two movements or moments are not

"steps" as we usually think of them:

> [These] moments . . . do not refer to two "steps" that one might take to conclude the procedure as one might do, for example, in waxing a floor: where the first step is to strip off the old wax and the second step is to apply the new wax; steps imply a temporal individuation that is not true of the moments of the phenomenological reduction. . . . The epoché is the name for whatever method we use to free ourselves from the captivity of the unquestioned acceptance of the everyday world, then the reduction is the recognition of that acceptance *as* an acceptance. (Internet Encyclopedia of Philosophy, ¶ 5.a.1)

Phenomenology manifests itself in the enactive approach not only as a procedure

or practice. It is also embraced in the enactive approach in a second way, as an answer

to the philosophical problem of the relation between oneself and the world (Thompson,

2005): key ideas of continental European phenomenology—the lived body, the lived-body environment, the objective body, intentionality, and being-in-the-world—explain how one's lived body relates to the world and how one's lived body relates to itself.

Drawing on phenomenology, the enactive approach rejects traditional, dualistic concepts of mind and body, subject and object. For phenomenologist Merleau-Ponty, "[o]ne's self is not merely *embodied*, but bodily . . . a *bodily subject*, that is, a subjective object or a physical subject" (Thompson, 2005, p. 409). Merleau-Ponty (1962) wrote, "I am not in front of my body, I am in it, or rather I am it" (p. 150). In keeping with phenomenological philosophy, the enactive perspective views the relationship between self and world not as a subject-to-object relationship, but rather as "being-in-the-world" (Heidegger, 1962/1996; Merleau-Ponty; Sartre, 1966). Merleau-Ponty explained this special way of belonging to the world as follows: "The world is inseparable from the subject, but from a subject which is nothing but a project of the world, and the subject is inseparable from the world, but from a world which the subject itself projects" (p. 139).

Essential to the enactive approach is the view of the lived-body environment as a unitary structure. The lived-body environment "includes the world beyond the skin and the biological membrane of the organism" (Thompson, 2001, p. 2). The lived body is intertwined with the environment and others in an interpersonal, human world, a unitary structure that emerges through the reciprocal interaction of brain, body and environment. Enactive cognitive science described this process as "structural coupling" (Varela et al., 1991). "The brain is structurally coupled to the body, and the body is structurally coupled to the environment" (Varela et al., p. 13). Merleau-Ponty (1968)

used the term "intertwining the chiasm" to describe this kind of structural coupling. Recent neurobiological research has a complementary notion. Chiel and Beer (1997), for example, view adaptive behaviour as the result of the continuous interaction between the nervous system, the body, and environment. The mind is seen as a profoundly interwoven system incorporating complicated and highly dynamic aspects of brain, body, and world.

As Thompson (2005) observed, "But if one's body is the vehicle of being in the world, and is in this way a condition of possibility for experience, how or in what way can it too be experienced?" (p. 410). The enactive approach answers this question by drawing on the notion of the phenomenological or *lived body* (Merleau-Ponty, 1962, 1963, 1973), to show that the body is something that we live *directly*, and that "all knowledge necessarily emerges from our lived experience" (Varela, 1996, p. 336). The conceptual distinction between the objective body and the lived body are studied in the writings of Husserl and Merleau-Ponty. On the one hand, the objective body is the body that can be objectified, "the body as a visible and concrete gestalt" (Lindemann, 1997, p. 80). It is the body observed as an object that can be scientifically analyzed—an object of study for science, medicine, and biology. In the "consciously experienced" mode the objective body appears as our own, as belonging to our self or as being our self (Thompson, 1999, p. 11); for example, the body that we look at in the mirror when we decide that we need to lose a few pounds. The objective body manifests itself in our body image. On the other hand, the lived body is the body that lives through and sustains perceptual acts, observation, and analysis. The lived body is both "consciously

experienced" and "absently available" (Leder, 1990). The "absently available" mode lies

beneath personal consciousness.

The differences between *body image* and *body schema* (Thompson, 2005, p. 411),

and the roles played by the body in action and in the act of knowing, are helpful in

understanding how one can experience one's body as an object. Body image is distinct

from and yet functionally interrelated with body schema (Gallagher, 1986a, 1986b,

1995a, 2001, 2005; Gallagher & Cole, 1995). The body image is a conscious perception,

belief, attitude, or understanding that one has of one's own body. It is a complex set of

intentional states of consciousness that consists of the perceptions, attitudes, and beliefs

or mental representations concerning one's own body (Gallagher, 2001). It arises

through one's perceptual experience, beliefs or conceptual understanding, and the

emotional attitude that one takes toward one's own body. Various cultural and

interpersonal factors affect one's conceptual and emotional attitudes towards one's own

body; for example, clearly, depictions of bodies in the media, or messages we hear

about our own body, influence and inform our feelings and thought about our bodies.

In some cases, the body image can take the form of a conscious monitoring of one's

movement. In contrast with the body image, the *body schema* is an automatic system of

sensory-motor capacities, actualities, and processes that function without the necessity

of perceptual monitoring (Gallagher, 2001). These preconscious, sensory-motor

processes, capacities, abilities, and habits play a dynamic role in enabling movement

and the maintenance of posture (Gallagher & Cole, 1995). The preconscious,

subpersonal processes carried out by the body-schema system operate below the level

of self-referential intentionality, although these processes can enter into and support

intentional activity (Gallagher & Cole).

In sum, central to the enactive approach are the ways in which experience is

saturated with "spontaneous preunderstanding" (Varela, 1996, p. 336). The enactive

perspective espouses the primacy of the self as embodied and embedded in a world. As

Merleau-Ponty (1962) observed, the "world is not what I think, but what I live through"

(p. xvii). A corollary belief of this approach is that "consciousness is a mode of being-in-

the-world, not a peculiar aspect of mental states inside the head" (Thompson, 1999, p.

8).

Phenomenology has three phases: static, genetic, and generative (E. Thompson,

2007, pp. 16–17). The enactive approach is guided by genetic and generative

phenomenology. *Static phenomenology* focuses on the formal structures of consciousness.

The static model views consciousness as able to constitute, disclose, or bring its objects

to awareness. This kind of phenomenology takes these intentional structures and their

correlative objects as given and analyzes them statically or synchronically. *Genetic*

phenomenology analyzes how intentional structures and objects emerge through time,

and thus cannot be viewed as given. In this model, experience has a sedimented

structure and is understood in relation to the lived body and time-consciousness.

Genetic phenomenology focuses on such phenomena as affect, motivation, attention,

and habit. *Generative phenomenology*, rather than focusing on the lived body and time-

consciousness, analyzes the life-world—the cultural, historical, and intersubjective

constitution of the human world. The significance of the three phases of

phenomenology is emphasized in the last two chapters of this dissertation, where it becomes clear that an enactive approach to education "when guided by genetic and generative phenomenologies of the lived body, intersubjectivity, and the life-world, offers a different vision" (E. Thompson, 2007, p. 36) of educational theory, research, and pedagogy.

2.2   Eastern Traditions*: Buddhist Psychology*

The enactive approach and enactive education are founded in nonWestern traditions of reflection upon experience and draw from the Buddhist method of examining experience called *mindfulness awareness* or *mindfulness meditation* (Varela et al., 1991, pp. 21–26, 217–260). The Buddhist roots of the enactive approach also point to the enactive perspective's foundations in the belief in "no-self" and "nondualism."

The features of the phenomenology discussed above closely parallel the basic mental skills cultivated in Buddhist mindfulness meditation (Depraz, Varela, & Vermersch, 2003; Wallace, 1998, 1999). Varela et al. (1991) explained that "mindfulness means that the mind is present in embodied everyday experience; mindfulness techniques are designed to lead the mind back from its theories and preoccupations, back from the abstract attitude, to the situation of one's experience itself" (p. 22).

Epstein (1995) observed that mindfulness is a "distinctive attentional strategy" of Buddhism "in which moment-to-moment awareness of changing objects of perception is cultivated" (pp. 95–96). He distinguished mindfulness from concentration (p. 132) or one-pointedness (p. 95). Concentration involves the "ability to rest the mind in a single object of awareness," whereas mindfulness involves the "ability to shift attention to a

succession of objects of awareness" (p. 132). Mindfulness in Buddhist psychology is "the ability to know one's feelings without having to act on them, or be acted on by them, in an unconscious way" (p. xxi).

Gendlin's (1978) concept of *focusing* was a Westernized version of Buddhist mindfulness awareness, in which one makes contact with a special kind of internal bodily awareness called a "felt sense" (Gendlin, p. 10), the "body's physical sense of a problem, or of some concern or situation. It is a physical sense of meaning" (Gendlin, p. 69). Focusing, when done properly, leads to "a distinct physical sensation of change" called a "body shift" (Gendlin, p. 7). Gendlin insisted that focusing is not an emotion (p. 10), not a mere body sensation (p. 69), and not just getting in touch with "gut feelings" (p. 69); it is the:

> . . . broader, at first *unclear*, *unrecognizable* discomfort, which *the whole* problem . . . makes in your body. To let it form, you have to stand back a little from the familiar emotion. The felt sense is wider, less intense [say, than emotions], easier to have, and much more broadly inclusive. It is how your body carries *the whole* problem. (p. 69)

Gendlin (1978) explained that the "inner act of focusing can be broken down into six main subacts or movements" (p. 43). In the first, "clearing a space," one finds a quiet place and time to relax and scan the body for any feelings. One notices body feelings, for example, in the chest or stomach, and then asks a question, such as, "How is my life going?" or "What is the main thing for me right now?" If a concern arises, one does not "go inside it"; rather, one stands back, notices, and greets the feeling without judging it or assigning meaning to it. The second movement is the "felt sense." In this subact, one selects one personal problem to focus on from what came forward in the first subact,

without judging it or assigning meaning to it; one lets oneself feel the "unclear sense" of

the problem (p. 44). The third movement is the "handle." Here one stays with the

quality of the felt sense while noticing the "quality of this unclear felt sense" (p. 44).

"Let a word, a phrase, or an image come up from the felt sense itself. It might be a

quality-word, like *tight*, *sticky*, *scary*, *stuck*, *heavy*, jumpy, or a phrase, or an image" (p.

44). The fourth subact is "resonating." In this movement one goes "back and forth

between the felt sense and the word (phrase or image)" while checking how each

resonates with the other. In this stage one should

> . . . [s]ee if there is a little bodily signal that lets you know there is a fit. To do it,
> you have to have the felt sense there again, as well as the word. Let the felt sense
> change, if it does, and also the word or picture, until they feel just right in
> capturing the quality of the felt sense. (Gendlin, p. 44)

In the fifth movement, "asking," one senses the quality again and asks questions of the

felt sense, while not judging or being taken over by emotions during the process.

Gendlin suggests that "if you get an answer without a shift in the felt sense, just let that

kind of answer go by. Return your attention to your body and freshly find the felt sense

again. Then ask it again. Be with the felt sense till something comes along with a shift, a

slight "give" or release" (p. 45). In the sixth and final movement, "receiving," one

receives or accepts "whatever comes with a shift in a friendly way. Stay with it a while,

even if it is only a slight release" (p. 45).

Like Gendlin's focusing, Levine's (1997) concept and practice of Somatic

Experiencing® was also a Westernized mindfulness awareness method of examining

experience. Somatic Experiencing is a trainable skill and practice of noticing bodily

sensation (rather than intense emotion) in order to heal trauma. Levine's method and

arguments are founded on his view that psychology traditionally approached trauma through its effects on the cognitive-linguistic mind, and that this "is at best only half the story and a wholly inadequate one. Without the body and mind accessed together as a unit, we will not be able to deeply understand or heal trauma" (Levine, p. 6). He argued that trauma is part of a natural physiological process that simply has not been allowed to complete. It is not caused by the triggering event itself, but rather stems from a frozen residue of energy in the nervous system that has not been resolved and discharged. The residue remains trapped in the nervous system, where it gives rise to various symptoms. The four basic symptoms of trauma—hyperarousal, constriction, dissociation, and helplessness—are directly attributable to the physiological changes that occur when a subject is overwhelmed while responding to a life-threatening event. This "tornado of energy" in our nervous system gives rise to the formation of a wide variety of symptoms—including anxiety, depression, and psychosomatic and behavioural problems—and is the organism's way of containing or "corralling" the undischarged residual energy (Levine, p. 20). In this model, trauma is a physiological "stuckness" in the immobility response, the physiological preservation of past events (Levine, pp. 29–30).

Somatic Experiencing is offered as the key to healing trauma, rather than intense emotion and talk therapy, since trauma is in our physiology, our body sensation. Levine argued that the single most important factor in uncovering the mystery of human trauma was the "immobility" or "freezing" response, one of the three primary responses available to reptiles and mammals when faced with an overwhelming threat.

(The other two are fight and flight.) Somatic Experiencing cultivates the ability to go into and come out of the natural, involuntary response of freezing. This skill, he argued, is the key to avoiding the debilitating effects of trauma.

At the foundations of the enactive approach is the awareness that Buddhist doctrines of *no-self* and *nondualism* have significant contributions to make in educational theory and practice (Varela et al., 1991, pp. 21–22). The doctrine of *no-self* requires some explanation. It is the corollary to the doctrine of the Five Aggregates (Rahula (1959/1974; for which, see below). The heart of the basic teachings and practices of Buddhism are the Four Noble Truths (Rahula; Snelling 1987): the truth of *dukkha*, or suffering; the truth of the origin of suffering; the truth of the cessation of suffering; and the truth of the path that leads to the cessation of suffering (Fischer-Schreiber, Ehrhard, & Deiner, 1991, pp. 71–72).

Buddhism regards the concept of *dukkha* from three aspects: *dukkha* as ordinary suffering; *dukkha* as produced by change; and *dukkha* as conditioned states (Rahula, 1959/1974, p. 19). The first two kinds of suffering are undisputed and easy to understand. *Dukkha* as ordinary suffering includes all kinds of suffering in life, such as birth, old age, sickness, death, association with unpleasant persons and conditions, separation from loved ones and pleasant experiences, not getting what one wants, grief, and distress. *Dukkha* as produced by change refers to the impermanence of happy feelings that change and produce pain, suffering, and unhappiness. Understanding the third form of dukkha as conditioned states requires an explanation of what Buddhism considers as an "individual" or as "I."

According to Buddhist philosophy, what we call an "individual" or "I" is "only a combination of ever-changing physical and mental forces or energies, which may be divided into five groups or aggregates" (Rahula, 1959/1974, p. 20): matter, sensations, perceptions, mental formations, and consciousness (pp. 20–23). Rahula notes that "[w]hat we call a 'being,' or an 'individual,' or an 'I,' is only a convenient name or a label given to the combination of these five groups. They are all impermanent, all constantly changing. Whatever is impermanent is *dukkha*" (p. 25). Thus, what we call the "self" or "I" is nothing but the Five Aggregates—a form of impermanence.

The doctrine of *no-self*, sometimes called *egolessness*, does not imply that we disappear or that we could erase our personality (Pema Chödrön, 2001, p. 19); the "Buddha was pointing out that the fixed idea that we have about ourselves as solid and separate from each other is painfully limiting" (Pema Chödrön, p. 19). Buddhist nondualism, particularly as it is presented in the *Madhyamkis* ("middle way") philosophy of Nagarjuna (one of the most important philosophers of Buddhism and the founder of the *Madhyamka* school), may be juxtaposed with both Merleau-Ponty's work and ideas of cognition as enaction (Varela et al., 1991, pp. 21–22).

The no-self doctrine contributes to understanding the fragmentation of self presupposed in the assumed views of mind in most educational theories and practices. In the final part of this dissertation, in Chapter 4, I mention the role of the Buddhist notion of the *middle way* in overcoming the problems of dualisms in education. The *middle way* is the fourth Noble Truth of the Buddha, the way leading to the cessation of *dukkha* (Epstein, 1995, p. 91). I argue that in order to effectively address "isms" in

education the focus needs to be shifted from intersubjectivity to what the Buddhist

teacher Thich Nhat Hanh (2005) called "interbeing" (1987, as cited in Thompson, 1999,

p. 32; also see Mgombelo, 2006). In Chapter 4, I will address the ways in which practices

of mindfulness awareness contribute to the goal of enactive education to remedy the

intentional and unwitting split between mind and body in educational theory and

practice.

In Chapter 4, I will argue that enactive education is necessarily intertwined with

a radically embodied enactive ethics. I will discuss somatic mindfulness with reference

to how I addressed a racist event that happened in one of my own classes, using Boler's

(1999) pedagogy of discomfort. I show how mindfulness practices, including focusing,

enabled me to practice noticing the meaning of racism in the classroom that I was

already living with and taking for granted "because one lives in situations with one's

body" (Gendlin, 1978, p. 165). I will go on to discuss the ways that mindfulness

awareness and noticing a felt sense can help educators and learners to address highly

charged classroom situations and teaching tensions by *Being-in* (Heidegger, 1962/1996,

pp. 79–80) "body *and* mind before they are split apart" (Gendlin, p. 165). In other words,

"dwell alongside the world, as that which is familiar to me" (Heidegger, p. 80), to

practice noticing "habits of inscribed inattention" (Boler, 1999, pp. 16-17) in the

existential event of any "ism" in teaching and learning. I will show how mindfulness

awareness encourages a "shift from a spatially based experience of self to a temporal

one" (Epstein, 1995, p. 142). With reference to Boler's pedagogy of discomfort, I will

argue that such a shift is a condition for the possibility of having a moral experience in

the classroom, encouraging instructors and learners to think of their bodies not as "things" that are separate from them and minds as "places" where they think. Epstein explained that this "appreciation of the temporally based dimension of self stems from the ability to pay attention to bodily based experiences as they occur . . . quite literally a coming to one's senses" (p. 144).

Chapter 5, like chapter 4, illustrates that enactive educational theory and practice are chiasmic. It examines the case of the impostor phenomenon in higher education. It shows how adopting the core tenets of a broad enactive approach in education, namely embodiment, dynamic co-emergence, and self-other co-determination, has the potential to reconfigure teaching, learning and research practices. I understand the impostor phenomenon anew as dynamic co-emergence of one's lived body and the surrounding environment. I argue that the impostor phenomenon is not an individual, internal, psychological trait, state or syndrome (an experience of intellectual phoniness), neither a property of toxic cultures, nor the former in addition to the latter. Instead, I explain that the impostor phenomenon is an ecologically specific *dynamic habitus signature*, in this case the *habitus* is higher education in North America. I present the hypothesis that *emergent processes* of aggressive competitiveness, scholarly isolation, lack of mentoring, and valuing of product over process give rise to impostor feelings in the context of higher education.

The enactive approach embraces mindfulness awareness as a way of examining experience with the purpose of "becoming mindful, to experience what one's mind is doing as it does it, to be present with one's mind" (Varela et al., 1991, p. 23). So, the

enactive perspective suggests a change in the nature of reflection "from an abstract, disembodied activity to an embodied (mindful), open-ended reflection" (Varela et al., p. 27).

3   Theory of Emergence

The enactive approach is rooted in cognitive science and methods of examining direct human experience. These origins indicate that this approach is both a theory of mind and way of examining experience. It is also a specific kind of emergence theory, which E. Thompson (2007) called "dynamic co-emergence" (p. 38), at the foundations of which is the view that the individual human mind is the result of the emergent processes of a living history of embodied cognition. Mind is seen as emerging from a reciprocal, mutually co-determining relationship between a brain, a body, and a world. The aim of this section is to define some basic terms and ideas of emergence theory and dynamical systems theory, including the concepts of dynamic system, emergence, complexity, autonomous system, and self-organization. These ideas form the background to the specific kind of emergence theory that characterizes the enactive approach, namely "dynamic co-emergence," which I define and explain in the fourth section of this chapter. In Chapter 2, I will discuss how enactive education views teaching, learning, and knowing as emergent phenomena. In the Chapters 4 and 5, I will suggest the promise of enactive teaching and learning as dynamic co-emergent practices.

Emergence refers to the "arising of novel and coherent structures, patterns, and properties during the process of self-organization in complex systems" (Goldstein, 1999,

p. 49). Emergence theories describe the "arising of large-scale, collective patterns of behaviour in complex systems" (E. Thompson, 2007, p. 38), such as cells, brains, ecosystems, cities and economies. Used in various scientific and mathematical fields, emergence theories can be grouped together loosely under the category of "complexity theory" (Goldstein, p. 49), which studies the concept of emergence in its central research areas of complex adaptive systems theory, nonlinear dynamical systems theory, synergetics, and far-from-equilibrium thermodynamics (Goldstein, pp. 56–57).

Goldstein (1999) observed that emergent phenomena share the following interrelated properties that identify them as emergent: radical novelty, coherence or correlation, global or macro level, dynamical and ostensive (pp. 49–50). *Radical novelty* has not yet been observed in the complex system under observation, and is neither predictable nor deducible from lower or microlevel components. *Coherence* or *correlation* points to the fact that emergents appear as integrated wholes that tend to maintain some sense of identity over time, spanning and correlating the separate lower-level components into a higher-level unity. The *global* or *macro level* property refers to the locus of emergent phenomena. The *dynamical* feature refers to the fact that emergent phenomena are not pregiven wholes but arise as a complex system evolves over time. *Ostensive* points to the fact that emergents are recognized by showing themselves; that is, they are ostensibly recognized.

Goldstein (1999) further distinguished the concept of emergence from two similar ideas from the history of Western thought: "Whole before its parts" and "Gestalt" whole form or configurations (pp. 51–52). "Whole before its parts" indicates a

type of precedence given in an explanation to a whole entity over the parts of which the whole is made up (Tiles, 1989). This idea resembles the coherence of emergent structures as consisting of more than a mere collection of parts, but the key difference is that emergence is not pregiven but is a dynamical construct arising over time. "Gestalt" also seems similar to emergence, since it describes a whole form or configuration. Again, the key difference is that a gestalt is a pregiven whole without the dynamical sense of whole. Goldstein (1999) explained that new attractors show themselves when a dynamical system both quantitatively and qualitatively changes and "these new attractors then dominate the system and thereby allow for the emergence of something radically novel" (p. 52).

Since emergence theories describe the arising of complex systems, emergence requires systems with at least the following characteristics: nonlinearity, self-organization, beyond equilibrium, and attractors (Goldstein, 1999, pp. 55–56). Self-organization refers to a complex system's "creative, self-generated, adaptability-seeking behavior" (Goldstein, p. 56). Far-from-equilibrium conditions allow for random events and unpredictable characteristics. Attractors are large sets of conditions that lead to convergence in chaos, or phases in the development of a complex system over time in which trajectories converge.

Central to the enactive perspective and enactive education is a dynamical approach that originates in mind science taken from dynamical systems theory (van Gelder, 1995; van Gelder, 1998; Kelso, 1995; Port & van Gelder, 1995; Thelen, 1995; E. Thompson, 2007; Turvey & Carello, 1995). A minimal definition of a dynamical system

is any system that changes through time (Eliasmith, 1996, p. 441). Dynamical systems

theory is an area of mathematics that employs differential and difference equations to

describe the behaviour over time of complex systems. The enactive approach uses the

tools and methods of dynamical systems theory to understand the complexity of the

mind and the act of knowing. In enactive terms, natural systems that engage in acts of

knowing are nonlinear-dynamical systems (Thompson & Varela, 2001).

Kelso (1995) explained that such systems are open and nonequilibrium systems.

They are open in the sense that they can interact with their environment; for example by

exchanging energy, matter, or information with their surrounds. A system is in

nonequilibrium when, absent such interaction with their environment, they cannot

maintain their structure or function (Kelso, 1995, p. 4).

The focus on the dynamical in mind science grew out of an interest in the

dynamics of cognition and emotion (E. Thompson, 2007, p. 38). The dynamical

approach is founded on the idea that "cognition in evolved, living agents . . . is a

dynamic phenomenon and accordingly needs to be understood from the perspective of

the science of dynamic systems" (Thompson, p. 38). Dynamical approaches share what

van Gelder (1998) called the "dynamical hypothesis" (p. 615), the belief that cognitive

agents, social systems, action, perception, and cognition should be explained in

dynamic terms (Thompson, pp. 40–41). Central to the dynamical approach of enactive

education is its emphasis on time in understanding perception, thought, knowing, and

action. In using the tools of dynamical systems theory, the enactive approach relies on

the "generic feature of 'emergence' in complex systems" (Author, date, p.) to explain

the reciprocal relationships between brain, body, and world. Their aim is to show that the "processes crucial for consciousness cut across brain-body-world divisions, rather than being brain-bound neural events" (Thompson & Varela, 2001, p. 418).

The enactive approach, like complex systems theories, draws on the concept of circular or reciprocal causality, another standard feature of dynamical, nonlinear systems. Emergent processes depend on circular or reciprocal causality, not linear causality. The idea of circular causality means that "global patterns both arise from local interactions and govern or constrain those interactions" (E. Thompson, 2007, p. 424). Emergence through self-organization has two directions: local-to-global and global-to-local (Thompson & Varela, 2001, p. 419). The local-to-global determination is called "upward causation." The global-to-local determination refers to "downward causation." Circular causality suggests that causes and outcomes are recursive and indeterminate (Kyczynski, 2002, p. 5).

Since the enactive approach holds that the coupled dynamics of brain, body, and environment exhibit self-organization and emergent processes at multiple levels, "emergence involves both upward and downward causation" (Thompson & Varela, 2001, p. 421).

In the remainder of this section, I will provide an overview of three interrelated postulates of the enactive approach in preparation for the discussions in the sections to come.

4   Core of the Enactive Approach

The above discussion of theoretical roots has led us to the multifaceted core beliefs and insights of the enactive approach. Varela et al. (1991) planted the initial ideas of the enactive approach in cognitive science in their book *The Embodied Mind: Cognitive Science and Human Experience* (hereafter, EM). As discussed in the first section of this chapter, they developed the enactive theory of mind as an alternative to the ubiquitous cognitivist and connectionist views of the mind that separated the mind and body and banished experience (E. Thompson, 2007, pp. 3–15; Varela et al., 1991, pp. 3–12, 37–57). The enactive approach (Varela et al.) is an embodied dynamicist perspective that "aimed to build bridges between embodied dynamicist accounts of the mind and phenomenological accounts of human subjectivity and experience" (Thompson, p. 13).

Torrance's (2006) introduction to a special issue of the journal *Phenomenology and the Cognitive Sciences* on the enactive approach gave an excellent overview of enactive research since the publication of EM. Torrance explained that Varela et al. (1991) observed that, at the time of writing EM, cognitive science had "virtually nothing to say about what it means to be human in everyday, lived situations" (p. xv, as quoted in Torrance, 2006, p. 357). Torrance noted that

> . . . [a]t the time that EM was written, the primary focus of the interdisciplinary investigations associated with cognitive science was the nature of cognition, considered often in a rather narrow sense, as what humans do when they solve problems or seek to represent the world—the kind of things that were relatively straightforward to model in (classical or connectionist) computer simulations. Since then the attention of the cognitive science community has broadened to include consciousness, emotion, dynamic embodied interaction with the world, and so on. In so doing it has come to be more closely in touch with everyday, lived human experience. EM has played no small part in this broadening out of the interdisciplinary matrix. (p. 357)

Torrance listed the various thinkers who have aligned themselves with enactive notions in discussions of experience, consciousness, and related topics, such as Thompson and colleagues studies on colour vision (e.g., Thompson, 1995; Thompson, Palacios, & Varela, 1992), and work by Varela and others on autopoiesis (Maturana & Varela, 1980; Varela, 1979), and neurophenomenology (Thompson, 2003; Thompson, Lutz, & Cosmelli, forthcoming; Varela, 1996). He noted that "[r]ecently some major collections of papers flying the enactive banner have been published, for example on empathy and intersubjectivity (Thompson, 2001), and on visual consciousness (Nöe, 2002; see also the anthology of readings of philosophy of perception: Nöe & Thompson, 2002)." Torrance also listed those authors who do not necessarily call themselves enactivists, yet who defend ideas closely aligned with the enactive approach, such as Clark (1997), Hurley (1998), and O'Regan and Nöe (2001a). Enactive views figure into criticisms of established views on the neural correlates of consciousness (Nöe & Thompson, 2004); new approaches on neural plasticity (Hurley & Nöe, 2003), art (Myin, 2000; Nöe, 2000), emotion (Colombetti & Thompson, 2008; Ellis & Newton, 2005), biology and ecology (Palacios & Bozinovic, 2003), autism (Gallagher, 2004; Klin, Jones, Schultz, & Volkmar, 2003), and other subjects. Torrance also noted recent enactively based studies of semiotics in organisms (Weber, 2002; Weber & Varela, 2002) and in robots (Ziemke & Sharkey, 2001), linking the enactive approach with writers such as Jonas (1966), and von Uexküll (1957).

A main insight of Torrance's (2006) introduction to the special journal issue on the enactive approach was the observation that there are at least two major strands

within the enactive perspective. The broad view focuses on what it is to be an subject with a mind and is most strongly reflected in the work of Varela and Thompson. The focused view studies the nature of perception and perceptual experience and is reflected in the writings of Thompson, Noë, and O'Regan.

4.1   The Broad Enactive Perspective

Varela et al.'s (1991) and E. Thompson's (2007) interpretation of the enactive approach characterize the broad view. In Chapter 2, I will show that an enactive perspective in education is founded on the broad enactive approach. A core belief of the broad enactive account of the mind is that "the human mind is embodied in our entire organism and embedded in the world, and hence is not reducible to structures inside the head" (Thompson, 2005, p. 408). The main argument of the broad enactive approach is that the individual human mind is embodied cognition embedded in its environment, constituted by emergent and self-organized processes that span and interconnect the brain, the body, and the environment, and emerges from the dynamic co-determination of self and other (Varela et al.). More recently, in Thompson's (2007) comprehensive and ground-breaking book, *Mind in Life: Biology, Phenomenology, and the Sciences of Mind*, Thompson broadens the enactive approach to include an enactive view of matter, evolution, information, causality, time, space, consciousness, emotion, and life. He extends the enactive approach to mind and consciousness by revealing the "deep continuity of life and mind" (Thompson, p. ix).

According to the enactive approach, as presented originally by Varela et al. (1991) in EM, the act of knowing emerges from a reciprocal causal interaction of the

brain-body-environment. Mental or cognitive processes are seen as the result of

embodied sensorimotor activity embedded in an environment (Thompson, 1999, p. 7).

The mind and world, an inseparable couple that enact each other, are no longer two

independent realms. The central hypothesis of the enactive approach that natural

cognitive systems are subject to the *enaction* of a world and mind on the basis of a

history of embodied action (Thompson, 1996, p. 128). The world and mind take form as

a result of emergent and self-organized processes that span and interconnect a brain, a

body, and an environment (Thompson, 2001, p. 3). Thus, the act of knowing involves

the complex interplay of brain, body, and world.

The enactive approach proceeds from the concept that mental processes are

embodied in the sensorimotor activity of the organism, embedded in the environment,

and involve three interrelated theses (Thompson, 2001):

> *Embodiment.* The mind is not located in the head, but is embodied in the whole
> organism embedded in its environment.
>
> *Emergence.* Embodied cognition is constituted by emergent and self-organized
> processes that span and interconnect the brain, the body, and the environment.
>
> *Self-other co-determination.* In social creatures, embodied cognition emerges from
> the dynamic co-determination of self and other. (p. 3)

Each individual human mind emerges from these three dimensions of embodiment

(Thompson, 2005, p. 408), which for Thompson and Varela (2001) were "three kinds of

cycles for higher primates" or "'cycles of operation' that constitute the agent's life" (p.

424). Thompson observed that the "human brain is crucial for these three modes of

bodily activity, but it is also reciprocally shaped and structured by them at multiple

levels throughout the lifespan" (p. 408). These three permanent and intertwined

perspectives or modes of bodily activity—self-regulation, sensorimotor coupling, and

intersubjective interaction (Thompson, 2005, p. 408)—reflect a multifaceted view of the

broad enactive approach. The three core theses of the approach—embodiment, dynamic

co-emergence, and self-other co-determination—amount to an argument for why the

human mind "is not reducible to structures inside the head" (Thompson, p. 40). I

outline these core theses below.

    4.1.1   **The embodiment thesis.** The embodiment thesis is central to the broad

enactive approach. It states that the "mind is not located in the head, but is embodied in

the whole organism embedded in its environment" (Thompson, 2001, p. 3). The

embodiment thesis reflects a mode of bodily activity that Thompson and Varela called

"self-regulation" (Thompson, 2005, p. 408; Thompson & Varela, 2001, p. 424). This

dimension of embodiment is a cycle of "organismic regulation of the entire body"

(Thompson & Varela, 2005, p. 424). Thompson (2005) explained that self-regulation is

"essential to being alive and sentient. It is evident in emotion and feeling, and in

conditions such as being awake or asleep, alert or fatigued, hungry or satiated" (p. 408).

    Central to the broad enactive view is the idea of cognition as embodied action, a

concept intended to "bypass entirely . . . [the] logical geography of inner versus outer

by studying cognition not as a recovery or projection but as embodied action" (Varela et

al., 1991, p. 172). The enactive view understands the term "embodied" in two ways:

first, in terms of body "structure and capacities," and second, in terms of "bio-psycho-

social contexts." On the one hand, the act of knowing depends upon the kinds of

experience that come from having a particular body plan, schema, or system with a

variety of neuronal-sensorimotor abilities, capacities, and functions (Thompson, 1996, p. 128; Varela 1999, pp. 11–12; Varela et al., 1991, pp. 172–73). This structure-and-capacities meaning of embodiment implies that the act of knowing is never properly understood apart from a particular body, and appearance of the world, to a particular system of neuronal-sensorimotor abilities. Von Uexküll (1934/1975) called this appearance the "phenomenal world" or the "self world" of the organism. On the other hand, these neuronal-sensorimotor abilities, capacities, and functions are embedded in and constituted by their biological, psychological, and sociocultural environments (Thompson, 1996, p. 128; Varela 1999, p. 13). The biopsychosocial-contexts understanding of embodiment implies that the act of knowing is intertwined with the environment of the organism, the world in which the organism acts and thinks. The term "action" in the concept "embodied action" refers to the inseparability of perception and action—sensory and motor processes—in lived cognition (Thompson, 1996, p. 128; Varela et al., 1991, p. 173). "Indeed, the two are not merely contingently linked in individuals; they have also evolved together" (Varela et al., p. 173).

  4.1.2 The emergence thesis. The emergence thesis, a core postulate of the broad enactive approach, states that "embodied cognition is constituted by emergent and self-organized processes that span and interconnect the brain, the body, and the environment" (Thompson, 2001, p. 3). The emergence thesis reflects a dimension of embodiment that Thompson and Varela call "sensorimotor coupling" (Thompson, 2005, p. 408; Thompson & Varela, 2001, p. 424). This mode of bodily activity takes the form of cycles constituting an agent's situated activity or life, cycles of "sensorimotor coupling

between organism and environment" (Thompson & Varela, p. 424) that are "expressed in perception, emotion, and action" (Thompson, 2005, p. 408).

These cycles enable the organism to be a situated agent (Thompson & Varela, 2001, p. 424).

The broad enactive approach is based on *dynamic co-emergence*, which presupposes a dynamic co-emergence *mereology* or theory of the part-whole relation (Kronz & Tiehen, 2002, pp. 344–346): "part and whole co-emerge and mutually specify each other" (E. Thompson, 2007, p. 38).

For the broad enactive perspective "[w]hat the organism senses is a function of how it moves" (Author, p. 424). This is the first principle of von Uexküll's (1934/1975) *umwelt* theory. From the example of the "perfect fitting of the tick to her prey-object" (p. 12), von Uexküll deduces the basic structural traits of the tick's environment or *umwelt*, which are valid for all animals and humans. He explains that functional cycles show how "the subject and object are dovetailed into one another, to constitute a systematic whole. . . . All animals, from the simplest to the most complex, are fitted into their unique worlds with equal completeness" (p. 10). His observations are worth quoting at length.

> Like a gourmet who picks the raisins out of a cake, the tick has selected butyric acid alone from among the things in her environment. We are not interested in knowing what taste sensations the raisins give the gourmet. We are interested solely in the fact that the raisins become sign stimuli in his world, because they have special biological meaning for him. Nor do we ask how butyric acid smells or tastes to the tick; we merely register the fact that butyric acid, because it is biologically meaningful to the tick, becomes a receptor cue for her. . . . The Umwelt of any animal that we wish to investigate is only a section carved out of the environment which we see spread around it—and this environment is nothing but our human world. The first task of Umwelt research is to identify

> each animal's perceptual cues among all the stimuli in its environment and to build up the animal's specific world with them. (von Uexküll, p. 13)

The human mind has cycles that enable it be a situated agent like the tick. The human mind "emerges from self-organizing processes that tightly interconnect the brain, body, and environment at multiple levels" (E. Thompson, 2007, p. 37).

Varela et al. (1991) explained that the concept of "enaction" can be succinctly expressed in the form of two interrelated points, one about the nature of *perception* and the other about *cognition* (Varela, 1999, p. 12; Varela et al., p. 173). The first claims that "perception consists of perceptually guided activity" (Varela, p. 12; Varela et al., p. 173). The second claims that "cognitive structures emerge from the recurrent sensorimotor patterns that enable action to be perceptually guided" (Varela, p. 12).

The first claim about the nature of perception as perceptually guided activity consists of two points. First, perception and actions are inseparable. Perception and action are inseparable because they have evolved together; they are coupled to each other. Perceptual systems guide action, and motor systems guide perception. The important idea is that perceptual processes are embedded in both the sensorimotor behaviours of the perceiver and in the structure of the environment. Second, perceiving is a way of acting, not a brain event. It is a kind of activity, performed by an embodied and situated agent, and dependent upon the organism's neurophysiological organization and ecological environment. It is worth quoting Varela's (1999) explanation of perception at length:

> According to the enactive approach . . . the point of departure for understanding perception is the study of how the perceiver guides his actions in local situations. Since these local situations constantly change as a result of the perceiver's

activity, the reference point for understanding perception is no longer a pre-given, perceiver-independent world, but rather the sensorimotor structure of the cognitive agent. . . . It is this structure—the manner in which the perceiver is embodied—and not some pre-given world, that determines how the perceiver can act and be modulated by environmental events. Thus the overall concern of an enactive approach to perception is not to determine how some perceiver-independent world is to be recovered; it is, rather, to determine the common principles or lawful linkages between sensory and motor systems that explain how action can be *perceptually guided* in a *perceiver-dependent* world. . . . In the enactive approach reality is not given: it is perceiver-dependent, not because the perceiver "constructs" it as he or she pleases, but because what *counts* as relevant world is inseparable from the structure of the perceiver. (pp. 12–13)

Thompson (2001) used visual perception to illustrate the embodiment thesis. He referred to Rizzolatti, Fadiga, Fogassi, and Gallese's (1997) study showing the importance of motor areas and motor-to-sensory pathways for the construction of object and space perception, and the artificiality of constructing a rigid wall between sensory and motor aspects. Thompson explained that "perceptual space is not a uniform external container, but rather a medium moulded by our sensing and moving bodies" (p. 3). Quoting Rizzolatti et al., he claimed: "our movements 'progressively carve out a working space from undifferentiated visual information' and 'this movement-based space . . . becomes then our experiential peripersonal visual space" (p. 191). From the enactive perspective, "seeing . . . is a way of acting: it is visually guided exploration of the world" (Thompson, p. 3; see also Thompson, 1995; Thompson et al., 1992).

    4.1.3   The self-other co-determination thesis. A core claim of the broad enactive approach is the self-other co-determination thesis: "in social creatures, embodied cognition emerges from the dynamic co-determination of self and other" (Thompson, 2001, p. 3). This thesis reflects a mode of bodily activity that Thompson and Varela called "intersubjective interaction" (Thompson, 2005, p. 408; Thompson & Varela, 2001,

p. 424). The dimension of embodiment refers to cycles of intersubjective interaction

"involving the recognition of the intentional meaning of actions and linguistic

communication (in humans)" (Thompson & Varela, p. 424) and is "expressed in

perception, emotion, and action" (Thompson, 2005, p. 408).

According to this postulate, embodied acts of knowing emerge from the dynamic

co-determination of self and other. This means that "the embodied mind is

intersubjectively constituted at the most fundamental levels" (Thompson, 2001, p. 4).

An experiential coupling of self and other is operative from birth, emerging from a

"primordial and preverbal sense of self, present in newborn infants" (Thompson, p. 4).

Thompson and Varela (2001) noted that the "signaling of affective state and

sensorimotor coupling play a huge role in social cognition" (p. 424).

Thompson (2001) explained that this postulate connects with the recent

rediscovery of the importance of affect and emotion in acts of knowing. Classic analyses

of the act of knowing were cognocentric, "conceiving of cognition as the manipulation

of affectless representations" (Thompson, p. 4). New developments in affective

neuroscience show that affect and emotion are at the foundation of the mind (Damasio,

1994, 1999). Thompson (2001) explained that the central role of affect and emotion

reinforces the embodiment and emergence postulates.

> Affect has numerous dimensions that bind together virtually every aspect of the
> organism—the psychosomatic network of the nervous system, immune system,
> and endocrine system; physiological changes in the autonomic nervous system,
> the limbic system, and the superior cortex; facial-motor changes and global
> differential motor readiness for approach or withdrawal; subjective experience
> along a pleasure-displeasure valence axis; social signalling and coupling; and
> conscious evaluation and assessment. Thus the affective mind isn't in the head,
> but in the whole body; and affective states are emergent in the reciprocal, co-

determinative sense: they arise from neural and somatic activity that itself is conditioned by the ongoing embodied awareness and action of the whole animal or person (Thompson, 2001, p. 4).

The above explanation describes affect as a "prototypical whole-organism event" (Thompson, 2001, p. 4). The enactive perspective goes one step further and says that "much of affect is a prototypical *two-organism event . . .* a prototypical *self-other event*" (p. 4); intersubjective interaction "is the cognition and affectively charged experience of self and other" (Thompson, 2005, p. 408).

Some recent methods and findings of feminist, social, and political philosophies of emotion, and cultural studies approaches to the philosophy of emotion help to explain enactive intersubjective interaction in the context of understanding emotions as publicly and collaboratively formed, not as individual, private, and autonomous. These new conceptual frameworks for understanding the dynamics of feelings in their full social and political contexts are crucial if we are to avoid reinscribing binaries that are in the inherited dominant cultural languages and conceptual apparatuses (Zorn & Boler, 2006). I discuss the enactment of political and sociocultural dimensions of emotions in Chapter 5, where I show how the theory and practice of enactive education are radically intertwined and that imposter feelings are emergent processes of the culture of higher education. I argue that these imposter feelings are publicly and collaboratively formed feelings and behaviours, not "individual, internal, inherent and private" (Harding & Pribram, 2004, p. 864).

5   Conclusion

The goal of Chapter 1 has been to provide the necessary background against which to explain how the incompleteness of current interpretations of the enactive perspective in education limits the theory and practice of enactive education. By outlining the origins of the broad enactive approach in cognitive science, ways of examining human experience, and dynamic systems and complexity theory, I have shown that at the core of the enactive perspective is a theory of mind, experience, and dynamic co-emergence. Chapter 1 has set the agenda for Chapter 2.

CHAPTER 2

❧

THE ENACTIVE APPROACH IN EDUCATION:

UNDERSTANDING THE PROBLEM-SPACE OF COMPLEXITY THEORY

Enactive education is flourishing in the decade and a half since the publication of Varela, Thompson, and Rosch's (1991) work, *The Embodied Mind*. A broad enactive perspective (as discussed in Bateson, 1979, 1987; Colombetti & Thompson, 2008; Colombetti & Torrance, 2009; De Jaeher & Di Paolo, 2007; Fuchs & De Jaegher, 2009; Johnson, 1987; Lakoff, 1987; Lakoff & Johnson, 1980, 1999; Maturana, 1975, 1980; Maturana & Varela, 1980, 1987; E. Thompson, 1999, 2001, 2005, 2007; Thompson et al, 2005; Thompson & Stapleton, 2009; Thompson & Varela, 2001; Varela, 1987; Varela et al., 1991) has helped to put self-organization, emergence, complexity, autopoiesis, nonlinearity, dynamical systems theory, and a new conception of embodiment, experience, and ethics at the forefront of educational theory, research, and pedagogy.

Chapter 1 showed how the broad enactive perspective was a theory of mind, a method of examining experience, and a particular kind of dynamic co-emergence theory that is fundamentally rethinking ideas of embodiment, action, and knowing. In light of Chapter 1's findings, Chapter 2 has in hand the answer to why the theory and practice of the enactive approach in education have yet to be realized.

Chapter 2 is structured in three sections. Section 1, "The Enactive Approach in Education," provides an overview. It begins by outlining the two phases of the enactive perspective in education: the broad approach and the narrow complexity view. I survey

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the two phases with reference to different educational areas, including such topics as

qualitative educational research, curriculum, epistemologies of schooling, experiential

learning, and more.

Section 2, "The Problem-Space of the Received View," explains what I call the

problem-space of the received view of enactive education. Current scholarship on

complexity theory in education reflects the inherited view of enactive education; what I

call the "complexity heritage." I argue that complexity theory in education needs to be

properly seen as a second, narrow strand within the enactive perspective in education. I

explain that the received or complexity heritage view generates a problem-space in

educational theory, research, and practice that is characterized by two main areas of

concern. First, the complexity heritage view cannot account for personal subjectivities or

the individual cognizing subject. Second, the complexity heritage view is unable to

address central and inevitable issues in education, such as justice, ethical action, or

power relations.

Section 3 of the chapter is "Concluding Remarks."

1   The Enactive Approach in Education

I propose to look at the enactive approach in education, beginning in the mid

1990s till the present, as consisting of two major phases.[1] These phases can be seen as

successive and they co-exist in the literature today. The first phase, from the mid 1990s

till the present, I call the *broad enactive approach*. The broad view examines teaching,

learning, and education with a focus on what it is to be an agent with an embodied

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[1] My characterization of the two major strands within the enactive approach in education is inspired by Steve Torrance's (2006) discussion of the two major strands within the enactive perspective.

mind and lived cognition, including a general account of dynamic co-emergence and self-other co-determination. The second phase, from the early 2000s till the present, I call the *narrow complexity view*. This phase studies teaching, learning, and education as dynamic, co-emergent phenomena through the lens of complexity theory or science in general and adaptive, self-organizing systems theory in particular. In the following sections, I will outline the two strands of enactive education and the relation between them, with an overview of enactive scholarship in education.

1.1   The Broad Enactive Perspective

The broad enactive perspective in education has the potential to fundamentally rethink the ideas of teaching, learning, curriculum, leadership, epistemologies, and the purposes of schooling. The broad view, most pronounced in the literature from the late 1990s forward, draws on the work of Maturana (Maturana, 1975, 1980, 1987; Maturana & Varela, 1980), Varela (Varela, 1987; Varela et al., 1991), Bateson (1979, 1987), and Lakoff and Johnson (Johnson, 1987; Lakoff, 1987, 1988; Lakoff & Johnson, 1980, 1999).

The Enactivist Research Group, founded in 1993 at the University of Alberta, Canada, brought the broad enactive approach to the forefront of discussions of mathematics education (Davis, 1995; Kieren, Gordon-Calvert, Reid, & Simmt, 1995; Reid, 1996). The group studied enactivism as a theory of learning and a research methodology (Reid). The broad enactive approach is founded on a view of what it is to be a subject with an embodied mind and lived cognition, along with a general account of dynamic co-emergence and self-other co-determination. The theme of self-other co-determination is not well formulated in early views. The broad approach spans the

following areas of educational scholarship: teaching, learning, cognition, qualitative research, curriculum, epistemologies of schooling, professional learning, experiential learning, and educational psychology. I discuss the broad enactive approach in each of these areas below.

Davis (Davis, 1993, 1995, 1996, 2004, 2005, 2008; Davis & Phelps, 2005, 2006, 2007; Davis & Simmt, 2003; Davis & Sumara, 1997, 2002, 2005a, 2005b, 2007, 2008; Davis, Sumara & Kieren, 1996; Davis & Luce-Kapler, 2000, 2008) led and established the broad enactive approach in education. Just to be clear, the broad enactive approach in education drew on the broad enactive perspective in philosophy and cognitive science (as discussed in Bateson, 1979, 1987; Johnson, 1987; Lakoff, 1987; Lakoff & Johnson, 1980, 1999; Maturana, 1975, 1980; Maturana & Varela, 1980, 1987; Thompson, 1996, 1999, 2001, 2005, 2007; E. Thompson & Stapleton, 2009; E. Thompson & Varela, 2001; Varela, 1979, 1987, 1996, 1999; Varela et al., 1991), a perspective properly understood as a theory of mind, a method of examining experience, and a particular kind of dynamic co-emergence.

1.1.1   Cognition and knowledge. The clearest formulations and strongest argumentation in the broad enactive approach to education are reflected in the work of Davis (1993, 1995, 2004, 2005, 2008). Davis understood learners as reciprocally intertwined with and emergent from interactions with others and their world/environment. With reference to a question about fractions posed to a group of 12-year-olds, Davis (1995) showed that mathematical knowledge is "simultaneously about the dynamic co-emergence of knowing agent-and-known world, of self-and-

collective" (p. 8). He used the enactive concept of "structural coupling" and complexity

theory to argue that mathematical knowledge is neither subjective nor objective, but

rather emerges out of shared action. It is neither a process nor a product; rather, the two

are inseparable. Davis explained that "mathematical knowledge is like the subject

matter of a conversation. It exists only in conversing, and its nature, its structure, and its

results can never be anticipated, let alone fixed" (Davis, p. 4). Enactive education

requires a theory of parthood relations in order to describe and explain "collectivities

that arise in the co-specifying activities of diverse, relatively independent, dynamic, and

interacting agents" (Davis & Sumara, 2002, p. 425). Davis drew on an enactive account

of selfhood as "tied closely to the co-evolving identities of those around us"(Davis, p. 7)

and an enactive mereology (theory of the relations of part to whole and the relations of

part to part within a whole), as the whole unfolding from the part and enfolded in it (p.

7).

Enactive education fundamentally rethinks what it means to learn and think.

Davis and Sumara (1997) presented an enactivist model of cognition and contrasted it

with popular notions that pervaded formal education. They cited the example of a year-

long study in a small, inner-city elementary school to illustrate this model of cognition.

Davis and Sumara argued that cognition does not occur in individual minds or brains,

but in the possibility for shared action. They suggested that an enactivist theory of

cognition requires teachers and teacher educators to reconceive the practice of teaching

by blurring the lines between knower and known, teacher and student, school and

community. They explained that "learning might be better understood as mutually

specifying, co-emergent, pervasive, and evolving practices that are at the core of our culture's efforts at self-organization and self-renewal" (Davis & Sumara, p. 123).

The enactive perspective in education redefines the idea of knowledge. Mgombelo (2002) took a broad enactive approach to cognition through an exploration of the fundamental circularity of knowledge. This circularity is aptly reflected in Merleau-Ponty's (1962) observation that the "world is inseparable from the subject, but from a subject which is nothing but a project of the world, and the subject is inseparable from the world, but from a world which the subject itself projects" (p. 430). Mgombelo's enactive approach focused on knowledge and interpretation as "the enactment or bringing forth of meaning from a background of understanding" (Varela et al., 1991, p. 149). Her examination used psychoanalytic and enactivist theoretical frameworks to explore the nature of knowledge in teacher education. In particular, she explored the nature and growth of knowledge of mathematics student teachers as they undertook teacher education programs and the possibilities or spaces for growth of this knowledge. Mgombelo understood subjectivity in language and what human beings call "real" along enactivist lines. She argued that educators must learn to include their ignorance in their relations with their students. Her "nonobjectivist orientation" viewed knowledge as the

> . . . result of an ongoing interpretation that emerges from our capacities of understanding. These capacities are rooted in the structures of our biological embodiment but are lived and experienced within a domain of consensual action and cultural history. (Varela et al., 1991, p. 149)

Although Mgombelo's work presupposed a broad enactive view of the mind and cognition, a noteworthy tension arose in her alliance of psychoanalytic and enactivist

theoretical frameworks. She explained that her approach, based on Lacanian

psychoanalytic and enactivist inquiries, went beyond the duality inherent in discussions

of a "theory/knowledge-practice gap" in educational scholarship. In an uncontroversial

manner, she described her outline of the pertinent ideas of enactivism and

psychoanalysis in her work as "not . . . a whole theory." She (2002) quoted Lacan on the

latter's reading of Freud: "One never goes beyond Freud. . . . Nor does one attempt to

measure his contribution quantitatively, draw up a balance sheet—what's the point of

that? One uses him. One moves around within him. One takes one's bearings from the

direction he points in" (p. 30). It is clear that she used Lacan's quotation to point out

that the reader of her work should not "measure . . . quantitatively" or "draw up a

balance sheet" of the extent to which she took up the particulars of the enactive

approach and psychoanalysis. She suggested that she "moves around within" these

theoretical frameworks and took her "bearings from the direction" these theories point

in.

The tension in Mgombelo's (2002) work arose from her Lacanian "bearings"; in

particular, the theoretical lineage of Freud. She took her theoretical bearings from Lacan

in the following way. She stated that "for Lacan there is no subject prior to language"

(Mgombelo, p. 39). She noted that "while Lacan rejects the modernist notion of the

Cartesian subject, the self-transparent thinking subject, he however retains the Cartesian

subject by bringing into lights its obverse forgotten kernel (the unconscious)"

(Mgombelo, p. 39). "In short," she explained,

> . . . the subject can be understood in three distinct moments. First, the real
> "presence that is speaking to you," the speaking body, the subject of the actual

act of enunciation. Second, is the symbolic subject indicated by the *I (je)* of the speaking body's discourse, the subject of the statement actually uttered. The third moment of the subject, distinct from both the speaking body and *I*, is the imaginary "ego" (*moi*), constructed early in childhood to give the subject an identity that it really lacks. Since the *I* as the subject of speech is located in the symbolic order the domain of language and culture, it can never be exactly the self of being that is, the subject is divided. (p. 41)

Through these three distinct moments, Mgombelo (2002) observed, "we are now able to understand the meaning of *decentrement* or/and alienation of the subject" (p. 41). She quoted Zizek's (1997) account of Lacan as follows:

"*Decentrement*" thus first designates the ambiguity, the oscillation between symbolic and imaginary identification—the undecidability as to where my true point is, in my "real" self or in my external mask, with the possible implication that my symbolic mask can be "more true" than what it conceals, the "true face" behind it. At a more radical level, it points towards the fact that the very sliding from one identification to another, or among "multiple selves" presupposes the gap between identification as such and a void of $ (the "barred subject") which identifies itself—serves as the empty medium of identification. In other words, the very process of shifting among multiple identifications presupposes a kind of empty band, which makes the leap from one identity to another possible, and this empty band is subject itself. (p. 41)

Moreover, Mgombelo (2002) viewed Lacan's "notion of the lack or gap in the symbolic order" as allowing "us to explain the notion of the Real" (p. 44). She explained that the "subject who is a lack too opens this gap in the symbolic order. In this sense we can say the gap is an overlap of two lacks. The Lacanian Real is this irreducible gap, which is an overlap of two lacks. It constitutes a space of 'logical' (possible) gains and losses" (p. 44). Mgombelo concluded that "the nature of the Lacanian Real" is "basic circularity" and is "recursive" (p. 45).

Both the enactivist and Lacanian view believe in "nonunitary cognitive selves" and challenge the idea that the mind and consciousness are the same. The differences

between the enactivist and Lacanian view of the cognitive unconscious (Varela, 1999, p. 36) and the nature of the identity of the cognitive self, however, resulted in tensions in Mgombelo's use of the two theoretical frameworks. These two key differences can be traced back to Lacan's theoretical lineage in Freud. It is possible to overlook these difference "largely because of our post-Freudian belief in the unconscious" (Varela, p. 37). The difference between the enactivist and Lacanian meaning of the cognitive unconscious occurs in the discrepancy between how we understand the "personal" and "subpersonal" levels of the cognitive unconscious. For Lacan the "cognitive unconscious . . . is where the action of thought really happens" (E. Thompson, 2007, p. 6). Lacan's "irreducible gap" (Mgombelo, 2002, p. 44) unwittingly divides the mind "into two . . . different regions, with an unbridgeable chasm between them."

This unwitting dualism bears upon how we understand the nature of the identity of the cognitive self. Lacan and Freud, like the enactivists, "certainly realized that to distinguish between the mind and consciousness entails the disunity of the self or cognizing subject" (Varela, 1999, p. 38). Varela observed that "it is not clear, however, whether Freud took the further step of calling into question the idea that there is an essential or necessary connection between the mind and consciousness" (p. 38). Lacan, it seems, left "open the possibility that these unconscious processes belonged to a *fragment of ourselves* hidden in the depths of the psyche" (Varela, p. 38). It is open to question whether cognition and intentionality form an inseparable pair for Lacan, not cognition and consciousness. Enactivists clearly maintain that "cognition and consciousness—especially self-consciousness—belong together in the same domain"

(Varela, p. 39). Varela suggested that this open question may be seen to lead to different understandings of the "disunity of the subject, understood as a cognitive agent" and fragmentation of the self. He stated:

> Given that there is a myriad of contending subprocesses in every cognitive act, how are we to understand the moment of negotiation and emergence when one of the many potential microworlds takes the lead and constitutes a definite behavior? In more evocative terms: How are we to understand the very moment of being-there when something concrete and specific shows up? (p. 49)

He answered this question as follows:

> Within the gap during a breakdown there is a rich *dynamic* involving concurrent subidentities and agents. This rapid dialogue . . . [is] invisible to introspection. . . . What is most pertinent here is that enaction happens at the hinge between one behavioral moment and the next, via fast oscillations between neuronal populations that can give rise to coherent patterns. (pp. 49–50)

> These "hinges" were for Varela (1999) "hinges of the *immediate present* . . . that the

cognitive subject actually lives" (p. 45). In contrast, Lacan focused on "inert presence" rather than an immediate, lived present, as evidenced by Mgombelo's (2002) reading of Lacan through Zizek's interpretation (1989):

> The Real is the fullness of the inert presence, positivity; nothing is lacking in the Real—that is, the lack is introduced only by the symbolization; it is a signifier, which introduces a void, an absence in the Real. But at the same time the Real is itself a hole, a gap, an opening in the middle of the symbolic order—it the lack around which the symbolic order is structured. (Mgombelo, p. 45)

> All this is to say Mgombelo's (2002) work reflects a broad enactive approach to

cognition and knowledge with some tensions that suggest limitations to her understanding of cognitive unconscious and the nature of the identity of the cognitive self.

1.1.2 Pedagogy. An enactive understanding of cognition and knowledge has the potential to rethink teaching practices. Although a broad enactive approach to teaching is still very new to education, some authors and educators have attempted to envision and practice enactivist pedagogy. Here a few examples.

Lynn Fels (1999) offered a sketch of enactive teaching practices. Some key features of her poetic depiction of enactivist teaching and learning were in the context of science education. Enactivist teaching/learning requires an emphasis on experiences involving the body and its interaction with the world. This suggests learning through experience, through doing and being science in the world, although Fels did not make this process clear. She described this process as "performative inquiry" or working "within the context and environment of our experience, physical and imagined" (Fels, p. 130). She wrote:

> How do we explore our universe? with questions, with imagining, with wondering and wandering. With experiences that help us to realize the magical "web of relations" that spider-weave landscapes that are us. The sun shines. The grass grows. We laugh. Is there a connection? School science hopefully seeks to connect us with our environment, ourselves, and each other, our bodies, energy, motion, light, sound, the tensions between. School science is an opportunity for students to play through experiences and conceptions of our universe, to realize possibilities and potential, to consider alternative realities and possibilities. (p. 106)

This depiction recalls Dewey's (1938) understanding of education as experience, with an orientation in deep ecology (Sessions, 1995) and learners-in-their-environment.

Another feature of Fels' (1999) depiction of enactivist teaching and learning involved drama and storytelling (p. 130). Michael Michie (2004) described a similar teaching and learning experience in the context of teaching science to Indigenous

students. Fels noted: "When we invite our stories and the stories of others into the science classroom, we begin to share in the landscape-journey that is sciencing our universe" (p. 115):

> The co-evolving play shapes and is shaped by the interactions between the physical spaces of the theatre, the remembered explorations of the classroom, the creative and critical embodied experience during rehearsal, and the imaginary worlds inhabited by Wendy and Einstein. (p. 131)

Fels (1999) explained:

> When we journey into science through drama and storytelling, we begin to understand that science is realized through a creative and critical exploration of perceived and imagined phenomena, a vibrant search for underlinings, inter-connectedness, inter-relations, inter-possibilities of action and interaction. There are many ways to imagine a universe into being, and, through the vehicle of our imagining, to voice our interstandings. (p. 108)

Fels' work pointed to features of what enactivist teaching/learning might be like, but does not bring us much closer to understanding how this could be done. This fogginess may be a function of the incomprehensibility of enactive pedagogy in dominant terms.

Warren Linds (Haskell, Linds, & Ippolito, 2002) echoed Fels' (1999) notion of performative inquiry in his enactive pedagogy. He described how enacted learning might emerge in a workshop setting where a facilitator and participants form a dynamic gathering that teaches and learns reciprocally. Such workshops are based on a popular theatre approach called "Theatre of the Oppressed" (Boal, 1979, 1992) which uses a series of theatre exercises and games to occasion the emergence, aesthetically, of knowledge leading to transformation. Linds explained that his

> . . . work involves enabling groups of people to create short plays together. Warm-up or tune-up exercises are used to develop a sense of community and

trust. These activities are also performative as they both develop, and carry, the relationship I have with participants as active sites of knowing and understanding. (Haskell et al., 2002, p. 9)

Linds explained that he was attempting to create a

. . . space of the possible as an ever-evolving, ever-dynamic, ever-expanding web of interrelationships. This "space" is dynamic because the living world and our bodyminds are always evolving and developing through interaction with one another; spaces of possibility evolve through our interactions with/in the world. When spaces interact, delightful possibilities spring forth. (p. 11)

This notion of occasioning a "heightened sense of interaction" in an enactive educational setting was also advocated by Dan Collins (2002). In the context of interactive emergence in art and education, Collins asked:

Is it possible for artists and educators to provide students with rich, evolving content—translated into "living curricula" that not only convey essential skills for success, but evolve to meet the ever changing needs of students attempting to develop higher order cognitive skills that can transfer into a variety of settings? (p. 15)

Collins' answer took a form reminiscent of Paulo Freire's (2000) distinction between "banking education" and "liberation education," with the added value of an enactivist orientation:

Students and instructors alike are capable of both sending and receiving messages across a myriad of pathways. Many educators continue to be stuck in a method of teaching that echoes the structure of the one-way "broadcast"—a concept that harks back to broadcast media such as radio. In the typical lecture the teacher as "source" transmits information to passive "receivers." This notion of "one-to-many" model that reinforces a traditional hierarchical top-down approach to teaching is at odds with truly democratic exchange. Everyone is a transmitter and a receiver, a publisher and a consumer. In the new information ecology, traditional roles may become reversed—or abandoned. Audience members become active agents in the creation of the new networked/artwork learning community. Teachers spend more time facilitating and "receiving" information than lecturing. Students exchange information with their peers and become adept at disseminating knowledge. Participant/learners interacting with systems are challenged to understand that cognition is less a matter of absorbing

ready made "truths" and more a matter of finding meaning through iterative cycles of inquiry and interaction. Ironically, this may be what good teaching has always done. (p. 16)

Michael Cummings (1998) viewed elementary school science teaching as "hunkering" from the broad perspective of enactivism. He used examples of hands-on learning, community learning, writing to learn, and project work for describing children's learning and understanding as, in part, enactive. As both a perspective and action, Cummings explained that "hunkering embodies an observation from the interstice, as suggested by Varela et al.'s (1991) 'double embodiment' — an opportunity to see from the spaces that exists *between* the knower and the known" (p. 100).

1.1.3   Qualitative research. Educational qualitative research is another area developing a broad enactive approach (Fels, 1999; Haskell et al., 2002; Kieren et al., 1995; Luce-Kapler, Sumara, & Davis, 2002; Reid, 1996; Sumara & Davis, 1997). The enactive approach is seen as bringing a fresh set of questions to educational qualitative research. Haskell et al. asked: "In what ways are the researcher, the research participants, and the research setting shaping each other? Are they distinct entities, or only possible in relation? How do we understand their mutual interaction? As research? As knowing? As experiencing?" (p. 3).

Warren Linds (Haskell et al., 2002) raised the following questions:

How can such an enactive view assist us in creating conditions where research continually takes into account the emerging networks of relationships that continually grow, change and respond to challenges? How aware are we as researchers of the ways we respond verbally and kinesthetically to what happens around us? Do we have an approach to research that recognizes the primacy of relationships, the braiding of language and the shifting emotional states in our behavior? How can we help others learn reflective and mindful awareness that empowers them to access their intuitive and embodied abilities, as well as fuel

their interpretive and imaginative powers in their research practice? . . . How does one learn to research this type of emergent learning? How might research move beyond "facts" and "rules of inference" to the type of intuitive action . . . which is mindful of complex (inter) playing requiring common sense, wisdom, and mature judgment? (pp. 12–15)

Reid (1996), Kieren et al. (1995) and the Enactivist Research Group were some of the first authors in North America to write about the enactive view as a research methodology. Reid explained that the enactive ideas of autopoesis, structure determinism, structural coupling, and co-emergence inform and define enactivism as a research methodology in mathematics education, "a theory for learning about learning" (p. 2). He viewed enactivist research methodology as addressing the activity of research on three main levels: (a) interrelationship between researcher and data; (b) interrelationships in the research community; and (c) process of co-evolution of ideas as the emergence of a new idea (p. 2).

Reid's purported enactive research methodology demonstrated an evident tension between co-emergence and interactionism that suggested his approach was "interactive," not "enactive." At best, this tension points to "part of the incorrigibility of binaries" (Boler, 1997, p. 209) or the tendency of misleading binary oppositions to replicate (Boler, p. 203); at worst, it indicates a misnomer. As a result of this tension, his view did not reflect an enactive view of dynamic co-emergence, structural coupling, information or change, but rather unwittingly presupposed a mechanistic model of "inter-action" rather than "en-action."

The first level of Reid's (1996) enactive research methodology was the interrelationship between researcher and data. He viewed the analysis of data in enactivist research as a process of the co-evolution of ideas:

> Theory and data co-emerge in the medium of the researcher. The necessity of theory to account for data results in a dialogue between theory and data, with *each one affecting the other* [italics added]. As enactivist researchers *we attempt to make use of this interaction to transform the analysis* [italics added] of data into a continual process of change and *encourage this process as the mechanism of our own continuing learning* [italics added]. (Reid, p. 4)

Reid (1996) qualified the above by stating that data "establishes constraints" as it "forbids some hypotheses" (p. 3). Although he mentioned "dialogue" and "process," the substance of Reid's view above points to a focus on the interaction of theory, data, and researcher. Theory and data "affect" one another and researchers use this interaction as a "mechanism" to "transform the analysis of data." Also, data "constrains" and "forbids some hypotheses." Reid's words suggest interaction, rather than enaction.

Interactionism involves something acting upon something else—separate and distinct realities or entities "each causally affecting the other" (Angeles, 1981, p. 176). Dewey and Bentley (1973) provided a comprehensive examination of the meaning of the concept *interaction* as one of "three levels of the organization and presentation of inquiry" (p. 132). Interaction is distinguished from the other two levels of self-action and transaction. Dewey and Bentley understood these levels as "all human behaviors in and with respect to the world, and they are all presentations of the world itself as men report it" (p. 132).

Dewey and Bentley's (1973) definition of interaction in terms of the description of events, names and naming, fact, organism and environment (p. 137) highlights Reid's (1996) interactive perspective. The relationship between research, data, and researcher for Reid are at the level of interaction when measured against Dewey and Bentley's conceptual criteria, "where thing is balanced against thing in causal interconnection" (Dewey & Bentley, p. 132). Reid's interactive "dialogue between theory and data" (Reid, p. 4) assumed that events "have been adequately described prior to the formulation of inquiry into their connections" (Dewey & Bentley, p. 137). Data enters Reid's interactive research model "as if adequately named and known prior to the start of inquiry, so that further procedure concerns what results from the action and reaction of the given objects upon one another" (p. 137). Reid's interactive procedure sets up facts as separate "inter-acting constituents . . . each in independence of the presence of the others" (p. 137). The above interactive features of his approach assumed that research, data, and researcher are "substantially separate existences or forms of existence, prior to their entry into joint investigation" (p. 137). This assumption of separate existences prior to joint investigation is clearly evident in the title of a paper Reid co-authored: "Co-emergence: Four Enactive Portraits of Mathematical Activity" (Kieren et al., 1995). Although Kieren et al. used the term co-emergence, the "portraits" are four separate research papers compiled into one, a research strategy that suggested interaction rather than enaction.

Reid's (1996) second level of enactive research methodology, concerned with the interrelationships in the research community, can also be seen as interactive rather than

enactive. When speaking of this second level, Reid referred to "autopoietic researchers" who "engage with other researchers in ways which preserve the structural coupling between us" (p. 2). He viewed the researchers in a field as forming a community, a context in which their research occurs. Notice that "community" and "research" are distinct entities coming together to "form" a "context," not emergent phenomena. Reid explained that, as a researcher, "I have to learn in ways which *allow me to remain in interrelation* with the participants and other aspects of my own research, and simultaneously in ways which *allow me to remain a member of this research community*" (p. 3). According to this explanation, researcher, research community, and research are not self-organizing, emergent phenomena, but rather interact like parts of a properly functioning machine. Reid noted that if researchers did not acknowledge data and community constraints, then a severing of structural coupling with a research community would result (pp. 3–4). Structural coupling by definition, however, cannot be severed since, as E. Thompson (2007) noted, "an autonomous system is always structurally coupled to its environment" (p. 45), given that "autopoiesis is the paradigm case of biological autonomy" (p. 44). It needs to be made clear that Thompson's use of the term "autonomy" is not what Boler (1997) called "part of the legacy of rationality and its myriad historical versions which continue to dominate our conceptual and linguistic approaches to . . . inquiries" (p. 203). Varela (1999) explained that

> . . . the key to autonomy is that a living system finds its way into the next moment by acting appropriately out of its own resources. And it is the breakdowns, the hinges that articulate microworlds, that are the source of the autonomous and creative side of living cognition. (Varela, 1999, p. 11)

The enactive approach understands an organism's "acting out of its own resources" is "a matter of the common-sensical emergence of an appropriate stance from the entire history of the agent's life" (Varela, 1999, p. 11), given that the organism is a living body and is structurally coupled to an environment.

Without the idea of structural coupling, Reid's view falls short of enaction. E. Thompson (2007) noted that "co-determination of organism and environment is central to the concept of enaction. Like two partners in a dance who bring forth each other's movements, organism and environment enact each other through their structural coupling" (p. 204).

Furthermore, Reid (1996) explained that researchers needed to attend to interrelations, since structural coupling "tends to be self-reinforcing, either because of the structures on the entities involved, or because they form part of an autopoietic entity whose autopoesis requires *maintaining structural coupling* [italics added] among its parts" (p. 2). Again, notice the separate parts interacting in structural coupling rather than co-emerging. At issue in Reid's statement is how we understand "maintaining structural coupling" (p. 2). Reid's previous statements about "preserving structural coupling," learning to "remain" in a research community, and data that "constrains" and "forbids" certain hypotheses, suggest that "maintaining" can be understood in Darwinian terms that conceive of natural selection as "an independent filter or constraint on viability . . . rather than as an emergent consequence of the structural coupling between autonomous systems and their environments" (E. Thompson, 2007, p. 207). Thompson raised this issue concerning enactive evolution:

The structural coupling or interactive dance between reproductive autonomous systems and their environments generates natural selection. By this I mean that natural selection results from the "satisficing" of viable trajectories effected by the autonomous networks themselves in their structural coupling with their environments. The key point is that natural selection is not an external force or constraint impinging on the networks from an independent environment; rather, it is the outcome of the history of co-determination between the network and their surroundings. (p. 207)

The Enactivist Research Group (Kieren et al., 1995; Reid, 1996) explored what they called two main features of enactivist research: multiple perspectives and bricological research. It is unclear to me that enactivist research methodology is either multiperspectival or bricological. Reid explained that multiple perspectives can refer to many aspects of enactivist research, the most obvious being "the participation of a number of researchers, each with her or his agenda, theories, and background" (p. 4). He said that enactivist research was different from collaborative research because "there is no common goal or question (beyond the general nature of cognition)" in the former (p. 4). He used the phrase "multiple consensual contradictory perspectives" to refer to the researchers' various points of view. Multiple perspectives emerge in three main ways: One, "through multiple revisitations of data." Two, through the "examination of a wide range of data." Three, the "act of communicating our research to others" inviting "audiences and readers to engage with us in enactivist research producing their own interpretations of our ideas and data" (p. 4). As explained by Reid, a multiperspectival approach does not seem to be either a necessary—or a sufficient—condition of enactivist research methodology.

A second main characteristic of enactivist research, according to Reid (1996), is that it is "bricological" (p. 5). The concept of *bricolage* refers to research that recognizes

and emphasizes complexity in its structures, theories, and models. "Bricological

research combines the flexibility and creativity of *bricolage*, with an underlying *logic* of

inquiry" (Reid, p. 5). By contrast, a "technological attitude" focuses on

"straightforward, 'clean' techniques" producing lots of results (Reid, p. 5). A key feature

of bricological theories and models is that "they do not purport to be representations of

an existing reality. Rather they are theories for; they have a purpose . . . [and] it is their

usefulness in terms of that purpose which determines their value" (Reid, p. 5). Kieren et

al. (1995) explained that enactive research approaches "entail the flexibility and

pragmatics of a bricolage using a wide variety of techniques which respond to the

'materials' at hand—actions, inter-actions, transcripts, tapes, artifacts, conversations

about any of the above" (p. 4). The varied approach and use of complex structures,

theories, and models does necessarily entail an enactive research methodology that

presupposes an enactivist view of the mind and cognition, embodiment, or human

experience.

Haskell et al. (2002) explored an approach to research she called "enactive

inquiry" (p. 5). Fels (1999) outlined a similar research approach, called "performative

inquiry" (p. 25). Haskell et al.'s research centred on trying to interpret the meaning of

high school students' experiences with the outdoor world. Haskell defined enactive

inquiry as "a mindfulness/awareness that helps uproot or to bring forth perspectives

through learning to embody groundlessness" (p. 5). This is done through embracing

"the unpredictable and unexpected moments, the unfolding we are immersed with/in

yet not graspable, in that they are constantly arising through action and not located in a

self" (Haskell, p. 5). Haskell invoked a related concept of "embodied listening" and

"storying." She does not make it clear how this is an approach to research. She claimed

that enactive inquiry provides an emergent, embodied way to approach research, but

she did not explain what this approach looks like or how it can be achieved.

Haskell et al. (2002) stated that enactive inquiry is like writing poetry; both

involve attending to

> . . . words arising on the page—images emerging through the text and the
> reading of that text. A poet finds a space where they embody world/foster
> interpretation. This pedagogical act opens potential for learning, for
> experiencing, and for re-searching. An embodied inquiry allows the re-
> experiencing or the re-embodiment of me as a researcher, the poet, and
> (co)inquirer. Communities of learning are complex, demanding a theoretical
> framework which is open to the invisible and unexpected. The spontaneous
> interplay of perception and actions are caught up in the living "flesh" of
> experience. (p. 5)

Haskell et al. (2002) stated that some readers may find the groundlessness

captured in their analogy frightening. Later, they claimed that there is a "certain

amount of risk . . . inherent . . . [in] enactively inquiring" (p. 10). The reader is left

wondering: "what risks?" Without explaining and supporting their claims, they see it as

"an exciting 'chiasm'" (Haskell et al., p. 5). I suspect that some readers may feel

confused, rather than frightened, by Haskell et al.'s account. Further, Haskell et al.

stated that enactive inquiry is like what Varela meant by "laying down a path" and

what Dewey meant by "quests or 'act[s] of experiencing'," research done "mindfully by

involving all the senses" (p. 9). How is this research mindful? In what way does it

involve all the senses? Alliance with the ideas of Varela and Dewey alone are not

sufficient grounds for the comparison; more explanation about the ways in which

enactive research is like "laying down a path" or "experiencing" is required.

Haskell et al. (2002) offered an interesting and creative terminology to express

enactive inquiry, including concepts such as "re-searching," "re-experiencing," "inter-

view," "inter-acting," and "jour(ney)nals." These invented terms are not supported by

definition, but rather accounts of experiences are interwoven with commentary, such as

the following: "enactive inquiry is a process whereby intention and action blur into the

flow of doing. Doing, experiencing, being are inseparable from the inquiry of embodied

actions" (p. 8). Haskell et al. quoted Clements, Ettling, Jenett, and Shields (1999): "The

method is never frozen but is constantly responding to the creative shouts and whispers

of the primary wisdom of the research itself" (pp. 2–3). The meaning of enactive inquiry

is unclear. The form of the shouts and whispers and the primary wisdom are not

explained or illustrated. Some readers may be left wondering how this new approach to

research is done. It might be considered doubtful whether this confusion is less a

problem with Haskell et al.'s conceptual analysis, argument skills, and writing style,

and more a problem of trying to express a research approach that may be

incomprehensible in dominant terms.

Sumara and Davis (1997) offered a clear picture of enactive educational

qualitative research. They described a "participatory collaborative action research"

approach as a "form of collective cognition" (p. 405). The initial purpose of their action

research group was to read and respond to literary texts and participate in mathematics

learning activities as part of a collective inquiry into the relationship between literacy

and mathematical understanding. However, an unexpected event prompted them to

broaden their research boundaries to include the community. The unexpected event

was the rejection of a novel as course material by the principal on the grounds that it

was considered too controversial. The teachers suggested that it might be interesting to

invite parents to read the book, not so much to approve of it, but to enjoy the experience

of reading it. The parents agreed to read the book with a positive outcome. The parents

approved of the book and began discussing it in the community, at dinner tables with

their children, and with teachers. Sumara and Davis noted that this "shared reading"

resulted in a "set of complexly interesting relations" (p. 405). They explained that

> . . . this action research with teachers, parents, and students has helped us to
> better understand that learning is "occasioned" rather than "caused." As various
> cultural theorists have suggested, all of our understandings are situated in and
> co-emerge with complex webs of experience, and so we can never discern the
> direct causes of any particular action. Trying to establish a causal relationship
> between one event and another, or between a teaching action and a learning
> outcome confuses essential participation with monologic authority. (p. 412;
> references omitted)

Sumara and Davis (1997) compared this instance of "cognition as a communal

act" (p. 411) to Gadamer's (1990) notion of dialogue or conversation. In this situation

embodied cognition emerged from the dynamic co-determination of self and other.

Haskell et al. (2002) observed that "research/re-searchers are not pregiven but

enacting. . . . Such an approach implies that knowing evolves not only within 'minds,'

but emerges collectively through engagement of shared action" (p. 3). Sumara and

Davis reiterated this point:

> . . . as our discussion continued, it became clear that these "readings" had created
> a location for collective interpretation and action. . . . Knowledge was being
> created in these collective settings, not simply reported on. . . . The lines between

parent/teacher/university professor had become blurred. In the "commonplace location" (Sumara 1996) announced by our shared reading we had created a place for collective interpretation. (p. 411)

Sumara and Davis (1997) argued that, as Gadamer suggested,

. . . the conversation is something more than the coordinated actions of autonomous agents because, in a sense, it has us, we do not have it. In the process of opening ourselves to others, we also open the possibility of having our understandings of the world—and hence, our senses of identity which are cast against the background of that world—affected. (413)

For Sumara and Davis (1997), enactivism provided an interpretive lens that

helped them to understand action research as a complex system and helped them better

understand their teaching and research practices. They explained that for them—as

with the students, the teachers, and the parents with whom they worked—"such

categories as 'teaching', 'learning', and 'research' tend to fold into one another within

an action research project informed by this understanding of human cognition and

action" (p. 420). This is what Haskell et al. (2002) described as "research informed by

and respectful of complex worlds of schools/community . . . not just 'interventions' but

instances of complicity where our research unfolds with/in communities-in-the-making

partnerships and interrelationships" (p. 4).

As Sumara and Davis (1997) explained, their community learning situation

showed them that

. . . reflecting on action research practices . . . is never merely descriptions and analyses of particular events. Rather, it is a complex process of showing the ways in which shared research practices and the learnings that accompany them are intimately connected to participants' remembered, lived, and projected experiences. Enactivist theory reminds us that when interpreting practices, we are, at the same time, interpreting the lived experiences of those who participate in them. Action research is not merely a set of practices that researchers simply

add to their existing practices—action research is a way of organizing and interpreting one's lived identities. (p. 420)

The enactivist embodiment thesis is reflected in the call for qualitative researchers to engage in embodied research practices. If we accept "a world enacted of our history of structural coupling" (Varela et al., 1991, p. 217), then "various forms of groundlessness are really one: organism and environment enfold into each other and unfold from one another in the fundamental circularity that is life itself" (p. 217). If the mind is not located in the head, but is embodied in the whole organism embedded in its environment, then, as Haskell et al. (2002) observed, ". . . new possibilities emerge for how researchers perceive, interpret, research, and interact within the world" (p. 1). Haskell et al. explained that the opportunity for embodied research practices requires "constant epistemological vigilance" and the *experiencing of the middle ground* [italics added] in qualitative research between an unproductive "logic of objectivity" and the "unnecessary anxiety" generated by "our partiality as researchers," our subjectivity (p. 1). As enactive educational researchers, "we give up philosophical foundationalism" requiring us to "learn to live in a world without foundations" (Varela et al., p. 218).

1.1.4   Curriculum. The broad enactive approach in education has the potential to leave no part of education intact; it can even include redefining curriculum as a dynamic co-emergent action. Davis, Sumara, and Kieren (1996) led the way with a theory of curriculum co-emergence in which the various components of curriculum action (e.g., students, teachers, texts, and processes) exist in a dynamic, mutually specifying relationship. They used this theory to analyze two classroom interactions: an elementary school lesson on fractions and a secondary school unit on antiracism.

Through these examples, they explored the co-emergent and intertwining natures of knowledge (individual and collective) and identity (individual and collective). They concluded that a conception of curriculum as a co-emergent phenomenon could help overcome the unhelpful dichotomies that tend to be enacted in both child- and subject-centred pedagogies.

I noted previously that Reid's (1996) enactivist research methodology was a misnomer due to a serious and evident equivocation on the key term, *co-emergence*. I argued that as a result of this shift in the meaning of co-emergence—from how enactivists usually understood it Reid's use of the term to mean *interaction*—his research methodology could be seen as "inter-active" rather than "en-active." Davis et al. (1996) did not equivocate on the concept of co-emergence and presented a genuinely enactive approach to understanding curriculum in the following ways.

First, Davis et al. (1996) understood curriculum from a nonrepresentationalist perspective. Representationalism (also called *representative realism* and *indirect realism*), is the view that

> . . . our subjective sensory experience (and the beliefs that we adopt on the basis of it) constitutes a *representation* of the external material world, one that is caused by that world and that we are justified, on the basis of something like a causal or explanatory inference, in thinking to be at least approximately accurate. (BonJour, in press, p. 9)

A representative theory of perception believes that objects are separate from the ideas we have of them; that is, our ideas of objects represent, copy, or correspond to the external objects in the world. These objects cause our ideas of them by physically stimulating our sense organs, and our mind processes these stimuli in the act of

perception to form our ideas. As a theory of meaning, representationalism sees words as representative symbols that correspond to something in the external world, and their meaning as derived from the representation or correspondence.

A representationalist view of curriculum is motivated by the metaphysical gap between the subjective inner mind and the objective external world—between knower and known (Williams, 2006, p. 10). A representationalist view of curriculum can be understood through the lens of Martin's (1982) "two dogmas of curriculum" (pp. 5–19). Martin argued that deeply embedded in our thinking about curriculum are a set of unchallenged, second-order assumptions. She used the term *second-order assumptions* in the same way as Hindriks (2006), to mean "assumptions that explicate the purposes for which or the reasons why particular first-order assumptions are imposed" (p. 401), thereby elucidating the "roles that particular first-order assumptions play" (p. 402). Hindriks illustrated the difference between the two assumptions in the following way. An example of a first-order assumption would be "the government's budget is balanced," and an example of a second-order assumption would be "the theory only applies to domains in which the government's budget is (approximately) balanced" (p. 402). He explained:

> First-order assumptions are directly relevant to the models that are constructed on the basis of the relevant theories. A consequence of the first-order assumption mentioned might be, for instance, that the model contains no variable related to the government's budget at all. (p. 402)

Martin (1982) examined two second-order assumptions that make first-order assumptions about curriculum possible. First-order assumptions prescribe what curriculum should be. The "Dogma of God-Given Subjects" and the "Dogma of the

Immutable Basics" (p. 5) are second-order assumptions justifying first-order presuppositions about, respectively, "what to teach, or when" and "how the basics of education should be taught" (p. 5). These two second-order assumptions illustrate a representationalist view of curriculum.

The Dogma of God-Given Subjects (hereafter referred to as DGS) takes a representationalist view of things that can be subjects (Martin, 1982, p. 5), subject construction (p. 10), and subjects and learning activities (p. 12). DGS assumes that there is a direct correspondence between the reality of what needs to be learned and the subjects that teach this truth. This presupposes that subjects are not made. Instead, they are found "out there waiting for us" (p. 6); for example, "the standard liberal curriculum whose subjects are History, Literature, Mathematics, Physics and the like" (p. 9). Thus there are limits to what can be a subject, since "subjects are . . . out there waiting to be recognized" in the form of "neat, ready-made bundles of subject matter which one finds on one's doorstep" (p. 8). DGS also assumes that there is "one right set of parts into which to divide a subject" (p. 11) giving the impression that "one curriculum decision leads inexorably to the next" (p. 11). As a result, DGS has led to a limited view of what counts as a learning activity.

The Dogma of the Immutable Basics (hereafter referred to as DIB) assumes that the basics of education are "unchanging and eternal" (Martin, 1982, p. 5) representations of reality, "immutable givens" (p. 14). Martin went on, "thus teachers believe that theirs is not to reason why, theirs is but to teach the 3Rs or die in the attempt" (p. 14).

Martin (1982) argued for a nonrepresentationalist, constructivist approach to curriculum. She explained that subjects are "human constructions" (p. 6). The "bundles of subject matter which belong to our subjects are not out there waiting to be recognized, but are themselves human creations" (p. 8) based on our value-ridden decisions and pleasures. She espoused the view that "there is neither a short list of subjects nor a preestablished pattern of human behavior to which every subject must accommodate itself, and thus there is no reason at all to fear them" (p. 9). Martin argued that curriculum development is a "creative art" in which "one decision may make certain others seem inappropriate or out of place, but they do not flow from one another in accordance with the rules of deductive logic" (p. 11).

Nonrepresentationalism, however, is a necessary (although not sufficient) condition for an enactivist theory of curriculum. Martin's (1982) constructivist form of nonrepresentationalism makes no reference to a perceiver-independent world, and yet it is not an enactive view. Making an unwittingly dualistic distinction between a "subject" and a "subject-entity," she explained that "every subject takes as its point of departure something 'out there' in the world which for want of a better term I will call a *subject-entity*" (p. 6). Also, she depicted subject construction in mechanistic terms. "There are parts to be chosen and relationships among them to be traced" (p. 11). In addition, she understood learning and action in nondynamic, mechanical terms. She observed that "just as moving one's hand is a building block or generator of the act of opening a door, so reading, writing and arithmetic are building blocks or generators of

the act of learning" (p. 15). Martin's approach showed that nonrepresentationalism does not guarantee an enactive approach.

Davis et al.'s (1996) approach can be seen to be enactive, not merely interactive, for the following reasons. First, as I established above, Davis et al. understood curriculum from a nonrepresentationalist perspective. However, nonrepresentationalism is not a sufficient condition on its own for an enactive approach, so it is necessary for me to address further reasons. A second reason why their view of curriculum can be seen as enactive is that it is founded on an enactive understanding of experience and cognition. Davis et al. challenged two basic assumptions of many curriculum makers: "first, that we are able to identify the skills and the knowledge that learners will need to become full participants in society and, second, that learning is controllable" (p. 153). They rejected the representationalist framework by understanding cognition and experience as necessarily intertwined with action and everything social. According to representationalism, learning has a predictable, predetermined outcome that corresponds with teaching; for example, "teaching *caused* the learning" (p. 153) resulting in a "desired product of learning" (p. 153). Davis et al. rejected representationalism by focusing on the "dynamic, ever-evolving fabric of social experience and cognitive action which co-emerges within particular events of curriculum" (p. 153).

Third, Davis et al.'s (1996) perspective presupposed circular causality; that is, they assumed an enactive, nonlinear view of causation:

> How could the teacher be considered the "cause" of these students'
> actions? . . . We cannot hope to predetermine the consequences of any particular

teaching or curricular act. Like any social event, learning is a complex phenomenon; it resists the linear and causal reductions that are often imposed in misguided efforts to control it. From this perspective, learning should not be understood in terms of a sequence of actions, but in terms of an ongoing structural dance—a complex choreography—of events which, even in retrospect, cannot be fully disentangled and understood, let alone reproduced. (p. 153)

1.1.5 Experiential learning. The broad enactive approach has also informed discussions about experiential learning (Bopry, 2008; Fenwick, 1999, 2000, 2001a; Haskell, 1999). The enactive approach formed part of Tara Fenwick's (1999, 2000, 2001a) theoretical critique of experiential learning. She developed a typology of theoretical perspectives that can inform experiential learning. Her goal was to "disrupt conventional notions of experiential learning and invite more discussion about alternative conceptions" (Fenwick, 2000, p. 1). Fenwick (1999) was not advocating the enactive approach over situative, constructivist, critical, and psychoanalytic views, but rather was calling for "a careful comparison of theoretical frames . . . to help researchers and educators better understand and name the various processes occurring as experiential learning, and constitute their own roles relative to these processes in moral sensitive ways" (p. 7).

Haskell (1999) understood experiential learning as the inseparable coupling of action, experience, and cognition. She drew on an enactive view of embodiment—in particular, the act of kayaking— to show how "mind and body merge into living action" in the interaction with phenomena in the outdoors. She saw the environment itself as sentient experience. She explained that the river environment and the kayaker emerged from "history as a coupling between systems . . . that occur over time as mutual interplay" (p. 157). Referring to Varela et al.'s (1991) discussion of

groundlessness, Haskell argued that experience necessarily involves groundlessness as "a way of thinking, acting, and perceiving which constantly arises in the momentary flux of experience" (p. 160).

    1.1.6   Professional learning. The broad enactive view is evident in the area of professional learning (Fenwick, 2001a; Mannion & I'Anson, 2004). Fenwick drew from findings of a qualitative study exploring the learning processes of individuals working in environments characterized as "post-corporate" enterprise cultures. She concluded that "work knowing" is "knowing on the fly" (p. 9). Through a study of co-emergent epistemologies in these cultures, Fenwick presented an enactivist account of "work knowing." She proposed a way of understanding "work knowing" as co-emergence, "at the intersection of invention, identity, and environment" (p. 2, citing Mannion & I'Anson, 2004, p. 312):

> Entrepreneurial knowing appears to co-evolve in a complex relation of identity and daily choices that create the enterprise, which interacts with the evolving systems within and around it in spontaneous and adaptable ways. . . . In other words, people participate together in what becomes an increasingly complex system. New unpredictable possibilities appear continually in the process of inventing the activity, and old choices gradually become unviable in the unfolding system dynamics. (p. 255)

    George Mannion and John I'Anson (2004) drew on Fenwick's (2001a) and Sumara and Davis' (1997) work to explore and put forth an enactivist theory of professional learning emerging from sensorimotor activity and sociospatial relations. Mannion and I'Anson argued that "knowing emerges at the intersection of invention, identity and environment" (p. 312). They described a case study of children and young people's participation and the attendant effects on professional practice and child-adult

relations. Their evidence indicated that adults and children were finding new ways of working and relating and that these processes were inherent in efforts to reconfigure space. They argued that changes occurred in and through the shaping of real and imagined places. They found that for the adults in their study, learning was a "sociospatial and relational activity that involved risk and the negotiation of new demands" and that learning occurred while attempting, or struggling, to co-construct space and relate to children in an alternative way" (pp. 312–313).

This completes my survey of the first phase of the enactive approach in education, the broad view.

1.2   The Narrow Complexity Theory View

The second phase of the enactive approach in education, the narrow complexity view, began in the early 2000s and extends up to the present. It is a shift from a broader view of mind, experience, and cognition to a narrow focus on education understood in terms of the emergence of complex, dynamic systems.In a mere eight years, a burgeoning field of scholarship in complexity and education was established.

A narrow complexity perspective gradually replaced a broad enactive approach in education and over time became the inherited or received view of enactive education, a focused, second phase of enactive education. Davis led the way.

What I called the *problem space* of complexity theory in education developed from the complexity heritage or the received, narrow, second phase of enactive education. The problem space is characterized by the recognition of limitations to the perspective in the form of a triad of objections (Alhadeff-Jones, 2008; Davis & Sumara, 2008;

Fenwick, 1999, 2000, 2001a; Kuhn, 2008; Michie, 2004; Morrison, 2008; Phelan, 2004).

These objections began to be raised around the time of the transition from the first to the

second phase of the enactive approach in education, and continued up to the present.

These objections can be seen as a triad because they form a constellation of interrelated

concerns for subjectivity, sense-making, and right action. I review these objections

below.

I do not disagree or object to the use of complexity theory in education. As I

argue in chapter 1 of this dissertation, complexity theory (originating from the

discipline of science) or dynamic systems theory (originating from the discipline of

mathematics) is one of three fundamental tenets of a broad enactive approach.

Complexity theory should be properly seen as a second, focused phase or narrow,

received view of the enactive approach in education. In Chapter 4, I highlight the

limitations of complexity theory in education and the advantages of a broad enactive

approach.

My position is that Davis' body of work can be called a broad enactive approach

to education (Davis, 1993, 1995, 1996, 2004, 2005, 2008; Davis & Phelps, 2005, 2006, 2007;

Davis & Simmt, 2003; Davis & Sumara, 1997, 2002, 2005a, 2005b, 2007, 2008; Davis,

Sumara & Kieren, 1996; Davis & Luce-Kapler, 2000, 2008). Davis is a leader in two

educational movements, the broad enactive approach and complexity theory in

education.

Davis, along with a significant cluster of new academics out of the University of

Alberta, focused on the enactive approach in education. Up until the late 1990s, Davis

described his own work as an enactive perspective. After the late 1990s, Davis replaced the term "enactivist" with "complexivist." Davis followed a move Varela himself makes in an article in the late 90s in which the latter stated that the terms were essentially the same.[2]

Davis' dropping of the term "enactivist" steered the focus in educational theory away from a broad enactive approach to a narrow complexity theory view. Davis thought nothing of replacing the terms, since he saw the terms as interchangeable. Other people working in the field of complexity theory in education, however, did not see a broad enactive approach as interchangeable with a complexity view. These thinkers, many publishing in the journal, *Complicity*, that Davis founded, studied teaching and learning as a self-organizing, complex, dynamic system, without focusing on an enactive view as a theory of the mind and cognition and a method of examining human experience. Unlike most of the work in complexity theory and education, Davis' work consistently presupposed and included an enactive view of mind and cognition and phenomenological accounts of experience in his scholarship. This narrow complexity view gradually replaced a broad enactive approach in education and over time became the inherited or received view of enactive education, a focused, second phase of enactive education.

A highlight in the development of this phase was the founding in 2004, by Davis and others, of an international journal of complexity and education, *Complicity*, which

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[2] As reported in an email sent to me from Davis dated October 20, 2008. I have not been able to find the article in which Varela made this statement.

publishes various discussions addressing complexity theory and different areas of educational concern. From 2001 to the present, various journals featured articles addressing complexity and education. Moreover, from 1997 to the present at least 12 books in English have been published on the topic of complexity and education (Cutright, 2001; Davis, 2004; Doll, Fleener, Trueit, & St. Julien, 2005; Doll & Gough, 2002; Fleener, 2002; Hoban, 2002; Kieran, 1997; Kincheloe & Berry, 2004; Mason 2008). In 2008, both the *Journal of the Canadian Association for Curriculum Studies* (JCACS) and *Educational Philosophy and Theory* (EPT) published special issues on complexity and education. Also, the theme of the American Educational Research Association 2010 conference was "Understanding complex ecologies in a changing world."

A brief definition of complexity theory is required before I can outline complexity theory in education.[3]

Complexity science studies adaptive, self-organizing systems that can be seen as learning systems. In general terms, complexity theory studies the behaviour and common properties of complex systems. Complex systems are nonlinear, dynamic, unpredictable (Solé & Goodwin, 2000), spontaneous, volatile, self-organizing, self-maintaining, adaptive (Davis, Sumara, & Luce-Kapler, 2000) and consist of a large number of interacting components (Semetsky, 2008). Complexity theory focuses on dynamic relationships, patterns, and processes among phenomena, rather than the

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[3] My brief definition of complexity theory and my discussion of complexity theory and education is indebted to the glossary of terms ("Complexity and education," n.d.) provided on the University of Alberta's website.

static properties of isolated objects. Key concepts of complexity theory include *emergence* and *self-organization*.

Complexity science is a core aspect of the enactive approach, but the enactive approach is broader. The complexity perspective is focused on studying dynamic structures, but the enactive approach goes further. It sees how an organism's dynamic structure embodies its biological and experiential history. In the enactive approach, an organism's dynamic structure or body schema (Gallagher, 1986a, 1986b, 1995a, 2001, 2005; Gallagher & Cole, 1995; Thompson, 2005, p. 411) specifies its possible perceptions, actions, knowledge, and world at any given moment. An organism's world, knowledge, and mind emerge from a history of embodied cognition through a process of *structural coupling* or *co-determining interaction* between the organism's structure or body schema and its environment or world.

I outline below some of the ways that complexity theory is a narrower perspective on education than a broad enactive approach, in the following areas of concern: educational theory, curriculum, pedagogy and teaching, learning, leadership, architecture and space, politics, embodiment, research, educational change, and epistemologies of schooling.

1.2.1   Curriculum. Curriculum has been understood through the lens of complexity theory (Doll 2008; Doll et al., 2005). Doll redefined the goals, purpose, and meaning of curriculum through a "systems view" and a focus on "organized complexity" (p. 201). Like Davis et al. (1996), Doll rejected conventional understandings of curriculum as preparing students for certain roles—as, for example, citizens or adult

workers—and reconceived of curriculum as a process, rather than a linear plan to control knowledge transmission. Doll saw curriculum as fluid, interactive, unpredictable, and "open, dynamic, relational, creative" (p. 191).

Complexity educational theorists and philosophers aim to foster complex learning collectives in the classroom by drawing on five of a number of conditions that complexity science theorists have identified as necessary for complex emergence: internal diversity, internal redundancy, decentralized control, enabling constraints, and neighbouring interactions (Davis, 2005; Davis & Sumara, 2008; Doll, 2006; Fleener, 2005; Gough, 2007; Hase & Kenyon, 2007; Kieren, 2005; Mason, 2008a; Morrison, 2008; Osberg, 2005; Osberg, 2008; Ricca, 2008; Semetsky, 2008a; Siemens, 2007; Smitherman Pratt, 2006, 2008; Stanley, 2006; Stewart, 2007; Trueit, 2006; Whitson, 2008).

The Complexity and Education website ("Complexity and education," n.d.) comments on the conditions for complex emergence. The first condition, internal diversity, refers to the fact that any given learning environment or typical classroom consists of a variety of backgrounds, interests, knowledge, abilities, and personalities. The complexity and education scholarship aims to enable this variety to contribute to learning. The second condition, internal redundancy, relates to the classroom's similarities in culture, history, language, expectations, and experiences. This second condition is concerned with enabling classroom collectives to dynamically interact and maintain coherence by including a focus on a common ground. The third condition, decentralized control, refers to the aim of shifting classroom control from the teacher or authority to collective learning experiences, often called "teachable moments," that are

unpredictable and cannot be precisely controlled. The fourth condition, enabling

constraints, refers to structures or boundaries that enable dynamic learning. The fifth

condition, neighbouring interactions, refers to the enabling of the emergence of

knowledge from interactions in which people's ideas, interpretations, and habits of

inattention are allowed to "bump up" against one another, "creating the potential for

novel, innovative and insightful knowledge to emerge" (Complexity and education). As

I have shown above, accepting these conditions is not enough, given that complexity

theory can be founded on dualistic second-order assumptions about the relation of

parts to whole, mechanism, and traditional—"survival of the fittest"—Darwinian

evolution.

Sensorimotor subjectivity seems to fall by the wayside in the shift from a broad

enactive approach to experience and cognition founded in emergentism and a narrow

complexity view. A focus on systems, at the cost of experience, action, and embodied

cognition, ignores Thompson's (2007) observation that "what the animal [or human]

senses depends directly on how it moves, and how it moves depends directly on what it

senses" (p. 47). Thompson explained that "the animate form of our living body is thus

the place of intersection of numerous emergent patterns of selfhood and coupling" (p.

49). A narrow complexity perspective risks banishing human experience and

embodiment and losing what Merleau-Ponty (1962) called the "habit body" (p. 82), the

"living body," or the "phenomenal body" (Merleau-Ponty, 1963, p. 156).

    1.2.2   Pedagogy. Understanding pedagogy and teaching through the lens of

complexity theory also holds limitations (Burns, 2005; Cole & O'Riley, 2008; Davis &

Sumara, 2007; Fels, 2004; Gilstrap, 2005; Gilstrap, 2008; Laroche, Nicol, & Mayer-Smith,

2007; Nielsen, Nicol, & Owuor, 2008; Phelps, 2005; Pratt, 2008; Sumara, Luce-Kapler, &

Iftody, 2008). Davis and Sumara drew on complexity science to illustrate the assertion

that what teaching is can never be reduced to or understood in terms of what the

teacher does or intends. Rather, they argued that teaching must be understood in terms

of its complex contributions to new, as-yet-unimaginable collective possibilities.

Complexity theory in education redefined what constitutes a "learner" and "learning"

by studying "learning systems" (Davis, Sumara, & Luce-Kapler, 2000, 2008). A

"learning system" is "any complex system that can adapt itself to changing

circumstances" (Davis et al., 2000, p. 63). Davis and Simmt (2003) reflected the

standpoint that complexity science may be described as the science of learning systems,

where learning is understood in terms of the adaptive behaviours of phenomena that

arise in the interactions of multiple agents. They see mathematics classes as adaptive

and self-organizing complex systems.

    1.2.3　Educational research. Complexity theory is challenging traditional

qualitative and quantitative educational research methods and theories (Davis, 2008;

Gershon, 2008a; Gershon, 2008b; Fleener, 2008; Haggis, 2008; Horn, 2008; Kuhn, 2008;

Radford, 2008; Ruitenberg, 2007; Volk & Bloom, 2007; Bloom & Volk, 2007). James Horn

(2008) argued that the language, concepts, and principles of complexity are central to

the development of a new science of qualities to complement the science of quantities

that has shaped our understanding of the physical and social world. He explained that

human research that draws on complexity theory promises to

(1) open up new investigations that have thus far been beyond the purview of scientific study, (2) allow the study of social phenomena as fully embodied, or at least as more robust models than those represented in the abstracted empiricism upon which the sciences of quantities are predicated, and (3) allow for more coarse-grained explanations and predictions of social phenomena to be legitimated as scientific. (p. 130)

Tamsin Haggis (2008) used complexity theory to draw attention to conceptual limitations of the epistemologies that underpin a large amount of qualitative research. Haggis showed that complexity theory allows for the rethinking of dominant ontologies and epistemologies as they struggle with the conceptualization and representation of particularity, difference, process, interactions through time, multiple and de-centred forms of causation, and dynamic structure. For example:

[The] concept of open, dynamic systems, embedded within and partly constituting each other, whilst at the same time maintaining their own coherence, allows for different ways of thinking about *context*, and provides a rationale for the investigation of *individuals*, *difference* and *specificity*. By focusing on interactions, rather than static categories, complexity theory also makes it possible to consider different aspects of *process*. It does this not only in the general sense of providing a language with which to talk about dynamic interactions, but also specifically in relation to the importance of histories of *interactions through time* (without time, there is no emergence). (Haggis, p. 173)

Making interactions equivalent with emergence is evident in the quotation above. Also, the reader is left wondering what happened to the individual researcher and research subject in this complex process of interactions. While Davis (2008) argued that "complexity science can and should be embraced by educators and educational research" (p. 50), he offered a broader enactive account of research that considers experience, action, and dynamic systems. He explained that complexity thinking does not permit "one of the grand errors of classical inquiry," namely "the conflation of the theoretical, the descriptive, and/or the experimental result with stable and secure

knowledge" (p. 63). The major issue, for Davis, was the tendency for the researcher to

"write herself or himself out of the research result" (p. 63). Complexity thinking, along

with a broad enactive approach, like Davis's perspective, can prevent this error and

meet the need for critical reflection, helping the researcher to realize his or her

complicity in the findings and in the research process. Davis explained that complexity

theory foregrounds the "overlapping and interlaced characters of social systems — such

as research communities and teacher collectives" (p. 64).

    1.2.4 Epistemologies of schooling. Epistemologies of schooling are being

critiqued and understood from the complexity theory perspective (Osberg, Biesta, &

Cilliers, 2008). Deborah Osberg and Gert Biesta draw on the concept of "strong

emergence" and enactivist views of time to fundamentally rethink epistemologies and

purposes of schooling (Biesta & Osberg, 2007; Osberg & Biesta, 2007; Osberg, Biesta, &

Cilliers 2008). Biesta and Osberg (Biesta & Osberg, 2007) "think through the

epistemological implications of complexity" (p. 28) to formulate what they call an

"emergentist critique" (Biesta & Osberg, 2007; Osberg & Biesta, 2007) of the

epistemology of and purposes of schooling. Biesta and Osberg began their critique with

the notion of "strong emergence" from complexity science and then moved from this

critique to "offer a challenge to the idea that knowledge somehow relates to a

preexisting world, present in itself" (Osberg & Biesta, 2007, p. 32). Their main argument

is that "if the epistemological implications of strong emergence are taken into account

then the whole pedagogical argument about whether the real or preexisting world

should be presented or represented in schools in order that the child will get an

accurate understanding of it falls away" (Biesta & Osberg, 2007, p. 32). They conceived of a form of schooling that "takes seriously the idea that knowledge is not a reflection of a static world but emerges from our engagement with the world" (Biesta & Osberg, 2007, p. 28).

    1.2.5   Ethics. Complexity theory has also made its way into discussions of ethics and education (Bai, 2008; Bai & Banack, 2006; Mgombelo, 2006). Joyce Mgombelo (2006) explored the significance of complexity science and its role in an ethics of teaching that is not based on moral codes. She drew on Varela's (1999; Varela et al., 1991) concepts of *emergent self* and *autopoiesis* and Newburg's (2001) concept of the *Absolute Unitary Being* to discuss the necessary conditions for characterizing an ethical act as essentially unconscious. She argued that ethics in teaching need not be seen as relying on moral codes; rather, it could be grounded in teaching as action and responsibility. She explained that we need to rethink ethics based on the fact that we are part of the world and are responsible for our actions.

    Bai and Banack (2006) saw ethics in the light of complexity theory as "being relationships" (p. 13). They developed a kind of mindfulness awareness ethics based on the ways that "reminding and remembering will enhance . . . seeing and sensing" (p. 6). They called this "participatory ethics." Participatory ethics emphasizes the "complexity of our being, including inescapable impermanence, precludes absolutes, such as moral imperatives," and instead recalls "creativity inherent in our awareness of complexity and celebration of pattern" (p. 6). They explored a new meaning of "social

responsibility" seen from the perspective of a "relational universe" (p. 10). Participatory ethics and moral education focuses on "inter-being" and "patterns that connect" (p. 14).

While Bai and Banack's perspective hinted at an enactive approach to ethics, it presupposed a "virtually monistic system" (Varela et al., 1991, p. 202), whereas "enaction is specifically designed to be a middle way between dualism and monism" (Varela et al., p. 202).

2   The Problem-Space of the Received View

The main conclusion of the second section of this chapter is that the potential and promise of the enactive approach in education has yet to be realized. This part of Chapter 2 offers two main reasons in support of this conclusion. The first premise states that the second strand of enactive education, the narrow complexity theory perspective, is a limited inherited or received view of the enactive perspective in education. The second premise states that the entanglement of concerns about complexity theory in education has generated a problem-space in educational theory, research, and practice.

2.1   The Complexity Heritage

In this section I argue that the second strand of enactive education, the narrow complexity theory perspective, can be thought of as the inherited or received view of the enactive perspective in education. This is what I shall call the *complexity heritage* of the received view of the enactive approach in education.

Before launching into my reasons for this argument, I need to clarify how I am using the concept *received*. It can be defined in two main ways, in the context of the discussion of scholarship or world views. In a *strict* sense it can be thought of as

meaning "taken for granted or . . . assumed to be true without further criticism by the part of the 'receiver' — until he or she manages to 'unhide' it, e.g. by getting to know another contrasting worldview" ("Received view," n.d.). According to this strict meaning, the narrow complexity view could be seen in the same light that some schools of thought (such as postmodern and feminist) see the logical-positivist view—presumed uncritically. The strict sense of received refers to a view that leads scholars to think certain things, for example about nature and reality, so as to suppose certain facts, beliefs, and events. The following passage about Newton provides a good example of the strict meaning. "Newton states in his letter that his research on colour was provoked by a surprise when he first used the prism. The received laws of optics at the time led him to expect that the image of the aperture on the wall would be circular, yet the image was oblong" (Thompson, 1995, p. 5). I am not using the concept of *received* in this strict sense.

In the context of the term *received view*, the concept of received can be used in at least one other sense, which I shall call *undemanding*. This meaning refers to passing something on to another or handing down, and also being bequeathed, granted, or left, or falling heir to. This is the sense which I prefer. According to this use of the concept, the enactive perspective in education can be seen as having been passed down by the scholarship of complexity and education; that is, the current, predominant enactive approach in education shows itself through the received literature on complexity and education.

I offer two main points in support of my claim that the narrow complexity theory perspective can be thought of as the inherited or received view of the enactive perspective in education. First, the scholarly conversation about the broad enactive approach has been replaced by a narrow, complexity theory focus that is only one aspect of an overall broader enactive perspective. Second, the shift in the scholarship that I discussed above marks a subsuming of the enactive approach into a discussion of complexity theory and education, emphasizing dynamic co-emergence in particular. In other words, the broad enactive approach to education is subsumed into a narrow complexity theory perspective.

Educational theorists and researchers first expressed specific allegiance to enactive ideas only two years after the publication of Varela et al.'s (1991) book, *The Embodied Mind*. As explained in section 1 of this chapter, the broad enactive view was ushered in mainly by the Enactivist Research Group in 1994 and by Davis and Sumara in the late 1990s. Seven years later, the second phase arrived and continues till now. This second phase, which I call the "narrow complexity" view, is characterized by a shift from a broad enactive perspective to a more narrow focus on complexity science or theory. The arrival of the second phase coincided roughly with Davis and Sumara's dropping of the terms *enactive*, *enaction*, and *enactivism* in their writings. They instead began drawing almost exclusively from complexity science and focusing on dynamic co-emergence as an idea and practice.

This shift happened gradually. The enactive approach first appeared in the field of mathematics education in 1993, with Brent Davis's (1993) presentation of a paper

entitled "Towards an Ecological View of Mathematics Education." In 1995, Davis (1995) published an article on mathematics education and enactivist theory. In both papers, he argued that mathematics education needed to be rethought from the ground up, in ways that acknowledged the emergence of knowledge and collective and personal identities along enactivist and ecological lines. His approach at this time could be called a broad enactive approach since his position was founded in a broad enactive view of mind, cognition, experience, embodiment, change, and evolution.

Thomas Kieren and David Reid launched the Enactivist Research Group (ERG) at the University of Alberta, Canada, in 1994, when Kieren received a substantial research grant from the Canadian government to study enactivism and co-emergence in mathematics education. Kieren et al. (1995) presented their findings at the annual meeting of the American Educational Research Association in a paper entitled "An Enactivist Research Approach to Mathematical Activity: Understanding, Reasoning, and Beliefs." In this paper, the researchers each studied and presented cognition as enactive in an "enactive portrait of mathematical activity." They argued that their approaches and pieces of research could be seen as co-emergent. Their four portraits of mathematical cognition considered "the conversation in which the activity occurs; the structures manifested in the beliefs of these students about mathematics; the patterns of reasoning in action; and dynamical growth or changes in the mathematical understanding of this pair of students" (Kieren et al., abstract).

In 1996, Reid (1996) published on "Enactivism as a Methodology" in the *Proceedings of the Twentieth Annual Conference of the International Group for the Psychology*

of Mathematics Education. The article described key enactivist ideas and an enactivist research methodology in mathematics education. Reid argued that for ERG enactivism was both the theoretical framework and the methodology for research. He used such key enactivist ideas as autopoesis, structure determinism, structural coupling, and co-emergence to make sense of the learning of all participants in research, researchers included.

In 1996, Davis, Sumara, and Kieren (1996) linked enactivism to curriculum studies. This title of their paper—"Cognition, Co-emergence, Curriculum"—reflected the shift in focus towards complexity theory. The paper described a theory of curriculum co-emergence by which the various components of curriculum action (e.g., students, teachers, texts, and processes) are understood to exist in a dynamic and mutually specifying relationship. With reference to two examples, Davis et al. explored the co-emergent and intertwining natures of knowledge (individual and collective) and identity (individual and collective). The emphasis in this paper was less on a broad enactive approach and more on the notion of emergence as understood in complexity theory.

The final significant mention of the enactive approach came in 1997, in an article entitled "Enactivist Theory and Community Learning: Toward a Complexified Understanding of Action Research" (Sumara & Davis, 1997) that appeared in *Educational Action Research*. In this article, Sumara and Davis interrogated explicit and implicit conceptions of cognition and knowledge that underpinned conventional projects of educational research. The article's abstract stated that the article had

developed out of the authors' own efforts to make sense of the contingent and complex

nature of a recent action research project. Their discussion developed an enactivist

account of cognition that was offered as an alternative both to subject-centred

orientations (e.g., representationalism and constructivism) and culture-privileging

accounts (e.g., critical and sociocultural theories). Sumara and Davis examined the

relevance of enactivism for educational action research—conceived as a site of learning,

and hence transformative of both individual and collective—in terms of the practical

and moral dimensions of the activity. Although Sumara and Davis used "enactivism as

an interpretive and analytic framework" (p. 417), and founded much of their emphasis

in an enactive perspective, this article marks a shift more towards a narrow and focused

complexity view and away from a broad enactive view.

In another 1997 article, "Cognition, Complexity, and Teacher Education,"

published in the *Harvard Educational Review*, Davis and Sumara (1997) made some

mention of the terms *enactive*, *enactivism*, and *enaction*. Although they structured the

beginning sections of their article around "enactivism as an interpretative and analytic

framework" (p. 119), and did discuss an enactivist theory of cognition, their focus was

on complexity theory. It is noteworthy that they situated complexity theory within a

broad enactive approach. They stated that enactivism takes the ideas of complexity

theory

> . . . one step further . . . [by] focusing simultaneously on the emergence of the
> complex behaviors of a system (such as a student or a teacher) and on the co-
> emergence of such systems—that is, on the emergence of larger systems (such as
> the classroom, the community, the society) . . . (p. 119)

However, as the final section of the article, "Teaching and Learning: From 'Complicate' to 'Complex'," and the very title of the article, "Cognition, Complexity, and Teacher Education" suggest, their theoretical and practical direction was on the dynamic co-emergence aspects of the enactive approach and complexity science.

From 1997 forward, Davis and Sumara focused mainly on complexity theory or complexity science in education with little or no reference to the enactive approach (Davis, 2005, 2008; Davis & Phelps, 2005, 2006, 2007; Davis & Simmt, 2003; Davis & Sumara, 2005a, 2005b, 2007). This shift in focus came at the cost of neglecting the broad enactive perspective as a theory of mind and a method of examining experience. Favouring only one of the three core postulates of the enactive approach—dynamic co-emergence—over the other aspects nurtured a fervent area of scholarship on complexity and education and generated a problem-space. The scholarship on complexity theory and education needs to be reframed and more properly seen as one of two major strands within the enactive perspective in education. Much of what is thought to fall under complexity theory more properly belongs under other aspects of the enactive perspective in education.

The discussion in section 1 of this chapter traced the morphing of an initial discussion of a broad enactive approach into a narrow, more focused study of complexity theory in education. The broad enactive perspective that was initially taken up into educational scholarship was essentially Davis and Sumara's interpretation of the enactive approach (Davis, 1995; Davis & Sumara, 1997; Davis, Sumara, & Kieren, 1996; Sumara & Davis, 1997). For the most part, those educational theorists, qualitative

researchers, and educators who professed to be studying and attempting to practice enactive education were relying on Davis, Sumara, Kieren, and Reid's articles and ERG's papers (Fels, 1999; Haskell, 1999; Haskell, Linds, & Ippolito, 2002). Davis and Sumara's articles were the most cited in the work of self-professed enactivists, further suggesting that their interpretation of the enactive approach shaped views on enactive education. The transition from a broad enactive approach to a narrow complexity view was facilitated by Davis and Sumara's specific interpretation of the enactive approach as mainly a theory of cognition read through complexity theory.

2.2   The Problem-Space of the Received View

Now that the narrow complexity heritage has been put forth as the received view of the enactive approach, I am in a position to define the problem-space generated by the received view. It is a problem-space characterized by a neglect of human experience and living embodiment. Chapter 2's main conclusion is that the potential and promise of the enactive approach in education has yet to be realized. In support of this overall conclusion, this section of Chapter 2 unpacks the second premise mentioned above. The premise is that the entanglement of concerns about complexity theory in education has generated a problem-space concerning whether complexity theory has the ability to address central and inevitable issues in education, such as justice, ethical action, or power relations, and whether complexity theory can account for personal subjectivities or the individual cognizing subject (Alhadeff-Jones, 2008; Davis & Sumara, 2008; Fenwick, 1999, 2000, 2001a; Kuhn, 2008; Michie, 2004; Morrison, 2008; Phelan, 2004).

Tara Fenwick (2000) observed that the enactive approach entered the field of education and pedagogy so recently that critique is not yet available (p. 13). Her observation also applies to complexity theory in education. Very few challenges have been raised against complexity theory and education (Alhadeff-Jones, 2008; Davis & Sumara, 2008); Fenwick, 1999, 2000, 2001a; Kuhn, 2008; Michie, 2004; Morrison, 2008; Phelan, 2004). To fill the need for critique, Fenwick formulated three challenges to the enactivist approach derived from basic premises of other perspectives (Fenwick, 2000, pp. 13–14; Fenwick, 2001a, pp. 50–51); these three challenges to the enactivist approach in education characterize current criticisms of complexity theory in education.

Fenwick (2001a) stated that these challenges are not obstacles or reasons to reject the enactive approach; "they simply serve to point out further paradoxes that must be named as educators struggle to find ways to act within complexity" (p. 51). Although Fenwick said that she was challenging the enactive approach, she was unwittingly criticizing a narrow complexity reading of the enactive perspective in education. Fenwick's (2001a) above statement bears repeating. She stated that these challenges are not obstacles or reasons to reject the enactive approach; "they simply serve to point out further paradoxes that must be named as *educators struggle to find ways to act within complexity* [italics added]" (p. 51). The enactive approach that Fenwick was criticizing is the inherited approach, the narrow complexity view.

Below, I outline Fenwick's three challenges and discuss them as they have been raised as criticisms of complexity theory and education: personal subjectivities criticism; justice and right action challenge; and power objection. I discuss an additional objection

that Fenwick does not mention, which I call reinscribing dualisms in language criticism. I discuss the neglect of human experience and embodiment as a common thread among these challenges.

2.2.1   Personal Agency Objection. Fenwick's first challenge against the narrow complexity strand of the enactive approach in education was that the subject—as in "individual meaning-making" and "identity-construction processes"—seemed to disappear (Fenwick, 2000, p. 13; Fenwick, 2001a, p. 50). Fenwick does not use this language, but I argue that this is what her critique refers to. This challenge, lodged from constructivist and psychoanalytic perspectives, concerned the abandonment of personal subjectivities. The narrow enactive approach seems to lack proper recognition of "the agency and resistance of individuals working through complex desires" (Fenwick, 2001a, p. 50). Fenwick (2001a) explained that "it is sometimes unclear how individual integrity is maintained in a 'commingling of consciousness.' . . . Enactivists pose a rather seamless link between cognition and interaction in community" (p. 50).

Fenwick (2001a) summarized this first challenge in three key points (p. 50). First, there are aspects of an individual's subjective world of cognition that are not available through dialogue and are not present in action. Second, as well, the connection to one particular context of individuals' personal histories and their dynamic processes of change and growth within other systems is not yet fully articulated in the enactivist understanding. Third, finally, the relationship of individual knowers to theoretical knowledge existing apart from a particular community of actions also must be

articulated. Each of these three points properly applies to a narrow complexity theory approach in education.

Fenwick (2001a, p. 50) noted that Davis and Sumara (1997) addressed this objection with the claim that personal subjectivities are not abandoned but rather understood as "mutually specifying" one another in a "commingling of consciousness" (p. 110). Fenwick argued that the processes of mutual specification and commingling are not made clear. In Part II of this dissertation, in an enactivist reading of Dewey's philosophy, I will show that these three criticisms hold against the enactive perspective understood narrowly as a complexity theory approach emphasizing dynamic co-emergence, but do not hold against a broader enactive perspective.

2.2.2 Justice and right action Objection. Fenwick (2001a) formulated a second ethical challenge against what she specifically called enactivism in education. However, her criticism actually refers to the inherited, limited and narrow complexity view of the enactive approach in education. The focus of complexity theory on the dynamics of complex systems has led some thinkers to state that issues of justice and right action become problematic in a complexity and enactive perspective (Fenwick, 2001a). The questions and concerns Fenwick raised are worth quoting at length below.

> How can an educational project for change be formulated that *adequately accounts for the complexified ongoing systemic perturbations* [italics added], without being deliberately illusory? That is, if any action of an educator or other particular *element of a system* [italics added] becomes enfolded in that *system's multiple interactions* [italics added] and unpredictable expansions of possibility, what sort of reference point can be used to guide intention toward some deliberate pedagogical goal? On another point, how can we explain the differential change that different elements of a system appear to register? If all the interactions between people co-emerge in ways that specify each other, how is it that educators often influence learners more than they are influenced in their

interactions? And finally, what moral choices for wise judgment are available for educators within notions like "adequate conduct"? Because they are *self-referenced (Waldrop 1992), complex systems* [italics added] that many educators would abhor do often survive and expand in sustainable ways. Cancer and neo-Nazism are two examples. *There must be a more defensible framework than simply co-emergence to guide understandings of cognition* [italics added]. (p. 51)

The focus on complex systems and the emphasis on a "framework" of "simpl[e] co-emergence" suggest that the above challenge was clearly directed at a narrow complexity reading of the enactive perspective.

Various challenges having to do with ethics and justice have been posed against complexity theory in education. Keith Morrison (2008) and Lesley Kuhn (2008) raised the concern over whether complexity theory was a descriptive or a prescriptive theory. Morrison explained that "to move from a descriptive to a prescriptive theory is to commit a category mistake, to mix fact and value, to derive an 'ought' from an 'is' to commit the naturalistic fallacy" (p. 29). Kuhn (2008) found that complexity metaphors and descriptions were taken as prescriptive rather than descriptive. She observed that complexity theory in education

> . . . construes the nature of organic unities, such as individuals, classes, schools or educational systems as self-organizing, dynamic and emergent,
> . . . characteristics . . . sometimes interpreted as characteristics towards which we might aspire. Whereas complexity offers explanation of "how things in fact do stand" (that is, as self-organizing, dynamic and emergent), complexity's "is" is moved into an "ought," an injunction to change "how things are" (that is, to make them self-organizing, dynamic and emergent). (p. 186)

Morrison (2008) raised a second, related issue, that complexity theory is amoral (p. 29). He argued that complexity theory offers an "incomplete reading of education" and "cannot provide a sufficient account of education" because it "cannot tell us how we should act" (p. 29). Kuhn (2008) raised a similar concern, namely that complexity

and education are "differently disposed" (p. 187). She explained that there is a

fundamental mismatch between complexity and education. She argued that education

is a normative enterprise that "aims to make a difference," whereas complexity is

descriptive and does not have an ethical intent (p. 187). Davis and Sumara (2008)

echoed the above challenges in a discussion of how complexity theories and critical

theories seem to belong to quite different categories.

In Chapter 4, of this dissertation, I will show that the above criticism does not

hold against a broad enactive perspective.

2.2.3   Power objection. The third challenge to the narrow complexity strand of

the enactive approach is that it does not address inevitable power relations in human

cultural systems (Fenwick, 2001a, p. 51). Fenwick explains the shortcoming in the

following way:

> Therefore, the influences on patterns of co-emergence exerted by culturally
> determined meaning categories such as gender/race/sexuality/class/religion
> may be indiscernible from a systems perspective. In addition, neither systems
> nor situative perspectives appear to attend to the way cultural practices (such as
> tools of discourse, image, and representation) have been shaped and maintained
> by dominant groups in the system and continue to sustain interests of some
> participants in the system more than others. Further, a systems view like
> enactivism demands that the interests and identities of individual elements be
> surrendered to the greater community. Therefore, individuals become vulnerable
> to a few who manipulate the system's discourses to sustain their own power,
> ensuring that their experiences become the most valued knowledge in the
> collective. (p. 51)

Phelan (2004) raised the power objection against complexity theory. She raised

concerns about complexity theory as it bears upon curriculum as a political practice. She

challenged complexity theory's idea that although internal diversity is a source of a

system's intelligence, the system tends towards coherence. Drawing on Foucault (1972),

she expressed concerns that the dynamic of power/knowledge at play in the classroom

had been forgotten. She asked the following questions:

> How is that coherence arrived at? Are some of those diverse ideas eliminated, contained or resolved? Why . . . might particular ideas hold sway in a classroom discussion? Why might some ideas never appear on the table? Why might particular forms of learning unfold? How do the "emerging" ideas serve the interests of some and not others? (Phelan, p. 14)

Phelan (2004) also raised questions about the complexity theory notion of

"collective authorizing" of ideas. She asked: "Who is included in the 'collective'? Whose

voices are heard or silenced?" (p. 14). Phelan pointed out that, at a 2004 conference on

complexity theory and education she had attended, "there was no mention of feminism,

no question about social justice and no apparent concern with inequity" (p. 14).

Davis and Sumara (2008) reiterated Phelan's (2004) concerns in their discussion

of standard criticisms against the criticality of complexity theory. In the context of

exploring three sites of compatibility between complexity theory and critical theory,

they repeated a common worry that

> . . . tacking on "complexivist" seems to constitute an evasion. Even while offering advice on how one might proceed, it strips actors and activists of the particularity that reveals commitments, announces causes, and focuses interventions. More worrisome, it might even serve to strip activists of a certain degree of agency. (p. 167)

Morrison (2008) also argued that complexity theory cannot address issues of

power. He wrote that

> . . . complexity theory under-theorizes power, or its lack, regarding it as the momentum of the moment; though this may capture the spirit of complexity, it does little to address powerlessness in society. Its comments on autocatalysis and self-organization fit poorly to systems of schooling whose hidden curricula . . . comprise obedience, compliance, passivity and conformity, unequal power, delay, denial, rules, rituals and routines. (p. 32)

Due to space constraints, I am unable to address the power objection in this dissertation.

  2.2.4 Reinscribing dualisms in language criticism. Another criticism lodged

against complexity theory and education is that complexity theory reinscribes dualisms

already prevalent in language (Phelan, 2004; Kuhn, 2008). Phelan noted that the

language of rationalism is "ever present in our language," that "our difficulty is not in

embracing new ideas but in ridding ourselves of the old" (p. 13). Kuhn (2008) raised the

same concern. She argued that doing complexity-informed educational research

required the development of "complexity habits of thought" (p. 186):

> Most people will be immersed in the predominant western paradigm where
> linear styles of thinking determine concepts, discourses and theories. . . . As in
> any new learning, old habits can be difficult to replace because they are so taken
> for granted, invisible and automatic. (p. 186)

Phelan (2004) observed a tension in the language of authors who apply

complexity theory in education. Educational complexity theorists believe that language

constitutes reality, she noted, yet they use language in a way that suggests that

language describes reality. She noted the use of various metaphors: Complexity science

is spoken of in education as a *lens* on reality, a *tool* that can lead toward better practice

in schools. *Nodes* and *networks* refer to teaching and learning in mechanistic,

dehumanized terms.

  Phelan (2004) also raised a caution about "the notion of guarantee and the

problem of universalism" (p. 14). She noted a "wicked irony" in the tendency of

complexity theory in education to "identify five conditions, four qualities, and three

principles for complex practice" (p. 14). The consequence, Phelan argued, is

. . . that we try to transcend the particularities of practice, immunizing teaching and learning yet again from the density of human experience. At our peril we return to a place where practice is seen as "merely an expression of embarrassment at the deplorable but soon to be overcome condition of incomplete theory." (p. 14)

This language challenge points to concerns that complexity theory neglects the lived body or habit body and also cannot address the ways in which lived experience is shaped by specific political agendas. Due to space constraints, I will not be addressing this fourth concern in this dissertation.

3   Concluding Remarks

Sections 1 and 2 of this chapter together support the conclusion that the potential of the enactive approach in education has yet to be realized. Section 1 outlined the two phases of the enactive perspective in education: the broad approach and the narrow complexity view. Section 2 argued that current scholarship on complexity theory and education reflects an inherited complexity view of enactive education, a narrow received view that needs to be properly seen as one of two major strands within the enactive perspective in education. I showed that the received complexity heritage view generated a problem-space in educational theory, research, and practice that characterizes the concerns that complexity theory cannot account for personal subjectivities or the individual cognizing subject, and has an inability to address central and inevitable issues in education such as justice, ethical action, and power relations.

CHAPTER 3

❧

DEWEY'S BROAD ENACTIVE APPROACH

The previous chapter argued that the potential of the enactive approach in education has yet to be realized, since the current narrow enactive view neglects experience, embodiment, and cognition in favour of complexity and a dynamic systems approach. The main conclusion of Chapter 3 is that Dewey's philosophy is a broad enactive view of mind, cognition, embodiment, experience, and dynamic co-emergence. The first section explains Dewey's account of perception as embodied action. The second outlines Dewey's broad enactive theory of cognition and mind. The third discusses Dewey's understanding of the meaning of experience and his phenomenological method of examining experience. The fourth outlines Dewey's embodiment thesis with reference to his solution to the mind-body problem. The fifth focuses on Dewey's theory of dynamic co-emergence and self-other co-determination. The final section consists of concluding remarks.

Chapter 3 forms the backdrop for the next chapter. Chapter 4 shows how Dewey's broad enactive standpoint of embodiment, experience, action, cognition, and mind can straighten out the problems of the inability of the narrow enactive view to account for experience, embodiment, and cognition, and its failure to address personal subjectivities or the individual cognizing subject. These problems are seen to remain obscure and obscuring when seen from the standpoint of complexity and dynamic systems theory.

1   Perception as Embodied Action

In this section I discuss Dewey's account of perception as embodied activity with reference to his (1896) critique of the reflex arc concept in psychology; his (1912) theory of organic action, in contrast with Descartes' (1633, 1647, 1641a, 1641b, 1644, 1649/1984, 1985) dualism; and the "vanishing subject" (Dewey, 1940) in William James' (1890/1983) psychology. Dewey's critique of the reflex arc concept in psychology and his theory of organic action rethink mind, body, and world completely anew. His philosophy, moving away completely from the Cartesian roots of the reflex arc idea and the mind science of Dewey's own time, demonstrated his broad enactive approach to perception, experience, and action.

Dewey (1896) criticized the idea of the reflex arc. He redefined perception, thinking, and action in nondualistic terms, and pursued the radical implications of such a view. Descartes' psychology and physiology typified the older dualism between body and soul. The behaviourism and mind science of Dewey's time exemplified the current dualism of stimulus and response. Dissolving this "older dualism between sensation and idea" and one that he saw repeated in the "current dualism of peripheral and central structures and functions" (Dewey, p. 357), Dewey replaced the concepts of sensation, idea, and action generated by the reflex arc theory.

1.1   Descartes' Dualism

Dewey (1896) observed that the modern reflex arc idea, itself dualistic, inherited an "older dualism between sensation and idea" (p. 357). This "older dualism" referred to the Cartesian dualism of soul and body (Dewey, 1886). Dewey (1929/1958) described

Cartesian dualism as "abstract and technical" characterized by an "empty formalism" (p. 252). By "empty formalism" Dewey (1929/1958) meant that Descartes' metaphysics lacks "concrete meaning and substance" (p. 252). This dualism was expressed in the most striking feature of Cartesian metaphysics: the split between two distinct and irreducible kinds of reality—mind (mental, spiritual, thinking substance) and matter (physical, spatial, extended substance).

In his famous method of doubt, Descartes (1984a) established his metaphysics in a chain of mathematical reasoning. He performed a series of solitary reflections "to demolish . . . completely" the most fundamental principles on which his beliefs rested "and start again from right foundations" (p. 12). He (1985d) believed that "the seeker after truth must, once in the course of his life, doubt everything, as far as is possible" (p. 193). The results of Descartes' (1984a) reflections were reported in the first of six *Meditations* that were published in Paris in 1641.

Descartes (1984a) thought that we should never accept anything as true if we did not have "evident" knowledge of its truth because only those necessary and self-evident truths derived from reason alone could be known as true, real, and certain; all else was subject to falsification, illusion, and uncertainty. He aimed to arrive at a self-evident proof, one that could not be doubted and not incur any suspicion of being false by the Church and the Aristotelian scholars, while at the same time offering solid foundations to science and metaphysics. In the *First Meditation,* Descartes established a method to arrive at such a self-evident proof. This method, he explained, required treating beliefs as if they were false in order to find indubitable starting points that could be clearly and

distinctly known with absolute certainty. He used the method to prove that the human mind is an immaterial substance, a pure thinking being devoid of spatial characteristics, and thus one that could conceivably exist independently of a body.

Dewey (1929/1958) took issue with the way that Descartes established his metaphysics. He noted that the reflections of Descartes' method of doubt denied basic empirical facts of reality and thus resulted in the "philosophic error" that "matter, life and mind represent separate kinds of Being" (p. 261). For Dewey, the mind could never be used over and against the body to discover the truth of reality because "body-mind simply designates what actually takes place when a living body is implicated in situations of discourse, communication and participation" (p. 285). Dewey argued that body, mind, and nature are not separate entities, so that the questioning that led Descartes to perform the first of several thought experiments to arrive at the indubitable conclusion of his own existence as a thinking thing was mistaken. Descartes' erroneous reasoning can be stated in the following argument form:

1. It's possible that I do not have a body.
2. It's possible that I am not in the world (physical universe); but
3. if I am doubting (that I have a body, that I exist, etc.), then I am thinking, and
4. if I am thinking, then I exist as a thinking thing. (*Cogito ergo sum.*)

Dewey's (1929/1958) perspective showed that each of the above premises is unacceptable; thus, the conclusion was false.[4] Dewey explained that Descartes' theory,

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[4] Dewey's (1929/1958) perspective showed that Descartes (1984a) created mysteries where there were none. One such mystery was Descartes' argument that he could not know with certainty whether he was awake or dreaming. He used the "thought and dreaming" argument as a reason for doubting that he had a body. Next, Descartes deepened his process of doubt, since he noticed that despite his efforts to doubt his most fundamental beliefs he still quickly turned to those "transparent truths" that he believed must be true whether he was awake or asleep. He explained that "whether I am awake or asleep, two and three added together are five, and a square has no more than four sides; it seems impossible that such

among other traditional theories, had "separated life from nature, mind from organic life, and thereby created mysteries" (p. 278). For Dewey, Descartes' approach failed to start with the "evident empirical consideration" that

> . . . every "mind" that we are empirically acquainted with is found in connection with some organized body. Every such body exists in a natural medium to which it sustains some adaptive connection: plants to air, water, sun, and animals to these things and also to plants. Without such considerations, animals die; the "purest" mind would not continue without them. (pp. 277–278)

The main support that Descartes offered for his conception of an incorporeal human mind was the conclusion he reached via his method of doubt: "If I am thinking, then I exist as a thinking thing." He formulated his famous deduction, *cogito ergo sum*, from the above three arguments. There were two versions of the *cogito* argument. The first formulation concerned a "principle" about thinking, and the second formulation concerned an "inference" about thinking. The *cogito* as a "principle" stated that "Whenever I am thinking, I am certain that I exist." This self-evident statement, neither an inference nor a logical explanation, required no reasoning for support. The first formulation of the *cogito* was self-certifying since whenever I am thinking, I am certain that I exist. We have an immediate awareness of our thinking which gives us indubitable evidence of our own consciousness. Descartes deduced other certainties from this foundation to restore the physical world, removing the doubt originally introduced. The second formulation of the *cogito* consisted of an "inference" about thinking contained in the following line of reasoning.

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transparent truths should incur any suspicion of being false" (p. 14). These "simpler and more universal things," such as extension, shape, quantity, place, and time, he explained, "contain something certain and indubitable."

1. I am doubting (e.g., that I have a body, that I exist).
2. If I am doubting, then I am thinking, since doubting is a mode of thinking.
3. If I am thinking, then I exist.
4. Therefore, I exist.

Using this method of doubt, Descartes established that he existed, then that God existed; next that all of his clear and distinct ideas were true, since God guaranteed them; then that the physical world existed; and finally, that the reality of the physical and human words corresponded to his clear and distinct ideas of them.

Dewey (1929/1958) argued that Descartes' theory, among other traditional theories, created problems where none existed, because they failed to acknowledge that "an environment both extensive and enduring is immediately implicated in present behavior" (p. 279). Dewey explained:

> Restore the connection, and the problem of how a mind can know an external world or even know that there is such a thing, is like the problem of how an animal eats things external to itself; it is the kind of problem that arises only if one assumes that a hibernating bear living off its own stored substance defines the normal procedure, ignoring moreover the question of where the bear got its stored material. The problem of how one person knows the existence of other persons, is, when the relation of mind and life is genuinely perceived, like the problem of how one animal can associate with other animals, since other is other. A creature generated in a conjunctive union, dependent upon others . . . for perpetuation of its being, and carrying in its own structure the organs and marks of its intimate connection with others will know other creatures if it knows itself. Since both the inanimate and the human environment are involved in the functions of life. (p. 279)

Dewey showed that the Cartesian dualism between body and *soul-mind* was passed down with the origins of the reflex arc in Descartes' psychology and physiology.[5] Descartes (1985e) used the idea of the reflex arc to support his view that

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[5] Descartes used the words "soul," "rational soul," and "mind" synonymously. For example, in the *Second Set of Objections and Replies* he (1984b) stated: "The substance in which thought immediately

humans were composed of a separate and distinct soul and body. He used the concept

to describe how the body worked on its own, separately and distinctly from the soul,

and to "show how these two natures would have to be joined and united in order to

constitute men who resemble us" (p. 99).

Descartes (1985e) used the concept of the reflex arc to show that perception,

thought, and movement were separate components of a mechanical, serial process of

separated states that began with a sensation and ended with a movement. The reflex arc

was a twofold explanation of, one, how external objects impact the human sense organs

to prompt movement; and two, how "ideas are formed of the objects which strike the

senses" (p. 105).

Descartes (1985e) used the example of a foot pulling away from a flame (p. 102)

to explain how external objects impacted the senses to cause movement. The foot and

fire example depicted a person sitting near a fire with his foot close to the fire.

The reflex arc consisted of a stimulus, a receptor, and a response. In Descartes'

example the sensory stimulus was the feeling of heat on the foot from the fire. The

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resides is called mind. I use the term 'mind' rather than 'soul' since the word 'soul' is ambiguous and is often applied to something corporeal" (p. 114). In Part Six of the *Discourse on the Method*, referring to a section of the *Treatise on Man* (Descartes, 1985e) that has not survived, Descartes (1985b) wrote: "After that, I described the rational soul, and showed that, unlike the other things of which I had spoken, it cannot be derived in any way from the potentiality of matter, but must be specially created" (p. 141). In Part One of *The Passions of the Soul*, he (1985c) stated: "Thus, because we have no conception of the body as thinking in any way at all, we have reason to believe that every kind of thought present in us belongs to the soul"(p. 329). In a reply to Bourdin in the *Seventh Set of Objections with Replies*, Descartes (1984b) wrote: "As for what should be termed 'body', or 'soul' or 'mind', my discussion [Meditation II, 1984a, p. 17] made no reference whatever to this. I gave an account of two things, namely that which thinks and that which is extended, and I proved that everything else may be referred to these two. I also established by my arguments that they are two substances which are really distinct one from the other. However, I did call one of these substances 'mind' and the other 'body'; if my critic does not like these terms, he may employ others, and I shall not complain"(p. 329).

receptor, the place where the stimulus was received, was the skin of the foot. The reflex,

the motor response or movement, was the pulling away of the foot, the cause of a serial,

linear, mechanical, process. The example showed that sensory nerves operated

mechanically, by pulling and pushing, and the motor nerves operated hydraulically, by

filling with fluid ("animal spirits") from the brain.

Descartes' (1985e) concept of the reflex arc presupposed a mechanical view of

cause, effect, and information. In his example, the nervous system mechanically

conveyed information, heat from a flame caused skin on the foot to stretch, and this

stretching pulled a nerve tube going to the brain. The pull opened a valve in the brain's

ventricle. The fluid in the ventricle flowed through the nerve tube to fill the muscles of

the leg, causing the foot to withdraw. Tubes to other muscles (not shown) caused the

eyes and head to turn to look at the burn and cause the hand and body to bend to

protect the foot. Descartes explained that

> . . . if fire A is close to foot B, the tiny parts of this fire . . . have the power to move
> the area of the skin which they touch. In this way they pull the tiny fibre *cc* which
> you see attached to it, and simultaneously open the entrance to the pore *de*,
> located opposite the point where this fibre terminates — just as when you pull
> one end of a string, you cause a bell hanging at the other end to ring at the same
> time. When the entrance to the pore or small tube *de* is opened in this way, the
> animal spirits from cavity F enter and are carried through it—some to muscles
> which serve to pull the foot away from the fire, some to muscles which turn the
> eye and head to look at it, and some to muscles which make the hands move and
> the whole body turn in order to protect it. (pp. 101–102)

Descartes' (1985e) idea of the reflex arc depended on his related conception of the

body as a machine and the nervous system as a hydraulic mechanical system. Descartes

supposed "the body to be nothing but a statue or machine made of earth . . . made by

the hands of God" (p. 99). He explained that an entity called the rational soul or mind

directs a wonderful and complex machine called the human body. Descartes had

clockwork mechanisms and elaborate water fountain systems in mind when he said

that the body is a machine. His view was modelled on the statues in the grottoes of the

Royal Gardens at Saint-Germain-en-Lai, just west of Paris. In particular, Descartes was

fascinated by one device that caused a hidden statue to approach and spray water when

an unsuspecting visitor walked past it. The statue's actions were triggered when a

person stepped on a pedal hidden in the sidewalk. The statues were powered by water

pressure pumped through hydraulic cylinders. Descartes (1985a, p. 315–316) argued

that the human body in general and the nervous system in particular operated in the

same mechanical and hydraulic way as the statues in the Royal Gardens. His

descriptions of the operation of the bodily machine showed that the "output" or

"motor" control side was hydraulic, involving water or liquid conveyed through pipes

or channels, and the "input" or "sensory" apparatus was mechanical.

Descartes (1985e) used the case of human vision in the example of the arrow and

eye (p. 105) to explain how ideas are formed in the soul-mind.

Descartes (1985e) used a diagram of a human brain with two eyeballs directed

towards an external object, an arrow, to explain the mechanical, serial process by which

ideas were formed in the pineal gland, the place in the brain that housed the

imagination and common sense, and how these ideas were retained in the memory and

"cause movement in all the parts of the body" (p. 105). The mechanical process of vision

resulted in ideas of objects, in the following way. An image of the arrow impressed

itself upon the eyeball, resulting in the tracing of a corresponding figure of the arrow

"on the internal surface of the brain" (p. 105). In vision, light pressed against the eye, which pulled tiny fibres that pressed upon corresponding parts of the portion of the brain where images were formed. Thus, vision created an image of the image within the brain.

This troubling Cartesian dualism, treating the body, mind, and world as independent of each other, represented the outside world "in a model inside the head" (Thompson, 1999, p. 7). Dewey (1896) framed his critique of Descartes' idea of the reflex arc within his broader concern that the inherited Cartesian dualism was conceptualized anew in the neuroscience of his time as a "dualism of peripheral and central structures and functions" (p. 357). This received dualism, what Dewey called the "current dualism," was exemplified in William James' (1890/1983) child and candle example (p. 37). In the child and candle example a baby sees a candle flame, extends his arm to grasp it, and gets his fingers burned.

The mind science of James' and Dewey's time reinterpreted Descartes' idea of the reflex arc in neurological terms by reducing sensation and movement to mechanical and serial brain processes. According to this mind science, two reflex currents were at play in the child and candle example. James (1890/1983) explained that the first reflex current was "from the eye to the extension movement, along the line 1-1-1-1 of Figure 3; and the second, was from the finger to the movement of drawing back the hand, along the line 2-2-2-2" (p. 37). Through a mechanical and serial process, the retinal image of the flame "would always make the arm shoot forward, the burning of the finger would always send it back" (p. 37). James outlined the entire series of separate brain processes:

Let the current 1-1, from the eye, discharge upwards as well as downwards when it reaches the lower centre for vision, and arouse the perceptional process s1 in the hemispheres; let the feeling of the arm's extension also send up a current which leaves a trace of itself, m1; let the burnt finger leave an analogous trace, s2; and let the movement of retraction leave m2. These four processes will now, by virtue of assumption 2, be associated together by the path s1-m1-s2-m2, running from the first to the last, so that if anything touches off s1, ideas of the extension, of the burnt finger, and of the retraction will pass in rapid succession through the mind. (p. 37)

Dewey took issue with the assumption underlying the above, modern version of the reflex arc, namely that the human mind could be fully explained solely in terms of brain events. As Antonio Damasio (1994) observed, this view "[left] by the wayside the rest of the organism and the surrounding physical and social environment—also leaving out the fact that . . . the environment is itself a product of the organism's preceding actions" (p. 251; see also Damasio, 1999). The key step for Dewey was to "relinquish the false objectification of the self as a . . . process lodged in the mind-brain and recover the true being of the self or person as an embodied being embedded in the world" (Thompson, 1999, p. 8). Thus, the modern reflex arc consisted of a double-edged dualism treating the *body-mind-world* as "independent realms linked through representation" (Thompson 1999, p. 7) and reducing the individual human *body-mind* (Dewey, 1929/1958, pp. 248–297) to the brain.[6]

1.2   Argument for the Unity of Activity

Central to Dewey's (1896) critique of the reflex arc was an *argument for the unity of activity*, which he presented in the context of a reinterpretation of James' child and candle example. This argument understood mind, body, and world completely anew

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[6] As far as I know, the term *body-mind-world* does not appear anywhere in Dewey's writings. This is a term that I adopt to express Dewey's position and my enactive approach to education.

and suggested Dewey's replacement theory for the idea of the reflex arc. The argument

for the unity of activity consists of the following two main premises or subarguments.

Premise or subargument 1 argues, with reference to Dewey's hidden premise of

perceptually guided action, that perception and movement, the sensory and the motor,

are inseparable. Main premise or subargument 2 argues that sensation and movement

form a dynamic continuity. Premise 2 rests upon Dewey's hidden premise, a

fundamental belief that thinking emerged from a history of embodied action, through a

dynamic process of mind/body/world co-determination or "structural coupling"

(Thompson 2007; Varela, Thompson, & Rosch, 1991).

 1.2.1 Inseparability of perception and movement. Dewey (1896) explained that

his critique, which I call the *inseparability of perception and movement argument*, responded

to the following shortcoming in the concept of the reflex arc:

> The reflex arc idea, as commonly employed, is defective in that it assumes
> sensory stimulus and motor response as distinct psychical existences, while in
> reality they are always inside a coordination and have their significance purely
> from the part played in maintaining or reconstituting the coordination. (p. 360)

Dewey argued that the concept of the reflex arc mistakenly assumed that perception

and movement were distinct processes. He contended that sensation and movement

were intertwined and thus inseparable, because movement and thinking for a living

organism were always embodied action or perceptually guided activity situated in a

world.

 1.2.2 Perceptually guided action. Central to Dewey's (1896) inseparability of

perception and movement argument was the notion of *perceptually guided action*. Dewey

began his critique of the concept of the reflex arc at the place where the movement is

said to begin—with visual perception. Descartes (1985e) argued that the reflex arc

began with an external object striking the senses, such as a flame impacting the eye as a

retinal image. Dewey explained that the reflex arc began with the mistaken

understanding—the sensation of light was a stimulus that caused the child to respond

by reaching to grasp the flame.

Dewey (1896) argued that the child's action of reaching to grasp the flame did

not begin with a sensory stimulus, "but with a sensori-motor coordination, the optical-

ocular, and . . . the movement . . . is primary, and the sensation . . . is secondary" (p.

358). Movement was more fundamental because "the movement of body, head and eye

muscles" determined "the quality of what is experienced" (p. 358). Descartes began

with a discrete, inner sensation of light upon the eyeball, with "some pregiven world

[that] determines how the perceiver can act" (Varela et al., 1991, p. 173). In contrast,

Dewey understood that perception, thinking, and action began with the "sensorimotor

structure of the perceiver . . . the manner in which the perceiver is embodied" (Varela et

al., 1991, p. 173). In the child-candle situation, Dewey began with a study of how the

particular goal-directed movements of the child's body could guide his actions.

Whereas Descartes' idea of the reflex arc separated mind and body,

understanding the body as machine and perception as rational thought, perception and

thinking were for Dewey part of a whole embodied action. For Descartes, the

soul/mind of the child was located in the child's head—in the pineal gland. By contrast,

for Dewey, "the mind is not located in the head, but is embodied in the whole organism

embedded in its environment" (Thompson, 2001, p. 3). Perception and thinking for

Dewey depended

> . . . upon the kinds of experience that come from having a body with various sensorimotor capacities, and second that these individual sensorimotor capacities are themselves embedded in a more encompassing biological, psychological, and cultural context. (Varela et al., 1991, p. 173)

Visual perception serves as a good illustration of Dewey's (1896) view of

embodiment. Reaching to grasp the flame of the candle originated in a whole "act of

seeing" or "looking" (Dewey, pp. 358–59), understood as a "sensori-motor

coordination" (p. 358), not a discrete and unique sensation of light. A sensation, for

Dewey, could never stand alone, such that it could be a stimulus for action, since "both

sensation and movement lie inside, not outside the act" (p. 359). He explained that the

reflex arc idea mistakenly assumed that sensory stimulus and motor response were

rigidly distinct, "while in reality they are always inside a coordination and have their

significance purely from the part played in maintaining or reconstituting the

coordination" (p. 360). James Garrison (2001, p. 283 and 1998, p. 65) called this

coordination "the unity of the act" and the "unity of a single 'transaction.'"

Current neuroscience (Rizzolatti, Fadiga, Fogassi, & Gallese, 1997) supports

Dewey's (1896) perspective. Rizzolatti et al. argued that their data and hypothesis were

at odds with the traditional view of cognitive sciences, that percepts are built from

elementary sensory information via a series of progressively more and more complex

representations. In contrast, they stressed the importance of motor areas and motor-to-

sensory pathways for the construction of object-and-space perception, and emphasized

the artificiality of constructing a rigid wall between sensory and motor representations.

They observed the closeness of their view to the philosophical stance of phenomenological philosophers on space perception. Quoting Merleau-Ponty (1962), they concluded that space was "not a sort of ether in which all things float. . . . The points in space mark, in our vicinity, the varying range of our aims and our gestures" (p. 23). Another study also confirmed Dewey's view at the neuronal level. Chiel and Beer (1997) showed that adaptive behaviour also depended on interactions between the nervous system, body, and environment: sensory preprocessing and motor postprocessing filter inputs to and outputs from the nervous system; co-evolution and co-development of nervous system and periphery create matching and complementarity between them; body structure creates constraints and opportunities for neural control; and continuous feedback between nervous system, body, and environment are essential for normal behaviour.

1.3   Embodied Action

Dewey's (1912) critique of the reflex arc highlighted three central features that defined his enactive account of perception: situation, time, and the lived body. He argued that perception always needed to be seen from the standpoint of a situation, as a temporal act of choosing that involved the movements and activities of a body-mind. Perception, movement, and action were inseparable. Dewey defined perception as a process that is both: (a) a total, organic action that is structurally coupled with a situation; and (b) a temporal act of choice, a dynamically emergent *choosing*. He stated that perception was the "functional transformation of the environment under conditions of uncertain action into conditions for determining an appropriate organic

response" (p. 659). Dewey's definition was in stark contrast with how perception was widely understood in Western thought as a sensory response to an object that is a "stimulus, ready-made and complete" (p. 659). For Dewey, the object is part of perception understood as a "process of determining the response" (p. 659). He explained that

> . . . the perceived subject-matter at every point indicates a response that *has* taken effect with reference to its character in determining *further* response. It exhibits what the organism has done, but exhibits it with the qualities that attach to it as part of the process of determining what the organism is *to do*. (p. 659)

For Dewey (1912), perception arose primarily from the coupling of sensorimotor activities of a lived-body/mind environment, not from the brain. He explained that

> . . . external movements are involved in the activities of an organism. If and in so far as these activities are indeterminate, there is neither a total, or adequate stimulus in the movements, nor an adequate total response by the organism. Adequate and total response are both delayed. . . . The partial responses, however, are neither merely dispersed miscellaneously upon the environment, nor are they merely possible. They are directed upon the partial stimuli so as to *convert* them into a single coordinated stimulus. Then a total response of the organism follows. (p. 659)

Dewey (1912) bypassed Descartes' "logical geography of inner versus outer" (Varela et al., 1991, p. 172) by understanding perception and thinking as *embodied action* (E. Thompson, 2007; Varela et al., 1991).[7] By using the term "embodied" I mean to highlight two aspects of the Deweyan perspective: "first, that cognition depends upon the kinds of experience that come from having a body with various sensorimotor capacities, and second, that these individual sensorimotor capacities are themselves embedded in a more encompassing biological, psychological, and cultural context"

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[7] My definition of "embodied action" is indebted to Varela et al., 1991, pp. 172–173.

(Varela et al., 1991, pp. 172–173). By using the term "action," I mean to emphasize that for Dewey "sensory and motor processes, perception and action, are fundamentally inseparable in lived cognition. Indeed, the two are not merely contingently linked in individuals; they have also evolved together" (Varela et al., 1991, p. 173).

By using the phrase "embodied action" to characterize Dewey's view, I am suggesting that his approach is enactive (Colombetti & Thompson, 2008; E. Thompson, 1992, 1996, 1999, 2001, 2007; Thompson, Palacios, & Varela, 1992; Varela et al., 1991). Dewey's critique of the concept of the reflex arc focused on *enaction* in two main ways: "(1) perception consists in perceptually guided action and (2) cognitive structures emerge from the recurrent sensorimotor patterns that enable action to be perceptually guided" (Varela et al., 1991, p. 173). The individual human mind could never be reduced to the brain for Dewey, because sensation and thought are "not a peculiar aspect of mental states inside the head" (Thompson, 1999, p. 8). Dewey (1896) argued that perception, thinking, and action were intertwined in a sensorimotor coordination. This coordination was not as a series of brain states, but rather was characterized by embodied action embedded in an environment, a "mode of being-in-the-world" (Heidegger, 1982, 1996; Merleau-Ponty, 1962; Thompson, 1999, p. 8).

Dewey's enactive approach was guided by the idea that "the human mind is embodied in our entire organism and in the world" (E. Thompson, 2007, p. 243). This perspective argued that the individual human mind was not in the head, "but extends throughout the living body and includes the world beyond the biological membrane of the organism, especially the interpersonal, social world of self and other" (Thompson,

2001, p. 2). Dewey's vision of a "world without withins" (Tiles, 1995) presupposed the radical intertwining of mind, body, and world. In Dewey's model the human mind could not be located in the head; rather, it extended throughout the living body and the world, since body-mind-world were inseparable, an intertwining "that enact each other" (Thompson, 1999, p. 7). For Dewey, there was no "body" in addition to a "mind" in addition to a "world," but rather only a Moebius strip–like *body-mind-world*, what Merleau-Ponty (1968) called "the intertwining—the chiasm" (see also Kendall & Michael, 1998). Merleau-Ponty described this intertwining of body/mind/world in the following way:

> There is a circle of the touched and the touching, the touched takes hold of the touching; there is a circle of the visible and the seeing, the seeing is not without visible existence; there is even an inscription of the touching in the visible, of the seeing in the tangible—and the converse; there is finally a propagation of these exchanges to all the bodies of the same type and of the same style which I see and touch—and this by virtue of the fundamental fission or segregation of the sentient and the sensible which, laterally, makes the organs of my body communicate and founds transitivity from one body to another. (p. 143)

2 Cognition and Mind

Dewey's theory of cognition, like his view of perception and action, neither separated the mind and the body (which would give rise to the mind-body problem) nor denigrated embodied experience and sensual perception. Dewey discussed his theory of cognition in many places throughout his works. One noteworthy presentation came in the form of an invitation to reflect on human experience. Dewey (1916/1944) asked us to consider the following paradigmatic case of thinking, what he takes to be a model example of the four "phase[s] . . . of thought" (p. 153):

> A man is walking on a warm day. The sky was clear the last time he observed it; but presently he notes, while occupied primarily with other things, that the air is cooler. It occurs to him that it is probably going to rain; looking up, he sees a dark cloud between him and the sun, and he then quickens his steps. (Dewey, 1910/1997, p. 6)

Dewey's four phases of cognition are outlined in Table 1. Dewey conceived of truth and knowing as taking place in space and time; note that "phases" implies a time span, a temporal succession that spans an action constituting the developing of experience.

2.1 Experience: The Empirical Situation and the Lived Body

For Dewey (1916/1944), the initiating phase of thinking—the initial condition for the possibility of human cognition—was "experience" or an "actual empirical situation" (p. 153). He anticipated a possible objection from readers for whom this statement might be a "silly truism," observing that "it ought to be one; but unfortunately it is not" (p. 153). With this observation, he criticized philosophies, like Plato's and "traditional education" (pp. 262–263), which separated mind from experience and consequently

Table 1

Dewey's Four Phases of Thinking

EXPERIENCE	Origin and stimulus	Actual empirical situation
DATA	Suggestions and past experience: Past experience and prior knowledge	A noted or perceived fact = the ground or basis of belief = evidence
IDEAS	Inference: Something not – observed, but which is brought to mind	Perceived meanings or connections
SOLUTIONS	Consideration of some solution	Secure conditions which will make the getting of an idea identical with having an experience

misunderstood what the mind *really* was. Dewey noted that "when the mental is

regarded as a self-contained separate realm" (Plato's requirement for attaining true

knowledge), "a counterpart of fate befalls bodily activity and movements. They are

regarded as at the best mere external annexes to the mind" (p. 162). Dewey called this

mistaken view an "isolated conception of the mind" that failed to "perceive what mind

really is—namely the purposive and directive factor in the development of experience"

(p. 162).

An empirical situation, or a genuine situation of experience, involved "the sort of

occupations that interest and engage activity in ordinary life" (Dewey, 1916/1944, p.

154). He used the term "empirical situation" interchangeably with "an experience" (p.

154) because, for him, human experience and knowing always occurred in existential

situations. Cognition was an activity embedded in an experiential, existential situation.

"Experience," for Dewey, meant "trying to do something and having the thing perceptibly do something to one in return" (p. 153). In his above example of rudimentary thinking, the empirical situation was a man walking on a warm day.

An empirical situation always involved a problem, some difficulty, puzzle, confusion, or doubt to be overcome that occasions thinking, "something to do, not something to learn" (Dewey, 1916/1944, p. 154). Dewey (1910/1997) explained that

> . . . thinking begins in what may . . . be called a *forked-road* situation, a situation which is ambiguous, which presents a dilemma, which proposes alternatives. As long as our activity glides smoothly along from one thing to another, or as long as we permit our imagination to entertain fancies at pleasure, there is no call for reflection. Difficulty or obstruction in the way of reaching a belief brings us, however, to a pause. In the suspense of uncertainty, we metaphorically climb a tree; we try to find some standpoint from which we may survey additional facts and, getting a more commanding view of the situation, may decide how the facts stand related to one another. *Demand for the solution of a perplexity is the steadying and guiding factor in the entire process of reflection.* (p. 11)

In the example above, the problem was the possibility of rain and the *doing* was evoked by a calling-forth from the world-environment to respond effectively to the likelihood of rain. This *doing* required the "intentional noting of connections" between things that we have experienced in the past and our prior knowledge of situations involving rain. Dewey (1910/1997) explained that the need to confront and resolve a problem shapes the kind of inquiry undertaken:

> A traveler whose end is the most beautiful path will look for other considerations and will test suggestions occurring to him on another principle than if he wishes to discover the way to a given city. *The problem fixes the end of thought and the end controls the process of thinking.* (p. 12)

Any experience or situation might induce learning; whether it did so would

depend upon "what quality of problem it involves" (Dewey, 1916/1944, p. 154). A

situation that aroused thinking, for Dewey,

> . . . should suggest something to do which is not either routine or capricious—
> something, in other words, presenting what is new (and hence uncertain or
> problematic) and yet sufficiently connected with existing habits to call out an
> effective response. An effective response means one which accomplishes a
> perceptible result, in distinction from a purely haphazard activity, where the
> consequences cannot be mentally connected with what is done. (p. 154)

Every phase of thinking, every genuine experience, for Dewey, is saturated with

what Francisco Varela (1996) called "spontaneous preunderstanding" (p. 336). He

concurred with Merleau-Ponty's (1962) observation that "the world is not what I think,

but what I live through" (p. xvii). Dewey's example focused on the experienced world,

the experience of consciousness in the lived-world (Varela et al., 1991, p. 17).

The notion of the "lived body" was of central importance to Dewey's view of

cognition. The conceptual distinction between the "objective body" and the "lived

body" originated from the Continental European tradition of phenomenology. These

two different ways of perceiving the same body were studied in the writings of Husserl

(1970a, 1970b, 1991) and Merleau-Ponty (1962, 1963, 1973). A good place to begin

defining the human lived body is with an explanation of what the lived body is not. The

lived body is not the objective body. The objective body is the body that can be

objectified, "the body as a visible and concrete gestalt" (Lindemann, 1997, p. 80). The

objective body is the body observed as an object that can be scientifically analyzed, an

object of study for science, medicine, and biology. In the "consciously experienced"

mode the objective body appears as our own, as belonging to our self or as being our

self (Thompson, 1999, p. 11); for example, the body that we look at in the mirror when we decide that we need to lose a few pounds. The objective body manifests itself in our body image. The lived body is the body that lives through and sustains perceptual acts, observation and analysis. The lived body is both "consciously experienced" and "absently available" (Leder, 1990). The "absently available" mode lies beneath personal consciousness.

Understanding the difference between "body image" and "body schema" is helpful in understanding the role played by the body in action and in the act of knowing. Gallagher's work (Gallagher, 1986a, 1986b, 1995, 2001, 2004, 2005; Gallagher, Butterworth, Lew, & Cole, 1998; Gallagher & Cole, 1995) clarified that "body image" is distinct from and yet functionally interrelated with "body schema." "Body image" is a complex set of intentional states of consciousness that consist of the perceptions, attitudes, and beliefs or mental representations concerning one's own body (Gallagher, 2001). Body image is the result of perceptual experience, beliefs or conceptual understanding, and emotional attitudes that one takes toward one's own body. Various cultural and interpersonal factors affect the conceptual and emotional attitudes that one adopt about one's body; for example, clearly, depictions of bodies in the media or messages given to one about one's own body influence and inform feelings and thoughts about one's body. In some cases, body image can help to control movement, taking the form of a conscious monitoring of one's movement. The body image is a conscious perception, belief, attitude, or understanding that one has of one's own body.

In contrast with body image, "body schema" is an automatic system of sensorimotor capacities, actualities, and processes that function without the necessity of perceptual monitoring (Gallagher, 2001, pp. 5–6). Gallagher and Cole (1995) observed that preconscious, subpersonal processes carried out by the body schema system operate below the level of self-referential intentionality, although these processes can enter into and support intentional activity.

2.2 Data: Evidence

Dewey's (1916/1944) second phase of thinking was characterized by the collection of data. He stated that there "must be *data* at command to supply the considerations required in dealing with the specific difficulty which has presented itself" (p. 156). In the example of a man walking on a warm day, the data was being collected (and had been collected) by an individual, embodied, human mind over a span of time. Seen as a living history of embodied cognition, like all humans, the man was always necessarily intertwined with his environment. He was always already immersed in and practically engaged within an existential situation.

The man's empirical situation or genuine experience of walking on a warm day provided him with data. The data consisted of perceived information, such as noting that the air was cooler and seeing a dark cloud between him and the sky. These two pieces of perceived information or facts provided the ground, evidence, or basis for the belief in the likelihood that it will rain. Dewey (1916/1944) explained that these data were the "material of thinking" (p. 156). He noted that

> . . . memory, observation, reading, communication, are all avenues for supplying
> data. The relative proportion to be obtained from each is a matter of the specific

features of the particular problem. . . . A well-trained mind is one that has a maximum of resources behind it, so to speak, and that is accustomed to go over its past experiences to see what they yield. (p. 157)

The man's data included all his past experience with situations involving rain—his prior knowledge of the significance of dark clouds and how they connect with rain. A solution to a problem will not occur without perceptual data or facts, so that gathering data is a necessary condition for finding a solution to the problem. In itself, however, gathering data is not sufficient for solving the problem:

If the person has had some acquaintance with similar situations, if he has dealt with material of the same sort before, suggestions more or less apt and helpful are likely to arise. But unless there has been experience in some degree analogous, which may now be represented in imagination, confusion remains mere confusion. There is nothing upon which to draw in order to clarify it. (Dewey, 1910/1997, p. 12)

The data is the condition in the absence of which an answer to the problem could not take place, but may not be the condition in the presence of which a solution to the problem will emerge (Angeles, 1981, p. 43). Dewey (1916/1944) also said: "Careful observation and recollection determine what is given, what is already there, and hence assured. They cannot furnish what is lacking. They define, clarify and locate the question; they cannot supply its answer" (p. 158).

2.3   Ideas: Inference

Since, as Dewey (1910/1997) explained, the "data at hand cannot supply the solution; they can only suggest it" (p. 12), moving to the next phase of thinking required the inventiveness of a creative leap, from "what a thing suggests but is not as it is presented" to something "novel" (Dewey, 1916/1944, pp. 158–159). Phase three of thought required "inference" (Dewey, 1916/1944, p. 158) and occurred when an

individual, embodied human mind, embedded in a world, furnishes what is lacking out of a history of embodied cognition. Dewey (1916/1944) noted that the

> . . . data *arouse* suggestions, and only by reference to the specific data can we pass upon the appropriateness of the suggestions. But the suggestions run beyond what is, as yet, actually *given* in experience. They forecast possible results, things *to* do, not facts (things already done). Inference is always an invasion of the unknown, a leap from the known. (p. 158)

In the example of the man walking on a warm day, the thing not observed but brought to mind was the perceived meanings or connections between the observed coolness and the dark clouds: the idea that it was probably going to rain. "Ideas . . . whether they be humble guesses or dignified theories, are anticipations of possible solutions. They are anticipations of some continuity or connection of an activity and a consequence which has not as yet shown itself" (Dewey, 1916/1944, p. 160). The object suggested was "rain."

2.4   Solutions: Applying Ideas

Dewey's (1916/1944) final phase of thinking was the application of a solution to the situation, the testing of the ideas by acting upon them. In this phase of cognition, the idea became identical with "having an experience which widens and makes more precise our contact with the environment" (p. 160). Dewey explained that "thoughts just as thoughts are incomplete . . . at best . . . tentative; they are suggestions, indications . . . standpoints and methods for dealing with situations of experience. Till they are applied in these situations they lack full point and reality" (p. 161). In the example of the man walking on a warm day, his solution was to quicken his step.

2.5   Inquiry

Dewey's (1938/1986) definition of *inquiry* followed from his account of thinking and cognition. Inquiry was the "controlled or directed transformation of an indeterminate situation into one that is so determinate in its constituent distinctions and relations as to convert the elements of the original situation into a unified whole" (p. 108). Like the phases of thought, inquiry had stages. Dewey explained that "ideas differ in grade according to the stage of inquiry reached," ranging from a vague initial suggestion to its final test in the form of reasoning (pp. 113–114). The first stage was "the indeterminate situation" (p. 109). The second stage was the "institution of a problem" (p. 111). The third stage was the "determination of a problem-solution" (p. 112). The final stage was reasoning (p. 115).

To sum up, for Dewey (1916/1944), "acting intelligently" was identical with "purposeful activity" (p. 103) and "developing experience" was thinking (p. 153). Thinking was an activity; consequently, it did not take place in the head. Rather, thinking was necessarily embedded in an existential, experiential situation and radically intertwined with a world or environment, as experienced by a particular person. It would require another essay to define precisely what Dewey meant by the concept "person," but essentially, for him a person was an experiencing, living history of embodied cognitive possibilities with a certain body structure. A corollary of Dewey's view of the act of knowing was that "concepts" themselves were not abstract ideas. Rather, concepts for Dewey were experienced meanings; for example, "blue" was

inextricably linked with "sky" and "triangle" with spaces that we traverse and buildings that we live in.

The thinker was always embodied, since perceptual experience was what made cognition possible. The individual human mind, for Dewey (1916/1944), could not be reduced to the contents of a head or a brain, since it was "intentional purposeful activity controlled by perception of facts and their relationships to one another" (p. 103). Mind was the factor that directed and gave purpose to the development of experience (p. 162).

3   Dewey's Phenomenological Postulate

and the Meaning of Experience

Dewey's broad enactive approach was a method of examining human experience with an underlying phenomenological postulate. His view, like all phenomenological approaches, was founded on a belief in the irreducible, fundamental nature and status of direct experience (Varela, 1996, p. 294), experience as we actually live it. Varela called this shared belief the "the basic ground," the "irreducible nature of conscious experience" (p. 294). Direct experience was not private or inaccessible, but rather, ordinary, everyday, intersubjectively available, describable human lived experience.

Dewey's (1905/1977) phenomenological postulate, "a presupposition as to what experience is and means," is what he called "immediate empiricism" (p. 158). His postulate stated that "things—anything, everything, in ordinary or nontechnical use of the term 'thing'—are what they are experienced as. Hence, if one wishes to describe anything truly, his task is to tell what it is experienced as being" (p. 158).

Dewey's (1905/1977) phenomenological postulate was a philosophical method, both a "*style of thinking*" and a "*special type of reflection* or attitude about our capacity for being conscious" (Varela, 1996, pp. 334–335). Dewey explained that "the real significance of the principle is that of a method of philosophical analysis—a method identical in kind (but differing in problem and hence in operation) with that of the scientist" (p. 165). This style of thinking was popularized in the West by Edmund Husserl (1970a, 1970b, 1991), and was later developed by Eugen Fink, Edith Stein, Max Scheler, Martin Heidegger, Maurice Merleau-Ponty, and Emmanuel Levinas, among

others (as noted in Spiegelberg, 1994). Dewey (1929/1958) observed that this manner of thinking "is the only method which can do justice to . . . the inclusive integrity of experience" since "it alone takes this integrated unity as the starting point for philosophic thought" (p. 9). Phenomenological thinking involved a disciplined examination of human experience and its direct lived quality, and going to experience to "see what the thing is experienced *as*" (Dewey, 1905/1977, p. 166).

Dewey's (1905/1977) phenomenological postulate of immediate empiricism pointed to how he understood the meaning of experience. He explained that "when 'an experience' or 'some sort of experience' is referred to, 'something' or 'some sort of thing' is always meant" (p. 159). According to Dewey (1983), experience was a "living function" or an organic "moving equilibration of integration" (p. 377), while "life denotes a function, a comprehensive activity" (Dewey, 1929/1958, p. 9). Dewey stated that "where there is experience, there is a living being" (from Dewey's "Creative Intelligence: Essays in the Pragmatic Attitude," as cited in Winn, 1959, p. 39). Dewey (1922??/1983) gave an account of experience as biological and social (pp. 377–388).

Experience, understood from the standpoint of the biological, was an operative function (Dewey, 1922??/1983, p. 377). He used the term *operative function* to overcome any distinction between organism and environment. He observed that "it presents us with their undifferentiated unity, not with their unification" (p. 377). He further explained that "functions that define an organism as one object *in* nature—in the total environment, not set over against it—exist *by* nature as well as *of* it" (p. 377). In other words, "experience is of as well as in nature" (Dewey, 1929/1958, p. 4a).

Dewey (1922??/1983) defined *function* as "an integrated interaction of a variety of factors or modes of energy" (p. 377), "an integration of many, indefinitely many, environmental energies" (p. 378). The most obvious fact of life, Dewey said, was that "every function tends to maintain itself" (p. 378). Adaptation was the changing of factors with the aim of restoring or recovering the working unity or equilibrium of the whole organism. He noted that adaptation "is not adaptation of organism to environment, but adaptation to one another of some of the many factors in the function" (p. 378).

The two main features of a function were movement and temporality. Dewey (1922??/1983) cited the example of the "simplest act of grasping" to show that a function is a "moving equilibrium of integration" involving "spatial and serial extension; antagonistic muscles—balance of relaxation and expansion—activity of circulatory and nervous mechanisms, pressure, resistance, etc." (p. 377). As a moving equilibrium, a function was temporal. Dewey explained that "this temporal phase introduces the ground of distinction between organism and environment; that is between those sets of factors that represent the maintenance of function (organism) and those which intervene first as disturbing and then as restoring equilibrium, (environment)" (p. 378).

4   Dewey's Embodiment Thesis:

A Solution to the Mind-Body Problem

The embodiment thesis is central to the broad enactive approach. It states that the "mind is not located in the head, but is embodied in the whole organism embedded

in its environment" (Thompson, 2001, p. 3). Dewey's (1929/1958) solution to the mind-body problem, presented in the chapter "Nature, Life and Body-Mind" in *Experience and Nature*, pointed to his embodiment thesis.

Dewey (1929/1958) noted that the heart of the mind-body problem has "primarily nothing to do with mind-body" and everything to do with three interrelated, Cartesian "underlying metaphysical issues" (p. 252) that separate "life from nature" and "mind from organic life" (p. 278): one, the denial of the direct, lived quality of experience; two, the ignoring of the temporal quality of experience, the fact that existence happens *in* time; and three, the misunderstanding that experience is the cause and not the consequence of interactions of existence (p. 252). Dewey's discussion of these mistaken metaphysical presuppositions suggests what I call his *embodiment thesis*.

Below, with reference to Dewey's (1896) reinterpretation of James' (1890/1983) child and candle example, I outline his replacement of the reflex arc idea with a concept of embodied action.

4.1   The Direct, Lived Quality of Experience

Dewey (1929/1958) explained that the first of the three mistaken metaphysical assumptions was the "the denial of quality in general to natural events" (p. 252). This mistaken assumption consisted of a twofold denial of embodiment and of the irreducible, fundamental nature and status of direct experience. What Dewey claimed Descartes was denying needs to be clarified, in order to see that an embodiment thesis and a corollary phenomenological postulate were central to Dewey's perspective.

Dewey (1929/1958) claimed that Descartes denied "quality in general" to something called "natural events." The puzzling phrase "quality in general to natural events" requires much explanation. Dewey used the term *natural events* to refer to the "specifiable empirical" (p. 255), spontaneous self-organization of existence. *Natural events* were a field of underlying activity of interactions of environing things from which nonliving and living things emerged. *Events* organized themselves at different degrees of complexity and interaction. The term *natural events* did not refer to life, matter, or mind. The physical or matter, the psychophysical or life, and the mental or mind were not an event or existence, but rather "a character of events in a peculiar condition of organization" (Dewey, p. 258), an emergent property of "fields of interaction" (p. 272). Dewey explained that such fields had three levels:

> The first, scene of narrower and more external interactions, while qualitatively diversified in itself, is physical; its distinctive properties are those of the mathematical-mechanical system discovered by physics and which define matter as a general character. The second level is that of life. Qualitative differences, like those of plant and animal, lower and higher animal forms, are here even more conspicuous; but in spite of their variety they have qualities in common which define the psycho-physical. The third plateau is that of association, communication, participation. This is still further internally diversified, consisting of individualities. It is marked throughout its diversities, however, by common properties, which define mind as intellect; possession of and response to meanings. (p. 272)

The transition for Dewey from nonliving physical structures or forms to living ones was the transition from "matter to life, from physics to chemistry to biology" (E. Thompson, 2007, p. 73). Matter, life, and mind were not separate kinds of beings or entities. Instead, these terms referred to different levels of increasing complexity and

intimacy of interaction of natural events, different degrees of living and nonliving activity.

Dewey (1929/1958) explained that living and nonliving things were characterized by different activities. The activities of living things were "characterized by *needs*, *efforts* [italics added] which are active demands to satisfy needs, and by *satisfactions* [italics added]" (p. 252). The term *needs* referred to a state of being of "complexity as dynamic instability or metastability" (E. Thompson, 2007, p. 40). This state of being was "a condition of tensional distribution of energies such that a body is in a condition of uneasy or unstable equilibrium" (Dewey, p. 253). Underlying Dewey's concept of "needs" is what Merleau-Ponty (1963) called a "principle of discontinuity" (p. 137). Merleau-Ponty explained that:

> . . . with form [what Dewey calls "organization"], a principle of discontinuity is introduced and the conditions for a development by leaps or crises, for an event or for a history, are given. Let us say in other words that each form constitutes a field of forces characterized by a law which has no meaning outside of the limits of the dynamic structure considered, and which on the other hand assigns its properties to each internal point so much so that they never be absolute properties, properties *of* this point. (p. 138)

Dewey's definition of *needs* was founded on the idea of complexity. The term *complexity* referred to "behavior that is neither random nor ordered and predictable; rather, it is in between, exhibiting changing and unstable patterns" (E. Thompson, 2007, p. 40). Of particular importance to Dewey's approach was the notion of "complexity as dynamic instability or metastability" (E. Thompson, 2007, p. 40). This idea arose in the context of current, nonlinear dynamic-systems approaches to the brain and behaviour and referred to "the successive expression of different transient dynamics with

stereotyped temporal patterns being continuously created and destroyed and re-emerging again" (Friston, 2000, p. 238; Thompson, p. 40). Underlying Dewey's perspective was the belief that "complexity, instability, or metastability is necessary for self-organization and adaptive behavior" (Thompson, p. 40). Dewey's belief was supported by current science indicating that "complexity of this sort can be found at numerous scales and levels, from the molecular and organismic to the ecological and evolutionary, as well as the neural and behavioral" (E. Thompson, 2007, p. 40).

Dewey's (1929/1958) terms *demand* and *effort* described the fact that the state of being of complexity as dynamic instability or metastability "was manifested in movements which modify environing bodies in ways which react upon the body, so that its characteristic pattern of active equilibrium is restored" (p. 253). By "satisfaction" Dewey meant "this recovery of equilibrium pattern, consequent upon the changes of environment due to interactions with the active demands of the organism" (p. 253). Underlying this "equilibrium pattern" was the activity of particular bodies interacting with active demands.

Dewey's notion of *embodied action* included two aspects: "first, that cognition depends upon the kinds of experience that come from having a body with various sensorimotor capacities, and second, that these individual sensorimotor capacities are themselves embedded in a more encompassing biological, psychological, and cultural context" (Varela et al., 1991, pp. 172–173). Action, for Dewey, was characterized by the fundamental inseparability of sensory and motor processes, perception and action in

lived cognition. "Indeed, the two are not merely contingently linked in individuals; they have also evolved together" (Varela et al., p. 173).

By using the phrase "embodied action" to characterize Dewey's view, I am suggesting that his approach is enactive (Colombetti & Thompson, 2008; E. Thompson, 1992, 1996, 1999, 2001, 2007; Thompson, Palacios, & Varela, 1992; Varela et al., 1991). Dewey's critique of the concept of the reflex arc focuses on *enaction* in two main ways: "(1) perception consists in perceptually guided action and (2) cognitive structures emerge from the recurrent sensorimotor patterns that enable action to be perceptually guided" (Varela et al., 1991, p. 173). The individual human mind can never be reduced to the brain for Dewey because sensation and thought are "not a peculiar aspect of mental states inside the head" (Thompson, 1999, p. 8). Dewey (1896) argued that perception, thinking, and action were intertwined in a sensorimotor coordination. This coordination was not as a series of brain states, but rather was characterized by embodied action embedded in an environment, a "mode of being-in-the-world" (Heidegger, 1962; Merleau-Ponty, 1962; Thompson, 1999, p. 8).

Dewey's notion of embodiment in general, and his use of the terms *demand* or *effort* and *satisfaction* in specific, indicated an "autopoietic" approach to characterizing life (E. Thompson, 2007, pp. 91–127). *Autopoietic* refers to "circular, self-producing organization" (Maturana & Varela, 1973, 1980). Dewey's approach has commonly been seen to be evolutionary or ecological, according to received views of evolution and ecology or revisionist views that presuppose the basic tenets of the received view. His perspective can never be properly understood in these received terms. Dewey's

approach to understanding a living system or organism was more akin to the characterizations of life in contemporary biology. Contemporary biology characterizes life in three ways (E. Thompson, 2007, p. 95): evolutionary, ecological, and single individual entity or organism (Thompson, p. 118). In autopoietic terms, Dewey's approach is properly understood as a "single individual entity or organism" characterization of life.

In contemporary biology, the evolutionary approach characterizes life on the basis of genetics and reproductive populations. One generation of organisms makes the next generation of organisms, whether the organism is bacterium, plant, or animal. This characterization relies on a view of competitive interaction and natural selection. In this model, life requires "historical continuity and evolution" and depends on the "genetically based linkage of generations and the arising of novel variants within a population as a result of various evolutionary factors" (E. Thompson, 2007, p. 95). This approach sees the whole of life as constituted by its parts and emphasizes the organism over the environment. Varela et al. (1991) observed that this view is inherently dualistic, since it treats "the world as pregiven and the organism as representing or adapting to it" (p. 202).

Dewey's view overcame this dualistic received view of evolution. His perspective was not concerned with competitive interaction and natural selection, as are received Darwinian or neo-Darwinian views of evolution (E. Thompson, 2007, p. 170). (Dewey's dynamic perspective is a particular brand of neo-Darwinianism; Garrison, 2001, p. 286.) He preferred the notions of *adaptation* and *interaction*, which he used in a

new and particular way. He abandoned the idea of natural selection as a main

explanation, the notion that a "trait or disposition can be explained away by its

contribution to survival value" (Varela et al., 1991, p. 195). Instead, Dewey was

concerned with how the "organism and environment are mutually enfolded in multiple

ways, and so what constitutes the world of a given organism is enacted by that

organism's history of structural coupling" and "such histories of coupling proceed not

through optimal adaptation but rather through evolution as natural drift" (Varela et al.,

1991, p. 202). Dewey (1896) explained:

> The *ear activity* [italics added] has been evolved on account of the advantage
> gained by the *whole organism* [italics added], it must stand in the strictest
> histological and physiological connection with the eye, or hand, or leg, or
> whatever other organ has been the overt center of action. It is absolutely
> impossible to think of the eye center as monopolizing consciousness and the ear
> apparatus as wholly quiescent. What happens is a certain relative prominence
> and subsidence as between the various organs which maintain organic
> equilibrium. (p. 4)

Failing to see that Dewey focused on "tangled, circular relations of congruence" (Varela

et al., 1991, p. 195) led to misreading of his perspective, such as R. S. Peters' (1981)

interpretation of Dewey.

Dewey replaced a Darwinian view of evolution with a view of evolution as

enactive (E. Thompson, 2007, pp. 166–218; Varela et al., 1991, pp. 185–205). The guiding

image for Dewey's view of evolution was the "image of laying down a path in walking

in which there is no clear separation between path and footsteps, the way and its

walking" (Thompson, p. 166; Varela, 1987). Recent advances in biology and mind

sciences have opened theoretical spaces in which to properly understand Dewey's view

of enactive evolution (Thompson, pp. 201–218) as "evolutionary path making and natural drift" (Varela et al., 1991, pp. 185–214).

Dewey's perspective is also often associated with the ecological approach. This characterization of life corrects the dualism of the evolutionary approach in favour of monism (Varela et al., 1991, p. 202). The ecological approach sees organisms as "not only members of reproductively linked populations, but also as beings that interact constructively with their environments, and so change the world in which they and their descendants live" (E. Thompson, 2007, p. 95). According to this perspective, organisms are "niche-constructing" beings (Odling-Smee, 1988; Thompson, p. 95). This monistic view sees the parts of life as made by the whole ecosystem; it emphasizes the environment over the organism.

The ecological approach has two distinct features (Varela et al., 1991, pp. 203–205). The first is compatible with Dewey's notion of perceptually guided action; the second is not. The first feature understands perception as constitutive of environments for perceiving animals, humans, or organisms. For instance, in J. J. Gibson's (1979) view, things in the environment, called *affordances*, provided "opportunities for interaction . . . relative to the sensorimotor capacities of the animal" (Varela et al., 1991, p. 203). Affordances were "distinctly ecological features of the world"; for example, "relative to certain animals, some things, such as trees, are climbable or afford climbing" (Varela et al., 1991, p. 203). Gibson's notion of "affordances" was predated by Jakob von Uexküll's (1934/1957) "Umwelt" theory. Von Uexküll described how the

> . . . tick hangs motionless on the tip of a branch in a forest clearing. Her position gives her the chance to drop on a passing mammal. Out of the whole

environment, no stimulus effects her until a mammal approaches, whose blood she needs before she can bear her young . . . The whole rich world around the tick shrinks and changes into a scanty framework consisting . . . of . . . her Umwelt. . . . Like a gourmet who picks the raisins out of a cake, the tick has selected butyric acid alone from among the things in her environment. We are not interested in knowing what taste sensations the raisins give the gourmet. We are interested solely in the fact that the raisins become sign stimuli in his world, because they have special biological meaning for him. Nor do we ask how butyric acid smells or tastes to the tick; we merely register the fact that butyric acid, because it is biologically meaningful to the tick, becomes a receptor cue for her. . . . The *Umwelt* of any animal that we wish to investigate is only a section carved out of the environment which we see spread around it—and this environment is nothing but our human world. The first task of *Umwelt* research is to identify each animal's perceptual cues among all the stimuli in its environment and to build up the animal's specific world with them. (pp. 11–13)

This ecological notion of affordances or perceptual cues is compatible with Dewey's view of perceptually guided action. Von Uexküll's (1934/1957) emphasis on "the perfect fitting of the tick to her prey-object" (p. 12) concurred with Dewey's focus on structural coupling, the co-determination of organism and environment.

If we turn to the second, distinct feature of the ecological characterization of life, we see the ways in which Dewey's *organismic* characterization of life in *autopoietic* terms diverged from the ecological approach. Although both the ecological and Dewey's enactive approach agreed that perception is perceptually guided action, the ecological approach, in both Gibson's and Von Uexküll's view, hold that "perceptually guided action consists in 'picking up' or 'attending to' invariances . . . that directly specify their environmental source" (Varela et al., 1991, p. 203). In specific terms,

> . . . these optical invariances, as well as the environmental properties they specify, do not depend in any way upon the perceptually guided activity of the animal. . . . Thus, Gibson . . . claims . . . the observer may or may not perceive or attend to the affordance, according to his needs, but the affordance, being invariant, is always there to be perceived. (Varela et al., 1991, p. 204)

In sum, whereas Gibson and Von Uexküll saw the environment as independent, Dewey understood it as "enacted (by histories of coupling)" (Varela et al., 1991, p. 204). Dewey's approach "proceeds by specifying the sensorimotor patterns that enable action to be perceptually guided," and so builds up a theory of perception "from the structural coupling of the animal" (Varela et al., 1991, p. 204). For Dewey, the ecological approach was too one-sided—it understood perception entirely from the side of the environment. As Varela et al. observed, "such an attempt [ecological approach] neglects not only the structural unity of the animal but also the co-determination of animal and environment" (pp. 204–205). Thus, Dewey's characterization of life took a middle way, between the dualism of evolutionary approaches and the monism of an ecological approach, by emphasizing the co-determination of organism and environment.

Dewey's way of characterizing life was neither evolutionary nor ecological. Rather, he focused on the "single individual entity or organism, here and now" (Luisi, Lazcano, & Varela, 1996; E. Thompson, 2007, p. 96), in what Peters (1981) called Dewey's "way of stressing the virtue of autonomy, or self-initiated action" (p. 74). Peters claimed that Dewey "took for granted the value of individual self-determination but was more concerned to stress the values of co-operative problem-solving as an antidote to the extremes of individualism in the old pioneer period" (p. 75). Peters mistakenly saw autonomy as "the outcome of independent thought," as "the ethical value which is embedded in the whole growth ideology" (p. 74). He rightly identified Dewey's notion of "self-originated activity" (p. 74), but he failed to grasp Dewey's belief that the "human mind emerges from self-organized processes" (E. Thompson, 2007, p.

37). Peters unwittingly assumed the basic tenets of a cognitivist/connectionist model of the mind. However, Dewey's theory of mind was enactive. Peters' interpretation of Dewey was askew because he misunderstood Dewey's "autonomy" perspective. As a result of this misunderstanding, Peters misinterpreted Dewey's concept of information, growth, self-organization, circular causality, emergence, and humans as problem-solving animals. This claim would require several papers to defend.

4.2   The Temporal Quality of Experience

Dewey addressed the second mistaken metaphysical assumption with what I call the *argument from dynamic co-emergence*. In this argument, Dewey showed that the reflex arc idea wrongly presupposes that movement is a motor response to a sensory stimulus. For Dewey, movement was never a mechanical response to a stimulus, because embodied action emerged through a dynamic process of mind/body/world co-determination or "structural coupling" (E. Thompson, 2007; Varela et al., 1991) embedded in a history of embodied action. Two central themes of this argument are *dynamics* and *co-emergence*.

4.2.1   Dynamics. Dewey's approach was dynamical, in contrast with Descartes' mechanical perspective. Some basic ideas about dynamic systems form a background for Dewey's approach. One was what van Gelder (van Gelder, 1995, 1998, 1999; van Gelder & Port, 1995) called the *dynamical hypothesis*, the view that "cognitive agents are dynamical systems" (van Gelder, 1998, p. 615). E. Thompson (2007) restated the hypothesis as follows: " natural cognitive agents (people and other animals) are dynamic systems (or, more precisely, . . . the cognitive systems agents instantiate are

dynamic systems)" (p. 40). According with the dynamical hypothesis, we cannot explain living beings in the same terms we would use to describe machines, since organisms are dynamical, not mechanical. Dewey's critique of the concept of the reflex arc replaced a linear, mechanical explanation of the relationship between organism and environment with a nonlinear, dynamical approach. An examination of Descartes' mechanical, computational approach of the reflex arc idea and Dewey's enactive replacement theory shows a contrast between change versus state; geometry versus structure; structure in time versus static structure; timing versus order; parallel versus serial; and ongoing versus input/output (van Gelder, 1998, pp. 621–622). Central to Dewey's dynamical approach, and what van Gelder (1998) called any "broadly dynamical perspective on some natural phenomenon" (p. 621) was its emphasis on time.

Van Gelder (1998) observed that "change and state are like two sides of one coin. Nevertheless, theoretical perspectives can differ in their primary emphasis or focus" (p. 621). The reflex arc idea was interested in states as the medium of change. The focus in Descartes' "Foot and Fire Example" is on each of the separate states of a linear, causal series—from a stimulus, fire, to a reflex response, the pulling away of the foot. In the example, sensory nerves operate through distinct mechanical states, by pulling and pushing, and the motor nerves operate hydraulically, by filling with fluid ("animal spirits") from the brain. It is clear from Descartes' explanation that "change is just what takes you from one state to another" (van Gelder, 1998, p. 621). By contrast, Dewey, a dynamicist, is concerned with *how* things change. He (1896) explained that:

. . . the ability of the hand to do its work will depend, either directly or indirectly, upon its control, as well as its stimulation, by the act of vision. If the sight did not inhibit as well as excite the reaching, the latter would be purely indeterminate, it would be for anything or nothing, not for the particular object seen. The reaching, in turn, must both stimulate and control the seeing. The eye must be kept upon the candle if the arm is to do its work; let it wander and the arm takes up another task. (p. 2)

Descartes' example focused on "internal structure, and in particular on internal combinatorial or syntactic structure—how pieces are combined to form structured wholes" (van Gelder , 1998, p. 621). Descartes reduced the human body to a machine and the human nervous system to a hydraulic model; the idea of the reflex arc was a corollary of this view. Dewey conceptualized states of a system differently. He understood a state geometrically, "in terms of its position with respect to other states and features of the system's dynamical landscape" (van Gelder, p. 621). Dewey (1896) explained that the act of seeing may or may not stimulate another action of reaching,

. . . because both of these acts fall within a larger coordination; because seeing and grasping have been so often bound together to reinforce each other, to help each other out, that each may be considered practically a subordinate member of a bigger coordination. (p. 2)

The act of reaching was an "eye-arm-hand coordination and not an entirely new occurrence" from the so-called separate sensation of light (p. 2). In other words, Dewey's focus was on "where the state is, rather than what it is made of" (van Gelder, p. 621).

Dewey's perspective also understood the realization of structure differently from the reflex arc model. For Dewey, behaviour was "the simultaneous, mutually influencing unfolding of complex temporal structures" (van Gelder, 1998, p. 621). According to the reflex arc idea, action was "laid out statically—as all present at one

time" and behaviour consisted of "simple transformations of static structures" (van Gelder, 1998, p. 621). Descartes' approach was static in that it specified "only a sequence of discrete states" (E. Thompson, 2007, p. 42) through which a stimulus must pass, thus seeing sensation as "something that happens *over* time" (van Gelder, 1999, p. 24 as quoted in E. Thompson, 2007, p. 42). By contrast, Dewey saw action as "laid out temporally, much like speech as opposed to the written word" (van Gelder, 1998, p. 621).

The concept of the reflex arc focused on order, whereas Dewey's replacement theory emphasized timing. Dewey was "interested in how behaviors happen in time" (van Gelder, 1998, p. 621). By contrast, the concept of the reflex arc focused on "which states the system passes through" (van Gelder, p. 621).

Dewey tended "to think of systems as operating in parallel . . . all aspects changing interdependently at the same time" (van Gelder, 1998, p. 621). The reflex arc idea viewed "systems as serial: most variables remain unchanged in any given state transition" (van Gelder, p. 621). For Dewey, "change is standardly global," whereas the reflex arc saw change as standardly local (van Gelder, p. 621). Dewey replaced Descartes' mechanical serial view of action with a dynamic, parallel view of action as emerging in time.

According to the reflex arc idea, process began with an input to the system. Thus, the "task for the system is to produce an appropriate output, and it does so via a sequence of internal operations culminating in the system's halting with that output" (van Gelder, 1998, p. 621). By contrast, Dewey saw process as ongoing, "not starting

anywhere and not finishing anywhere," where the "goal is not to map an input at one

time to an output at some later time, but to constantly maintain appropriate change"

(van Gelder, p. 621).

> For Dewey (1896),

> . . . the so-called response is not merely *to* the stimulus; it is into it. The burn is the original seeing, the original optical-ocular experience enlarged and transformed in its value. It is no longer mere seeing; it is seeing-of-a-light-that-means-pain-when-contact-occurs. (p. 3)

Dewey's enactive perspective focused on the process of perception in real time. It

conceived of perception as "being *in* time, that is, as an essentially temporal

phenomenon" (van Gelder, 1999, p. 24 as quoted in E. Thompson, 2007, p. 42).

4.2.2   Co-emergence. As I have explained above, Dewey's dynamical approach

was one aspect of his *argument from dynamic co-emergence*. I would now like to turn to a

second aspect of that argument, the notion of *co-emergence*. The idea of co-emergence

consists of three main postulates: the unitary structure of the lived-body environment,

structural coupling, and self-other co-determination (E. Thompson, 2007; Varela et al.,

1991).

The lived-body environment is essential to Dewey's perspective. The lived body

is intertwined with the environment and others in the interpersonal, human world; it is

a unitary structure that emerges through the reciprocal interaction of brain, body, and

environment. Enactive cognitive science described this process as *structural coupling*:

"The brain is structurally coupled to the body, and the body is structurally coupled to

the environment" (Varela et al., 1991, p. 13). Phenomenologist Merleau-Ponty (1968)

used the term *intertwining the chiasm* to describe this kind of structural coupling (p. 130).

Recent neurobiological research has a complementary notion. Chiel and Beer (1997), for

example, viewed adaptive behaviour as the result of the continuous interaction between

the nervous system, the body, and environment. In other words, the mind is seen as a

profoundly interwoven system incorporating complicated and highly dynamic aspects

of brain, body, and world.

The notion of co-emergence includes a postulate of self-other co-determination.

According to this postulate, embodied acts of knowing emerge from the dynamic co-

determination of self and other. This means that "the embodied mind is

intersubjectively constituted at the most fundamental levels" (Thompson, 2001, p. 4).

An experiential coupling of self and other is operative from birth, emerging from a

"primordial and preverbal sense of self, present in newborn infants" (Thompson, p. 4).

Thompson (2001) explained that this postulate connects with the recent

rediscovery of the importance of affect and emotion in acts of knowing. Classic analyses

of the act of knowing were cognocentric, "conceiving of cognition as the manipulation

of affectless representations" (Thompson, p. 4). New developments in affective

neuroscience showed that affect and emotion are the foundation of the mind (Damasio,

1994, 1999). Thompson explained that the central role of affect and emotion reinforces

the embodiment and emergence postulates:

> Affect has numerous dimensions that bind together virtually every aspect of the
> organism—the psychosomatic network of the nervous system, immune system,
> and endocrine system; physiological changes in the autonomic nervous system,
> the limbic system, and the superior cortex; facial-motor changes and global
> differential motor readiness for approach or withdrawal; subjective experience
> along a pleasure-displeasure valence axis; social signaling and coupling; and
> conscious evaluation and assessment. Thus the affective mind isn't in the head,
> but in the whole body; and affective states are emergent in the reciprocal, co-

determination sense: they arise from neural and somatic activity that itself is conditioned by the ongoing embodied awareness and action of the whole animal or person. (p. 4)

This explanation describes affect as a "prototypical whole-organism event" (Thompson, p. 4). Enactivism, however, goes one step further, and says that "much of affect is a prototypical *two-organism event* . . . a prototypical *self-other event*" (Thompson, p. 4).

Another distinctive feature of Dewey's idea of co-emergence was the emphasis it gave to autonomy. To properly understand how Dewey used the concept of *interaction*, one needs to grasp Dewey's view of organisms or living beings as autonomous (self-determining) systems in contrast with heteronomous (determined from the outside) systems (Thompson, p. 37).

The concept of the reflex arc understood organisms as heteronomous systems. A heteronomous system was defined by "input-output information flow and external mechanisms of control" (E. Thompson, 2007, p. 43).

By contrast, in Dewey's approach, "living beings and cognitive agents need to be understood as autonomous systems" (E. Thompson, 2007, p. 38). Dewey's perspective understood that the "organization" or "sets of relations" that defined organisms were autonomous or self-governed (E. Thompson, 2007, p. 44). His focus on autonomy was based on the key ideas of *autonomous systems*, *emergence*, and *emergent processes*. An autonomous system was defined "by its endogenous, self-organizing and self-controlling dynamics" and "does not have inputs and outputs in the usual sense, and determines the cognitive domain in which it operates" (Thompson, p. 43; Varela, 1979).

The reflex arc concept saw the interaction of organism and environment as "setting state; the system changes in its own way from that state, until a new input resets state again" (van Gelder, p. 621). Dewey replaced the notion of interaction as "state-setting" in the reflex arc idea with his own concept of interaction as "coupling" (van Gelder, 1998, p. 621). For him, interaction was a

> . . . matter of parameters influencing the shape of change. Input is conceived of as an ongoing influence on the direction of change, and output as an ongoing influence on something else, just as a radio set is continuously modified by an incoming signal and at the same time is delivering a sound. (van Gelder, pp. 621–622)

Dewey believed that interaction involved organism and world "simultaneously shaping each other's change" (van Gelder, 1998, p. 622), and his notion that behaviour and cognition "are always ongoing with no clear staring or end points" depended on his belief that organisms (plants, animals, or humans) were autonomous systems.

5   Concluding Remarks

In sum, the Deweyan perspective reflected the three fundamental tenets of the broad enactive approach: embodiment, dynamics, and emergence. In the next chapter, I argue that the problems of the narrow enactive view—its inability to account for experience, embodiment, and cognition, and its failure to address personal subjectivities or the individual cognizing subject—are straightened out when looked at from Dewey's broad enactive standpoint of embodiment, experience, action, cognition, and mind, while they remain obscure and obscuring when seen from the standpoint of complexity and dynamic systems theory. I extend Garrison's (1998, 2001, 2005a, 2005b) work on

understanding Dewey as a holistic, functional transactionalist further into the realm of

dynamic sensorimotor subjectivity and enactive selfhood.

PART II:

ENACTIVE RECONFIGURATIONS OF EDUCATIONAL PRACTICES

CHAPTER FOUR

❧

POTENTIAL OF A BROAD ENACTIVE APPROACH: RECONFIGURING THE

PROBLEM SPACE OF COMPLEXITY THEORY IN EDUCATION

1   Opportunities Arise When Things Fall Apart:

The Yelling Student Incident

I was driven to reflect on whether an enactive approach addresses personal

agency, justice, morality and power about 4 years ago when a white, male student stood

up in my second-year Introduction to Philosophy of Education class and began waving

his arms around and shouting very loudly, addressing all 60 students in the stadium-

style seating lecture hall. I was only a few slides into my lecture when he began yelling:

"This is bogus! Why would anyone with privilege want to give up their privilege?! Why

would anyone who is rich want to give up being rich?! This is ridiculous…I have as

much as right as anyone to speak up when I want to…" He shouted that he was not

racist, that he believed in freedom and equality, and that these values should be

affirmed above all others. He quoted Martin Luther King and Benjamin Franklin. He

would not stop yelling.

The rug was pulled out from under me and my students. None of us knew where

to land. This was the most challenging situation I had faced in the classroom in almost

15 years of undergraduate teaching. I encountered what Pema Chödrön (1997) called a

"most precious opportunity" (p. 12). It "presents itself when we come to the place

where we think we can't handle whatever is happening. It's too much. It's gone too

far…That's being nailed by life, the place where you have no choice except to embrace what's happening or push it away" (p. 13). The yelling student, the other students in the class, and I were led through a process of examining our cherished beliefs and assumptions that, to paraphrase Boler (1999), involved defensive anger, fear of change, and fears of losing our personal and cultural identities.

My body informed me that this situation was charged with affective and ethical dimensions for everyone in the room, thus making it the sort of situation that Pema Chödrön (1997) described as useful. She noted that "we use these situations either to wake ourselves up or to put ourselves to sleep…[I]n…that…very instant of groundlessness… is the seed of taking care of those who need our care and of discovering our goodness" (p.9).

My busy stomach churned. I felt my back and shoulders tightened up, in particular the area at the base of my neck. The space between my shoulder blades felt thick and congested. My arms and legs felt heavy. I felt huge beads of sweat lazily drip down my back. Sensations of thickness pooled in my ankles, feet and hands. I felt my body pulling towards the right side of the room towards the exit. I wanted to run from the room. He had not stopped shouting. I thought that the other students in the lecture hall were waiting to see what I would do next. I found it difficult to hear and focus on what the student was yelling. This worsened as my eyes scanned the faces of the other students in the room. He continued to yell.

In the sections below I argue that a broad enactive approach in education provides resources for responding to such an encounter, whereas, a narrow, complexity

view is of little help. I also suggest the ways that a broad enactive approach can help one *know* what the *right* and *just* thing to do is in such a situation. A broad enactive perspective reconfigures the problem space of complexity theory in education by accounting explicitly and clearly for the role of the embodied mind in the "dynamic coupling" (E. Thompson, 2007, p. 33) of human and environment. I show that the narrow, complexity view is not able to follow the "logic of codependent arising to its logical conclusion" (Varela et al., 1991, p. 221) "into the groundlessness of our own experience" (p. 218).

2   Review of Problem Space of Complexity Heritage

In order to lay the groundwork for the discussion below, it is necessary to review some of the key arguments presented in Chapter 2 of this thesis. In Chapter 2, I explained that the enactive approach in education can be seen to consist of two main historical phases. I called the first phase a broad enactive approach and the second phase a narrow or focused complexity view in education.

The first phase of the enactive approach was established by Davis (Davis, 1993, 1995, 1996, 2004, 2005, 2008; Davis & Phelps, 2005, 2006, 2007; Davis & Simmt, 2003; Davis & Sumara, 1997, 2002, 2005a, 2005b, 2007, 2008; Davis, Sumara & Kieren, 1996; Davis & Luce-Kapler, 2000, 2008). The broad enactive approach in education drew on the broad enactive perspective in philosophy and cognitive science (as discussed in Bateson, 1979, 1987; Johnson, 1987; Lakoff, 1987; Lakoff & Johnson, 1980, 1999; Maturana, 1975, 1980; Maturana & Varela, 1980, 1987; Thompson, 1996, 1999, 2001, 2005, 2007; E. Thompson & Stapleton, 2009; E. Thompson & Varela, 2001; Varela, 1979, 1987,

1996, 1999; Varela et al., 1991), a perspective properly understood as a theory of mind, a method of examining experience, and a particular kind of dynamic co-emergence. A narrow complexity perspective gradually replaced a broad enactive approach in education and over time became the inherited or received view of enactive education, a focused, second phase of enactive education. Davis led the way.

What I called the *problem space* of complexity theory in education developed from the complexity heritage or the received, narrow, second phase of enactive education. The problem space is characterized by the recognition of limitations to the perspective in the form of a triad of objections (Alhadeff-Jones, 2008; Davis & Sumara, 2008; Fenwick, 1999, 2000, 2001a; Kuhn, 2008; Michie, 2004; Morrison, 2008; Phelan, 2004). These objections began to be raised around the time of the transition from the first to the second phase of the enactive approach in education, and continued up to the present. These objections can be seen as a triad because they form a constellation of interrelated concerns for subjectivity, sense-making, and right action. I review these objections in the sections below.

To be clear, I do not disagree or object to the use of complexity theory in education. As I argue in Chapter 1 of this thesis, complexity theory (originating from the discipline of science) or dynamic systems theory (originating from the discipline of mathematics) is one of three fundamental tenets of a broad enactive approach. As I argue in Chapter 2 of this thesis, complexity theory should be properly seen as a second, focused phase or narrow, received view of the enactive approach in education.

In this chapter, I highlight the limitations of complexity theory in education and the advantages of a broad enactive approach.

Second, my thesis is an extension of Davis' broad enactive approach to education (Davis, 1993, 1995, 1996, 2004, 2005, 2008; Davis & Phelps, 2005, 2006, 2007; Davis & Simmt, 2003; Davis & Sumara, 1997, 2002, 2005a, 2005b, 2007, 2008; Davis, Sumara & Kieren, 1996; Davis & Luce-Kapler, 2000, 2008). To be clear, Davis can be seen as a leader in two educational movements, the broad enactive approach and complexity theory in education. As I discussed in Chapter 2, Davis, along with a significant cluster of new academics out of the University of Alberta, focused on the enactive approach in education. Up until the late 1990s, Davis described his own work as an enactive perspective. After the late 1990s, Davis replaced the term "enactivist" with "complexivist." Davis followed a move Varela (1995) himself makes in an article in the late 90s in which the latter stated that the terms were essentially the same.[8]

Davis' dropping of the term "enactivist" steered the focus in educational theory away from a broad enactive approach to a narrow complexity theory view. Davis thought nothing of replacing the terms, since he saw the terms as interchangeable. Other people working in the field of complexity theory in education, however, did not see a broad enactive approach as interchangeable with a complexity view. These thinkers, many publishing in the journal, *Complicity*, that Davis founded, studied teaching and learning as a self-organizing, complex, dynamic system, without focusing

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[8] As reported in an email sent to me from Davis dated October 20th, 2008. I have not been able to find the article in which Varela made this statement.

on an enactive view as a theory of the mind and cognition and a method of examining human experience. Unlike most of the work in complexity theory and education, Davis' work consistently presupposed and included an enactive view of mind and cognition and phenomenological accounts of experience in his scholarship. This narrow complexity view gradually replaced a broad enactive approach in education and over time became the inherited or received view of enactive education, a focused, second phase of enactive education.

I see my work extending Davis' work deeper into a sensory-motor, somatic perspective.

3   Overview of My Argument

Part I of this dissertation established that the potential of a broad, enactive approach in education has yet to be realized. Part II, Chapters 4 and 5, begin the process of developing enaction as a promising and growing educational practice and demonstrate the inseparability of enactive theory and practice.

Chapter 4 examines a public, classroom encounter characterized by "moral emotional difficulties" (Houston, 2004, p. 108). Using this encounter as a case, Chapter 4 studies the ways in which a broad enactive approach to education is necessarily infused with ethical and affective dimensions and somatic resources for making headway on understanding how relations of power and domination are enacted. Chapter 4 concludes that criticisms that an enactive approach cannot account for personal agency, ethics and justice, characterize the problem space of the narrow, complexity view, the second more recent phase of the enactive approach that has become the received view

of enactive education. I show that these objections do not hold against a broad enactive approach grounded in a specific theory of embodied mind and cognition and a method of examining human experience.

The arguments in Chapter 4 are divided into two sections. Section 1 of Chapter 4 addresses the justice and right action objection (as discussed in Chapter 2). Section 2 of Chapter 4 offers an enactive reply to the personal agency objection (as discussed in Chapter 2).

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Section 1:

Enactive Reply to Justice and Right Action Objection

—Towards an Enactive Ethics

</div>

Section 1 of Chapter 4 addresses the justice and right action objection (as discussed in Chapter 2 of this thesis) that the enactive approach cannot account for ethics, justice, and power. Chapter 4 suggests that a broad enactive approach does not accept the assumptions of traditional ethics and does not result in moral paralysis or social resistance and closes. It offers a preliminary sketch of enactive ethics.

Various concerns have been raised about whether an enactive approach in education can account for ethics and justice. The narrow, complexity focus on emergence and dynamic systems invites these challenges, since it lacks consideration of the special importance a broad enactive approach gives to embodiment, cognition and human experience (Thompson & Stapleton, 2009, p. 27). As I established in the previous section, the narrow complexity view does not concern itself with the ideas of *enactive intersubjectivity* or *participatory sense-making* (De Jaegher & Di Paolo, 2007; Fuchs & De

Jaegher, 2009; Thompson & Stapleton, 2009). A broad approach grounded in an enactive

theory of mind, cognition, embodiment and dynamic co-emergence considers the

affective and ethical dimension of participatory sense-making (Bai & Banack, 2006;

Colombetti & Thompson, 2008; Colombetti & Torrance, 2009; Davis & Sumara, 2008; De

Jaegher & Di Paolo, 2007; Fuchs & De Jaegher, 2009; Mgombelo, 2006). It "appeal[s] to

the dynamic interdependency between cognition and emotion (or more precisely

between processes traditionally classified as 'cognitive' and ones classified as

'affective')" (Thompson & Stapleton, 2009, p. 27).

My aim in this part of Chapter 4 is to suggest the theoretical and practical

promise of an enactive approach to ethics in education with reference to the yelling

student incident. I explore the ways in which a broad enactive approach to education is

necessarily infused with ethical and affective dimensions that propose somatic

resources for making headway on understanding how relations of power and

domination are enacted and practicing ethical responsibility. I suggest that by not

reducing human intersubjectivity to an individual, cognitive-linguistic self, the broad

enactive approach avoids central pitfalls of traditional ethics, such as moral paralysis or

social resistance.

1.1 Outline of Justice and Right Action Objection

A helpful place to begin establishing my position that the broad enactive

approach is not susceptible to the justice and right action objection is to make it clear

that the justice and right action objection is directed at the narrow, complexity

perspective. As far as I know, Fenwick (2001a) was the first to explicitly raise concerns

about whether an enactive perspective could account for justice and ethics. It is clear

that when Fenwick used the term enactive she referred to the second, focused,

complexity phase of the enactive approach in education. Her questions and concerns in

the quotation below address the narrow focus on emergence and dynamics systems

theory of the second phase:

> How can an educational project for change be formulated **that adequately accounts for the complexified ongoing systemic perturbations**, without being deliberately illusory? That is, if any action of an educator or other particular **element of a system** becomes enfolded in that **system's** multiple interactions and unpredictable expansions of possibility, what sort of reference point can be used to guide intention toward some deliberate pedagogical goal? On another point, how can we explain the differential change that different **elements of a system** appear to register? If all the interactions between people **co-emerge** in ways that specify each other, how is it that educators often influence learners more than they are influenced in their interactions? And finally, what moral choices for wise judgment are available for educators within notions like "adequate conduct"? Because they are **self-referenced** (Waldrop, 1992), **complex systems** that many educators would abhor do often survive and expand in sustainable ways. Cancer and neo-Nazism are two examples. **There must be a more defensible framework than simply co-emergence to guide understandings of cognition** (Fenwick, 2001a, p. 51) [emphasis added].

Fenwick's (2001a) statement, "[t]here must be a more defensible framework than

simply co-emergence to guide understandings of cognition" (p. 51), anticipates a

scholarly conversation about whether an enactive approach could account for justice

and ethics that forms about seven years later. Morrison (2008) and Kuhn (2008)

expressed concerns that the narrow complexity theory approach could not account for

justice and ethics because it is a descriptive rather than prescriptive theory. Morrison

explained that "to move from a descriptive to a prescriptive theory is to commit a

category mistake, to mix fact and value, to derive an 'ought' from an 'is' to commit the

naturalistic fallacy" (p. 29). Kuhn (2008) found that complexity metaphors and

descriptions were taken as prescriptive rather than descriptive. She observed that complexity theory in education

> . . . construes the nature of organic unities, such as individuals, classes, schools or educational systems as self-organizing, dynamic and emergent, . . . characteristics . . . sometimes interpreted as characteristics towards which we might aspire. Whereas complexity offers explanation of "how things in fact do stand" (that is, as self-organizing, dynamic and emergent), complexity's "is" is moved into an "ought," an injunction to change "how things are" (that is, to make them self-organizing, dynamic and emergent). (p. 186)

Morrison (2008) raised the concern that complexity theory is amoral (p. 29). He argued that complexity theory offers an "incomplete reading of education" and "cannot provide a sufficient account of education" because it "cannot tell us how we should act" (p. 29). Kuhn (2008) raised a similar concern, namely that complexity and education are "differently disposed" (p. 187). She explained that there is a fundamental mismatch between complexity and education. She argued that education is a normative enterprise that "aims to make a difference," whereas complexity is descriptive and does not have an ethical intent (p. 187).

Davis and Sumara (2008) directly and explicitly address Fenwick's (2001a) statement, that "[t]here must be a more defensible framework than simply co-emergence to guide understandings of cognition" (p. 51), in a provocative article, "The death and life of great educational ideas: Why we might want to avoid a critical complexity theory." Davis and Sumara (2008) explored three areas of tension or dissimilarity between complexity theory and critical theory: human nature, intention or responsibility. They argued that complexity theory neither theorizes about what it means to be a human being, nor provides an account of human intention or

responsibility. They explained that "it is not the case that complexity theory must take on a critical edge or that critical theory must expand its scope to become more complexivist. It is, rather, that they both foreground an important notion: complicity" (p. 171). They concluded that "interpreted through the lens of complicity, then, complexity theory is inherently critical and critical theory is inherently complex" (p. 174). They ended with the following recommendation:

> In brief, we believe that, as educators and educational researchers, we must embrace the insights of both critical and complexity theories. However, and in the spirit of complexity theory, we wonder if these two frames might contribute to a more diverse, more robust community if they are permitted to operate in relative autonomy…Perhaps we should avoid the temptation to integrate, conflate, or otherwise combine these frames into a unified attitude, just as we must take care not to dissociate them into two incompatible categories of understanding. We suspect that more might be gained by attending to their divergences while bringing them into conversation around issues in education. There is at least as much to be learned in the sites of divergence and in the places of agreement. (pp. 174–175)

It is in this spirit of learning in the sites of divergence and in the places of agreement that I enter the scholarly conversation about whether the enactive approach can account for ethics and justice. Below, I explore the theoretical and practical promise of a broad enactive approach to ethics in education with reference to the yelling student incident.

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1.2 The Yelling Student Incident

As Seen From the Perspective of Traditional Ethics

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Enactive ethics rests on assumptions that are foreign to traditional, Western ethics. In order to point effectively to a broad enactive approach as an alternative way of theorizing about and practicing ethics, I must first offer my synthesis of the

prevailing assumptions about ethics. I will approach the task by reducing what I call,

traditional ethics to a minimal conception. The prevailing assumptions about ethics can

be synthesized into an *epistemological core of right action* that I call the *primacy of the*

cognitive-linguistic self.[9] I use the term *epistemological core of right action* to refer to an

underlying logic of traditional ethics indicative of *how we know* what the right thing to

do is any given situation. I use the term *primacy of the cognitive-linguistic self* to refer to

the central importance that traditional ethics gives to the thinking and speaking self,

rather than the prereflective, preconscious, affective self.

1.2.1 A Reply to Possible Straw Man Objection

Some readers may object that what I call the *traditional* approach in ethics is so

reductionist and minimal that it amounts to matching enactive ethics against a trivial

caricature.[10] In response to those who object that my concept of traditional ethics is a

straw person, not a substantial alternative to Western ethics properly understood, the

following considerations suffice to dispel this objection.

First, the characterization offered here is just the standard philosophical account,

as developed in numerous places throughout Western moral philosophy. A great many

ethical theories do in fact conform to that account. For example, the *epistemological core of*

right action that I call the *primacy of the cognitive-linguistic self* is captured in Rachels'

(1986) "picture of what it means to be a conscientious moral agent" (p. 11) that he offers

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[9] My approach, choice of terms, and idea of structuring my discussion around a "synthesis of prevailing assumptions" is indebted to section four, "A metaphorical and personal approach to the commonplace of individualism", pp. 6-9, of Boyd (2004).

[10] I have modelled my discussion in this paragraph on van Gelder's (1998, p. 625) elegant presentation of why the dynamical hypothesis does not fall prey to the straw person objection.

in support of his celebrated and pervasive *minimum conception of morality* (p. 11). Rachels

defined morality as, "at the very least, the effort to guide one's conduct by reason—that

is, to do what there are the best reasons for doing—while giving equal weight to the

interests of each individual who will be affected by one's conduct" (p. 11). Rachels

explained that this minimum conception of morality provides a "picture of what it

means to be a conscientious moral agent" (p. 11):

> The conscientious moral agent is someone who is concerned impartially with the interests of everyone affected by what he or she does; who carefully sifts facts and examines their implications; who accepts principles of conduct only after scrutinizing them to make sure they are sound; who is willing to "listen to reason" even when it means that his or her earlier convictions may have to be revised; and who, finally, is willing to act on the results of this deliberation. (p. 11)

> Rachel qualifies his position by stating that

> Of course, as one might expect, not *every* important theory accepts this "minimum"…this picture of the moral agent has been disputed in various ways. However, theories that reject the minimum conception encounter serious difficulties because they do. Most philosophers have realized this, and so most theories of morality incorporate the minimum conception, in one form or another. They disagree not about the minimum but about how it should be expanded, and perhaps modified, in order to achieve a fully satisfying account. (p. 11)

Second, students of applied ethics across North America are learning *how to do*

the right thing based on what I call traditional ethics. This standard philosophical

account of ethics is taught in business and medical schools, accounting and engineering

programs across North America. Business ethics is one example of applied ethics,

among others such as biomedical ethics and professional ethics, that conforms to this

standard philosophical account. Hosmer's (2008) method for learning how to do the

right thing, "The Application of Objective Methods of Moral Analysis in Management,"

consists of a 7-step process: (1) understand all moral standards; (2) recognize all moral impacts—benefits to some, harms to others, rights exercised, rights denied; (3) define complete moral problem; (4) determine the economic outcomes; (5) consider the legal requirements; (6) evaluate the ethical duties; and (7) propose a convincing moral solution. Step 6, evaluate the ethical duties, reduced the principles of normative philosophy to five major ethical systems: personal virtue (virtue ethics), utilitarian benefits (utilitarianism), universal duties (Kantianism), distributive justice (Rawls), and contributive liberty (libertarianism). I am not advocating this reductionism. I mean to suggest its pervasiveness.

Third, due to the space constraints of this thesis, I am not able to discuss the ethical theories that are akin to enactive ethics, such as virtue ethics (Anscombe, 1958; Aristotle, 1985a, 1985b, 1985c; MacIntyre, 1981) and ethics of care (Baier, 1985, 1995, 2009; Bowden, 1997; Gilligan, 1982; Held, 2006; Noddings, 2003; Shogan, 1988, Slote, 2007). I recommend that further research be done on the ways that a broad enactive approach to ethics in education extends virtue ethics and ethics of care further into a sensorimotor realm of enactive intersubjectivity and participatory sense-making (De Jaegher & Di Paolo, 2007; Fuchs & De Jaegher, 2009; Thompson & Stapleton, 2009).

Fourth, another separate issue is whether what I call traditional ethical approaches deeply misconceive of the dynamic relationship between cognition and emotion. Below I argue that traditional ethics does misunderstand the central role of embodied perception and action in *being* ethical by focusing on: the individual rather than "community" (hooks, 2003) or "interbeing" (Mgombelo, 2006; Nhat Hanh, 2005; E.

Thompson, 1999); by emphasizing the abstract rather than concrete ethical experience; and reducing moral sense-making to a cognitive-evaluative process that takes place inside the head. The result is the banishment of the fundamental, constitutive role of emotions in moral sense-making and the emergence of what I call the *primacy of the cognitive-linguistic self* in traditional ethics.

To sum up my reply to a possible straw person objection, my concept of *traditional ethics* is a term that traditional ethics uses to describe itself. My idea of the *primacy of the cognitive-linguistic self* synthesizes prevailing assumptions about ethics, a concept that emerges from the *epistemological core of the tradition* of Western ethics. It gives me a way of shining a spotlight on the need for traditional ethics to consider the central and fundamental, guiding role of the lived, habit body (Merleau-Ponty, 1962, 1963, 1973) and embodied cognition in morality and ethical decision-making and the special importance of the dynamic relationship between human cognition and emotion. I use this synthesis of the prevailing assumptions in traditional ethics as an invitation to enter enactive territories and to explore new lands of *moral participatory sense-making* (Colombetti & Torrance, 2009; De Jaegher & Di Paolo, 2007; E. Thompson & Stapleton, 2009) and to encourage the development of "simultaneously bodily and cognitive-evaluative" (Colombetti & Thompson, 2008, p. 59) skills involving sensorimotor/somatic *response-ability*.

1.2.2 Traditional Ethics Gives Rise to Moral Paralysis and Social Resistance

Traditional ethics rests on assumptions that give rise to moral paralysis and social resistance. Major traditional, Western, ethical theories and practices are not

helpful for understanding or responding to the yelling student incident. Moreover, traditional ethics may hinder people from *being* ethical and *doing* good actions by encouraging moral paralysis and social resistance (Houston, 2004). In the sections below I discuss some limitations and misconceptions of traditional ethics with reference to the public encounter with the yelling student.

The epistemological core of traditional ethics can be highlighted by examining answers to the questions, "What *is* the morally right thing for a person to do in such a situation?" and "How do I *know* what the morally right thing to do is in such an encounter?" as seen from the perspective of 4 traditional approaches: utilitarianism (Bentham, 1948; Mill, 1859 & 1861/1926), Kantianism (1785/1953), distributive justice (Rawls, 1971), and libertarianism (Nozick, 1974). The first question focuses on the *meaning* of right conduct or ethical action. The second question addresses epistemological concerns of how a person *knows* right conduct and ethical action. I then discuss the grounding of these limitations in the idea of the *primacy of the cognitive-linguistic self*, the misconception that being ethical happens inside the head and is comprised of cognition and not emotion. I next explain corollaries of these misconceptions: the conflation of ethical behaviour and judgment (Varela, 1999) and conflation of moral responsibility and blameworthiness (Houston, 2004). These conflations, at best, inspire people to moral indifference and disconnectedness, and at worst, invite moral paralysis.

With reference to the public encounter in the lecture hall and from the perspective of the four traditional ethical approaches listed above, I show below that

traditional ethics are of little help in understanding and responding to the situation due to a focus on the individual, rather than community or *interbeing*, and an adherence to the abstract, rather than concrete ethical experiences.[11] Later in this part of the chapter, I explain why this focus and adherence restricts a person's ability to understand and to acquire ethical skills for responding to the moral and emotional dimensions of the classroom event.

1.2.2.1 Utilitarianism. The two main versions of utilitarianism, *classical* (Bentham, 1948) and what I call the "higher values" version (Mill, 1926) concur that the right thing to do is to focus on the consequences or effects of the yelling student's actions on discrete individuals in the lecture hall. The moral choice and action is to maximize *utility* or use value in the classroom, that is, produce the maximal balance of positive value or disvalue (or the least possible disvalue, if only undesirable results can be achieved) for everyone in the lecture hall, the students and myself. Ethical action requires that I cognitively evaluate or calculate what should be done by balancing benefits and harms and considering the needs of everyone affected in this emotionally-charged, moral situation. I would achieve this by *objectively* assessing the consequences for each discrete individual and totalling up both positive and negative effects.

Classical utilitarianism (Bentham, 1948) guides me to focus on the quantity of happiness in the lecture hall, i.e., to produce the greatest possible balance of happiness

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[11] I use the term "interbeing" rather than "interconnectedness" to avoid the mechanistic connotations of connectedness and to draw on the meanings and practices associated with Thich Nhat Hanh's Buddhist society, the "Order of Interbeing." See: http://www.orderofinterbeing.org/. I also use it to draw on the various meanings suggested by the Vietnamese words of Chinese origin, *tiep hien*. See Hanh, 2005, pp. 85-106 for a discussion of the Order of Interbeing and an account of the idea *tiep hien*. See also: Mgombelo, 2006 and E. Thompson, 1999.

over unhappiness, with each student's happiness and my own counted as equally important and everyone affected by the action being taken into consideration. I will know that I am doing the right thing if I am following "the Principle of Utility" (Bentham, 1948), "which approves or disapproves of every action whatsoever, according to the tendency which it appears to have to augment or diminish the happiness of the party whose interest is in question; or…to promote or to oppose that happiness" (p. 2; as quoted in Rachels, 1986, p. 80).

Higher values utilitarianism (Mill, 1926) requires that I figure the quality of people's happiness into my quantitative calculations. Mill (1926) explained that "it is quite compatible with the principle of utility to recognize the fact, that some kinds of pleasure are more desirable and valuable than others" (p. 7).

To be clear, this does not mean that the right action is the one that produces the most utility for the yelling student. The right thing to do is to produce the most happiness for everyone affected by the yelling student's actions, including the yelling student, the students in the room, and me (Velasquez, 1998, p. 73; Mill, 1926, p. 10). Also, the right action is not the one whose benefits outweigh its costs for all in the lecture hall. Rather, the action "whose net benefits are greatest by comparison to the *net benefits of all other possible* alternatives" (Velasquez, 1998, p. 73) [emphasis added]. Finally, the utilitarian principle requires I consider not only "direct and immediate consequences" of my actions, but also the "immediate and all foreseeable future costs and benefits that each alternative will provide for each individual" (p. 73).

Utilitarian theory can be summarized in three propositions (Rachels, 1986):

(1) Actions are to be judged right or wrong solely in virtue of their consequences. Nothing else matters. Right actions are, simply, those that have the best consequences.

(2) In assessing consequences, the only thing that matters is the amount of happiness or unhappiness that is caused. Everything else is irrelevant. Thus right actions are those that produce the greatest balance of happiness over unhappiness.

(3) In calculating the happiness over unhappiness that will be caused, no one's happiness is to be counted as more important than anyone else's. Each person's welfare is equally important. (p. 90)

Thus, ethical action produces the best consequences and a person knows the right thing to do through cognitive, analytic judgment of possible effects.

Despite best intentions, utilitarianism has brought me no closer to knowing what the right thing to do is and to doing it during this encounter in the classroom. First, I have no criteria for calculating the quantity or quality of happiness for all of the people in the room. Even if I could do it concerning myself, it would be an impossible task to make these sorts of calculations as they bear upon the students. Does hearing me talk about the lecture materials uninterrupted maximize the student's utility? Or, do they get more value out of staying with their discomfort and confronting the student's anger? What about the risk of secondary trauma to some students in the room? Does a safety risk outweigh turning this situation into a *teachable moment*? Furthermore, what about the fact that some students may value the money that they pay in tuition and not want their investment tainted? Would allowing the yelling student to monopolize class time be a better investment? Perhaps bored students may value the interruption? The problem is that the question "What things are good?" is different from the question "What actions are right?" As Rachels (1986) observed, "Utilitarianism answers the

second question by referring back to the first one. Right actions…are the ones that produce the most good. But what is good?" (p. 91). I am paralyzed by "problems of measurement" (Velasquez, 1998, p. 76).

Second, utilitarianism is not practical. Utilitarianism dictates that I ought to do three main things (Velasquez, 1998): (1) determine what alternative actions or policies are available to me on that occasion; (2) estimate the direct and indirect benefits and costs that the action would produce for each and every person affected by the action in the foreseeable future; and (3) choose the alternative that produces the greatest sum total of utility (p. 73). To be ethical I must cognitively assess and analyze a number of factors on-the-spot, under much emotional pressure, including: who are the affected parties, immediate and distant, what is the ethical choice that is being considered, what are the probable consequences of each possible line of action the agent could take in this situation (including refraining from acting), what are the beneficial (positive) and negative consequences for each of the parties involved for each of the choices, what is the overall net balance of positive and negative consequences for each choice of action, that choice which creates the greatest net balance of positive consequences is what is morally obligatory. These requirements are too demanding under the circumstances.

Third, the consequences of the yelling student's actions are not all that matters in this encounter (Rachels, 1986, pp. 93-97; Velasquez, 1998, pp. 80-82). Other important community considerations are justice, rights, and backward-looking reasons (Rachels, 1986, pp. 93-97). The effects of the yelling student's actions may not outweigh the needs for justice on the part of other students in the class. Students' rights to learn in a safe

environment and to free speech may be violated may be a concern if some students experience secondary trauma, university code-of-conduct polices are violated, or some students' voices in the class are forcibly silenced by this encounter. Furthermore, utilitarianism confines "our attention to what *will happen* as a result of our actions. . . . However, we normally think that considerations about the *past* also have some importance" (Rachels, 1986, p. 96). There may be "backward-looking considerations" that need to be addressed in this situation (p.97), such as the historical silencing of marginalized voices. Justice may require that some marginalized voices take the floor.

      1.2.2.2 Kantianism. According to Kant, I act ethically when I act freely (Sandel, 2009, p. 108). I act freely when I am not a slave to pleasure and pain. "To act freely is not to choose the best means to a given end; it is to choose the end itself, for its own sake" (p. 109). Whether my response to the classroom encounter is ethical or not depends upon the intentions behind my actions, not the consequences that flow from them. Kantian ethical theory states that the right thing to do is to act from moral duty rather than some other motive such as self-interest, not "*in conformity with duty*, but…*from the motive of duty*" (Kant, 1953, p. 65).

      Thus, an ethical response to the encounter needs to be done for the right reasons, since an "action done from duty has its moral worth, not in the purpose to be attained by it, but in the maxim in accordance with which it is decided upon" (p. 68). This means that my responses to the encounter need to follow moral law and not my own self-interested, desires. Any rational being, according to Kant, can reason out whether an action follows moral law, since "all moral concepts have their seat and origin in reason

completely *a priori*" (p. 79). These moral laws are what Kant called "categorical imperatives" or "universal laws" (p. 88) that apply in all situations and to all rational human beings. So, I will know that I am doing the right thing if my actions conform to the categorical imperative.

Kant formulated two versions of the categorical imperative, the *universalizability* and *respect* versions. The first version states: "act only on that maxim through which you can at the same time will that it should become a universal law." By *maxim* Kant means "a rule or principle that gives the reason for your action" (Sandel, 2009, p. 120). For instance, if the proposed action that I am putting to the universalizability test is "Tell the student: sit down and keep quiet or I will call campus security", then the maxim would be "Whenever a student interrupts a class by standing up, shouting, and waving his arms in the air, he should be told to sit down and keep quiet and told that if he does not, security will be called." This maxim would pass version 1 of Kant's categorical imperative if universalizing this maxim results in a contradiction. The right thing to do is an action that I would be willing to have any teacher do, anywhere in the world, if they found themselves in a situation like mine. If I *reason* that I am willing to universalize my own behaviour, then it is ethical.

Version 1 of the categorical imperative does not help me understand or know the right thing to do in this situation. I can think of several proposed actions, such as:

Tell the student: sit down and keep quiet or I will call campus security.

Kick the student out of the class.

Give the student the microphone at the front of the class and let me address the entire class.

Yell back at the student until he leaves the room, and so on. (None of these proposed actions correspond to what I actually did in response to this situation.)

Which proposed action is the right one? What if I failed to come up the best proposed action? Also, would I be willing to have everyone follow my decision? Another difficulty arises when maxims derived from two different proposed actions come into conflict? What will I do then?

The second version of Kant's categorical imperative, the *respect* version, states: "every rational being, *exists* as an end in himself, not merely as a means for arbitrary use by this or that will: he must in all his actions, whether they are directed to himself or to other rational beings, always be viewed at the same time as an end" (p. 95). Version 2 dictates that the right action is the one that treats all people involved as *ends-in-themselves*, rather than as *means-to-an-end*. The right thing to do involves making sure that I respect the inherent human dignity and worth of everyone involved. Moreover, that I do not *use* anyone involved in order to get what I want out of the situation; for example, less stress and work for me, a publication out the event, and so on. How can I determine what actions amount to treating various individual students in the class as *ends-in-themselves*? Is treating someone as a means-to-an-end always necessarily mutually exclusive to treating them as *ends-in-themselves*? How am I to understand the meaning of the term *respect*? How do I know what my moral duty is in this situation?

Kantian ethical theory, like utilitarianism above, turns out to be not useful, practical or helpful. In practice it involves putting my proposed actions through a number of analytical steps that pose various levels of difficulty, including: identifying the moral dimensions of the situation; identify the proposed action to be determined whether it is ethical; determining the maxim that proposed action would require as a moral rule; analyze to see if the proposed action would be universalizable to all situations and agents; identify whether the proposed action furthers the ends of others affected by the situation; identify whether the proposed action respects others involved as having inherent human dignity and worth—i.e., treats those affected by the proposed action as ends-in-themselves and not merely as means; and, to identify and ensure that I am acting from moral duty and not self-interest. Moreover, sometimes the right thing needs to be done for reasons other than *duty*, such as care and love.

1.2.2.3 Distributive justice. The theory of distributive justice (Rawls, 1971) dictates that I shift my focus from consequences and duties to *justice as fairness*. The right thing to do according to distributive justice is to attempt to distribute the benefits and burdens of the social encounter fairly across all those involved thereby valuing the idea of the social contract that students and I enter into when we come together as a learning community.

Following Rawls' thinking about justice, suppose the yelling student, myself and all of the other students gathered to choose the principles to govern our collective life in the classroom (Sandel, 2009, p. 141). Given the social, political and economic inequalities among everyone in the class, we would certainly find it difficult to agree on

these principles and it is doubtful that they would be just. In order to achieve just

principles, Rawls asked us to consider a thought experiment. Suppose that when we

gather to choose the principles, we do so behind a *veil of ignorance* that temporarily

prevents us from knowing our socio-economic status in society, our gender, our age,

our level of physical ability, and so on. Under these circumstances, Rawls thought the

principles that we would agree to would be just. This is Rawls' idea of a social contract

for a learning community—"a hypothetical agreement in an original position of

equality" (p. 141).

Rawls (1971) argued that two principles of justice would arise from the

hypothetical contract:

> First, each person engaged in an institution or affected by it has an equal right to
> the most extensive liberty compatible with a like liberty for all; and second,
> inequalities as defined by the institutional structure or fostered by it are arbitrary
> unless it is reasonable to expect that they will work out to everyone's advantage
> and provided that the positions and offices to which they attach or form which
> they may be gained are open to all. (Rawls, 1971, as quoted in Hartman, 2005, p.
> 54)

If we were to reduce distributive justice to a principle in practice, then that

principle might state that "everyone should act to ensure a more equitable distribution

of benefits, for this promotes individual self-respect, which is essential for social

cooperation" (Hosmer, 2008, p. 113).

In practice, when faced with the moral, emotional difficulties of the public

encounter, I could perform Rawls' thought experiment. I could make my moral decision

from behind an imaginary veil of ignorance. This thought experiment would involve

me imagining that I did know my socio-economic status, gender, age, physical ability

and so on. I would have no idea about the odds that I would be facing in the classroom. This process could ensure that my ethical action fairly distributes benefits and burdens across the entire class. My concern is that this hypothetical exercise guides me towards judging and selecting the alternative under which the worst that could happen to them was better than the worst that could happen under any other alternative; that is, I would be assessing how to maximize the minimum that they would receive. My focus would be limited to avoiding unacceptable or disastrous results rather than on getting the best possible result.

1.2.2.4 Libertarianism. The right thing to do from the libertarian perspective is to promote as much liberty or freedom in the classroom as possible. The term freedom here refers to affirming the negative rights, right not to be interfered with, of everyone involved in the public encounter. The contributive liberty perspective reduced to a principle states that "everyone should act to ensure greater freedom of choice, for this promotes market exchange, which is essential for social productivity" (Hosmer, 2008, p. 113).

Given that the libertarian values a minimal state and opposes "laws to protect people from harming themselves . . . [and] using the coercive force of law to promote notions of virtue or to express the moral convictions of the majority" (p. 60), it follows that the libertarian would reject any paternalistic actions or any enforcement of morality in a post-secondary classroom (Sandel, 2009, p. 60). Since actions are ethical when they promote noninterference in an individual's choices and actions without direct harm to anyone's liberty, it follows that the right thing to do would be to not interfere with the

student's yelling, to protect the student's negative right to free speech. Post-secondary students decide to assume emotional risks when they come to class. As long as no third parties are directly harmed by the yelling student, then the course instructor has no right to dictate what risks they may take by listening to the yelling student. Furthermore, silencing the yelling student does not justify depriving other students in the class of the right to choose to listen.

According to this libertarian approach, an ethical course instructor properly judges the situation and behaves in such a way to minimize the coercion of individuals as much as possible in the classroom. The goal is to measure decisions against a philosophy of personal liberty, the freedom of each individual to live according to his own choices, provided he does not attempt to coerce others and thereby prevent them from living according to their own choices.

There is a concern with the libertarian approach concerning the lecture hall encounter. The libertarian view sacrifices important rights and values in favour of one kind of freedom, freedom from the coercion of others. The libertarian might say that the yelling student should be granted the freedom of speech to say whatever he likes as long as no *direct* harm was caused to other students in the class. But, what counts as *direct* harm and *indirect* harm? How can we define and measure these harms to other students? Also, the yelling student's "freedom from ignorance" is also at issue (Velasquez, 1998, p. 113).

1.2.3   Corollaries of the Primacy of the Cognitive-Linguistic Self in Traditional Ethics

The prevailing assumptions of traditional ethics can be synthesized in the idea of the *primacy of the cognitive-linguistic self*. This idea is characteristic of the Western world (Boyd, 2004; Dreyfus & Dreyfus, 1990; Heller et al., 1986; Varela, 1999) and can be attributed to a myopic focus on the liberal individual (Boyd, 2004) rather than community (hooks, 2003) or interbeing (Bai & Banack, 2006; Houston, 2004; Mgombelo, 2006; Nhat Hanh, 2005) and adherence to the abstract rather than concrete ethical experiences (Dreyfus & Dreyfus, 1990; Varela, 1999, p. 6). This myopic focus on the individual and commitment to the abstract are grounded in two underlying mistaken assumptions: first, being ethical happens inside the head; and second, being ethical is comprised of cognition and not emotion.[12] These mistaken assumptions in turn give rise to the conflation of ethical judgment and behaviour (Dreyfus & Dreyfus, 1990; Varela, 1999) and moral responsibility and blameworthiness (Houston, 2004). These conflations, at best, hinder people from acquiring and developing ethical skills (Boler & Zembylas, 2003; Boyd, 2004; Dreyfus & Dreyfus, 1990; Varela, 1999), and at worst, invite moral paralysis (Houston, 2004).

1.2.3.1 Focus on the individual rather than community or interbeing. A focus on the liberal individual rather than community and interbeing, limits each of the traditional ethical approaches discussed in the previous section. This focus on the individual is grounded in four main characteristics of the idea of the liberal individual's

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[12] Thompson and Stapleton (2009) accused extended mind theories of making these assumptions in the context of a defence of the enactive approach in cognitive science.

subjectivity and guide how one understands the moral dimensions of the yelling

student incident (Boyd, 2004): ontological uniqueness, symmetrical positioning,

intentional rational agency, and capacity for transcendence (pp. 9-12). In particular,

these characteristics delimit a person's ability to perceive and understand "oppression"

(Boyd, 2004) or a "culture of domination" (hooks, 2003, p. 29), thus restricting a person

from undertaking moral "anti-domination" work (Applebaum, 2004, 2006; Aveling,

2006; Berlak, 2004; Boler, 1999, 2004; Boyd 1996, 2004; Boyd and Arnold, 2000; hooks,

2003; Houston, 2004; Mayo 2004, 2006; McIntyre 2000-1, 2000-2, 2002-1, 2002-2, 2006;

McIntyre et al., 2007; Omi and Winant, 2005; A. Thompson, 2003-1, 2003-2, 2004; A.

Thompson and Gitlin, 1995; Warren 2001; West, 2005).[13]

First, each of the traditional ethical theories sees persons as "ontologically

unique" (Boyd, 2004, p. 9). Each person exists as a separate and distinct individual

personal subjectivity. The "boundaries of persons do not overlap in their interactions

and individuals are never in any fundamental way the same or indistinguishable" (p.

10). There is a trivial sense in which science has proven this point to be true; for

example, the fact of unique fingerprints, voice prints, retinal patterns, and DNA.

However, the danger arises when the idea of *ontological uniqueness* prevents people from

seeing that subjectivity, morality and ethical comportment are enacted rather than *self-*

acted or inter-acted (Dewey & Bentley, 1973; Garrison 2001). The idea of *individual*

personal subjectivity risks guiding our attention to subjectivity away from the ways that

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[13] These four characteristics (Boyd, 2004) can also be seen to restrict a person's ability to perceive, understand, and respond to oppression and violence done to nonhuman species and the natural environment. This topic is beyond the scope of this chapter.

the personal is interbeing, that is, emerges from a dynamic coupling of self and environment.

Second, each of the traditional ethical theories views persons as "symmetrically positioned" in relation to each other (Boyd, 2004, p. 10). This symmetry implies that the "relational structure of liberal subjectivity is the same for everyone, regardless of how they are positioned in actual society" (p. 10).

Third, the idea of the liberal individual at the core of traditional ethics assumes "intentional rational agency." Individuals all have the *same* potential to realize their intentions through rational choice. This third point implies that persons are autonomous or self-governed rather than heteronomous, other-governed, or enacted histories of embodied cognition (as discussed in Thompson, 2007 and Varela et al., 1991).

Finally, the notion of liberal subjectivity underlying traditional ethics presupposes "capacity for transcendence," the freedom to make things happen in the world. The rational choice and intentionality of the individual

> entails the possibility of standing outside of any existing social contingencies for the purpose of altering them in some desired direction. In this sense, anyone possessing liberal subjectivity—which is everyone, in principle—has at least some degree of social freedom: through judicious, critical application of the powers of choosing not to "go along with" any social constraint and intentionally acting in some way to effect this choice, the social world can be reshaped. (Boyd, 2004, p. 11)

The above characteristics underlying the idea of the liberal individual taken together unwittingly banish *relations* from *community*. On an abstract level, these characteristics assume a view of the relationship of parts to whole that parthood theory

called *mereological supervenience* (E. Thompson, 2007, p. 427). Mereological

supervenience holds that "all the properties of a whole are determined by the intrinsic

(nonrelational) properties of its most fundamental parts. . . . Hence the whole is said to

supervene on the intrinsic properties of its parts." (p. 427).

On the concrete level of liberal subjectivity, a *mereological supervenience perspective*

views people as discrete parts of a whole community. All the properties of the whole

community are determined by the intrinsic, nonrelational properties of its most

fundamental, discrete parts of the community, its people. The characteristics of liberal

subjectivity (Boyd, 2004) as outlined above hold that the intrinsic nonrelational

properties of being people in a whole community consist of: (1) being ontologically

separate; (2) having similar relational structure; (3) exercising autonomous rationality

and agency; and (4) the freedom to transcend social conditions. Note a mereological

supervenience perspective sees these characteristics as *nonrelational* properties. It

follows that the community supervenes or ensues as something additional or

extraneous to the subjectivity of the people in the community.

There is a kind of holism, a *relational holism*, proper to communities that does not

seem compatible with the individualized, liberal subjectivity underlying traditional

ethics. In mereological theory, this *relational holism* is called *mereological emergence* (E.

Thompson, 2007, p. 427) and holds that

> certain wholes possess emergent features that are not determined by the intrinsic
> properties of their most basic parts. Such emergent features are irreducibly
> relational. They are constituted by relations that are not exhaustively determined
> by or reducible to the intrinsic properties of the elements so related. These
> holistic relations do not simply influence the parts, but supersede or subsume
> their independent existence in an irreducibly relational structure. (pp. 427–428).

The problem is that a *mereological supervenience* view restricts people from

perceiving, understanding and responding to *relational holism* (E. Thompson, 2007, pp.

427-431) at the micro level of interbeing in the classroom and the macro level of *habitus*

(Bourdieu, 1990; Code, 2006). The catch is that *relational holism* characterizes community

(hooks, 2003) as a dynamic system. Boyd (2004) expressed this problem in the following

way:

> Within liberalism, for all kinds of recognizable groups, the individual is
> ontologically prior to the collectivity. The collectivity is possible only if
> individuals exist first. However, in the case of the social group membership the
> group is ontologically prior to the individual: it "constitutes" individuals *qua*
> members of the group. From the perspective of social groups, embodied persons
> are ontologically embedded in preexisting relationships (and always in several at
> the same time), and thus need to understood as having a kind of subjectivity
> quite different from the idea of the "liberal individual." (p. 14)

Thus, the characteristics of liberal subjectivity underlying traditional ethics

prevent people on an abstract and a concrete level from perceiving, understanding or

responding to the "subjectivity of (oppressive) group membership" (Boyd, 2004, p. 14).

1.2.3.2 Conflates ethical judgment and behaviour. A shared tendency toward

the abstract rather than concrete ethical experiences also restricts traditional ethics by

neglecting *spontaneous coping* as primary, embodied way of knowing, ethical skills

(Dreyfus & Dreyfus, 1990; Varela, 1999) and habits (Boler, 1999, 2004b; Boler &

Zembylas, 2003; Dewey, 2002). This abstract view would understand the yelling student

as a "central *I* performing deliberate, willed action" (p. 5) and exercising poor moral

judgment. I will discuss the idea of *spontaneous coping* in the next sections.

This tendency toward the abstract is reflected in a conflation. The traditional

approach to ethics conflates ethical judgment and ethical behaviour by reducing ethics

to cognitive decisions about how to adjudicate and apply moral standards and principles properly that result in cognitive-linguistic choices to behave in some ways rather than others. The above cursory examination of the main orientations and principles of the traditional approach shows that being an ethical person involves properly judging moral choices and actions. With the aim of generating proper thought and conduct, this approach treated the mind and world as independent of each other and presumed that "the outside world was supposed to be represented in a model inside the head" (E. Thompson & Varela, 1999). Central to each of these traditional ethical approaches is the role of moral standards. An ethical person is defined as someone who can make ethical decisions based on the proper application of moral standards and can have valid moral judgments.

Traditional "rationally justified ethics" (Lackey, D. P., 1990, p. 85-101) are too limited to be helpful in understanding and addressing the lecture hall encounter. The traditional approach would focus on moral judgments and their validity. A central way in which traditional ethics would understand the encounter is in terms of the violation of ethical principles thought to be of fundamental importance to human beings. Varela (1999) noted that the "usual way of investigating ethical behaviour…begins by analyzing the intentional content of an act and ends by evaluating the rationality of particular moral judgments" (p. 4). From the traditional standpoint, the yelling student would be seen to have poor moral judgment of good and bad behaviour. The shortcoming of traditional ethics is that it unfeasibly reduced morality to cognitive deliberations and linguistic activities (Cohen, 2004) inside the yelling student's head,

neglecting embodiment and experience. Dreyfus and Dreyfus (1990) observed that this reduction gave rise to a "detached critical morality based on principles that tells us what is right or an ethics based on involvement in a tradition that determines what is good" (p. 237).

1.2.3.3 Conflates moral responsibility and blameworthiness. Traditional approaches to ethics mistake the yelling student's moral responsibility for blameworthiness. Traditional ethics presupposes a "default notion of moral responsibility" (Houston, 2004, p. 108) that generates this conflation. This modern concept of moral responsibility in traditional ethics limits the resources available to the yelling student to respond to "moral emotional difficulties" (Houston, 2004, p. 108). Since traditional ethics understands ethical behaviour as rational judgment, moral responsibility came to be seen as a matter of judgments that were distanced from conventional norms and practices. Furthermore, since judgments were viewed as "in no way forced by practical considerations…they impute an 'absolute responsibility within the power of the agent'" (Houston, 2004, p. 108). Thus, causation and accusation or responsibility and blameworthiness were fused. Houston (2004) quoted Frankena's (1963) elucidation of this conflation:

> Saying that X was responsible for Y seems, at first, to be a causal, not a moral, judgment; and one might, therefore, be inclined to say that "X was responsible for Y" simply means "x caused y," perhaps with the qualification that he did so voluntarily, intentionally, etc. But to say that X is responsible for Y is not merely to make a causal statement of a special kind…It is to say that it would be right to blame or otherwise punish him. (Frankena, 1963, p. 56; as quoted in Houston, 2004, p. 109)

Houston (2004) noted that the assumption underlying this conflation is that "given the absence of excusing conditions, which undermine the judgment of causation, a person who is responsible is *ipso facto* blameworthy" (p. 109).

Houston (2004) observed that the default notion of moral responsibility leads to a slippery slope "where we slide almost imperceptibly from judgments about causation to assessments of the worth of persons" (p. 109). The requirements for the assignment of moral responsibility are so stringent that "to say…someone is morally blameworthy for some state of affairs 'is to say that he is a bad person'" (Houston, 2004, p. 109). Houston (2004) summarized the features of moral responsibility that point to the individual's agency as the source of moral blameworthiness

Judgments of moral responsibility are removed from and assumed to be independent of conventional social and legal norms

Judgments of causation are fuses with moral praise/blame; which means

Moral blameworthiness becomes a function (solely) of individual agency which carries with it

A judgment of the (intrinsic) worth of a person. (Houston, 2004, p. 109)

1.2.3.4 Traditional ethics hinders development of ethical skills. The conflation of ethical judgment and behaviour and the fusion of moral responsibility and blameworthiness can be seen to at best hinder the development of ethical skills and at worst may invite moral paralysis. Mistaking ethical judgment and behaviour loses sight of ethical action and experience.

Ethical judgment is not the same as ethical behaviour (Varela, 1999). Focusing on the analysis of the intentional content of an act and ends or the rationality of particular moral judgments reduces *being good* to a cognitive-evaluative event. I explain in the next sections that embodied processes, such as emotion, cannot be separated from cognitive-evaluation because "emotion is a prototype whole-organism event, for it mobilizes and coordinates virtually every aspect of the organism" (Thompson, 2007, p. 363).

Reducing ethics to ethical judgments hinders people from developing somatic skills that are required for *doing* and *being* good, including such practices as *focusing*, or paying attention to a *felt sense* (Gendlin, 1981), practices of "mindfulness awareness" (Chödrön, 1997, 2002; Epstein, 1995; Hanh, 2005, 2006, 2007; Depraz, Varela, and Vermersch, 2003; Varela et al., 1991: pp. 21-26 & pp. 217-260; Wallace, 1998, 1999); staying with discomfort and noticing habits of inattention (Boler, 1999, 2004), and Somatic Experiencing™ (Levine, 1997). I discuss these skills in the next sections.

The concept of moral responsibility underlying traditional ethics generates the conflation of moral responsibility with blameworthiness and carries two "significant consequences for our moral lives" or "psychological side effects": "social resistance" and "moral paralysis" (Houston, 2004, p. 110). The yelling student incident suggests how these psychological side effects operate. The white, male, yelling student can be seen to demonstrate what Houston (2004) called "moral paralysis and social resistance to blame" (p. 113) arising from what Bartky (2002) called "guilt by privilege" (p. 142) a variant of "guilt by complicity" (Houston, 2004, p. 110).

The idea is that as a white, male, the yelling student feels that he is guilty by virtue of his relationship to wrong doing, a relationship that he did not create but which he has not severed either (Bartky, 2002, p. 142). Houston (2004) explained that "[t]his entire line of thinking, and blaming, exemplifies the modern concept of responsibility at work, specifically in its suggestion that blameworthiness is simply a matter of fact" (p. 110). The yelling student did not like to feel like he was "guilty of perpetuating human misery" and thus verbally and emotionally resisted the ideas in the readings.

A second feature of the modern concept of responsibility is that the "guilt Bartky assigns is quite like intrinsic guilt inasmuch as the efforts or agency of the individual can never expunge it" (Houston, 2004, p. 111). Houston noted the import of this responsibility judgment for the students' sense of worth as a person (p. 111). Houston suggested that to help reconfigure the damaging results of the modern concept of responsibility we were to say to our students: "You are not involved in something wrong and you are not being judged" (p. 111). She noted that "a number of questions would need to be asked and answered" (p. 111).

1.3 The Yelling Student Incident

As Seen From an Enactive Perspective

The enactive approach to ethics rests on assumptions that are foreign to traditional ethics, assumptions that build community (hooks, 2003), encourage "collectivized engagement" (Boler, 1999, p. 178-179), develop ethical skills (Varela, 1999) or somatic *response-ability*, including attention to *felt sense* or "focusing" (Gendlin, 1981); staying with discomfort and noticing habits of inattention, part of a "pedagogy of

discomfort" (Boler, 1999, p. 176); genuine listening (Boler, 2000, 2004b; Garrison, 1996); Buddhist methods of examining experience, "mindfulness awareness" (Chödrön, 1997, 2001; Epstein, 1995; Hanh, 2005, 2006, 2007; Depraz, Varela, and Vermersch, 2003; Varela et al., 1991: pp. 21-26 & pp. 217-260; Wallace, 1998, 1999); and Somatic Experiencing™ (Levine, 1997).

Enactive ethics turns away from traditional ethics in several ways. First, enactive ethics does not understand moral cognition as solely a cognitive-evaluative event happening inside the head. Instead it views ethical content or valuation in social encounters as "emerging from the interaction of the participants" (Colombetti & Torrance, 2009, p. 523). As a result, enactive ethics does not conflate ethical behaviour and ethical judgment. It focuses on "ethical comportment" (Dreyfus and Dreyfus, 1990, p. 238) and "spontaneous coping" (Varela, 1999, p. 7). Second, moral sense-making comprises emotion as much as cognition. Third, the body plays a central, guiding role in moral sense-making. Finally, it understands social interaction as "participatory sense-making" and thus ethics as a matter of *moral participatory sense-making* (p. 523).

Seen from an enactive standpoint, the yelling student incident is as a dynamic process of perception and action, *moral participatory sense-making* (Colombetti & Torrance, 2009; De Jaegher & Di Paolo, 2007; Thompson & Stapleton, 2009), that is a "simultaneously bodily and cognitive-evaluative" skill involving sensorimotor/somatic *response-ability* (Colombetti & Thompson, 2008, p. 59). Moreover, morals are "lived bodily experience[s] of meaning and evaluation" (Colombetti & Thompson, 2008, p. 46)

emerging from a dynamic coupling of person and environment that convey "*bodily meaning and significance*" (Colombetti & Thompson, 2008, p. 59).

1.3.1   Developing Skills of Immediate and Spontaneous Coping

From a broad enactive standpoint the mode of being ethical is a skill of "immediate coping" (Varela, 1999, p. 5). "Spontaneous coping" (p. 6), rather than rational judgement, is the "more pervasive mode of ethical behaviour" (p. 6). As I discuss in Chapter 3, cognition is grounded in the "concrete activity of the whole organism…in sensorimotor coupling" (Varela, 1999, p. 8).

> Situations. . . are the very stuff of our lives, and they involve the most ordinary situations as well as the more interesting ethical stances. We always operate in some kind of immediacy of a given situation. Our lived world is so ready-at-hand that we have no deliberateness about what it is and how we inhabit it. . . . We have a readiness-for-action proper to every specific lived situation. Moreover, we are constantly moving from one readiness-for-action to another. Often these transitions or punctuations are slight and virtually imperceptible. Sometimes they are overwhelming, as when we experience a sudden shock or come face-to-face with unexpected danger (Varela, 1999, p. 9)…the situations in which we exercise ethical expertise far outnumber those in which we exercise explicit ethical deliberation. (p. 23)

Enactive ethics concerns the ability to take appropriate action in a lived situation. Varela (1999) called the "readiness-for-action" (Varela, 1999, p. 9) of the yelling student, me and all others in the situation our *microidentities*. He called the corresponding lived situation in the lecture hall a *microworld*. "Microworlds and microidentities are historically constituted. But in general, 'who we are'—the pervasive mode of living— consists of *already* constituted microworlds" (p. 10). Our lives consist of our habit bodies moving through a series of transitions from microworld to microworld or breakdowns in microworlds (p. 11).

According to an enactive approach, being ethical is about "how we embody a stream of recurrent microworld transitions" (p. 10).

> At each such breakdown point, the manner in which the cognitive agent will next be constituted is neither simply determined nor simply planned. Instead, its constitution is a matter of the common-sensical emergence of an appropriate stance from the entire history of the agent's life. Once a behavioural stance is selected or a microworld is brought forth, we can more clearly analyze its mode of operation and its optimal strategy. In fact, the key to autonomy is that a living system finds its way into the next moment by acting appropriately out of its own resources. And it is this breakdown, the hinges that articulate microworlds, that are the source of the autonomous and creative side of living cognition…for it is during breakdowns that the concrete is born. (p. 11)

What does an enactive perspective on the encounter look like? What did I do in response to the situation? Let's go back to where I left off in my account of the events at the beginning of this chapter: "He would not stop shouting. I thought that the other students in this lecture hall were waiting to see what I would do next. I found it difficult to hear and focus on what the student was yelling. This worsened as my eyes scanned the faces of the other students in the room" (pp. 3–4 of this chapter).

What I did next was: I focused on the large beads of sweat rolling down my back. I concentrated on these beads of sweat, noticing how they felt rolling down my back, making contact with my shirt. Were the beads warm or cool? How many were there? I counted them. Then, I shifted my attention to how the bottom of my feet felt on the floor. I focused on the hardness of the floor. I wiggled my toes, curled my toes under softly while gripping the floor with my toes. I moved to noticing how my stomach, back, shoulders and neck felt. I located sensations in particular parts of my body. Finally, I scanned the entire lecture hall, making eye contact with as many students as possible, also looking at the walls, the doors, and the clock on the wall. This noticing

took all of a couple of minutes. The student was standing up and still yelling. Now I

heard the student more clearly. I gradually returned to this moment.

I said:

Please, please, sit down and listen. Be brave and stay with your discomfort. I am
asking you to sit quietly and listen for this class. At the beginning of the next
class I will let you have this microphone all to yourself for 10 minutes. You can
talk to all of us for 10 minutes straight at the beginning of the next class. But, for
the remainder of this class I need you to sit quietly and listen. Please listen and
stay with your feelings of discomfort for tonight.

I made these statements out of the need to cultivate an *ability to attend* to the

situation and for all of us to stay with our discomfort. My focus was on the

"participatory, collective dynamics of human inter-relations per se, as opposed to the

ethical significance of individual actions and their simple aggregations" (Colombetti &

Torrance, 2009, p. 517).

The development of moral response ability as a set of skills necessarily requires

the development of another sub-set of skills that I shall call somatic response ability.

Somatic response ability refers to the ability to recognize physiological sensations and

feelings and their corresponding emotions in one's own and others' bodily movements,

comportment and behaviours of others.

My initial response to use mindfulness awareness practices or grounding

techniques to help focus my attention on the encounter with the white, male student

was a first step in a process of practicing being ethical from an enactive standpoint.

Traditional ethical theories reduced ethics to cognitive-linguistic deliberations and

presupposed an underlying inner/outer division that conflated ethical behaviour with

judgment (Varela, 1999, p. 4). An enactive approach avoids the conflation of ethical

behaviour with judgment by prioritizing the "spontaneous coping" of the instructor (myself), the student doing the yelling, and the other students in the class in the situation. Enactive ethics sees this "immediate coping" to be more important than "rational judgments" of the encounter (Varela, 1999, pp. 5-6). The concept of immediate or spontaneous coping confronts the limitations of traditional ethical theories by relinquishing "the false objectification of the self as a cognitive entity or process lodged in the mind-brain" and attempting to recover the "true being of the self of person as an embodied being embedded in the world" (E. Thompson and Varela, 1999, p. 5). Moral action

> cannot be limited to operations in a model inside the head, because cognition is embodied in sensorimotor activity and embedded in an environment. The mind and the world, rather than being two independent realms linked through representation, are members of an inseparable couple that enact each other. (E. Thompson and Varela, 1999, p. 4-5)

Enactive ethics undermines the inner/outer division between mind/body and subjective/objective, that was traditionally founded in the reduction of ethics to cognitive-linguistic reasoning. It overcomes this conflation with a focus on "what it is good to be" or "ethical experience" rather than on "what it is right to do" (Varela, 1999, pp. 3-4).

Moral sense-making is a "simultaneously bodily and cognitive-evaluative" skill involving sensorimotor/somatic *response-ability* (Colombetti & Thompson, 2008, p. 59). Enactive ethics aims to develop *moral response ability* and *somatic response ability* understood as the ability of faculty, students and staff to respond to moral problems in general and the ethical issues of others in particular.

1.3.2   Development of Collectivized Engagement Skills

The development of moral response ability includes the skills and practices of tolerating discomfort, noticing body sensations without judging them, attending to cognitive thoughts and desires to speak as they arise, and noticing "inscribed habits of inattention" (Boler, 1999, 2004) without cognitively or linguistically judging the body sensations and feelings that are coupled with these habits.

He continued to yell and yell and yell: "I am going to keep talking! What are you going to do about it!" He continued yelling over my talking. I talked for about five minutes. He yelled over my voice the entire time that I am talking. Some students from around the lecture hall were now joining in yelling "shut up," from various corners of the lecture hall. A white, male student, centre and back of the lecture hall, yelled out and restated what I had just said. The yelling student listened to him. Then I spoke again and the student yelled over me again. A black woman in the lecture hall yelled at the student, telling him to stop disrespecting the authority of teacher. The student continued to yell that his rights had been violated. He yelled at me and the other students: "What are you going to do about it? What would Megan Boler do about it? Are you going to kick me out? You can't silence me?"—and so on, lots of rights talk.

I attempted to address the class over his yelling. I gestured towards the student and told the rest of the class that here was a prime example of the phenomenon of self-disclosure that Boler (2004) wrote about in her article, here was a privileged, white, male voice trying to gain back the floor. I pointed out that one of the readings for that evening also mentioned the role of gender in this phenomenon. I explained how the

student also demonstrated this phenomenon by quietly listening to the white male student at the back and then yelling over my voice.

All the while that I am calmly explained this to the class, he yelled louder, he became more distressed and agitated at everyone in the room. He kept saying: "I'm not going to shut up! You can't shut me up! This is a violation of my rights!"

My back was sweating. I kept focusing on the beads of sweat rolling down my back. I was getting really worried. Some students from around the lecture hall also yelled out and ordered him to shut up. He was progressively getting more and more aggressive.

A brown woman, two or three rows up, stood up and yelled really, really loudly: "Now the brown girl is going to speak." She is talking to the yelling student. He shut up and listened to her. She yelled: "Either shut up or get out of the lecture hall. We are trying to have a civil discussion about the ideas in the readings."

The student then said to the brown girl: "Yes!! You just said exactly what I wanted you to say!! I wanted the marginalized voices in the classroom to tell me to shut up! This is the only way that these voices can regain power! I want her to say it (pointing at him—while standing and yelling). The marginalized voices need to speak out! Good!! That's what I wanted to happen!"

I then practised Boler's (2004a) "affirmative action pedagogy" for silencing "expressions rooted in privilege, white supremacy, or other dominant ideologies" (p. 4). I calmly and assertively (not aggressively) lifted my hand up in the gesture of silencing someone (my palm, flat and opened towards the student and said "Shhhhhhh,

Shhhhhhh, Shhhhhhh" to him. He flipped out more, yelling more. I calmly told him once more that he needed to brave and sit down and just listen. I reminded him that he could say anything he wanted at the beginning of the next class. I told him that I needed him to be strong and stay with his discomfort and listen to other voices in the classroom. The whole time he was still yelling over my voice, while other students in the class also yelled out comments to him and had their hands up to indicate that they wanted to speak.

He then began packing up his things, yelling the whole time that this was totally unfair and that I was violating his rights, etc. Then, a black woman yelled at him and said "Please stay! Please stay!"

I then, said, "Yes, please stay and listen. We need you to stay and listen." He stormed out of the room.

Boler's (1999) pedagogy of discomfort foregrounds a proposal for an enactive ethical response to this encounter as "both an invitation to inquiry as well as a call to action" (p. 176). Enactive ethics invokes Boler's (1999) idea of critical inquiry as "collective witnessing as opposed to individualized self-reflection" (p. 176) while it extends Boler's' (1999) notions of critical inquiry and call to action further along the lines of sensorimotor coupling due to a stronger focus on the "concrete activity of the whole organism" (Varela, 1999, p. 8). The difference between Boler's pedagogy of discomfort and enactive ethics is reinforced by the latter's emphasis on ethical experience as a "bringing forth by concrete handling" (Varela, 1999, p. 8).

Boler's (1999) pedagogy of discomfort invites educators and students to engage in critical inquiry. Enactive ethics reinterprets Boler's pedagogy of discomfort by invoking critical inquiry of what Varela (1999) called a "microidentity" and an ethical aim towards "its corresponding lived situation a microworld" (Varela, 1999, p. 10). An enactive ethical perspective draws on Boler's (1999) distinction between "witnessing" and "spectating" and emphasizes a "collectivized engagement in learning to see differently" (p. 176).

Boler (1999) used the concept "critical" in a different way than it is used in the liberal tradition. She did not appeal to the hollow liberal values of dialogue, democracy and rationality that "threaten…to reduce genuine inquiry to an individualized process with no collective accountability" (p. 177). Instead Boler distinguished her idea and practice of "collective witnessing" with familiar notions of critical inquiry in the context of an exploration of the "risks of self-reflection" (p. 177). She understood self-reflection as "one version of educational individualism" (p. 177).

Boler (1999) challenged the Socratic dictum "Know thyself" by observing that self-reflection may not lead to self-transformation. She (1999) states that "like passive empathy, self-reflection in and of itself may result in no measurable change or good to others or oneself" (p. 178).

Boler invokes the related concept of "passive empathy" to define "self-reflection". Passive empathy works by reducing the other to a mirror image of oneself with the aim of making the other familiar and nonthreatening. Self-reflection, like passive empathy, risks simplifying historical complexities and ignoring our mutual

responsibility to one another. Boler explains that "spectating" is one version of educational individualized self-reflection.

Pedagogy of discomfort emphasizes collective witnessing rather than individualized self-reflection, bearing witness rather than spectating. Learning to bear witness is a collective process always understood in relation to others, cultural histories and material conditions. This process requires developing genealogies of one's positionalities and emotional resistances in order "to avoid an oversimplified version of self-reflection or an uncontestable invocation of 'experience'" (Boler, 1999, p. 178).

As a call to action, an enactive approach to ethics highlight the ways that enactive ethics develops a willingness "to inhabit a more ambiguous and flexible sense of self" with the aim of extending "our ethical language and sense of possibilities beyond a reductive model of 'guilt vs. innocence'" (Boler, 1999, p. 176).

Pedagogy of discomfort is also a call to action, an ethical aim, hopefully brought on as a result of learning to bear witness. This ethical aim is twofold. One, it involves willingly inhabiting a more ambiguous and flexible sense of self. Two, it encourages the extension of our ethical language and sense of possibilities beyond a reductive model of "guilt" versus "innocence".

Enactive ethics enables a "collectivized engagement in learning to see differently" (Boler, 1999, p. 176). This *collectivized engagement* can situate communities better "to do the work of community building" (hooks, 2003, p. 37).

1.3.3   Developing Mindfulness Awareness Skills

1.3.3.1 Attention to felt sense. Somatic responsibility arises from somatic

awareness practices, such as Gendlin's (1981) concept of *focusing* was a Westernized

version of Buddhist mindfulness awareness, in which one makes contact with a special

kind of internal bodily awareness called a "felt sense" (Gendlin, p. 10), the "body's

physical sense of a problem, or of some concern or situation. It is a physical sense of

meaning" (Gendlin, p. 69). Focusing, when done properly, leads to "a distinct physical

sensation of change" called a "body shift" (Gendlin, p. 7). Gendlin insisted that focusing

is not an emotion (p. 10), not a mere body sensation (p. 69), and not just getting in touch

with "gut feelings" (p. 69); it is the:

> broader, at first *unclear*, *unrecognizable* discomfort, which *the whole*
> problem . . . makes in your body. To let it form, you have to stand back a little
> from the familiar emotion. The felt sense is wider, less intense [say, than
> emotions], easier to have, and much more broadly inclusive. It is how your body
> carries *the whole* problem. (p. 69)

Gendlin (1981) explained that the "inner act of focusing can be broken down into

six main subacts or movements" (p. 43). In the first, "clearing a space," one finds a quiet

place and time to relax and scan the body for any feelings. One notices body feelings,

for example, in the chest or stomach, and then asks a question, such as, "How is my life

going?" or "What is the main thing for me right now?" If a concern arises, one does not

"go inside it"; rather, one stands back, notices, and greets the feeling without judging it

or assigning meaning to it. The second movement is the "felt sense." In this subact, one

selects one personal problem to focus on from what came forward in the first subact,

without judging it or assigning meaning to it; one lets oneself feel the "unclear sense" of

the problem (p. 44). The third movement is the "handle." Here one stays with the quality of the felt sense while noticing the "quality of this unclear felt sense" (p. 44). "Let a word, a phrase, or an image come up from the felt sense itself. It might be a quality-word, like *tight*, *sticky*, *scary*, *stuck*, *heavy*, jumpy, or a phrase, or an image" (p. 44). The fourth subact is "resonating." In this movement one goes "back and forth between the felt sense and the word (phrase or image)" while checking how each resonates with the other. In this stage one should

> see if there is a little bodily signal that lets you know there is a fit. To do it, you have to have the felt sense there again, as well as the word. Let the felt sense change, if it does, and also the word or picture, until they feel just right in capturing the quality of the felt sense. (Gendlin, p. 44)

In the fifth movement, "asking," one senses the quality again and asks questions of the felt sense, while not judging or being taken over by emotions during the process. Gendlin suggests that "if you get an answer without a shift in the felt sense, just let that kind of answer go by. Return your attention to your body and freshly find the felt sense again. Then ask it again. Be with the felt sense till something comes along with a shift, a slight "give" or release" (p. 45). In the sixth and final movement, "receiving," one receives or accepts "whatever comes with a shift in a friendly way. Stay with it a while, even if it is only a slight release" (p. 45).

Somatic response ability is a broad idea and practice that encompasses somatic awareness. Awareness does not necessarily result in taking action, whereas response ability necessarily requires some sort of action taking ranging from coaching someone through the process of deep breathing, to calling someone an ambulance. An enactive

approach to ethics understands that moral response ability does not occur without somatic response ability.

Noticing a felt sense can help learning communities to address highly-charged classroom situations and teaching tensions by developing skills for staying in places of discomfort and practicing noticing "habits of inattention" (Boler 1999). Mindfulness awareness encourages a "shift from a spatially based experience of self to a temporal one" (Epstein 1995 p. 142).

1.3.3.2 Mindfulness as a distinctive attentional strategy. An enactive approach is founded in nonWestern traditions of reflection upon experience and draw from the Buddhist method of examining experience called *mindfulness awareness* or *mindfulness meditation* (Varela et al., 1991, pp. 21–26, 217–260). The Buddhist roots of the enactive approach also point to the enactive perspective's foundations in the belief in "no-self" and "nondualism." Varela et al. (1991) explained that "mindfulness means that the mind is present in embodied everyday experience; mindfulness techniques are designed to lead the mind back from its theories and preoccupations, back from the abstract attitude, to the situation of one's experience itself" (p. 22).

Epstein (1995) observed that mindfulness is a "distinctive attentional strategy" of Buddhism "in which moment-to-moment awareness of changing objects of perception is cultivated" (pp. 95–96). He distinguished mindfulness from concentration (p. 132) or one-pointedness (p. 95). Concentration involves the "ability to rest the mind in a single object of awareness," whereas mindfulness involves the "ability to shift attention to a succession of objects of awareness" (p. 132). Mindfulness in Buddhist psychology is

"the ability to know one's feelings without having to act on them, or be acted on by them, in an unconscious way" (p. xxi).

Enactive ethics is also founded in nonWestern traditions of reflection upon experience. Varela et al (1991) explain that

> mindfulness means that the mind is present in embodied everyday experience; mindfulness techniques are designed to lead the mind back from its theories and preoccupations, back from the abstract attitude, to the situation of one's experience itself. (p. 22)

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The practice of mindfulness awareness contributes to the goal of enactive education to remedy the intentional and unwitting split between mind and body in educational theory and practice. With reference to Boler's pedagogy of discomfort, I argue that this shift is a condition for the possibility of having a moral experience in the classroom by encouraging instructors and learners to think of their bodies not as "things" that are separate from" them and minds as "places" where they think. Epstein

(1995) explains that this "appreciation of the temporally based dimension of self stems from the ability to pay attention to bodily based experiences as they occur…quite literally a coming to one's senses" (p. 144). Enactive education embraces mindfulness awareness as a way of examining experience with the purpose of "becoming mindful, to experience what one's mind is doing as it does it, to be present with one's mind" (Varela et al., 1991, p. 23). The enactive approach to education holds that any attempt to do educational theory or develop pedagogy must "include human experience…must have some method for exploring and knowing what human experience is" (p. 23). Enactive ethics suggests a change in the nature of reflection "from an abstract, disembodied activity to an embodied (mindful), open-ended reflection" (p. 27).

 1.3.3.3 Somatic experiencing. Like Gendlin's focusing, Levine's (1997) concept and practice of Somatic Experiencing™ is another Westernized mindfulness awareness method of examining experience useful in the classroom setting. Somatic Experiencing is a trainable skill and practice of noticing bodily sensation (rather than intense emotion) in order to heal trauma. Levine's method and arguments are founded on his view that psychology traditionally approached trauma through its effects on the cognitive-linguistic mind, and that this "is at best only half the story and a wholly inadequate one. Without the body and mind accessed together as a unit, we will not be able to deeply understand or heal trauma" (Levine, p. 6). He argued that trauma is part of a natural physiological process that simply has not been allowed to complete. It is not caused by the triggering event itself, but rather stems from a frozen residue of energy in the nervous system that has not been resolved and discharged. The residue remains

trapped in the nervous system, where it gives rise to various symptoms. The four basic symptoms of trauma—hyperarousal, constriction, dissociation, and helplessness—are directly attributable to the physiological changes that occur when a subject is overwhelmed while responding to a life-threatening event. This "tornado of energy" in our nervous system gives rise to the formation of a wide variety of symptoms— including anxiety, depression, and psychosomatic and behavioural problems—and is the organism's way of containing or "corralling" the undischarged residual energy (Levine, p. 20). In this model, trauma is a physiological "stuckness" in the immobility response, the physiological preservation of past events (Levine, pp. 29–30).

Somatic Experiencing is offered as the key to healing trauma, rather than intense emotion and talk therapy, since trauma is in our physiology, our body sensation. Levine argued that the single most important factor in uncovering the mystery of human trauma was the "immobility" or "freezing" response, one of the three primary responses available to reptiles and mammals when faced with an overwhelming threat. (The other two are fight and flight.) Somatic Experiencing cultivates the ability to go into and come out of the natural, involuntary response of freezing. This skill, he argued, is the key to avoiding the debilitating effects of trauma.

Levine's view is that psychology traditionally approaches trauma through its effects on the mind, and this "is at best only half the story and a wholly inadequate one. Without the body and mind accessed together as a unit, we will not be able to deeply understand or heal trauma." (p.6).

The detail of Levine's alternative approach is worth taking seriously. He argues that trauma is part of a natural physiological process that simply has not been allowed to complete. Trauma is not caused by the "triggering" event itself, but rather stems from a frozen residue of energy in the nervous system that has not been resolved and discharged. This residue remains trapped in the nervous system where it gives rise to various symptoms. He discusses how the four basic symptoms of trauma-- hyperarousal, constriction, dissociation, and helplessness--are directly attributable to the physiological changes that occur when a subject is overwhelmed while responding to a life-threatening event. This "tornado of energy" in our nervous system gives rise to the formation of a wide variety of symptoms, e.g., anxiety, depression, and psychosomatic and behavioural problems, and is the organism's way of containing or "corralling" the undischarged residual energy (p. 20). Thus, traumatization is a physiological "stuckness" in the immobility response (p. 29-30), and trauma is understood as the physiological preservation of past events.

Levine advocates that the key to healing trauma is in our physiology, our body sensation, rather than intense emotion and talk therapy. He cites the example of his first major breakthrough in 1969 with a client who was suffering from intense panic attacks. Her attacks were so severe that she was unable to leave her house alone. Levine describes their first session:

> In our first session . . . she went into a full-blown anxiety attack. She appeared paralyzed and unable to breathe. Her heart was pounding wildly, and then seemed to almost stop. I became frightened. . . . Surrendering to my own intense fear, yet somehow managing to remain present, I had a fleeting vision of a tiger jumping toward us. Swept along with the experience, I exclaimed loudly, "You are being attacked by a large tiger. See the tiger as it comes at you. Run toward

that tree; climb it and escape!" To my surprise, her legs started trembling in running movements. She let out a bloodcurdling scream...[and] began to tremble, shake and sob in full-bodied convulsive waves. Nancy continued to shake for almost an hour. She recalled a terrifying memory from her childhood. . . . This early experience had a deep impact on her. . . . Nancy was threatened, overwhelmed and as a result, had become physiologically stuck in the immobility response. . . . I now know that it was not the dramatic emotional catharsis and reliving of her childhood . . . [trauma] that was catalytic in her recovery, but the discharge of energy she experienced when she flowed out of her passive, frozen immobility response into active, successful escape. The image of the tiger awoke her instinctual, responsive self. (pp. 29-31)

Thus, for Levine, treating trauma involves releasing and healing "physiologic traces" of past events.

Section 2:

Enactive Reply to the Personal Agency Objection

—Enactive Activity as Embodied Intersubjectivity

Section 2 of this chapter concludes that the personal agency objection (as discussed in Chapter 2 of this thesis), that the enactive approach cannot account for personal subjectivities, does not apply to a broad enactive approach. I argue that the narrow, complexity view invites the personal agency objection because it lacks consideration of the central role of the embodied mind to the enactive approach. I examine the public encounter, using Dewey's theory of functional trans-action (Garrison, 2005-1, 2005-2, 2004-1, 2002, 2001, 1998, 1997 1995; Garrison & Watson, 2005) as a frame of reference for understanding *enactive activity*, to show that a broad enactive approach reconfigures the idea of personal agency as *enactive intersubjectivity* and *participatory sense-making* (De Jaegher & Di Paolo, 2007; Fuchs & De Jaegher, 2009; Thompson & Stapleton, 2009).

2.1 Summary of the Personal Agency Objection

The challenge against the enactive approach in education is that the subject—as in "individual meaning-making" and "identity-construction processes"—seemed to disappear (Fenwick, 2000, p. 13; Fenwick, 2001a, p. 50). This objection, lodged from constructivist and psychoanalytic perspectives, concerned the abandonment of personal subjectivities. It stated that the enactive approach seems to lack proper recognition of "the agency and resistance of individuals working through complex desires" (Fenwick, 2001a, p. 50). Fenwick (2001a) explained that "it is sometimes unclear how individual integrity is maintained in a 'commingling of consciousness.' . . . Enactivists pose a rather seamless link between cognition and interaction in community" (p. 50). She noted that Davis and Sumara (1997) addressed this objection with the claim that personal subjectivities are not abandoned but rather understood as "mutually specifying" one another in a "commingling of consciousness" (p. 110). Fenwick argued that the processes of mutual specification and commingling are not made clear.

Fenwick (2001a) summarized this first challenge in three key points (p. 50). First, there are aspects of an individual's subjective world of cognition that are not available through dialogue and are not present in action. Second, as well, the connection to one particular context of individuals' personal histories and their dynamic processes of change and growth within other systems is not yet fully articulated in the enactivist understanding. Third, finally, the relationship of individual knowers to theoretical knowledge existing apart from a particular community of actions also must be articulated.

2.2.1 Dewey's Theory Functional "Trans-Action" as Enactive Activity

I would now like to return to the yelling student incident. My explanation above left off at the point where my busy stomach churned. I felt my back and shoulders tighten up, in particular the area at the base of my neck. The space between my shoulder blades felt thick and congested. My arms and legs felt heavy. I felt huge beads of sweat lazily drip down my back. Sensations of thickness pooled in my ankles, feet and hands. I felt my body pulling towards the right side of the room towards the exit. I wanted to run from the room. He had not stopped shouting. I thought that the other students in the lecture hall were waiting to see what I would do next. I found it difficult to hear and focus on what the student was yelling. This worsened as my eyes scanned the faces of the other students in the room. He continued to yell.

The personal agency objection asked the narrow, complexity enactive approach the following questions: "Where is the individual subject?" and "Where are 'individual meaning-making' and 'identity-construction processes'?" in this public encounter (Fenwick, 2000: p. 13; Fenwick, 2001a: p. 50). The narrow complexity view invites these questions because it focuses on the constituent processes of complexity, emergence and dynamic systems without well-rounded consideration of the embodied mind and enactive activity. Dewey's theory of functional trans-action (Garrison, 2005-1, 2005-2, 2004-1, 2002, 2001, 1998, 1997 1995; Garrison & Watson, 2005) shows that the personal agency objection rests on assumptions about the yelling student's actions or the activity of the public encounter that are foreign to a broad enactive approach. In order to point effectively to a broad enactive approach as an alternative way of analyzing and

responding to the yelling student incident, it is helpful to examine these assumptions about activity from Dewey's broad enactive activity theory.

The question, "Where is the individual subject?" in an enactive perspective, is misguided because it assumes that the public encounter with the yelling student is characterized by *self-action* or *interaction*. This characterization is a problem because it presupposes an untenable division between the internal, private, psychological, mental states of the yelling student, the other students and I, and the outer lecture hall environment.

The activity of the public encounter with the yelling student can be conceived of in three main ways: self-action, interaction or transaction. Dewey's theory of "holistic transactional unity (functional coordination)" (Garrison, 2001, p. 284) distinguished three forms of action (Dewey & Bentley, 1973):

> *Self-action*: where things are viewed as acting under their own powers.
>
> *Inter-action*: where thing is balanced against thing in causal interconnection.
>
> *Trans-action*: where systems of description and naming are employed to deal with aspects and phases of action, without final attribution to "elements" or other presumptively detachable or independent "entities," or "essences," or "realities," and without isolation of presumptively detachable "relations" from such detachable "elements." (Dewey & Bentley, 1973, p. 133)

The assumption that activity of the yelling student incident is self-action or interaction can be seen to be underlying the personal agency objection. On the model of activity as self-action, the public encounter with the yelling student is caused by the yelling student himself. This view of the personal agency objection that the yelling

student is acting under his own powers (Dewey & Bentley, 1973, p. 133) is a dominant

assumption in the West. Garrison (2001) observed that

> modern theories of mind, self, and individuality in the West are dominated by themes of self-action. Traditional notions of "rationality," "soul," and "free will" are all instances…the detached character of the seat of self-action leads to the knower versus known dualism, among many others. (p. 285)

On the model of activity as interaction, the public encounter is the result of

interactions between the yelling student, the other students and I. An enactive

perspective holds that this conception is based on the unfeasible view that the distinct

people in the room as causally and mechanically interconnected. The view that the

activity of the yelling student incident as self-action or interaction presupposes an

untenable division between the internal, private, psychological, mental states of the

yelling student, the other students and I, and the outer lecture hall environment. Dewey

and Bentley (1989) noted this division between inner and outer (as quoted in Garrison,

2001, p. 285):

> We find Self-action as the stage of inquiry which establishes a knower…residing in, at, or near the organism to do (i.e., to perform, or have, or be—it is all very vague) the knowing. Given such a "knower," he must have something to know; but *he* is cut off from it by being made to appear as a superior power, and *it* is cut off from *him* by being made to appear just as "real" as he is, but of another "realm." (p. 127)

Dewey and Bentley (1973) explained that self-action, interaction and transaction

are three ways of understanding levels of "human behaviours in and with respect to the

world, and they are all presentations of the world itself as men report it" (p. 132).

Garrison (2001) noted that "activity theory rejected self-action in favor of inter-action

from the beginning; it now needs to move on to trans-action" (p. 286).

Dewey and Bentley (1973) listed the differences between inter-action and trans-action with reference to inquiry, names and naming, fact, elements, activity, organism and environment, knowing and knowns, and observation. Interaction as inquiry investigates connections between events with the assumption that the events "have been adequately described" prior to the inquiry (p. 137). Transaction as inquiry, in contrast, accepts existing descriptions of events "only as tentative or preliminary, so that new descriptions of the aspects and phases of events, whether in widened or narrowed form, may freely be made at any and all stages of the inquiry" (p. 137).

Interaction sees names and naming as "known prior to the start of inquiry" (p. 137), thus emphasizes "what results from the action and reaction of the given objects upon one another" (p. 137). Transaction focuses on the "reorganization of the status of the presumptive objects themselves" (p. 137). It uses direct observation spanning all subject matters and "proceeds with freedom toward the redetermination and renaming of the objects comprised in the system" (p. 137).

Interaction views facts about "inter-acting constituents" as separate and independent of each other, whereas transaction sees facts "such that no one of its constituents can be adequately specified as fact apart from the specification of other constituents of the full subject matter" (p. 137).

With respect to elements, interaction "develops the particularizing phase of modern knowledge" (p. 137). The term "particularizing phase" requires some explanation. Dewey and Bentley (1973) used the term "particularizing" to refer to the way of understanding the world and its phenomena as made up of particles. They used

the term "phase" here to mean a phase in the history and philosophy of science, in particular physics, "beginning with Galileo after his break with the Aristotelian tradition, and continuing until past the days of Comte" during which "the stress in physical inquiry lay upon locating units or elements of action, and determining their interactions" (p. 131). They saw Newton's work as a paradigmatic example of the particularizing of modern knowledge.

Dewey and Bentley (1973) explained that transaction "develops the widening phases of knowledge, the broadening of system within the limits of observation and report" (p. 137). First, by the phrase "develops the widening phases of knowledge," Dewey and Bentley meant that the way that Clerk Maxwell's work was changing the way that in science in general and physics in particular was being understood. Dewey and Bentley explained that Maxwell's began the process of ushering in a new phase of knowledge that would be characterized by the work of Roentgen, Lorentz, Planck, and Einstein. Dewey and Bentley highlighted this shift in knowledge with the following quotation from the preface to Maxwell's book.

> Physical science, which up to the end of the eighteenth century had been fully occupied in forming a conception of natural phenomena as the result of forces acting between one body and another, has now fairly entered on the next stage of progress—that in which the energy of a material system is conceived as determined by the configuration and motion of that system, and in which the ideas of configuration, motion, and force are generalized to the utmost extent warranted by their physical definitions (Dewey & Bentley, 1973, p. 132).

Dewey and Bentley (1973) explained that their use of the term transaction directly draws on Maxwell's understanding of the concept. They noted that "the very word 'transaction,' which we are to stress, was, indeed, used by Maxwell himself in

describing physical events; he even speaks of 'aspects' of physical transactions in much

the sense that we shall employ that word" (Dewey & Bentley, 1973, p. 132). Dewey and

Bentley clarified their use of the concept transaction through a quotation of Maxwell's

vision.

> If we confine our attention to one of the portions of matter, we see, as it were, only one side of the *transaction*—namely, that which affects the portion of matter under our consideration— and we shall call this aspect of the phenomenon, with reference to its effect, and External Force acting on that portion of matter, and with reference to its cause we call it the Action of the other portion of matter. The opposite aspect of the stress is called the Reaction on the other portion of matter. (Dewey & Bentley, 1973, pg. 132)

Dewey and Bentley explained that the above quotation reflected Maxwell's

change in vision as it bears upon the electromagnetic field.

> Here we see the envisionment that Maxwell had gained in the electromagnetic field actually remodeling his manner of statement for mechanical systems generally. Maxwell was opening up new vistas from a footing in the firmest organization of inquiry the world had ever possessed—that of the Newtonian mechanics. Though our own position is one in which the best we can hope for is to be able to introduce a small degree of order into an existing chaos, we can use his work, and the results that came from it, in our support, believing as we do that, as progress is made, the full system of human inquiry may be studied as if substantially one. (Dewey & Bentley, 1973, p. 132)

Second, Dewey and Bentley's phrase, "the broadening of system within the

limits of observation and report" (p. 137), referred to the new technical ways in which

perimeters were drawing around observation; that is, what observation and reporting is

capable of achieving. They outlined these limits in terms of overcoming objectivism and

subjectivism in the following quotation.

> What we call "transaction," and what we wish to show as appearing more and more prominently in the recent growth of physics, is, therefore, in technical expression, neither to be understood as if it "existed" apart from any observations, nor as if it were a manner of observing "existing in a man's head"

in presumed independence of what is observed. The "transaction," as an object among and along with other objects, is to be understood as unfractured observation—just as it stands, at this era of the world's history, with respect to the observer, the observing, and the observed—and as it affected by whatever merits or defects it may prove to have when it is judged, as it surely will be in later times, by later manners. (Dewey & Bentley, 1973, p. 131)

Concerning activity, interaction understands things in action as spatial, that is, "primarily static, and studies the phenomenon under their attribution to such static 'things' taken as bases underlying them" (p. 137). Transaction emphasizes activity in time, "so that 'thing' is in action, and 'action' is observable as thing, while all the distinctions between things and actions are taken as marking provisional stages of subject matter to be established through further inquiry" (p. 137).

With reference to organism and environment, interaction presupposes that organism and environment are present as distinct, "substantially separate existences or forms of existence" prior to investigation (p. 137). In contrast, transaction

assumes no preknowledge of either organism or environment alone as adequate, not even as respects the basic nature of the current conventional distinctions between them, but requires their primary acceptance in common system, with full freedom reserved for their developing examination. (Dewey & Bentley, 1973, p. 137)

Concerning knowing and knowns, interaction assumes what can be known consists of "little 'reals' interacting with or upon portions of the flesh of an organism to produce all knowings up to and including both the most mechanistic and the most unmechanistic theories of knowledge" (Dewey and Bentley, 1973, p. 137). Transaction, on the other hand, is a procedure that includes the observation of the ways that people use language and "other representational activities connected with their thing-perceivings and manipulations" (p. 137). The transaction perspective enables a

"descriptive and functional" investigation or understanding of the phenomena, "inclusive of all its 'contents,' whether called 'inners' or 'outers,' in whatever way the advancing techniques of inquiry require" (p. 137).

Finally, in terms of inquiry in general, interactional views are dogmatically asserted, insisting "on establishing its procedure as authoritative to the overthrow of all rivals" (p. 137). By contrast, "transactional observation is the fruit of an insistence upon the right to proceed in freedom to select and view all subject matters in whatever way seems desirable under reasonable hypothesis, and regardless of ancient claims on behalf of either minds or material mechanisms, or any of the surrogates of either" (p. 137).

Based upon the above examination of Dewey and Bentley's distinction between interaction and transaction, it can be concluded that the term "transactional" in Dewey's theory of "holistic transactional unity (functional coordination)" (Garrison, 2001, p. 284) needs to be understood as nondogmatic perspective that views knowing and knowns, subjects and objects, or organism and environment as intertwined, always existing in time, descriptive and functional, and facts about them as preliminary and open.

The assumptions of self-action and interaction underlying the personal agency objection, and the corresponding presupposition of a division between the inner minds of the people in the lecture hall and outer world, are foreign to an enactive approach. An enactive perspective understands the yelling student incident as a *holistic transactional unity* or *functional coordination* (Garrison, 2001, p. 284).

In order to understand what a "function" is and what it means to be "functional," one needs to grasp Dewey's view of the intertwining of *anything that is* and experience. This intertwining can be examined through Dewey's *Experience and Nature* (1958) and his syllabus called "Types of Philosophic Thought" (1983).

Dewey (1958), as far as I know, had not used the term "*anything that is*." Instead, he used the terms "nature," "natural events," "empirical events," "changes" or "energies" in reference to *anything that is*. Dewey had no need for the phrase *anything that is*, since he saw *anything that is* as a "complex of events that constitute nature" (p. 75). *Anything that is* happens as "nature" (p. 75). Nature is an "arrangement of changing events" (p. 72) or a "distribution of energies" (p. 253).

For Dewey (1958), "experience" meant the same as "interaction(s)." Evidence of his interchangeable use of these terms can be found in the following quotation: "Things interacting in certain ways are experience" (p. 4a). Experience is the "integrated unity" (p. 9) or "unanalyzed totality" (p. 8) of *anything that is* interacting. He explains that

> "Experience" denotes the planted field, the sowed seeds, the reaped harvests, the changes of night and day, spring and autumn, wet and dry, heat and cold, that are observed, feared, longed for; it also denotes the one who plants and reaps, who works and rejoices, hopes, fears, plans, invokes magic or chemistry to aid him, who is downcast or triumphant .(p. 8)

The intertwining of "anything that is" and "experience," Dewey argued, is both a necessary and chiasmic interconnection of nature or natural events, changes, energies and interactions. Let's call the first term, *anything that is*, "*X*." I shall call the second term, experience or interaction, "*Y*." Dewey meant that *X* will occur if-and-only-if *Y* occurs, and *Y* will occur if-and-only-if *X* occurs. It makes no sense, Dewey thought, to

talk about nature without interactions or experience. He (1958) observed that referring

to events, changes or energies as separate from interactions or experience gives rise to a

"kind of ghostly queerness" (p. 72). He (1958) explained that

> experience is *of* as well as in nature…Things interacting in certain ways *are* experience; they are what is experienced. Linked in certain other ways with another natural object—the human organism—they are *how* things are experienced as well. Experience thus reaches down into nature; it has depth." (p. 4a)

Dewey (1958) explained that "all structure is structure of something; anything

defined as structure is a character of events, not something intrinsic and *per se*…The

isolation of structure from the changes whose stable ordering it is, renders it

mysterious" (p. 72). Thus, *anything that is* is a character or quality of natural, empirical

events, changes or energies interacting or experience (Dewey, 1958, pp. 72 & 252).

Understanding *anything* for Dewey (1958), then, was about seeing how changes,

energies, or natural events are organized and recognizing what "distinctive qualities

and efficacies" mark "specifiable empirical events" (p. 255). He explained that "the

problem involved is one of definite factual inquiry. Under exactly what conditions does

organization occur, and just what are its various modes and their consequences" (p.

255). It is worth noting here that Dewey (1958) used the term "consequences" not

"causes" so as not to fall prey to what he calls the "dogma of the superior reality of

causes" (p. 252). He wanted to avoid committing the fallacy of converting consequences

into causes, since he sees this conversion as "contrary to fact" (p. 262). He noted that

"'effects,' since they mark the release of potentialities, are more adequate indications of

the nature of nature than are just 'causes'" (p. 262).

Dewey (1958) thought that natural events were characterized by different "levels of increasing complexity" of organization and "intimacy of interaction" (p. 261). He argued that the physical or matter, psycho-physical or life, and the mental or mind are not separate kinds of being, rather are differences in degrees of complexity of organization and intimacy of interaction. Since Dewey's approach to investigating and understanding anything is one of transaction, rather than interaction, organization is not a static trait or state. Organization is rather a dynamic, pattern of activity "characteristic of the nature of some events" (Dewey, 1958, p. 255). For Dewey (1958), the distinction between nonliving or inanimate events, such as an iron molecule, and living, animate events, such as plants, animals, and humans, is a matter of differences in organized patterns of activity (pp.252–256), not separate kinds of being.

According to Dewey (1958), all natural events are activities characterized by "distinctive qualities and efficacies" (p. 255). These qualities are not "in" the organism; "they always were qualities of interactions in which both extra-organic things and organisms partake" (p. 259). All natural events have an "inner equilibrium" (p. 253) and the fact of change through a constant relationship, understood as trans-active rather than inter-active, with the environment and surrounding things. The most evident difference between living and nonliving things is their qualities and efficacies of their activities demonstrated in different cycles of change.

> The difference between animate plant and the inanimate iron molecule is not that the former has something in addition to physico-chemical energy; it lies in the *way* in which physico-chemical energies are interconnected and operate, when different *consequences* mark inanimate and animate activity respectively. (p. 253)

The cycle of change for nonliving things, such as iron molecules occurs indifferently and is characterized by physico-chemical activity. Dewey (1958) explained that both nonliving and living things are "subject to conditions of disturbed inner equilibrium, which leads to activity in relation to surrounding things, and which terminate after a cycle of changes—a terminus termed saturation, corresponding to satisfaction in organic bodies" (p. 253). Dewey (1958) observed that saturation manifests itself differently in nonliving things (p. 253), "not in such a way as to tend to maintain a temporal activity" (p. 254).

The activities of living things, such as plants, animals and people, are characterized by "needs," "efforts," and "satisfactions" (Dewey, 1958, p. 253). Dewey (1958) defined "need" as a "condition of tensional distribution of energies such that the body is in a condition of uneasy or unstable equilibrium" (p. 253). Efforts or demands referred to "the fact that this state is manifested in movements which modify environing bodies in ways which react upon the body, so that its characteristic pattern of active equilibrium is restored" (p. 253). Satisfaction meant "this recovery of equilibrium pattern, consequent upon the changes of environment due to interactions with the active demands of the organisms" (p. 253). Need, effort and satisfaction in living things indicates the tendency to modify their interactions so that their characteristics will be maintained. This tendency towards modification presupposes that living things have a history of embodied existence in time in a way that nonliving things do not. Dewey (1958) explained that the

> Interactions of the various constituent parts of a plant take place in such a way as to tend to continue a characteristically organized activity; they tend to utilize

conserved consequences of past activities so as to adapt subsequent changes to the needs of the integral system to which they belong. Organization is a fact, though it is not an original organizing force. Iron as such exhibits characteristics of bias or selective reactions, but shows no bias in favor of remaining simple iron; it had just as soon, so to speak, become iron-exude. It shows not tendency in its interaction with water to modify the interaction so that consequences will perpetuate the characteristics of pure iron. If it did, it would have the marks of a living body, and would be called an organism. Iron as a genuine constituent of an *organized* body so as to tend to maintain the type of activity of the organism to which it belongs. (p. 254)

The equilibrium of living things is essentially a nonlinear, dynamic system with the tendency towards "recovery or restoration of the equilibrium pattern" as it "applies to the complex integrated course or history" (p. 254).

In response to the question "Where is the individual subject?" a broad enactive view does not start from the question of how to account for individual, personal agency.[14] "Rather, the enactive approach starts from the question of how a system must be organized in order to be an autonomous system—one that generates and sustains its own activity and thereby enacts or brings forth its own cognitive domain" (Thompson & Stapleton, 2009, p. 24). In other words, "what sort of autonomy is required for cognition?" (p. 24). The problem is not about locating the individual, yelling student within the dynamic, complex, teaching and learning system emerging from the public encounter. Rather, the problem is about understanding the organizational properties that make it possible for the public encounter to be cognitively related to the world.

According to the enactive approach, the reason the public encounter can be cognitively related to the world is that the yelling student, the other students and I in

[14] The following account is indebted to E. Thompson & Stapleton, 2009.

the lecture hall are living organisms that "embody or realize a certain kind of autonomy" (Thompson & Stapleton, 2009, p. 24). This autonomy, however, should not be confused with an individual, Liberal, notion of the self that underlies the personal agency objection. The enactive approach defines an autonomous system as "a system composed of processes that generate and sustain that system as a **unity** and thereby also define an environment for the system" (p. 24) [emphasis added]. The presupposition of a discrete, unique, individual self and a dualism between an inner subject and the outer world generates the problem of the disappearance of the personal agency and the individual subject. Moreover, the personal agency objection assumes that it is not possible that the human self can be groundless and its world can continue to be the familiar one of objects and events with various qualities (Varela et al., 1991, p. 218).

Although the personal agency objection is unwarranted against a broad or a narrow enactive approach, the focused complexity view invites the objection by characterizing autonomy abstractly in formal terms (Thompson, 2007, pp. 44-46; Thompson & Stapleton, 2009, p. 24). A narrow complexity theory perspective understands the yelling student incident abstractly in terms of constituent processes of the public encounter that meet certain conditions for a system to be considered autonomous. For example a focus on: the ways that processes in the encounter recursively depend on each other for the realization of the public encounter as a network; how processes constitute the public encounter as a dynamic, complex teaching and learning unity; and processes that determine a domain of possible interactions with

the world (Thompson & Stapleton, 2009, p. 24). Considering autonomy in abstract,

formal terms focuses on an autonomous system's *operational closure* (Kelso, 1995, p. 7;

Thompson & Stapleton, 2009, p. 24; Varela, 1979, 1997). In other words, the focus is on

how every constituent process in the dynamic, complex, teaching and learning system

that emerges from the public encounter is conditioned by some other process in the

system. This is a limited perspective because "…if we analyze the enabling conditions

for any constituent process of the system, we will always be led to other processes in the

system" (Thompson & Stapleton, 2009, p. 24).

The personal agency objection is unwarranted against a broad enactive approach

that is grounded in a theory of mind and cognition, a method of examining human

experience and dynamic co-emergence. A broad enactive approach widens the

perspective of the public encounter from an "operationally closed network of

processes" to characterize autonomy concretely "in terms of its energetic and

thermodynamic requirements" (p. 24). From a broad enactive perspective,

> basic autonomy is "the capacity of a system to manage the flow of matter and
> energy through it so that it can, at the same time, regulate, modify, and control:
> (i) internal self-constructive processes and (ii) process of exchange with the
> environment." (Ruiz-Mirazo and Moreno, 2004, p. 240 as quoted in E. Thompson
> and Stapleton, 2009, p. 24)

We are now in a position to return to the personal agency objection questions

"Where are 'individual meaning-making' and 'identity-construction processes'?" in this

public encounter according to the enactive perspective (Fenwick, 2000: p. 13; Fenwick,

2001a, p. 50). The broad enactive approach in education brings together the abstract and

concrete ways of characterizing autonomy. Returning to the enactive definition of an

autonomous system, in general terms it is "a thermodynamically open system with operational closure that actively generates and sustains its identity under precarious conditions" (E. Thompson & Stapleton, 2009, p. 24). Also recall the enactive definition of an autonomous system in specific terms as "a system composed of processes that generate and sustain that system as a **unity** and thereby also define an environment for the system" (p. 24) [emphasis added]. There are a number of living organisms that

> regulate their interactions with the world in such a way that they transform the world into a place of salience, meaning, and value—into an environment (Umwelt) in the proper biological sense of the term. This transformation of the world into an environment happens through the **organism's sense-making activity** [emphasis added].(p. 24)

> Examples include the simplest example of motile bacteria swimming uphill in a

food gradient of sugar (E. Thompson, 2007, pp. 74–75, 157–158; E. Thompson & Stapleton, 2009, p. 24; Varela, 1991) and the eyeless tick (von Uexküll, 1957). According to the enactive approach sense-making is "behaviour or conduct in relation to environmental significance and valence, which the organism itself enacts or brings forth on the basis of its autonomy" (E. Thompson & Stapleton, 2009, p. 25). According to a broad enactive approach,

> We can now say what sort of autonomy is required for sense-making and cognition. What is required is. . . adaptive autonomy. In single-celled organisms such as bacteria, adaptive autonomy takes the form of adaptive autopoiesis. Multicellular animals with nervous systems embody more complex forms of adaptive sensorimotor autonomy.

> A broad enactive approach reconfigures the problem space of the disappearance

of the individual subject by assuming codependent arising or dynamic coupling of humans and world and a groundless self.

The personal agency objection to the enactive approach rests on the assumptions that an individual subject and personal agency exist. The enactive idea of "codependent arising" (Varela et al., 1991, p. 221) neutralizes these unwarranted presuppositions. It does not follow, from the enactive view that the individual subject and personal agency do not exist, that people and the familiar world of experience disappear. The personal agency objection points to what Dewey called the most fundamental dualism, the division between the internal and the external.

> The material and the spiritual, the physical and the mental or psychological; body and mind; experience and reason; sense and intellect, appetitive desire and will; subjective and objective, individual and social; inner and outer; this last division underlying in a way all the other. (as quoted in Garrison, 2001, p. 276)

> The objection relies on what Garrison (2001, p. 276) called the dialectics of the internal, external and interaction since it unwittingly suggests a "structural correspondence" (Garrison, 2001, p. 277) between the inner and outer, rather than a "structural coupling" (E. Thompson, 2007, pp. 45-46 & 206-207; Varela et al., 1991, p. 238, pp. 164-165, p. 171, p. 180, p. 183, p. 197, pp. 200-202,pp. 204-26, p. 217, p. 228) or a "dynamic coupling" (E. Thompson, 2007, p. 33).

Furthermore, the personal agency objection unwittingly presupposes another feature of the problem space that points to the presupposition that activity mediates the inner and outer. Garrison (2001) defined the "dialectics of the internal, the external, and their interaction" in the context of critiquing Leont'ev's activity theory.

> Leont'ev found that practical activity, including, but not limited to, semiotic activity dialectically mediates the interaction [between inner and outer]. Leont'ev effectively used dialectical materialism to avoid the pitfalls of idealism that treats the "activity of perception as if it were forming the world of things". He likewise evaded "metaphysical materialism" in which the external object determines the

internal representation. He also avoided the temptations of representative realism as a homomorphism or isomorphism of "*sensory image*" with external reality, or "*model* and *modeled*". What Leont'ev wanted to disclose is the active "process of translation" of external objects into conscious internal images. (p. 276)

Garrison argued that Leont'ev (1978), like his teacher Vygotsky (1978, 1997), was concerned with "internalization."

The idea of the individual subject depends upon "'the very fact of *presentability* to the subject of a picture of the world'" (Garrison, 2001, p. 276). The personal agency objection is constituted by a looking "for ways to mediate the interaction between the internal and the external" (p. 277). An underlying core assumption of the objection is the belief in "some sort of structural correspondence between internal and external mediated by the active life of the individual" (p. 277).

Moreover, the idea of the individual subject and personal agency imposes an "a priori limitation on the possibilities for human development and transformation" (Varela et al., 1991, p. 218). The concepts turn on a confusion of two very different senses of the term *empirical realism* (Varela et al., 1991, p. 218) and rest on a largely given, commonsense assumption in contemporary philosophical debate that "whether the world is mind-dependent or mind-independent makes little difference, if any, to our everyday experience" (Varela et al., 1991, p. 218). On the one hand, this assumption might mean

> that our world will continue to be the familiar one of objects and events with various qualities, even if we discover that this world is not pregiven and well grounded. On the other hand, it might mean that we will always experience this familiar world as if it were ultimately grounded, that we are "condemned" to experience the world as if it had a ground, even though we know philosophically and scientifically that it does not. (Varela et al., 1991, p. 218)

The first meaning requires that we give up philosophical foundationalism while at the same time suggested "that we learn to live in a world without foundations" (Varela et al., 1991, p. 218). Varela et al (1991) observed that the second "condemning" interpretation imposed an "a priori limitation on the possibilities for human development and transformation" (Varela et al., 1991, p. 218). Thus, the second meaning deflects the issue of the lack of foundations by restraining attempts "to learn to live without foundations" (p. 218). Varela et al (1991) explained that it is possible to contest the second supposition without calling into question the first sense "in which things can be said to be real and independent" (p. 218).

A broad enactive approach to education follows the "logic of codependent arising to its logical conclusion" (Varela et al., 1991, p. 221) and understands this groundlessness that is a corollary of the necessary intertwining of subject, object, and environment or self, other and world. Dewey's subject "emerges from the background of a world that extends beyond us but that cannot be found apart from our embodiment" (Varela et al., 1991, 217). The environment or world for Dewey is enacted by a history of structural coupling (p. 218). Varela et al (1991) noted that "the worlds enacted by various histories of structural coupling are amenable to detailed scientific investigation, yet have no fixed, permanent substrate or foundation and so are ultimately groundless" (p. 217). Dewey's notion of organization revised how we think about matter, life and mind: "organism and environment enfold into each other and unfold from one another in the fundamental circularity that is life itself" (p. 217). Dewey's philosophy challenged us to face this groundlessness directly. I address the

question of how as educators and learners we can begin to understand this groundlessness when it seems to contradict the solid ground of our common sense.

If one accepts any sort of division between inner and outer, then the "subject" and "personal subjectivities" point to a single, independent, truly existing self, ego, or identity. An enactive reply is that the burden of proof is on those who posit such a subject exists. The enactive view claimed that "all of the reflective traditions in human history—philosophy, science, psychoanalysis, religion, meditation—have challenged the naïve sense of self. No tradition has ever claimed to discover an independent, fixed or unitary self within the world of experience" (Varela et al., 1991, p. 59). The enactive approach confronted the tension between the "ongoing sense of self in ordinary experience and the failure to find that self in reflection" (p. 61).

The enactive perspective observed that many nonWestern traditions and all Western traditions, "deal with this contradiction simply by turning away from it, refusing to confront it and withdrawal" (Varela et al., 1991, p. 60). Varela et al (1991) discussed two main forms of this withdrawal (pp. 59–81 and 105–130). The first tactic is simply to ignore it, like Hume, Sartre and many others do. The second strategy is to postulate a transcendental self, such as Kant did. Enactivists pointed out that

> [it is] not whether we can define the self in some way that makes us comfortable or intellectually satisfied, nor is it to determine whether there really is an absolute self that is nonetheless inaccessible to us. The point is rather to develop mindfulness of and insight into our situation as we experience it here and now. As Tsultrim Gyamtso remarks, "Buddhism is not telling anyone that he should believe that he has a self or that he does not have a self. It is saying that when one looks at the way one suffers and the way one thinks and responds emotionally to life, it is as if one believed there were a self that was lasting, single and independent and yet on closer analysis no such self can be found. (Varela et al., 1991, p. 72)

Although it is true that enactivism holds there is no independent, fixed or

unitary self within the world of experience, it does not follow from this claim that

agency and resistance of individuals working through complex desires disappears.

Varela et al. (1991) explained that

> It might appear that in our search for a self in aggregates we have come out
> empty handed. Everything that we tried to grasp seemed to slip through our
> fingers, leaving us with the sense that there is nothing to hold on to. At this
> point, it is important to pause and again remind ourselves of just what it was that
> we were unable to find.
>   We did not fail to find the physical body, though we had to admit that its
> designation as my body depends very much on how we choose to look at things.
> Nor did we fail to locate our feelings or sensations, and we also found our
> various perceptions. We found dispositions, volitions, motivations—in short, all
> those things that make up our personality and emotional sense of self. We also
> found all the various forms in which we can be aware—awareness of seeing and
> hearing, smelling, tasting, touching, even awareness of our own thought
> processes. So the only thing we didn't find was a truly existing self or ego. But
> notice that we did find experience. Indeed, we entered the very eye of the storm
> of experience, we just simply could discern there no self, no "I." (Varela et al.,
> 1991, p. 79)

Thus, enactivism argues that the ego-self is empty, however, the aggregates are

full of experience (Varela et al., 1991, p. 80). So, then why does Fenwick (2001a) "feel

empty handed?" (p. 80). She feels this way, according to enactivism, because she "tried

to grasp something that was never there in the first place" (p. 80).

Fenwick (2001a) observed three main aspects of the personal agency objection.

Fenwick observed that the enactive approach cannot account for aspects of an

individual's subjective world of cognition that are not available through dialogue and

not present in action. It is noteworthy that Fenwick uses the metaphor "dialogue" in

connection with enactive view. She drew on Davis and Sumara's (1997) reference to

"dialogue" in their interpretation of the enactive approach. They (1997) understood the

concept of dialogue in terms of the related idea of conversation. They stated that

> this continual remapping of the boundaries between persons, between forms of
> knowledge, between persons and their perceived worlds of experience, refuses
> the monologic [emphasis added] tendencies of modern cognitive theory. Instead,
> it is more closely aligned with the dialogue, or as Gadamer has suggested, with
> the conversation (Sumara & Davis, 1997, p. 413; Davis & Sumara, 1997, p. 110;
> references removed)

It does not follow that since the enactive perspective refused the "monologic",

that it is a "dialogic" view. Dialogue and conversation are different phenomena. Varela

et al (1991) mentioned Gadamer and hermeneutics in a cursory manner. They referred

to it as a "nonobjectivist orientation" (p. 149-150) that viewed interpretation as "the

enactment or *bringing forth* of meaning from a background of understanding" (p. 149-

150). The metaphors used more often are "intertwining-the chiasm", "reciprocal

interaction", and "laying down a path in walking", "a group of players engaged in jazz

improvisation" is used once (E. Thompson, 1999: p. 13). These metaphors suggest a

process different from "dialogue" and more akin to "conversation."

The metaphor of a "dialogue" still suggests a pregiven (Boler, 2004).

"Reciprocate" better expresses the meaning of the enactive approach. The metaphor of

laying down a path in walking is Varela et al.'s (1991) "guiding metaphor" (p. 241). This

metaphor does not assume either an external world independent of the observer or no

world at all, the world is not pregiven and independent, but rather organisms and

environments co-evolve and mutually bring forth worlds.

Now to return to Fenwick's challenge that "there are aspects of an individual's

subjective world of cognition that are not available through dialogue and not present in

action." The enactive approach agrees with Fenwick's claim that there are aspects of an individual's subjective world of cognition that are "cognitively unconscious," however these are always preconsciously present in action. The enactive view understands the cognitive unconscious differently from the cognitivist and connectionist perspectives. Cognitivism and connectionism see the cognitive unconscious as separate from the world, as either disembodied symbol manipulation or pattern recognition (E. Thompson, 1999, p. 8). The enactive approach, E. Thompson explained, sees the cognitive unconscious as "those processes of embodied and embedded cognition that are not experientially accessible to the person" (p. 8)

> Such processes include not only those underlying language comprehension and perceptual pattern recognition, but also the sensorimotor processes that enable movement, the maintenance of posture, the incorporation of aspects of the environment into one's own body schema, and the preverbal sense of self and other. Thus the cognitive unconscious extends throughout the body and loops through the physical and social environment in which the body is embedded; it is not limited to subpersonal routines inside the brain. (Thompson, 1999, p. 8)

Sumara and Davis (1997) befog the enactive view of the cognitive unconscious in their statement that "enactivist thought is aligned with psychoanalytic theories that suggest that a usually-unperceived unconscious participates in our psycho-social identities" (p. 417). How we take their claim depends on what we mean by "aligned." The "cognitive unconscious" of cognitivism (Thompson, 2007, pp. 4-6), founded on the distinction between the act of knowing and consciousness, is different from Freud's split between the mind and consciousness. As E. Thompson (2007) explained "Freud had already undermined the identification of the mind with consciousness" (p. 5) by seeing the psyche as composed of three systems: the conscious, the preconscious, and

the unconscious. The conscious referred to the field of awareness. The preconscious referred to what we can recall yet are not aware of now. The unconscious is drawn from experiences and consists of repressed memories that cannot enter the conscious-preconscious system without distortion (pp. 5–6). The "cognitive unconscious" for enactivism is different again. Enactivism does not believe that there is a single, independent, truly existing self or ego. The cognitive unconscious for enactivism consists of those embodied and embedded cognitive processes that are not accessible to personal experience.

Fenwick (2001a) observed a second aspect of the personal agency objection. She stated that "the connection to one particular context of individuals' personal histories and their dynamic processes of change and growth within other systems is not yet fully articulated in the enactivist understanding" (p. 50). This criticism holds against a narrow complexity view, but not a broad enactive approach. Although, Thompson and Varela never claimed to be doing this particular, connective task, Chapter 4 of this thesis shows that a broad enactive suggests an ethics and an examination of particular histories of embodied cognition. It is does not follow from the fact that Thompson and Varela do not engage in this task of making these particular connections, that an enactivist project could not.

Finally, Fenwick observed a third aspect of the personal agency objection. She stated that "the relationship of individual knowers to theoretical knowledge existing apart from a particular community of actions also must be articulated" (p. 50). This challenge seems to miss the point of the enactive approach. The enactive perspective

maintains that individual knowers do not exist apart from particular communities of actions. Thus, it is not possible for an individual knower to have a relationship to theoretical knowledge existing apart from an environment and action.

A broad enactive approach overcomes the dualisms underlying the personal agency objection discussed above by replacing a theory of structural correspondence with a theory of trans-action and a theory of functional coordination (Garrison, 2001, p. 275). I suggest that what Dewey called "trans-action" is more appropriately understood as "en-action." Garrison (2001) showed that Dewey's theory of functional transaction was founded on the fundamental idea that "we live in a world without a within" (p. 275). A world without a within is not a world without enactive intersubjectivity. Unlike the narrow complexity perspective, the broad enactive approach to education avoids becoming "snared in the dialectics of the internal, the external and their inter-action" and addresses the "problematic of groundlessness" (Varela et al., 1991, p. 219). The broad enactive approach does so by following the "logic of codependent arising to its logical conclusion" (Varela et al., 1991, p. 221).

4   Concluding Remarks

Criticisms that an enactive approach cannot account for personal agency, ethics and justice, characterize the problem space of the narrow, complexity view, the second more recent phase of the enactive approach that has become the received view of enactive education. These objections do not hold against a broad enactive approach grounded in a specific theory of embodied mind and cognition and a method of examining human experience. A broad enactive approach to education is necessarily

infused with ethical and affective dimensions and somatic resources for making

headway on understanding how relations of power and domination are enacted.

CHAPTER 5

❧

INTERTWINING THEORY AND PRACTICE IN ENACTIVE EDUCATION:

AN ENACTIVE CASE STUDY OF THE IMPOSTOR PHENOMENON

The theme of this two-section chapter is to illustrate that theory and practice in enactive education are interwoven. More precisely, my aim is to use the impostor phenomenon in higher education as a case to show that adopting the core theoretical tenets of the enactive approach in education (embodiment, dynamic co-emergence, and self-other codetermination) necessarily changes teaching, learning, and research practices.

Section 1 explains why current explanations of the impostor phenomenon are in need of a credible definition, an adequate way of assessing the phenomenon, a practicable response and viable theoretical assumptions, and are thus implausible conceptions. I show that current theoretical definitions of the impostor phenomenon are intertwined with practices of assessing and treating impostor feelings.

Section 2 sketches an enactive account of the impostor phenomenon that understands it anew as dynamic co-emergence of one's lived body and the surrounding environment, a "dynamic coupling" (E. Thompson, 2007, p. 33). I define the impostor phenomenon anew as a *dynamic habitus signature.* I argue that the impostor phenomenon is not an internal experience of intellectual phoniness or a property of cultures. Instead, I show that an ecologically specific *habitus* is indicative of the impostor phenomenon, in this case the *habitus* is higher education in North America. I present the

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hypothesis that *emergent processes* of aggressive competitiveness, scholarly isolation, lack of mentoring, and valuing of product over process give rise to impostor feelings in the context of higher education. I weave an explanation of and support for my hypothesis into a discussion of 3 core presuppositions underlying my conception of the impostor phenomenon: nonlinear dynamics, circular causality or downward causation, and relational holism (E. Thompson, 2007, pp. 419–431).

I discuss the ways that first-hand accounts of the graduate student experience support my understanding of impostor feelings as arising from emergent processes. These first-hand reports suggest a comparison of the culture of higher education with "Survivor" (n.d.), the popular reality television game show. In "Survivor," players are stranded in a remote location, divided into teams called "tribes," and compete against each other in "reward challenges" and "immunity challenges"; both types of challenge require endurance, problem solving, teamwork, dexterity, and will power. After each immunity challenge the losing tribe must vote to remove one of its members from the game until the few players left merge into a single tribe. Challenges are then won on an individual basis until only one individual remains.

Graduate students' stories support the "Survivor" (n.d.) comparison. Their stories emphasized "uncertainty, self-doubt, insecurity, personal embarrassment, feelings of isolation . . . hopelessness . . . and ebbs and flows in . . . [their] confidence in [their] own academic potential" (Nyquist et al., 1999, p. 19). Their accounts describe an experience of exploitation, loss of identity, poor academic self-concept, worthlessness, and generalized lack of confidence, (see Anderson & Swazey, 1998; Kerlin, 1995, 1998;

Nyquist et al., 1999; Taylor & Holberg, 1999; Ülkü-Steiner, Kurtz-Costes, & Kinlaw,

2000; Weiland, 1998).

The findings from workshops that I have given on the impostor phenomenon

also support the view that impostor feelings arise from emergent processes or *dynamic*

habit formations of aggressive competitiveness, scholarly isolation, lack of mentoring,

and valuing product over process. I have been giving workshops on the phenomenon to

graduate students and faculty for over a decade at universities around North America.

This workshop, as it evolves, serves the dual process of enlightening and reassuring

participants, and furthering my own research on and understanding of the

phenomenon.

I suggest that how we define, assess, and respond to the impostor phenomenon

has serious practical consequences for: teaching and learning; how we experience our

identities as instructors, learners, administration and staff; development and circulation

of ideas; the model of scholarly community; what counts as service to an institution;

institutional structures; the routines founded on academic assumptions and processes;

structuring of academic work; graduate training; formation of values and habits; modes

of scholarship; kinds of academic work; and scholarly communication across

disciplinary lines and divergent methods of analysis (Damrosch, 1995).

SECTION 1

1.1 The Need for a Plausible Conception of the Impostor Phenomenon

I am pleased to be entering a scholarly conversation about the impostor

phenomenon at a point in the discussion when current explanations are reaching their

limits. My pleasure takes the form of great relief to find explanatory frameworks stuck in a conceptual hardness. I see this stuckness as an opportunity for the entrenched ways of understanding the impostor phenomenon to soften and eventually dissolve. Perhaps now we can aspire to understanding the impostor phenomenon in plausible ways that do not distort the phenomenon or define it out of existence. Part 2 of this chapter aims to answer the question of "what happens next?"

Below, I argue that current explanatory frameworks for the impostor phenomenon are in need of a credible definition, an adequate way of measuring the phenomenon, a practicable response, and viable theoretical assumptions. I explain that implausible conceptions of the impostor phenomenon dictate inadequate practices of assessing and treating impostor feelings. I show that current explanations of the impostor phenomenon are stuck viewing the phenomenon and impostor feelings in one of three misguided ways: as "in" a person, or "in" an environment, or "in" an environment *in addition to* being "in" an environment. I also discuss how this stuckness has led recent research on the impostor phenomenon to move from an explanatory dilemma towards a conceptual crisis.

There are three main approaches to defining the impostor phenomenon. I call the first view the "intrapersonal/individual" definition Clance & Imes, 1978; Clance & O'Toole, 1987; Cozzarelli & Major, 1990; Ferrari & Thompson, 2006; Harvey, 1981; Harvey & Katz, 1985; Imes, 1979; Kumar & Jagacinksi, 2006). I call the second approach the "interpersonal/social" definition (Clance, Dingman, Reviere, & Strober, 1995; Hayes & Davis, 1993; Langford & Clance, 1993; September, McCarrey, Baranowsky,

Parent, & Schindler, 2001; Want & Kleitman, 2006). I call the third approach the "cultural/interactionist" definition (Chae, Piedmont, Estadt, & Wicks, 1995; E. Cohen, 1990; Evan, 1999; Ewing, Richardson, & James-Myers, 1996; Kets de Vries, 2005; King & Cooley, 1995; Pirotsky, 2001; Rippin, 2003; Sonnak, 2001; Studdard, 2002a, 2002b).

None of these conceptions adequately describes or understands the phenomenon because each implies some sort of dualism between a human being and her or his environment. Since, as I have outlined in Chapters 1 through 4 of this dissertation, the relationship between a human being and her environment should properly be conceived of as a unitary, dynamic structure or coupling, thus current definitions of the impostor phenomenon are implausible.

These three main approaches have not all been present from the inception of the impostor phenomenon scholarship and the role of each trend in the literature has changed from an exclusive dominance of the intrapersonal/individual approach to a co-existence of these three in contemporary research.

These definitions of the impostor phenomenon fall along a continuum. At one end of the continuum are what I call "self-active" definitions. At the other end are what I call "interactive" definitions. My discussion in Chapter 4 of Dewey and Bentley's (1973) distinction between three main ways that humans behave and theorize about behaving "in and with respect to the world" (p. 132)—self-action, inter-action, and trans-action (Dewey & Bentley, 1973, p. 133; Garrison, 2001)— is helpful for exploring the unviable theoretical assumptions underlying each of the three main conceptions. The "intrapersonal/individual" definition, falling at one end of a continuum,

presupposes that human activity is understood best as "self-action," "where things are viewed as acting under their own powers" (Dewey & Bentley, 1973, p. 132). The interpersonal/social conception assumes that human activity should be understood as somewhere in between or transitioning between "self-action" and "inter-action." The cultural/interactionist approach presupposes that action involves a mechanical "inter-action."

I have two concerns about the continuum that underlies this explanatory framework. The first concern is that it is unviable because the impostor phenomenon does not originate from self-action or inter-action, but rather is *enacted*, a *dynamic co-emergent* phenomenon. In Part 2 of this chapter, I argue that the impostor phenomenon and impostor feelings are not properly understood along this continuum, since what researchers see as the poles of self-action and inter-action are joined in human experience and perception, as a "unitary circuit of lived-body-environment" (E. Thompson, 2007, p. 33).

My second concern with the explanatory framework is that it has given rise to a conceptual hardness. Conceptions of the impostor phenomenon are stuck seeing the phenomenon as: (a) a problem with the inner, individual, psychological, and affective states or traits of a person; (b) as an inner, cognitive-affective response to an outer stimulus in a culture; or (c) as a problem with the inner, individual, psychological, and affective states or traits of a person *in addition to* being an inner, cognitive-affective response to an outer stimulus in a culture or external environment.

1.1.1   The Intrapersonal/Individual Definition

The "intrapersonal/individual" approach, first introduced by Clance and Imes (1978), understood the impostor phenomenon as a syndrome indicated by a private, personal, stable, personality trait that prevented individuals from enjoying their own successes and fully realizing their own competence and potential. Clance (1985) identified six characteristics of the impostor phenomenon:

1. an Impostor Cycle moving from worry and self-doubt about an upcoming task to either overpreparation or procrastination through successful completion of the task, relief and happiness about the success, anxiety about being unable to repeat the success in the future, and beginning the cycle over again (see also Gerstmann, 1998);

2. the need to be special, to be the very best;

3. Superwoman/Superman aspects;

4. fear of failure;

5. denial of competence and discounting praise; and

6. fear of failure and guilt about success.

Clance's characteristics are not in themselves a problem of the intrapersonal/individual definition.

The problem with this definition arises with how it characterizes the impostor phenomenon and the cognitivist assumptions underlying these characteristics. The characteristics are measured by a questionnaire that assesses what participants say and think about themselves, and thus are indicators of a person's thought and speech.

Underlying this approach are cognitivist assumptions about the mind. As I argued in Chapter 1, Section 1, "A Theory of Mind," reducing the self to cognitive/linguistic aspects severs mind and meaning from subjectivity and consciousness, and the body and lived experience from cognition.

The reduction of the human mind to the cognitive/linguistic self is evident in the intrapersonal/individual definition of the impostor phenomenon as a "stable individual difference variable . . . or personality construct" (O'Brien McElwee & Yurak, 2007, p. 201). Harvey and Katz (1985) distinguished it from other disorders, such as low esteem, with three characteristics:

1. The sense of having fooled other people into overestimating [their] ability.
2. The attribution of [their] success to some factor other than intelligence or ability in [their] role.
3. The fear of being exposed as a fraud (p. 8).

These characteristics were understood to describe an individual, internal, private, personality trait or state. My explanation in Chapter 3 of this dissertation, in which I outline Dewey's enactive account of perception as embodied action and the meaning of human experience, shows that personality or self is formed through dynamic co-emergence. Like Clance's (1985) six characteristics, Harvey and Katz's (1985) three characteristics above cannot properly indicate an individual difference variable or a personality construct, but rather are more properly understood as indicative of phenomenon emerging out of self-other codetermination. I explained self-other codetermination as one of the three main tenets of the enactive approach in Chapter 1 of this dissertation.

The intrapersonal/individual approach saw the phenomenon as a problem of individuals perceiving themselves to be frauds, not good enough, not smart enough, in their careers (Kolligian & Sternberg, 1991, p. 308), a "specific . . . self-referential ideation with both cognitive and affective components." This focus on self-perceptions is a problem because it reduced "perception" to a cognitive/linguistic endeavour; i.e., pertaining to conscious thoughts and speech. The intrapersonal/individual definition saw impostor feelings as individual private states or traits manifesting themselves as a pervasive syndrome that resulted in not being able to enjoy success. The fear of being found out was defined as an "*internal* [emphasis added] barrier to empowerment and achievement" (Clance & O'Toole, 1987, p. 51) grounded in "*intrapsychic* [emphasis added] conflicts" (Gottdiener, 1982). My explanation in Chapter 1 of the main tenets of the enactive approach, and my explanation in Chapter 3 of perception as embodied action and the idea of the self as a lived-body-environment, shows that the view of feelings as self-perceptions and the separation of cognitive and affective parts of the self are implausible.

If we assume for a moment that the intrapersonal/individual definition is plausible, we would be forced to accept that feelings are generated and contained entirely and only within an individual person, however, earlier chapters of this dissertation suggest otherwise. According to the intrapersonal/individual view, individuals who experience impostor feelings would be responsible for their feelings and blameworthy, implying that the job of healing is firmly placed in the hands of the individual. We would also be forced to accept a *hard* division between the inside of a

person and the outside world. The problem becomes clearer if we apply this definition to the context of higher education. Seen from within the setting of higher education, the impostor phenomenon is a personal problem affecting the behaviour and performance of individual students and faculty members in various ways, including academic workplace efficiency, teaching effectiveness, the ability to enjoy their successes, to have a realistic sense of their own competence, and to have a sense of control over their own lives.

The intrapersonal/individual approach, for instance, involves the misguided implication that procrastination and overpreparation are personal problems caused by a troubled way of perceiving oneself. Based on my arguments in earlier chapters, this implication is misguided because it reduces the self to its cognitive/linguistic aspects. The intrapersonal/individual view claimed that faculty members and students practice two work patterns designed by impostors to relieve anxiety: procrastination and overpreparation (Clance & O'Toole, 1987, cited in Pirotsky, 2001). Procrastination enabled individuals to postpone the anxiety evoked by impending challenging tasks while also allowing them "to protect their fragile self-concepts from the threat of failure because failure, under these circumstances, can be attributed to circumstance rather than to self" (Pirotsky, 2001, p. 16). Procrastination and overpreparation were also seen as attempts on the part of individuals to virtually guarantee their success. Pirotsky (2001) explained that this is an unfortunate strategy since

> . . . success achieved through overpreparation only reinforces the impostor phenomenon, by enabling impostors to attribute diligence rather than ability to success. Moreover, impostors come to believe that, in order to produce the same work as their colleagues, they have to expend much more effort. (p. 17)

I propose that the feelings of anxiety giving rise to the behaviours of procrastination and overpreparation be understood differently, on an enactive model, as collaboratively-formed or emerging codynamically. I sketch an enactive approach to understanding impostor feelings and the impostor phenomenon in Part II of this chapter.

The intrapersonal/individual view also argued that impostor feelings compromise students and faculty member's efficiency in the academic workplace (Pirotsky, 2001), without any consideration for the ways in which feelings and behaviours are collaboratively formed and emergent phenomena. Failure-avoidance behaviors, including aversion to risk-taking, resistance to showing one's work, and fear of asking questions, were linked to the impostor phenomenon (Pirotksy, 2001). Individuals with impostor feelings were reported to experience unusually high levels of anxiety and depression, are less satisfied with their jobs, and despite their accomplishments, "set performance expectancies below their ability" (Pirotksy, 2001, p. 17; also see: Clance & Imes, 1978; Cozzarelli & Major, 1990; Kolligian & Sternberg, 1991; Steinberg, 1986; Topping, 1983). The problem is that these behaviours were understood dynamically and these feelings were reduced to consciously cognitive and linguistic experiences.

The intrapersonal/individual approach claimed that the impostor phenomenon impacted the quality of teaching, but did not interpret this data properly. The research suggested that the presence of impostor feelings may be related to the low effectiveness of instructors (Brems, Baldwin, Davis, & Namyniuk, 1994). Teaching effectiveness was

defined using Bardwick and Baldwin's concept of "Faculty Vitality" that refers to how faculty interact with students, how available faculty make themselves to students for advising, supervision and research activities, and how faculty are rated by students on teaching effectiveness. The study (Brems et al., 1994) showed that imposter feelings were correlated with six areas of significance: (a) helpfulness and sensitivity when students had difficulty; (b) level of encouragement of questions and ideas; (c) ability to create enthusiasm to learn; (d) overall rated quality of the instructor; (e) overall rated quality of the course; and (f) extent to which each student increased personal knowledge of the subject taught. But, if we reject the cognitivist and reductionist assumptions underlying the interpretation of this data, the findings look different. From an enactive standpoint the findings neither indicate something about an "individual" instructor, nor something about a teaching and learning culture. On the enactive model it does not make sense to refer to an ineffectual instructor or, in other words, to blame the instructor. Rather the findings are indicative of a structural coupling of instructor and environment, the dynamic co-emergence of teaching and learning, a view that Chapter 2 and Chapter 5 of this dissertation support.

A major shortcoming with the above intrapersonal/individual definition is the internalization of the phenomenon. The phenomenon was seen as occurring *through* individuals and the experience of impostor feelings were located *inside* the individual, thus presupposing a separation of self and world. This dualistic definition is unable to account for the relationship between faculty and students and their environment; i.e., the character of the departments they belong to, the personalities of supervisors,

instructors, deans and staff, and larger, cultural factors like government funding, a student or faculty member's upbringing, and so on. This definition lacks plausibility because it cannot account for the relationship between the self and the environment and thus cannot account for central aspects of human experience. So, at first the answer to the question of which of the three main definitions most adequately described the phenomenon seems apparent. The most fitting definition seems to be the interpersonal/social or interactionist/cultural approach, or both. I explain below that these latter two approaches are also implausible.

1.1.2 Interpersonal/Social Definition

The interpersonal/social definition arose in response to the above limitations of the intrapersonal/individual view. Researchers began casting about for other ways to understand the phenomenon that took into account the ways in which people are shaped by gender-role socialization and family dynamics. Many interpersonal/social approaches assumed some form of social constructionism. The interpersonal/social model located the impostor phenomenon *among* individuals in personal, social, and family relationships, understanding it as for example an outcome of non self-affirming, family messages or gender-role socialization. Clance et al. (1995) argued that "particularly for women, [impostor] phenomenon is rooted in interpersonal and social contexts, in the both the family and female gender-role socialization in a predominantly male-normed social system for the backdrop for impostor feelings" (p. 80; as quoted in Gerstmann, 1998, p. 22). This second definition might be viewed as conceptually better

than the first approach as it alleges to account for the relationship between humans and their environments and human experience.

One central problem with the interpersonal/social approach is that imposter feelings are not socially constructed, but rather enacted. An enactive approach to the impostor phenomenon is not a form of social constructivism. The basic assumption of a constructivist orientation is that knowing and knowledge are a "process of constructing meaning" (Merriam, Caffarella, & Baumgartner, 2007). Merriam et al. (2007) observed that "[b]eyond that basic assumption, constructivists differ as to the nature of reality, the role of experience, what knowledge is of interest, and whether the process of meaning-making is primarily individual or social" (p. 291). Driver, Asoko, Leach, Mortimer, and Scott (1994) distinguished between personal and social constructivism (p. 5; as cited in Merriam et al., 2007, p. 291). Davis and Sumara (2002) made a similar distinction between "subject-centered" and "social" strands of constructivist theory (p. 411). Davis and Sumara observed that each strand in turn has its own maxim: "individuals construct their own understandings" or "all knowledge is socially constructed" (p. 411). An enactive view is different from both a subject-centred constructivist account and a social constructivist account.

A big difference between the individual or subject-centred constructivist view and an enactive approach is the way that meaning is made. In the subject-centred constructivist view, meaning is generated by the individual and "is dependent on the individual's previous and current knowledge structure," but learning still takes place in the head as an "internal cognitive activity" (Merriam et al., 2007, p. 291). In this model,

impostor feelings are seen as generated by the "progressive adaptation" of an individual's cognitive structure and personal activity "to the physical environment" (Driver et al., 1994, p. 6).

There is also a difference between the social constructivist view and the enactive approach in how meaning is understood to be made. The social constructivist view argued that knowledge is constructed when individuals engage in social interaction. In this model impostor feelings involve "learning the culturally shared ways of understanding and talking about the world and reality." This view assumed that "learning is socially mediated through a culture's symbols and language, which are constructed in interaction with others in the culture" (Merriam et al., 2007, p. 292). The social constructionist view suggested an unwitting mechanism involved in a "dialectics of the internal, the external, and their interaction" (Garrison, 2001, p. 276). This view assumes "some sort of structural correspondence between internal and external mediated by the active life of the individual" (Garrison, p. 277).

Another main problem with the interpersonal/social definition of the impostor phenomenon is an underlying idea of "progressive adaptation" (Driver et al., 1994). The unwitting presupposition of the idea of "progressive adaptation" needs to be replaced by a more plausible notion of "structural coupling" (E. Thompson, 2007; Varela, 1999). The interpersonal/social definition sees impostor feelings as adaptations to a dysfunctional environment; for example, a response to nonself affirming family messages. Central to the idea of progressive adaptation is the "optimization of adaptation." Progressive adaptation presupposes a view of evolution "as a process

whereby organisms get better and better at adapting to the design problems posed by an independent environment" (E. Thompson, 2007, p. 204). E. Thompson (2007) noted two key criticisms of adaptationist perspectives, which both apply to the subject-centred constructionist view. First, "adaptionists treat the organism as if it were a mosaic of separate parts when it is actually an integrated whole" (E. Thompson, 2007, p. 203). The subject-centred constructivist view demonstrated this point by atomizing the individual into inner cognitive activities, and explained these traits as "structures optimally designed by natural selection for their functions" (Gould & Lewontin, 1978, p. 256, as quoted in E. Thompson, 2007, p. 203). Then, "when faced with the limitations of this part-by-part analysis," individual constructivism paid "lip service to the integration of the organism," treating "it merely as an epiphenomenon of the compromises or 'trade-offs' that need to be made among competing demands of optimizing different traits" (E. Thompson, 2007, p. 203). Second, that

> . . . adaptionism separates the organism from the environment and sees the environment as posing problems that the organism must solve by adapting. This view of organism-environment relations, combined with the atomistic analysis of the organism into separable traits, implies that the organism is simply a passive object of selection rather than an active agent or subject of the evolutionary process. (E. Thompson, 2007, p. 203; also see Levins & Lewontin, 1985, pp. 85–106)

The concept of progressive adaptation in subject-centred constructivism suggests that the environment is independent of the organism. By contrast, the enactive view sees the organism and environment as dynamically codetermined. The enactive standpoint does not presuppose the "optimization of adaptation" (E. Thompson, 2007, p. 204). Organism and environment are "[l]ike two partners in dance who bring forth

each other's movements; organism and environment enact each other through their structural coupling" (E. Thompson, 2007, p. 204).

The interpersonal/social definition of the impostor phenomenon seems to be a better account than the intrapersonal/individual view, since the former could account for the ways that impostor feelings are taught by families and by society (Clance et al., 1995; McIntosh, 1985). The interpersonal/social approach, however, still saw the impostor phenomenon as a problem of the *internalization* of feelings or *re-presentation* of family or community messages. The division between the inner and outer is still intact. The impostor phenomenon is neither personal, nor social, rather it is an emergent phenomenon that is collaboratively formed through a web of reciprocal interrelationships.

1.1.3 Cultural/Interactionist Approach

A third, cultural/interactionist approach shifted the focus from social and interpersonal contexts to a focus on interactions *among* people and *within* cultures. There are two main strands of the cultural/interactionist approach to understanding the impostor phenomenon. The more common strand might be described as *sociointeractionist*, the less common, as noted, *sociocultural*. Underlying the former strand is the assumption that society and culture are variables affecting the impostor phenomenon and that impostor feelings are a response to or effect of society and culture. The latter strand presupposes the impostor phenomenon is a form of internalized oppression or internalized domination and that impostor feelings are appropriated.

The more common sociointeractionist strand of the cultural/interactionist view sees society and culture as variables affecting the impostor phenomenon and defines impostor feelings as a response to or effect of society and culture. There are different forms of the sociointeractionist approach. The sociointeractionist strand of the cultural/interactionist approach reinscribed the dualism of self and environment by defining the impostor phenomenon as the result of an outside situation impacting an inner self or impostor feelings as an *inner* emotional response to an *outer* stimulus.

One sociointeractionist approach studied the impact of the impostor phenomenon on specific cultural groups, such as Korean (Chae, 1994; Chae et al., 1995) or African American (Ewing et al., 1996) populations. Ewing et al. (1996) explored the relationship among the impostor phenomenon, racial identity attitudes, academic self-concept, and worldview perspective. "They found that optimal/suboptimal (i.e., viewing the world as holistic versus viewing the world as fragmented and divisive) worldview perspective was a better predictor of impostor phenomenon than racial identity attitudes, but they found that academic self-concept was responsible for most of that effect" (Gerstmann, 1998). These studies were limited by having understood impostor feelings themselves in the same way as the intrapersonal/individual and interpersonal/social approaches, by simply carrying over the idea of impostor feelings as private and individual to people in different sample groups.

Another form of the sociointeractionist strand of the cultural/interactionist approach studied the impostor phenomenon from the perspective of organizational cultures. It examined individuals within particular organizational-cultural settings,

such as business or management (Kets de Vries, 2005), and specific sample groups, such as teachers and accountants (Byrnes & Lester, 1995). The problems with this strand becomes clear when viewed in the setting of higher education. From this perspective, the organizational culture of higher education can be seen as "neurotic" (Kets de Vries, 2005, p. 5). Faculty and students can be seen as "neurotic" impostors" who "damage the organizations" with their "contagious" work ethic (Kets de Vries, 2005, p. 5) and who can be seen as "eager to succeed" and "often become impatient and abrasive" (Kets de Vries, 2005, p. 5).

This sociointeractionist approach, like the intrapersonal/individual or the interpersonal/social views stills focused on individuals without exploring the organizational "socialization . . . [as] a cultural act" (Tierney, 1997, p. 5) or action. The organizational cultures of higher education, however, cannot be seen as "simply the sum of the tasks that occur in the organization" (Tierney, 1997, p. 4), "aberrant and in need of repair" (Tierney, 1997, pp. 3, 4). Views such as Kets de Vries' endorsed what Tierney (1997) called "a rational view of the world in which reality is fixed and understandable, culture is discovered, and the individual holds an immutable identity that awaits organizational imprinting" (p. 4). However, "culture is 'up for grabs' or contestable. . . . Constraints exist by way of historical and social forces, but multiple possibilities exist to reinscribe culture with alternative interpretations and possibilities" (Tierney, 1997, p. 4).

The sociointeractionist perspective seemed to resolve the problems of the intrapersonal/individual and interpersonal/social approach by considering more

variables in relation to and in combination than in previous research to date, such as personality, environment and situational variables (E. Cohen, 1990, p. 48; Rippin, 2003). The problem is that the relationship between human and environment was still assumed to be separate, that is, the variables were seen to be separate entities acting upon each other.

From a higher education perspective, this perspective would see faculty members and students as *acting upon* their environment, or their environment was seen as *acting upon* them (E. Cohen, 1990; Rippin, 2003). Rippin (2003), for instance, blamed the "massified, modularized scheme" thus understanding the 'environment' as a force that *acted upon* the individual rather than *intersubjectively interacts with* the individual. Rippin (2003) contended that there were two explanations for the impostor phenomenon. The first "concerns the individual intrapersonal processes experienced by my colleagues and myself and the second concerns the environment in which practice is undertaken" (p. 2). She argued that "feeling like a fraud was [an effect] of being caught up in a systemic, institutionalized cycle of incompetence" (Rippin, 2003, p. 3). Interactionist accounts still presupposed a split between a human and her environment unwittingly expressed in dualistic terms.

Pirotsky (2001) investigated the impostor phenomenon with "respect to *both* its personal *and* situational aspects" (abstract of PhD dissertation), emphasizing environmental and situational dimensions as if they were separate from psychological dimensions leaving the impostor phenomenon untouched. Her (2000) thesis title expressed this division: "An investigation of *both* [emphasis added] the trait *and*

[emphasis added] state aspects of the impostor phenomenon within an organizational context," where the term "trait" referred to environmental precursors of the phenomenon and "state" meant the psychological state component of the phenomenon as a construct. These interactionist definitions of the impostor phenomenon cannot account for the emergence of human experience, in practice. The sociointeractionist strand advocated that we consider environmental and situational factors in our understandings of impostor phenomenon *in addition to* psychological concerns, "implying that the two sorts of concern belong to separate realms" (E. Thompson, 1995b, p. 2). This is an implausible view, since (as I have discussed in Chapters 1, 3, and 4) self and environment are a dynamic coupling.

Literature on the impostor phenomenon is gradually moving from a *sociointeractionist* view to a *sociocultural perspective*. Studdard's (2002a) investigation into how the impostor phenomenon shaped the graduate school experience for women doctoral students is a good example of both strands. Studdard's work might be described as sociocultural, since she assumes that the impostor phenomenon is a form of *internalized oppression* (Tappan, 2006).

Drawing on the example of higher education, the impostor phenomenon defined as *internalized oppression* might see graduate students as a subordinated, marginalized, or minority group who intentionally and unintentionally take on, accept, and internalize the ideology and norms of the dominant institution's and faculty member's shared learned behaviours. Griffin (1997) observed that internalized oppression occurs when the oppressed group has "adopted the [dominant] group's ideology and

accept[ed] their subordinate status as deserved, natural, and inevitable" (Griffin, p. 76, as quoted in Tappan, 2006, p. 2116). This subordination would hold until graduate students internalize the norms of the culture or drops out. The question is: "Is a sociocultural view a plausible conception of the impostor phenomenon?" The answer is "no." The problem is that the impostor phenomenon is not a form of *internalized oppression*, but rather it is a dynamic co-emergent phenomenon. Furthermore, impostor feelings are not "appropriated," but rather are "enacted."

Studdard (2002) presupposed that impostor feelings are learned through a process similar to *internalized oppression* (Freire, 1970/2000; McLaren, 1998; Tatum, 1997; Young, 1990). A dualism between self and environment is expressed in Studdard's (2002) assumption that impostor feelings are *internal* and that roles are *internalized*, as expressed in her second conclusion: "While participants did not consciously accept the roles and stereotypes associated with their positionality, they did at times *internalize* [emphasis added] these roles. Based on these *internal* [emphasis added] feelings participants often felt they were impostors in many areas of their lives" (p. 175).

A fundamental dualism between inner and outer underlies the concept of *internalized oppression.* Internalized oppression has "been viewed almost exclusively as [an] internal, deep, unchanging, psychological quality[y] or characteristic . . . of the oppressed, on the one hand, and the privileged on the other" (Tappan, 2006, p. 2116). While the research questions that guided Studdard's (2002) study have a unique and rare focus on *experience*, the wording of these questions suggest a division between self and environment:

1. How is impostorism *manifested in* the doctoral *experience*?
2. How do gender and race role stereotypes and expectations *influence impostorism in* women doctoral students?
3. How does the *educational system influence impostorism in* women doctoral students? (p. 170) [emphasis added]

Asking how the impostor phenomenon is "manifested in" an experience or influences experience presupposes that the phenomenon and the experience are separate. Asking how an educational system influences the impostor phenomenon presupposes that the system and the phenomenon are separate.

This unwittingly dualistic language is echoed in Studdard's (2002) three conclusions:

1. Imposterism played out in real ways in participants' lives;
2. Social positions exacerbated impostor feelings; and
3. The structure of the doctoral experience escalated impostorism. (p. 172)

About Conclusion 1, Studdard wrote: "impostor feelings impacted the lives of the women . . . in real and specific ways" and "impostor feelings influenced how participants viewed themselves, how they experienced the world around them, and how they approached their doctoral programs" (p. 174). Concerning Conclusion 3, Studdard wrote: "The structure of the doctoral experience encouraged women in this study to question and critique their own success" (p. 178); "Participants in this research impacted their view of themselves" (p. 178); and "Participants viewed the higher education system as questioning their agency, ability, and their place in the system, and by association, questioned themselves" (p. 179). Her focus on the "connection" between the impostor phenomenon and experience was limited to how impostor feelings impacted the graduate student experience. This approach to viewing "impacts" needs

to be extended to seeing the dynamic co-emergence or structural coupling of impostor feelings and practices, values and relationships.

The problem with the impostor phenomenon as internalized oppression is not solved if we replace the term "internalized" with "appropriated," as Tappan (2006) suggested. Tappan argued that the idea of "appropriation" presupposes a sociocultural perspective rather than the psychological perspective underlying the idea of "internalization." Tappan's argued that underlying the idea of "appropriation" is another central concept of "mediated action" (Tappan, 2006, p. 2117). Tappan (2006) drew on Wertsch's (1991, 1995, 1998) idea of "mediated action" to refer to "sociocultural phenomena." Tappan explained that mediated action entails two central elements: "an agent, the person who is doing the acting," and "'cultural tools' or 'mediational means'—the tools, means, or 'instruments,' appropriated from the culture and used by the agent to accomplish a given action" (p. 2117).

The replacement of the more commonly used term *internalization* with the notion of *appropriation* does not dissolve the underlying dualism between self and environment. While "appropriation" is conceptually better than "internalization," the former idea needs to be replaced by "enaction" because the idea of "mediated action" (Tappan, 2006) presupposes an epistemology of "mastery and the need for control" (Code, 2006). A sociocultural model understands impostor feelings as "mediational means or cultural tools" acquired by a bidimensional process of appropriation focused on *mastery* and *ownership* (Tappan, 2006, p. 2124). Mastery "entails 'knowing how' to use a given cultural tool with a relatively high degree of skill or facility," a process that

takes much time; and "complete know-how is never fully achieved" (Tappan, 2006, p.

2124; also see Wertsch, 1998). Ownership refers to "understanding how an agent takes a

given cultural tool—something, quite commonly, 'that belongs to others'—and make[s]

it one's own" (Tappan, 2006, p. 2124; also see Bakhtin, 1981; Tappan, 1991, 1999, 2000,

2005).

Tappan (2006) illustrated the process of appropriation as a "sociocultural

activity" by using the example of a pole vaulter. He explained that as the pole vaulter

> . . . learns how to pole vault, [she] gradually appropriates the mediational means
> associated with her sport. She works to master the use of the relevant physical
> tools (e.g., the pole, the track, the equipment she uses and wears) and linguistic
> tools (e.g., the guidance about form, style, and technique that she receives from
> her coach). She also seeks to "own" those tools, to make them her own as much
> as possible, to use them in her own way, to make them part of herself in a
> fundamental sense—all of which are hallmarks of expertise in her sport. (p. 2125)

Tappan explained that individuals, like the pole vaulter, acquire

> . . . expertise in the use of new mediational means to perform new types of
> mediated action . . . on three interrelated planes or dimensions . . . focusing on
> three interrelated processes that contribute to the mastery and ownership—that
> is, the appropriation—of mediational means. (p. 2125)

While Tappan's (2006) pole vaulting example seems to emphasize the living,

habit body, dualism are reinscribed in Tappan's reference to three dimensions of the

appropriation of sociocultural activity only: the social, cultural, institutional plane; the

interpersonal plane; and the personal plane (pp. 2124–2125). His understanding of these

three realms as separate levels and his focus on mastery and ownership

mischaracterized the idea of expertise and the concept of skill. As a result, his account

confuses "mastery" and "ownership" with expertise and skill (Varela, 1999). The

striking absence in his account of any discussion of body memories or the habit body

pointed to another significant difference between a constructivist approach and an

enactive orientation approach. Neither Tappan's nor the constructivist view can account

for the preconscious body memories of our habit body or the idea of the noncognitive,

nonlinguistic, prereflective knowing—what Davis (1996) called "unformulated

knowledge." It is not a matter of Tappan having understood the concept of expertise too

narrowly; rather, his account ignored what Varela (1999) called "immediate coping" in

active life (p. 19).

Like pole vaulting, the impostor phenomenon could also be seen as a

socioculturally mediated activity; and impostor feelings could be seen as appropriated

on three interrelated planes. On the social, cultural, institutional plane, we could

understand impostor feelings to involve a process of "cultural participation," what

Tappan (2006) noted that Rogoff (1995) called "apprenticeship. " Quoting Rogoff,

Tappan explained that this "communal" plane involved

> . . . active individuals participating with others (experts) in culturally organized
> activity that has as part of its purpose the development of mature participation in
> the activity by less experienced people. This [concept] extends the idea of craft
> apprenticeship to include participation in any other culturally organized activity,
> such as other kinds of work, schooling, and family relations. This idea of
> apprenticeship necessarily focuses attention on the specific nature of the activity
> involved, as well as on its relation to practices and institutions of the community
> in which it occurs—economic, political, spiritual, and material. (Rogoff, p. 142, as
> quoted in Tappan, p. 2125)

At this level, impostor feelings are seen as learned through a sort of

apprenticeship process. This account, however, still divides the inner and outer. And

while an enactive view of impostor feelings does not intend to deny the real and very

psychological consequences of impostor feelings, it does aim to move away from a

division between the inner and outer, from a division between an exclusively

individual, psychological, and social, cultural understanding of the impostor

phenomenon. Thus, an enactive approach to impostor feelings needs to avoid

reinscribing an inner/outer divide. Tappan's (2006) levels are not merely interrelated,

they are simultaneously *enacted* through a dynamic process of spontaneous coping.

Nothing in Tappan's account suggests that anything more than a "cognitive

apprenticeship" is going on. "In the enactive approach reality is not a given: it is

perceived-dependent, not because the perceived 'constructs' it as he or she pleases, but

because what counts as a relevant world is inseparable from the structure of the

perceiver" (Varela, 1999, p. 13). The embodied experience of impostor feelings (or

oppression, for that matter) are generated as body memories and stored in the

preconscious, prereflective body as feelings.

On the second, interpersonal plane, mediated action is developed along the lines

of "guided participation" arising in the "context of interpersonal relationships"

(Tappan, 2006, p. 2126). Quoting Rogoff (1995), Tappan explained that the

> . . . concept of *guided participation* refers to the processes and systems of
> involvement between people as they communicate and coordinate efforts while
> participating in culturally valued activity [forms of mediated action]. This
> includes not only face-to-face interaction . . . but also the side-by-sided joint
> participation that is frequent in everyday life. . . . The "guidance" referred to in
> guided participation involves the directions offered by cultural and social values,
> as well as social partners; the "participation" in guided participation refers to
> observation, as well as hands-on involvement in an activity. (Rogoff, p. 142, as
> quoted in Tappan, p. 2126)

Tappan's (2007) third and final plane, the personal plane, referred to the concept

of "participatory appropriation" or "mediated action as it emerges as a result of a

person's active participation in sociocultural activities" (p. 2126). This level concerns "how individuals change . . . through their involvement in one or another activity" on a personal process of engagement and participation (Tappan, 2006, p. 2126). These planes cannot be seen as separate and action is not "mediated" by interactions.

In sum, the intrapersonal/individual, interpersonal/social and cultural/interactionist approaches to defining the impostor phenomenon are not viable because they intentionally or unwittingly separate the self and the environment. Each of three definitions promoted the view that individuals were either constricted by a psychological syndrome or constructed by a social, political, and cultural space (Maracek, 1995, pp. 108–11). These definitions are inadequate because they understand impostor feelings as constituted and operating interactively at the level of both individual personal experience *and* [emphasis added] wider social formations . . . [*and*] [emphasis added] power relations" (Harding & Pribram, 2004, p. 863), where *and* means *in addition to*. Thus, current definitions of the impostor phenomenon are stuck in an explanatory dilemma that understands the phenomenon as inner or outer, personal or social, and separates human and environment.

An idea of central importance to an enactive approach is that living beings are histories of embodied cognition. Cognitive processes are seen as the result of embodied sensorimotor activity embedded in an environment (E. Thompson, 1999, p. 7). The mind and world, an inseparable couple that enact each other, are no longer two independent realms. Humans enact or bring forth their own cognitive domains and enact their identities not by "processing pre-existing information 'out there'" but rather by

enacting *in-formation* "in continuous reciprocal interactions with [their] environment" (Colombetti & Thompson, 2008, p. 55). "Inner and outer are not separate spheres, connected only through a representational interface, but mutually specifying domains enacted in and through the structural coupling of the system and its environment" (Colombetti & Thompson, p. 55). It follows from the former idea that impostor feelings need to be understood as "simultaneously bodily and cognitive-evaluative" (Colombetti & Thompson, p. 63) and publicly and collaboratively formed (Bartky, 1990; Boler, 1997, 1998, 1999; Boler & Zembylas, 2003; Campbell, 1994, 1997; Frye, 1983; Harding & Pribram, 2002, 2004; Jaggar, 1989; Lutz, 1986; Lutz & White, 1986), not as individual, private, autonomous emotions.

I am not suggesting that we make an explanatory move from the psychological to the sociocultural. A move from a psychological orientation to a sociocultural orientation neglects the central role of the living habit body or lived embodiment in activity. An exclusively psychological view in addition to a sociocultural perspective still unwittingly understands the two realms as separate and thus overlooks cognition as the "concrete activity of the whole organism . . . in sensorimotor coupling" (Varela, 1999, p. 8). Such a movement ignores "cognition as enaction" (Varela, p. 8). An enactive approach does not merely advocate a movement from a psychological to a sociocultural orientation. It conceives of impostor feelings as enacted or brought "forth by concrete handling" (Varela, p. 8), not as socially expressed or socially constructed.

Unviable theoretical assumptions about human action, experience, and emotions generate the dualism of human self and environment reflected in each of the main

approaches to defining the impostor phenomenon discussed above. The definitions above are grounded in two main faulty assumptions. The first assumption is that the impostor phenomenon, originates *through* an individual self or *among* individual selves. The problem is that the impostor phenomenon never was "in" a person or "in" an environment or "in" a person *in addition* to being "in" an environment.

The second faulty assumption is that impostor feelings are cognitive-evaluative, psychological traits or states formed in an individual. It is presumed that impostor feelings are private, individual experiences. Also, it was assumed that feelings are cognitive beliefs or evaluative powers that could correctly or incorrectly appraise how one ought to behave, evaluations such as, "I am not smart enough."

These two faulty assumptions are grounded in dualisms. The dualism arising from the first mistaken assumption, when viewed through an ontological lens, arises from presuppositions that lose sight of the dynamic nature of human action and the meaningful structure of human perception, showing disregard for the "silent language whereby perception communicates with us" (Merleau-Ponty, 1945/1962, p. 48) and the ways in which "the gaze and the landscape remain as it were glued together" (Merleau-Ponty, 1945/1962, p. 48).

From an epistemological perspective, the dualism arises from assumptions that reduce the experience of the impostor phenomenon to the "cognized" realm (Dewey, 1977, p. 163), while disregarding what it means to know the impostor phenomenon at the experiential or existential level of the "lived-body" (Merleau-Ponty, 1945/1962, 1942/1963). I draw on Dewey's distinction between things "experienced as cognized"

and "cognitive experience" (Dewey, 1977, p. 163) to show how narrow assumptions about how impostor feelings are known and experienced circumvent the "immanent meaning" or "logic lived through" of the phenomenon (Merleau-Ponty, 1945/1962, p. 49).

In conclusion, above I have shown that main approaches to understanding the impostor phenomenon are implausible because they imply a dualism between a human being and her or his environment. These dualistic accounts are founded on mistaken presuppositions about what human action, experience, and emotion are and mean. In Part II of this chapter, I begin to soften and dissolve this explanatory hardness with an enactive approach to understanding the impostor phenomenon.

1.2 The Need for Adequate Assessment and a Practicable Response

The unviable theoretical assumptions discussed above inform current *measurement tools* and *treatment methods*. The faulty assumption that the impostor phenomenon originates *through* an individual self or *among* individual selves dictates that measurements focus on self-appraisals, family dynamics, and individual behaviors associated with social interactions. Since the impostor phenomenon is not "in" a person or "in" an environment or "in" a person *in addition* to being "in" an environment, assessment methods are inadequate. The faulty assumption that impostor feelings are cognitive-evaluative, psychological traits or states formed personally or interpersonally dictates treatment methods involving cognitive-behavioural restructuring focus on an individual involving multimodal approaches, such as individual and group therapies. I outline these inadequate measurement tools and treatment methods below.

1.2.1   Inadequate Measurement Tools

Ways of measuring the impostor phenomenon are informed by the explanatory frameworks discussed in the section above, the intrapersonal/individual, interpersonal/social and cultural/interactionist conceptions. Furthermore, the development of measurement tools maps onto the movement from a focus on self-action to inter-action.

As a research construct, there are three main ways of measuring the impostor phenomenon: the Clance IP Scale (CIPS; Clance, 1985; Clance & Imes, 1978); the Harvey IP Scale (IPS; Harvey, 1981; Harvey & Katz, 1985); and the Perceived Fraudulence Scale (PFS; Kolligian & Sternberg, 1991). A fourth, less commonly used measurement tool, the Leary Scale (LS; Leary, Patton, Orlando, & Wagoner Funk, 2000), has also been developed. The ClPS and the IPS are intertwined with an intrapersonal/individual and interpersonal/social conception, whereas PFS and LS introduce interactional elements.

The CIPS (Clance, 1985; Clance & Imes, 1978) and the IPS (Harvey, 1981; Harvey & Katz, 1985) were the two main measurement tools from 1985 through 1991, and are still used today. The CIPS was a 20-item self-report scale asking participants to rank their answers to 20 questions, including, "I have often succeeded on a test or task even though I was afraid that I would not do well before I undertook the task "or "I can give the impression that I'm more competent than I really am" (pp. 20–23). As noted above in Section 1 of this chapter, using the CIPS, Clance (1985) identified six characteristics of the impostor phenomenon:

1. an Impostor Cycle moving from worry and self-doubt about an upcoming

   task either to overpreparation or procrastination through successful

   completion of the task, relief and happiness about the success, anxiety about

   being unable to repeat the success in the future, and beginning the cycle over

   again (see also Gerstmann, 1998);

2. the need to be special, to be the very best;

3. Superwoman/superman aspects;

4. fear of failure;

5. denial of competence and discounting praise; and

6. fear of failure and guilt about success.

The Harvey Impostor Phenomenon Scale (IPS; Harvey, 1981; Harvey & Katz,

1985) was a 14-item self-report scale that attempted to differentiate between those

individuals who are high and those who are low in impostor feelings and cognitions.

As noted above in Section 1 of this chapter, using the IPS, Harvey and Katz (1985)

distinguished the impostor phenomenon from other disorders, such as low esteem, with

three characteristics:

1. The sense of having fooled other people into overestimating [their] ability.
2. The attribution of [their] success to some factor other than intelligence or
   ability in [their] role.
3. The fear of being exposed as a fraud. (p. 8)

Both the Harvey and Katz scale and the CIPS included items that measure: fear

of failure; attribution of success to luck, error or charm; the desire to stand out; the

feeling of having given others a false impression; and the discounting of recognition

from others (Langford & Clance, 1993, p. 495). The Clance IP scale (1985) included the

following additional items: fear of evaluation; fear that successes cannot be repeated; and, the feeling that one is less capable than peers (Langford & Clance, 1993, pp. 495-496).

The fact that the CIPS and the IPS had not been widely used and little evidence existed "to identify one measure as unequivocally superior to the others" (Leary et al., 2000, p. 729) did not deter several researchers from concluding that the usefulness of these measurement scales was suspect (Chae et al., 1995; Chrisman, Pieper, Clance, Holland, & Glickauf-Hughes, 1995; Cozzarelli & Major, 1990; Edwards, Zeichner, Lawler, & Kowalski, 1987; Holmes, Kertay, Adamson, Holland, & Clance, 1993; Kolligian & Sternberg, 1991; Leary et al., 2000; Topping, 1983). Through various attempts to establish the construct validity of the impostor phenomenon using these scales, researchers were turning up findings contrary to the initial findings of Clance (1985; Clance & Imes, 1978) and Harvey (1981; Harvey & Katz, 1985). Using the Harvey (1981) IPS, Topping (1983) found, contrary to the clinical formulation of Clance and Imes (1978) that men had significantly higher mean IPS scores than did women (Kolligian & Sternberg, 1991, p. 310). Edwards et al. (1987) investigated the general construct validity of IPS and found an unacceptably low level of internal-consistency reliability for the full scale (Kolligian & Sternberg, 1991, p. 310). In sum, researchers showed that the scales were not adequately measuring the phenomenon.

Kolligian and Sternberg (1991) developed the first substantively new measurement tool since 1985, the Perceived Fraudulence Scale (PFS), a self-report questionnaire. These investigators were concerned about the assessment of the impostor

phenomenon in relation to other personality constructs, such as, symptoms of depression, social anxiety, and self-consciousness (Kolligian & Sternberg, 1991, p. 310). They doubted whether the impostor phenomenon was a "real psychological experience" that was distinct from the other dispositional factors, as noted (Kolligian & Sternberg, 1991, p. 308). The subtitle to the article in which they published their findings expressed their concerns: "Is there an 'Impostor Syndrome?'"

Below, I show that inherent in Kolligian and Sternberg's (1991) findings are both the risk of an explanatory crisis and the opportunity for understanding the impostor phenomenon anew. I conclude this final section of Part I of this chapter with a discussion of the risk of an explanatory crisis. In Part 2 of this chapter I reinterpret Kolligian and Sternberg's (1991) findings in a way that reconfigures conceptual frameworks, assessment methods, and ways of responding to the impostor phenomenon.

Kolligian and Sternberg (1991) developed the first substantively new measurement tool for the impostor phenomenon since 1985, the Perceived Fraudulence Scale (PFS), a self-report questionnaire. Before using the PFS, they administered the IPS (Harvey, 1981). The PFS, based on the investigators' formulation of *perceived fraudulence* and on a review of the personality literature, consisted of 51 statements constructed to reflect a broad range of phenomenological tendencies associated with the experience of *perceived fraudulence* (Kolligian & Sternberg, 1991, p. 312).

Kolligian and Sternberg (1991) also used various personality inventories in their study, including: an Achievement Pressure Scale; the Depressive Experiences

Questionnaire (DEQ; Blatt, D'Afflitti, & Quinlan, 1976); the Zung Self-Rating

Depression Scale (Zung, 1965); a Self-Esteem Scale (Phinney & Gough, 1984); a Self-

Monitoring Scale (Snyder, 1987; Snyder & Gangestad, 1986); a Fear of Negative

Evaluation Scale (Leary, 1983; Watson & Friend, 1969); a scale measuring daydreaming

styles, the Imaginal Processes Inventory (Huba, Aneshensel, & Singer, 1981; Kolligian &

Sternberg, 1991, pp. 312-313).

In order to expand on their assessment of the impostor phenomenon, Kolligian

and Sternberg (1991) included "Thought Listing" and "interview components" in

addition to the PFS and personality inventories. Thought Listing was designed to tap

"subjects' ongoing thought patterns in response to their imagined involvement in a

series of situations designed to evoke fraudulent thoughts and feelings" (Kolligian &

Sternberg, 1991, p. 311). A personal interview was included to directly measure

"subjects' self-perceptions of fraudulence in a one-on-one social situation" (Kolligian &

Sternberg, 1991, p. 311).

Kolligian and Sternberg's (1991) findings redirected scholarly conversations

about the impostor phenomenon in two main ways. These redirections were double-

edged since, on one hand, they could be seen to risk further entrenching dualisms or to

risk an explanatory crisis by inspiring some researchers, in an attempt to understand

the phenomenon more adequately, to conceptually gesture towards defining the

phenomenon, what it is "experienced *as* being" (Dewey, 1977, p. 162), out of existence.

On the other hand, these directions could be seen to provide an opportunity for a

reconfiguring of current conceptions, measurement methods, and ways of responding

to the impostor phenomenon according to an enactive model.

Kolligian and Sternberg's (1991) conceptualization of *perceived fraudulence* or

fraudulent ideation opens a space for possible explanations that fall outside of the

dualistic, traditional explanatory framework by seeing the impostor phenomenon and

impostor feelings as "perceptions" or "ideations" rather than mental illness, personality

disorder, a syndrome, or a characteristic or effect of a dysfunctional culture or society.

Their findings challenged the view of the founding researchers and much of the

literature. In a footnote to the first sentence of their article, they wrote:

> We believe that the term *perceived fraudulence* more accurately and precisely
> captures the technical meaning of the experience than do other terms commonly
> used in the literature—such as *impostor syndrome* or *impostor phenomenon*—that
> suggest the experience should be viewed as a pervasive mental illness or
> categorical personality disorder. Consistent with our conceptualization,
> perceived fraudulence is viewed, not as a pervasive syndrome or phenomenon,
> but as a specific self-perception or self-referential ideation with both cognitive
> and affective components. Self-perceptions of fraudulence may also be
> considered *normative responses* [emphasis added] to certain situational factors and
> environmental constraints. (Kolligian & Sternberg, 1991, p. 308)

In their concluding remarks, Kolligian and Sternberg explained that their study

> represents a preliminary attempt to investigate the personality variable that may
> be responsible for fraudulence ideation. It does not address the effects of
> different types of situational factors, such as the novelty of one's environment or
> task and the skills of one's referent groups, on the expression of fraudulent
> cognitions and feelings. Indeed, the *power of situations to evoke fraudulent ideation*
> *in subjects* [emphasis added] not generally prone to such thoughts has yet to be
> fully explored. (p. 324)

Kolligian and Sternberg's (1991) definition risks further entrenching dualisms

and may be seen as indicative of more of the explanatory stuckness discussed above.

Their use of the prefixes "self" and "self-referential" before the term "perception" or

"ideation" suggests that impostor feelings can be reduced to an inner psychological experience. The term "ideation" may point to a reduction of the self to cognitive/linguistic thoughts. Their reference to impostor feelings as "responses" to "situational factors and environmental constraints" suggests a division between the self and the environment. Their language suggests a linear causation in which feelings are the "effects of different types of situational factors" (Kolligian & Sternberg, 1991, p. 324). Their explanation of the impostor phenomenon as a "specific self-perception or self-referential ideation with *both* cognitive *and* affective components" (Kolligian & Sternberg, 1991, p. 308) suggests a separation between cognition and emotion. This dualistic language could be seen as more of the same conceptual stuckness.

Within Kolligian and Sternberg's (1991) account is an opportunity to understand the impostor phenomenon anew lies in the investigators' understanding of the impostor phenomenon as a "perception," a "normative response" (p. 308) to the "power of situations" (p. 324). An opportunity to reconfigure conceptions, measurement methods and ways of responding to the phenomenon turns on how we define "perception," "normative response," and "situations." If we use an enactive approach to understand perception and cognition, as I argue in Chapters 1, 3, and 4 of this dissertation, perception is a normative response to the evocative power of situations. In Part 2 of this chapter, I outline an enactive approach to understanding the impostor phenomenon as an emergent phenomenon, a *dynamic habitus signature*.

Kolligian and Sternberg's (1991) study redirected discussions in the literature in a second way by inspiring interest in the impostor phenomenon as a self-presentation

strategy (Cowman & Ferrari, 2002; Ferrari & Thompson, 2006; Leary et al., 2000; O'Brien

McElwee & Yurak, 2007; Want & Kleitman, 2006). Inherent in this interest are the seeds

for a conceptual crisis that defines the *experience* of the phenomenon out of existence.

In accounting for their results, Kolligian and Sternberg (1991) linked self-

monitoring behaviors with fraudulent self-presentations (p. 323). They found that the

impostor phenomenon, or *perceived fraudulence* as they called it, resulted from

> a blend of inauthentic and self-deprecatory forms of thinking, with concomitant experiences of attention to one's behaviors and apprehension in evaluative situations. Perceived fraudulence may be looked at as a manifestation of the more general tendencies toward negative outlook or world view which, when combined with the vigilant monitoring of one's feelings and behaviors, yields the specialized feelings of fraudulence. (Kolligian & Sternberg, 1991, pp. 323–324)

Their finding that the impostor phenomenon may involve "a complex interplay

of inauthentic ideation, depressive tendencies, self-criticism, social anxiety, high self-

monitoring skills, and strong pressures to excel and to achieve" (Kolligian & Sternberg,

1991, p. 323) called into question views of the founding researchers on the impostor

phenomenon, the authors of the only two books ever written on the impostor

phenomenon (Clance, 1985; Harvey & Katz, 1985), who saw the phenomenon as a "new

phenomenon" and a "unitary personality syndrome."

It was the way in which Kolligian and Sternberg accounted for their results by

linking self-monitoring of impressions made on others and fraudulent self-

presentations that inspired some researchers to introduce "a notable self-presentational

element" (Leary et al., 2000, p. 751) into the impostor phenomenon. Kolligian and

Sternberg explained:

One possible explanation for this particular pattern of results is that individuals with perceptions of fraudulence are highly critical of themselves, and because this self-criticism, are anxious about the prospect of others evaluating their work and feel a strong pressure to achieve and to excel. Their own self-critical thoughts may contribute to their fear that others are concerned with and will ultimately detect the flaws that they perceive in themselves. To reduce the possibility of exposure and to minimize their anxiety, these individuals closely monitor their behavior and the impressions they make on others. In turn, their self-monitoring behaviors may exacerbate their fraudulent self-perceptions. Thus, their ability to monitor the impressions they make not only protects them, but they believe that it is also partly responsible for other people's inflated views of their work in the first place; in other words, they believe that if they did not monitor their behavior so closely, then they would not perform so well. (p. 323)

This connection drawn by the investigators (Cowman & Ferrari, 2002; Ferrari & Thompson, 2006; Leary et al., 2000; O'Brien McElwee & Yurak, 2007; Want & Kleitman, 2006) defined "real feelings of fraudulence" out of existence as a "self-diminishing self-presentation strategy" (O'Brien McElwee & Yurak, 2007, p. 201).

1.2.2   Inadequate Treatment Methods

Almost all current methods for treating the impostor phenomenon involve "talk," cognitive psychotherapy of some form, including group (Clance et al., 1995) and individual psychotherapy. Therapeutic treatment was designed to "assist the client in moving away from the attitudes and beliefs that have been at the root of her suffering, and toward an expanded sense of self which incorporates her formerly disowned creativity, intelligence and capability" (Clance & O'Toole, 1987, p. 57). Suggested approaches for treatment combined "cognitive restructuring and some Gestalt work in a framework of empathic relating" (Clance & O'Toole, p. 59).

These methods of treatment share the aim of helping the person experiencing impostor feelings to become aware of the feelings and then overcome them a through

"talking" and "listening" process that focuses on the "strengthening of the client's true inner self" (Langford & Clance, 1993, p. 499). Treatment includes taking the client's doubts and fears seriously, examining family dynamic and script messages, dealing with perfectionism and resistances, and other therapeutic interventions such as group therapy, keeping a feedback journal, guided imagination (fantasy) exercises (Imes & Clance, 1984).

These methods are inadequate because they focus on healing an inner self and do not address the genuine origins of the impostor phenomenon as a dynamic, emergent phenomenon.

SECTION 2

2.1 Toward an Enactive Approach to the Impostor Phenomenon

In Part I of this chapter, I argued that current explanations of the impostor phenomenon are in need of a credible definition, an adequate way of assessing the phenomenon, a practicable response and viable theoretical assumptions, and are thus implausible conceptions. I also showed that these implausible definitions are intertwined with inadequate practices of assessing and treating impostor feelings that need to be reinterpreted. What might the impostor phenomenon be, if not:

1. an individual state, trait or psychological syndrome (Clance & Imes, 1978; Clance & O'Toole, 1987; Cozzarelli & Major, 1990; Ferrari & Thompson, 2006; Harvey, 1981; Harvey & Katz, 1985; Imes, 1979; Kumar & Jagacinksi, 2006);

2. a cognitive-affective response to culture (Clance et al., 1995; Hayes & Davis, 1993; Langford & Clance, 1993; September et al., 2001; Want & Kleitman, 2006);

3. perceived fraudulence or fraudulent ideation (Kolligian & Sternberg, 1991); or

4. a self-presentation strategy (Carey, 2008; Cowman & Ferrari, 2002; Ferrari & Thompson, 2006; Gravois, 2007; Leary et al., 2000; O'Brien McElwee & Yurak, 2007; Want & Kleitman, 2005)?

What might an alternative interpretation of Kolligian and Sternberg's (1991) findings look like? How should we adequately assess and respond to the impostor phenomenon?

In the final part of this chapter, I present an explanatory framework that understands the impostor phenomenon anew. Using an enactive approach, I define the impostor phenomenon as an ecologically-specific "dynamic habitus signature," a dynamic co-emergent phenomena (E. Thompson, 2007, p. 431) in which "part and whole co-emerge and mutually specify each other" (E. Thompson, 2007, p. 431). The idea for the name of the term "dynamic habitus signature" comes to me from two sources: (a) Thompson and Varela's (2001) concept of "dynamical brain signatures" (p. 419; see also Lutz et al. (2002); and (b) Code's (2006) idea of "ecologically specific habitus and ethos" (p. 153). I argue that the most plausible way to measure and treat the impostor phenomenon is at the level of its *emergent processes*.

2.2 An Enactive Explanatory Framework with Hypothesis

An enactive conception of the impostor phenomenon implies that we cannot properly understand impostor feelings without seeing them as arising from "emergent wholes [that] have contemporaneous parts, but these parts cannot be characterized independently from their respective wholes." Also, that "emergent wholes are produced by an essential, ongoing, interaction of its [sic] parts" (Kronz & Tiehen, 2002, p. 345, as quoted in E. Thompson, 2007, p. 431). Underlying this conception is the enactive postulate that the relationship between one's lived body and the surrounding world is a "dynamic coupling" (E. Thompson, 2007, p. 33), what Dewey (1896, 1958, 2002) termed the "organism-environment" (as quoted in Gallagher, 1986b, p. 162), what Merleau-Ponty (1945/1962, 1942/1963, 1948/1973) defined as an "intertwining," and Gallagher (1986) called the "lived-body-environment" (p. 162).

A conception of the impostor phenomenon as emergent can be drawn from a definition that captures the main features of what researchers in complex systems theory mean by "emergence" (E. Thompson, 2007, p. 418). In the following framework, E. Thompson (2007) outlined the conditions under which any phenomenon may be defined as emergent:

> *Definition* [of emergence]: A network, *N*, of interrelated components exhibits an emergent process, *E*, with emergent properties, *P*, if and only if:
>
> 1. *E* is a global process that instantiates *P*, and arises from the coupling of *N's* components and the nonlinear dynamics, *D*, of their local interactions.
> 2. *E* and *P* have a global-to-local ("downward") determinative influence on the dynamics of *D* of the components of *N*. And possibly:
> 3. *E* and *P* are not exhaustively determined by the intrinsic properties of the components of N, that is, they exhibit "relational holism." (p. 418)

For the purposes of exploring the impostor phenomenon as an emergent phenomenon and toward developing a provisional definition, I propose substituting components, processes, and properties emerging from the complex system of higher education involved in an explanation of the impostor phenomenon. These are my proposed variables:

- Let "N" be "dynamic, nonlinear, complex system of higher education, consisting of interrelated faculty, students, staff, and administration experiencing differing levels of interactions involving teaching, learning, and research"

- Let "E" be "the global emergent processes of aggressive competitiveness, scholarly isolation, lack of mentoring and valuing of product over process"

- Let "P" be "the impostor phenomenon and impostor feelings"

Here is a provisional definition of the impostor phenomenon as an emergent phenomenon after substitution:

- **A dynamic, nonlinear, complex network,** N, of interrelated faculty, students, staff, and administration experiencing differing levels of interactions involving teaching, learning, and research components

- **That exhibit emergent processes,** E, of aggressive competitiveness, scholarly isolation, lack of mentoring, and valuing of product over process

- **with emergent properties,** P, of the impostor phenomenon and impostor feelings.

As noted above, this framework is conditional. Any phenomenon can be called "emergent" "if and only if" it meets the following three conditions (E. Thompson, 2007).

1. *E* is a global process that instantiates *P*, and arises from the coupling of *N's* components and the nonlinear dynamics, *D*, of their local interactions.

2. *E* and *P* have a global-to-local ("downward") determinative influence on the dynamics of *D* of the components of *N*. And possibly:

3. *E* and *P* are not exhaustively determined by the intrinsic properties of the components of N, that is, they exhibit "relational holism." (p. 418)

After substituting the variables for the ones outlined above, and given that the variable *E* below is a hypothesis, the impostor phenomenon can be defined as emergent phenomenon in the context of higher education, "if and only if," the following conditions:

1. *E*, **emergent processes of** aggressive competitiveness, scholarly isolation, lack of mentoring, and valuing of product over process; **is a global process that instantiates *P*,** the impostor phenomenon, and impostor feelings; **and arises from the coupling of N's components** of the complex system of interrelationships of faculty, students, staff, and administration **and the nonlinear dynamics** of their local interactions involving teaching, learning, and research.

2. *E*, **emergent processes of** aggressive competitiveness, scholarly isolation, lack of mentoring, and valuing of product over process; **and *P*,** the impostor phenomenon and impostor feelings; **have a global-to-local ("downward") determinative influence on the nonlinear dynamics of *D*,** their local interactions involving teaching, learning, and research, **of the components of N**, complex system of interrelationships of faculty, students, staff, and administration.

3. *E*, **emergent processes of** aggressive competitiveness, scholarly isolation, lack of mentoring, and valuing of product over process; **and *P*,** the impostor phenomenon and impostor feelings, **are not exhaustively determined by the intrinsic properties of the components of *N*,** complex system of interrelationships of faculty, students, staff, and administration, **that is, they exhibit "relational holism."**

A central feature that differentiates my explanatory framework of the impostor phenomenon from the conceptions that I criticize in Part I of this chapter is the idea that

impostor feelings are enacted through an embodied history of structural coupling of

person and environment and are "rooted in a number of alternative microworlds"

(Varela, 1999, p. 17) that are activated in various "complex" and "dynamic" (Eliasmith,

1996; van Gelder, 1995, 1998; van Gelder & Port, 1995) existential "situations" (Mallin,

1979; Merleau-Ponty, 1945/1962, 1942/1963, 1948/1973), not socially constructed (E.

Thompson, 1995a, 1995b, 1999, 2001, 2007; Varela, 1996, 1999; Varela, Thompson, &

Rosch, 1991). For a graduate student, a "microworld" might be a particular department

in which they are completing doctoral studies. A "situation" is the unity of graduate

student with her surroundings, "any involvement in circumstances" or "active concern

with sets of natural, cultural, or human problems" (Mallin, 1979, p. 7), such as meeting

with a supervisor to discuss revisions on a thesis chapter or presenting a conference

paper.

Any human experience of a *situation* is characterized by one's habit body

(Merleau-Ponty, 1945/1962, p. 82). The ambiguity of impostor feelings amounts to the

fact that "our body compromises as it were two distinct layers, that of the habit-body

and that of the body at this moment" (Merleau-Ponty, 1945/1962, p. 82). A central

characteristic of a situation is that "every actual situation refers to sedimented

situations" (Mallin, 1979, p. 13). A graduate student, like any human subject,

> "sediments" these situations . . . with the result that certain milieus will be
> immediately familiar to him and will automatically bring these situations into
> being . . . [process of sedimentation] allow[s] one to *learn* how to act in certain
> kinds of circumstance; . . . learn to single out quickly the relevant aspects of a
> situation, including the effects of various possible actions, and so choose quickly,
> and in many cases habitually. We can now see that a creative situation is always
> problematic to the subject because his sedimented methods of dealing with the
> world are inadequate to it . . . the mastering of a new situation comes about

through noting exceptions to the subject's sedimented body of experience, this situation is seen in reference to these past sedimented structures and appears as a modification, recombination, or specification of them (Mallin, 1979, p. 12).

The problem of the existence of impostor feelings in higher education amounts to finding out how the habitual body of the graduate student can act as a guarantee for the graduate student's body at this moment (Merleau-Ponty, 1945/1962, p. 82).

Impostor feelings are formed within collaborative social contexts, such as the student-supervisor relationship during the dissertation writing process or learning in the classroom. The impostor feelings that emerge from these collaborative social contests cannot be reduced to private, individualized expressions of emotion or to a binary of rational/irrational experiences. Work of feminist philosophers of emotion (Bartky, 1990; Boler, 1999; Campbell, 1994, 1997; Frye, 1983) suggests ways of understanding impostor feelings that do not see them as rational or irrational.

Impostor feelings can be understood well using a comparison to women's experience of shame. Bartky (1990) described women's belief in their unworthiness as "a pervasive affective attunement" (p. 97)—what Boler (1997) called "engendered attunements" (p. 224). Bartky analyzed the emotion of shame along with gender as it arises in a classroom context where she noticed that when handing in papers, her mature female students' demeanour and words consistently expressed shame over their work. Bartky wrote: "My students felt inadequate without really believing themselves to be inadequate in the salient respects: they sense something inferior about themselves without believing themselves to be generally inferior at all" (p. 93). Bartky concluded that the feelings of "women's shame . . . do not reach a state of clarity we can dignify as

belief. [Nonetheless] they are profoundly disclosive of women's "Being-in-the-world"

(p. 95). She explained that shame is

> far more . . . [disclosive] than many of the fully formed beliefs women
> hold . . . such as . . . that they enjoy like men "equality of opportunity" or that the
> school or workplace is meritocratic in character. What gets grasped in the having
> of such feelings . . . [is] nothing less than women's subordinate status in a
> hierarchy of gender, their situation *not in ideology but in the social formation as it is*
> *actually constituted* [emphasis added]. (p. 95)

Impostor feelings can be seen to be formed collaboratively in much the same way

as women's feelings of bitterness. Campbell's (1994, 1997) study of how bitterness is

collaboratively formed is helpful for understanding the ways in which impostor

feelings emerge from a dynamic coupling of self and environment. Impostor feelings

are usually viewed as undesirable emotions that should be avoided, a point that

Campbell (1994) made about bitterness. She stated that recent feminist philosophical

analyses of bitterness have reclaimed bitterness as a "legitimate and rational" response

to injustice or oppression. Cultural/interactionist views of the imposter phenomenon

reinterpret impostor feelings in the same way, as an emotional response to shared

learned behaviors of a culture. The cultural/interactionist conception of the impostor

phenomenon can be criticized on the same grounds that Campbell critiqued the recent

feminist reclaiming of bitterness. It appeals to the "language of rationality" (Campbell,

1994, p. 49) to argue that the person experiencing impostor feelings has legitimate and

rational reasons for her feelings, thus thrusting the "burden of justification" onto the

bitter individual:

> It's not that you knew you felt bitter, and then happened to decide to express it.
> Rather, you expressed your anger and then were told, "You're just bitter." Once
> accused of bitterness, you must justify your reasons. Further, she argues, to be

> told "you're bitter" is a dismissal and a silencing. Even if you then articulate your reasons for being bitter, the other is no longer listening. If, instead, we recognize that bitterness is collaboratively and publicly formed, it does not make sense to require the bitter individual to justify her reasons. Rather, what is called for is a *full social accountability on everyone's part for the interpretive context*. (Boler, 1999, p. 14)

Impostor feelings, like bitterness, are "publicly formed rather than privately formed before being revealed to others" (Campbell, 1994, p. 48).

According to my conception, impostor feelings are emergent properties arising from emergent processes of a network of interrelationships of faculty, students, staff, and administration. My hypothesis is that these emergent processes include: aggressive competitiveness, scholarly isolation, lack of mentoring, and valuing product over process. The emergent processes involved in the impostor phenomenon occur in networks whose coupled elements have nonlinear interactions (E. Thompson, 2007, p. 419). One difference between systems that have emergent processes and ones that do not is the presence of nonlinear interactions (Campbell & Bickhard, 2002; E. Thompson, 2007). Linear interactions are "additive or proportional" and linear processes produce only "resultants" (E. Thompson, 2007, p. 419). In contrast, nonlinear interactions are "nonadditive or nonproportional" and nonlinear processes generate "emergents" rather than "resultants" (E. Thompson, 2007, p. 419).

The emergent processes of aggressive competitiveness, scholarly isolation, lack of mentoring, and valuing product over process give rise to impostor feelings through a process of collaboration, in much the same way that bitterness is collaboratively formed. The collaborative formation of the fear of being out as a fraud involves "a certain mode of expression . . . with a certain mode of response" (Campbell, 1994, p. 48). In the case

of bitterness the expression is a "recounting of injury" and the mode of response is

"failure to listen" (Campbell, 1994, p. 48). Nonlinearity arises from "positive and

negative feedback relationships . . . [that] bring about patterns of behaviour, which can

be described as constrained alternatives in the space of all possible global states of the

system" (E. Thompson, 2007, p. 419):

> Bitterness seems to be a particular mode of expression the recounting of
> incidents of injury—only in a certain context of interpretation—one in which
> people no longer care to listen. Both the mode of expression and the failure of
> uptake combine to form bitterness. We do not typically call people holding
> bombs bitter. They are expressing their anger so forcefully that we cannot afford
> not to give them our attention. Further, people whose anger receives uptake are
> not, on that occasion at least, bitter. They are, instead, angry or even righteous
> (Campbell, 1994, p. 48).

> Campbell (1994) concluded that "it is . . . not easy to define bitterness apart from

the public conditions of its formation: the performance of actions received in a

particular way" (p. 48).

2.3 Impostor Phenomenon As a *Dynamic Habitus Signature*

Based on the above dynamic co-emergent explanatory framework, I understand

the impostor phenomenon as a kind of ecologically specific "dynamic habitus

signature."(I have explained what I mean by "dynamic" in the section "Dewey's

Dynamic Co-emergence Approach" in Chapter 3 of this dissertation. In that section, I

explained the features of the "dynamical hypothesis" (van Gelder, 1995, 1998, 1999; van

Gelder & Port, 1995). I use the concept of *habitus* to extend current understandings of

the impostor phenomenon beyond *cultural* accounts. I see the impostor phenomenon as

a codynamic *signature* emerging from a *habitus*, rather than as a property of a culture or

a process of internalization and shared learned behaviors. Imposter feelings arise from

emergent processes of an ecologically specific *habitus* that

> . . . carries within it the normative meanings, customs, expectations, assumptions, values, prohibitions, and permissions . . . into which members of a society are nurtured from childhood, which they . . . affirm, or contest and refuse, as they make sense of their place, options, possibilities and prohibitions, risks and responsibilities in a social and physical world. (Code, 2006, p. 245)

Understanding the impostor phenomenon as a *dynamic habitus signature* means

that impostor feelings are neither an indication of the cognitive beliefs of faculty and

graduate students, nor a sign of an inner emotional response to an outer culture or set

of shared learned behaviors. Rather, impostor feelings indicate something about the

emergent processes generated by the "collective behaviors of large ensembles, in which

positive and negative feedback interactions give rise to nonproportional (or nonlinear)

consequence" (Thompson & Varela, 2001, p. 419). As per my explanatory framework

above, in the context of higher education the "large ensemble" refers to the regularly

interacting or interdependent group of faculty, students, staff, and administration

forming the nonlinear, dynamic, and complex system that is higher education. In the

case of the graduate student experience, emergent processes shape the graduate student

way of "being-in-the world." Impostor feelings indicate something about a *habitus*, "the

place in which one is" (Gelven, 1989, p. 57), a way of "being-in the-world"—a

characteristic of "the being which I myself always am . . . stay[ing] near . . . the world as

something familiar in such and such a way" (Heidegger, 1962/1996, p. 51).

Furthermore, the concept of *habitus* indicates *dynamic habit formation* in the

emergence of the impostor phenomenon. This focus on "habits" presupposes that the

relationship of a person and her environment is a unitary structure or dynamic

coupling, a lived-body-environment. The term *culture* understands habits narrowly as

shared learned behaviors common to a group of people, thus concealing

> the organic relationship between subject and world, the active transcendence of
> consciousness, the momentum which carries it into a thing and into a world by
> means of its organs and instruments . . . [A] system of motor or perceptual
> powers, our body is not an object for an "I think," it is a grouping of lived-
> through meanings which moves towards it equilibrium. (Merleau-Ponty,
> 1945/1962, pp. 152–153)

The impostor phenomenon understood as a *dynamic habitus signature*,

reconfigures current measurement tools and treatment methods. Assessing the

impostor phenomenon is no longer about measuring the extent to which subjects have

an internal experience of intellectual phoniness or the extent to which impostor feelings

are properties of cultures or shared learned behaviors. Instead, an ecologically specific

habitus is indicative of the impostor phenomenon, such as higher education in North

America.

First-hand accounts of the graduate student experience clearly describe a *habitus*

that suggests four main emergent processes, *dynamic habit formations,* that give rise to

impostor feelings: aggressive competitiveness, scholarly isolation, lack of mentoring,

and valuing product over process. These first-hand reports suggest a comparison of the

culture of higher education with "Survivor" (n.d.), the popular reality television game

show. In "Survivor," players are stranded in a remote location, divided into teams

called "tribes," and compete against each other in "reward challenges" and "immunity

challenges"; both types of challenge require endurance, problem solving, teamwork,

dexterity, and will power. After each immunity challenge the losing tribe must vote to

remove one of its members from the game until the few players left merge into a single tribe. Challenges are then won on an individual basis until only one individual remains. These first-hand reports consistently break the rule that states "if you can't say anything nice, don't say anything at all" and confirm Willa Cather's (as cited in Taylor & Holberg, 1999) observation that "[t]here are only two or three human stories, and they go on repeating themselves as fiercely as if they had never happened before" (p. 609).

Graduate students' stories support the "Survivor" (n.d.) comparison. Their stories emphasized "uncertainty, self-doubt, insecurity, personal embarrassment, feelings of isolation . . . hopelessness . . . and ebbs and flows in . . . [their] confidence in [their] own academic potential" (Nyquist et al., 1999, p. 19). Their accounts describe an experience of exploitation, loss of identity, poor academic self-concept, worthlessness, and generalized lack of confidence, (see Anderson & Swazey, 1998; B. A. Kerlin, 1998; S. P. Kerlin, 1995; Nyquist et al., 1999; Taylor & Holberg, 1999; Ülkü-Steiner et al., 2000; Weiland, 1998).

As if living in isolation, aggressive competitiveness, and a constant fear of being "voted off the island" at any moment were not enough, research shows that attending graduate school damages physical and mental health, causes stress, and results in diminished or dysfunctional communication patterns in relationships, both in and out of academe (B. A. Kerlin, 1998). A particularly strong theme emerging from graduate students' "tales of neglect and sadism" (Taylor & Holberg, 1999) is the deep-seated fear of being found out as a fraud.

A study (Nyquist et al., 1999) of the experience of 99 American graduate students completing MAs and PhDs at three institutions also described a *habitus* that suggests four main emergent processes, *dynamic habit formations* that give rise to impostor feelings: aggressive competitiveness, scholarly isolation, lack of mentoring, and valuing product over process. After four years into the study, researchers were left with 68 participants. They were asked to fill out questionnaires, surveys, and to be interviewed about their experience of being in grad school. Midway through this four year study they were asked to draw pictures reflecting their experiences and then write an interpretation of their drawing. The participants were left alone in a room for 10 minutes with a sheet of paper and a pencil. The researchers wrote the following about the sketches: "Whatever we remembered from our own experiences, whatever we thought we knew then was wrong with the system, we were not prepared for the threatening cliffs, precipices, chasms, impossible passages, and the like revealed in their drawings" (Nyquist et al., 1999, p. 18). Below are four telling sketches drawn by Bruce, Jerry, Susan, and Tom. The researchers published only Bruce's interpretation of his drawing, which I quote below. These poignant sketches depict first-hand experiences of the emergent processes that generate impostor feelings: aggressive competitiveness, scholarly isolation, lack of mentoring, and valuing product over process.

Bruce interpreted his sketch in the following way:

This is a symbol of my career, let's say—this little figure thing. Fear and agitation. Apprehension and anxiety here. Because there's this little rickety bridge. Those are spikes. Just fear of entering the doctoral program, fear of the entrance exam, and if I don't do well on it, what that might mean for my future—being afraid my career in music might fizzle out and die. And then it's really scenic, early on. But here's a gnarled tree, and here are some things that are

going to swoop down and attack. And here is this narrow staircase, but luckily there's a handrail—my advisor, friends, support. And then there's a break. It's a very sad thing; this is when I almost lost the TA. But I leapt successfully over it and it continued in this nice little scenic stuff, mountains and trees.

But there are little things lurking in the trees—fears, anxiety, imaginary things, some real. Fear that I'm not good enough, that I don't have the talent to succeed in music, that I'm not a good teacher. . . . Then there's a little bridge (a much better bridge than before), and a little lake and a stream. But then there's fog. And the fog is not knowing if I'm going to get a TA or not—the third year, it was very uncertain: "We'll give it to you if there's a spot."

And now there's this burning desert. But the desert is scenic still; I like it. There is less uncertainty because the road is straighter and flatter, but there are hardships still. . . . I get sunburned. And then you have this winding steep thing that goes up the mountains . . . And then there's the stream again . . . maybe it's the same stream, I don't know. And then there's a better bridge—this is the best bridge yet over the stream (graduation?). But then it all goes into a hole. I guess the hole is just fear that . . . a career in music is just impossible now. And they're getting more impossible, cuts in funding in general for music, classical music especially, and especially being a composer. So . . . everything swirls away into a black hole. I could have been a physics major . . . I never choose my career based on money, but maybe I should have. (Nyquist et al., 1999, pp. 21, 23).

Jerry's sketch depicts a distressing graduate school experience. It shows him swimming through "rough waters" in a "valley of uncertainty." Notice that the "mountains of correct direction" are far in the background and separate from the landscape of his direct graduate student experience. The timeline of his graduate years is along the bottom of the sketch. The first year is symbolized by him entering the "swamplands." The rays of sunshine that manage to get through to him come from outside of graduate school, from doing "consulting" and "volunteering."

Susan's sketch depicts her on one side of a chasm with "academe" on the other side. Although she is carrying a box of "tools," "books," "exams," and the

"dissertation" hang like ropes for her to use to cross, but ropes that hang over what

appears to be a deep, wide chasm between where she is and where she wants to be.

Tom's sketch depicts a frightening experience. Tom is climbing the face of a very,

steep cliff, at almost a 45-degree angle. He is climbing with a "thin rope because that's

all grant could afford." Rocks are being thrown at him by two committee members.

"Lake Master's of Science with job" is far beneath him on the ground.

The researchers (Nyquist et al., 1999) found three common themes emerging

from graduate students' stories: "the tensions that graduate students experience in

adapting to the values in higher education; the mixed (or ambiguous) messages they

receive about priorities in the academy; and the pleas for support—implicit and

explicit" (Nyquist et al., 1999, p. 20). I briefly discuss these findings and list some of the

first-person accounts below respectively according to each of three themes.

One theme that emerged from the study was the difficulty participants had

adapting to the values of academia (Nyquist et al., 1999, pp. 20–23). The researchers

found that graduate students resolved this tension in two ways. First, "by developing a

coherent understanding of academic culture." Second, "they often engage in an intense

struggle to sort how those values and expectations align with their own" (Nyquist et al.,

1999, p. 20). For example, Edward (Math) described his adjustment as fairly easy in his

personal journey summary as

> . . . gradually moving toward getting lost in the graduate school experience,
> questioning your competence, trying to prove yourself, and forgetting about
> everything else," His first year he put in 14 hours a day, teaching and
> researching. But after he finished his exams (after he was no longer "on the daily
> proving grounds with these people"), he realized that he could do perfectly good
> work in a reasonable amount of time. He realized that he had lost perspective

and had forgotten about other things he likes to do. Now, Edward says, "it's just a few little things, as opposed to this dark band of awfulness that happens." (Nyquist et al., 1999, p. 20)

In contrast, Brad (Business) described his experience as entailing disillusionment and setting aside many of his own values and goals. Brad's story, one of "inherent passion and joy in discovering more about one's field and sharing it with others are replaced with resignation and disappointment" (Nyquist et al., 1999, p. 20). The researchers explained that "still other graduate students experience the academy as amoral or even vicious; the hapless graduate student in a perceived struggle for survival can experience terrifying and disabling tensions" (Nyquist et al., 1999, p. 21). For example, like Bruce's (Music) drawing above, Jeff (Math) story revealed depression, anxiety and fear:

> Personally, graduate school has taken its toll on me, just as it has many of the people I know in the department. I, as well as some of my friends, have entered counseling due to depression and a feeling of isolation from "normal life." I've also experienced stomach problems related to the psychological ones. The PhD has always been a goal, but the price is steep. The university and my department seem to think we grad students can function [like] machines. Inevitably, many of the people get driven down so far as to leave. It gets depressing at times. (Nyquist et al., 1999, p. 21)

A second theme that emerged from the study was confusion about various mixed messages (Nyquist et al., 1999, pp. 23–24). The researchers explained that the "most contradictory or ambiguous messages concern the relative value of the teaching and research dimensions of academic life . . . " (Nyquist et al., 1999, p. 23).

> Our participants report that there seems to be a "secret model" of graduate education with implicit norms and rules that may differ from the explicit messages they receive. As our participants battle to negotiate balance in their lives—between teaching and research responsibilities, between personal and professional life, between academic and civic commitments—the various voices

of authority within the academy (advisors, faculty members, department chairs, and senior institutional leaders) are expressing divergent ideas about what constitutes balance and success. (Nyquist et al., 1999, p. 23)

A third theme that emerged from the study was the need for more support that they perceive themselves to be getting (Nyquist et al., 1999, pp. 24-25). One of the participants, Nelson (Chemistry), commented:

> If you want to "breed" [a graduate student to be] an excellent teacher, how do you do it? I think we would have to pay a lot more attention to spending time talking about how to teach. I think the idea of a mentor is important, too. I have not taught for the same professor twice. If you were in an apprenticeship as a carpenter, you [wouldn't] work for 12 different people. Same with becoming a research chemist; I have one supervisor who teaches me what she knows. I've never taught for anybody more than 10 weeks, so no, you don't learn anything from that person other than the occasional tidbit. In chemistry, you know that in a quarter, I can teach you the basic book learning you'll need for anything; but if you want do it, that's going to take five years of real training. And we don't have centuries of tradition backing five-year apprenticeships in teaching. We don't know how to do that. (Nyquist et al., 1999, p. 25)

An underlying issue that emerged from the study was "how few of them [graduate student participants] exhibited a sense of what life in the academy as a teaching scholar and faculty member is like" (Nyquist et al., 1999, p. 25). For example, Michael's (Music) comments on this topic:

> I don't have any idea. At this point, I don't know. I have no idea. Beats me. I have no idea what it's like to be a faculty member. And I thought being a grad student might give me some idea, and it doesn't. I don't have any real power, and I don't have any real understanding of anything that goes on. I guess it's about playing the game and making sure everyone likes you until you get tenure; then you can alienate everybody. I don't even know how that works, I mean, what it's really like. I don't know anything. I feel like I should, but I don't.

The findings from workshops that I have given on the impostor phenomenon also support the view that impostor feelings arise from emergent processes or *dynamic habit formations* of aggressive competitiveness, scholarly isolation, lack of mentoring,

and valuing product over process. I have been giving workshops on the phenomenon to graduate students and faculty for over a decade at universities around North America. This workshop, as it evolves, serves the dual process of enlightening and reassuring participants, and furthering my own research on and understanding of the phenomenon.

In the privacy of the workshop setting, graduate students and faculty in consistently high numbers have openly reported the belief that their academic accomplishments came about not through genuine ability, but as a result of luck or having manipulated other people's impressions. They have admitted to being fearful of not being able to maintain their success (of which they do not feel deserving), to overpreparing or procrastinating, and being plagued by the fear that their dissertation supervisors, committees, colleagues, and students will discover that they are phonies.

My conception of the impostor phenomenon emerged, in part, from the process of facilitating these workshops. As my thinking evolved, my workshops evolved. Also, the interrelationships of the workshops informed and changed my conception of the phenomenon. An exciting, eye-opening event occurred two years into my time giving these workshops. Up to this point I had presenting the phenomenon as an intrapersonal/individual or interpersonal/social phenomenon. At one my workshops, a graduate student put up their hand and said, "Wait a minute. This can't all be about me. What role does my supervisor and my department chair play in my impostor feelings?" Seconds after this question, discussion exploded from all parts of the room. It was at this moment, that I put participants into groups of four to six people, pulled out

large flip charts, handed out coloured markers, and asked participants to answer four

central questions in point form:

1. How do or might impostor feelings express themselves in your teaching?

2. How do or might impostor feelings express themselves in your learning?

3. How do or might impostor feelings express themselves in your professional
   development?

4. How do or might habits, values, and behaviors in the culture of higher
   education contribute to the formation of your impostor feelings?

I saved many of the flip charts over the years and after about nine years I

transcribed the statements.

The data collected from these workshops painted a very different picture of the

impostor phenomenon from current explanations. The flip chart accounts suggested

that the impostor phenomenon is not an individual, private, psychological trait or

syndrome, but rather is fostered by the shared and learned values, habits, and

behaviours of higher education. Indeed, the finding that arose from the collaborative

learning experience of these workshops was that impostor feelings are less about an

individual's private, personal feelings and are more plausibly collaboratively-formed

emotions that can be seen to emerge from shared, learned, values, habits, and

behaviours of aggressive competitiveness, isolation, lack of mentoring, and the valuing

of product over process. The flip chart accounts from workshop participants in

response to Questions 1 through 4 are below.

These are the statements made in answer to Question 1: "How do or might

impostor feelings express themselves in your teaching?"

Lack of confidence—affects performance; hesitancy

Overplanning

Self-doubt, e.g., presenting articles and double-checking

Unpreparedness

Upper level undergrads will expose you

Students expect you to be an expert

Transfer frustration to others

Feel as if students know more

Overpreparation

Feel as if students get the impression that you are unprepared

Culture of competitiveness among students

30 hours prep for 1-hour lecture

Procrastination

One bad comment/feedback is the end of the world

Fear of not marking properly

Afraid to admit we don't know everything—hinder discussions

Feeling of incompetence

Do not have enough confidence to teach

Fear of admitting knowledge gaps

Fear of answering questions

Keeps you inhibited

Concerns doubled/tripled if teaching unfamiliar area

Overplan

Anxiety

Focus on negative

Strive for perfection

Tendency to over prepare, translates to higher expectations on students

How well your encouraging the students learning experience

Facilitating process according to developmental level

Feeling unqualified to evaluate work

Fortunately or unfortunately, image is indicative of ability

Tendency to keep conversations limited to what you know

Change the topic or avoid it

Possibility that you are teaching incorrectly and students will fail

Fear of being found out by peers or students

Feeling like you need to master the subject completely before you can teach it

Successful performer

Stigma of expertise

Over preparation

Loss of perspective

Self-doubt

Feel unprepared

Incompetent

Afraid to take risks

Anxiety level—high level fear

Comparison to "expert" professor

Being challenged—questions; exposing yourself lack of knowledge

Freezing when asked a question

Over preparing

Under preparing

Low confidence while teaching

Fear of being found out

I have a fear that students will find out that I'm only doing the same readings that they're doing (i.e., when teaching in a faculty/discipline that is not one's background)

Fear that I know less than they do

I'm afraid of letting the students down

Supportive of students (empathy); perhaps over supportive—afraid we come across as too much

We over prepare

I'm not really qualified

Fear the learners ask something we won't know

Over preparing

Anxiety/panic

Stage fright

Lack of confidence

Fears—cultural, gender, age, group, skills

Unable to answer questions

Control of discussion (tighter boundaries)

Language barriers

Finishing students questions

Can I be teaching what I am teaching?

Stage fright

Fear that I don't know enough

Fear of not getting future employment

Fear that people think "what are you doing here?"

Fear that students will feel ripped off

Group dynamics—ineffective pedagogy even when we know what we are

    talking about

Over prepare—lesson plans and too many photocopies

Procrastinate

Anxiety

Seek feedback

Increased self-induced, needless stress

Procrastination

Over prepare/under prepare

Sabotage self

Feeling that it's not ok to say "I don't know"

Not confident in class

Impose unrealistic values on students based on your own feelings of being an

  imposter

Results in unfair marking

Never feeling ready

Fear of assessment by students

Prevents development of teaching strategies/approaches

Problems balancing work load

Lecturing style (e.g., reading or hiding behind content)

Body language (no eye contact, hiding behind podium)

Unidirectional flow from expert to student

Performance anxiety and fear of evaluation—insecurity

Thinking about students needs above your own

Expectation that you know everything

Avoiding answering questions

Hostility/reluctance to answer questions

Lack of confidence in material

Avoid teaching certain subjects

Feelings of isolation

Fear of not meeting students' expectations

Procrastination

overprep

These are the statements made in answer to Question 2: "How do or might impostor feelings express themselves in your learning?"

Perfectionism

Afraid to ask questions

Afraid to state opinions

Begin to hate your work/discipline

Do not ask for assistance

Excessive photocopying and buying books that you may not need

Balancing professional and student life (as a PhD student)

Finding a rhythm in the totality of learning or the learning experience

Not asking question

Not contributing in discussions

Isolation within discipline

Hiding from question-asking profs

Avoiding committee meetings

Alienation

What will others think?

"A" is for acceptable

Fear of asking "obvious" questions

Compulsion to name drop

Over reading

Pay too much attention to details

Having unrealistic goals

Compare yourself to others

Lack of confidence/focus

Fear of not meeting personal objectives

Over preparing

Not able to relax effectively

Procrastination

No ability to prioritize

Fear of evaluation—not open to it—inhibits learning

Performance anxiety

Never satisfied with what you learn

Anxiety

Interdisciplinary research—so much research to know; overwhelming

Fear questions at presentations/classes

Individualistic learning culture

Fear of not having read enough

Not taking risks—staying in narrow research area that feels safe

Not asking questions

Not participating in discussions—don't enjoy learning

Quantity of work load

What to learn or unlearn—internalizing norms of the culture

PhD—a title? A burden? And end? A means to an end? Nonsense?

Hesitant to ask questions and admit not knowing

Self-doubt, re: paper writing, which reinforces nonconfidence

Overplan/procrastination tensions

Intimidated by higher education

Hesitant to use materials that are too simple

Unreasonable high expectations

Isolation

Fear of failure

Make rules for oneself to have a sense of control over impostor feelings

Give up things you like doing

Feels like you are the only one feeling this way

Focus on grade (A+)

Parroting the prof

External feedback

Doubting research

De-evaluating your own work

No direction home

Only originality counts

Afraid of asking stupid questions

Feeling guilty about falling behind

Use words that I don't really understand

You are never done

Don't speak up in class

You have to read more

Procrastinating

Learning becomes a chore

Never 100% satisfied

Avoidance; all or nothing

Fear and procrastination

Not knowing where to begin

Overworking

Unhealthy behavior

Pressure to stay one step ahead of students

Can't learn enough; others always one step ahead

Being underprepared for tests

Participation

Don't like asking questions in class

Doing research—over preparing—not strategic—not using basic sources

Reluctance to ask questions

Giving up too much to learn

Skimming materials instead of reading thoroughly

Feeling like you'll never be good enough to get where you want

Feeling like you don't belong in your field, don't deserve to be there

I feel like I need to give my first-year students nonscience students (in a science

    course) much more than content. I need to give them context. How do I

    decide what they should learn. If I'm not good enough?

How deep should I go when giving knowledge about particular topics to a

    particular level of students?

Buy lots, lots of books

Don't contribute as much to discussions

If get answer wrong others may think I don't know enough

Refrain from asking questions because it will expose certain lack of knowledge

Getting onto tangents which takes me off topic and flow to learning issue at hand

Falling asleep at important, important readings (withdrawal/defence

    mechanism)

Zoning out lack of focus

Overwhelm, freezing

Overpreparing

Too much work

Frustrations

Miss the point

Not willing to take risks

Language

It can hinder you because you are obsessing over what you don't know rather

   than focusing on what you do know

I don't always know where to draw the line in my research

I feel intimidated when colleagues and fellow students sound smarter than me,

   have it all together, have earned their position in the program, etc.

Unnecessary stress before a project is started

It takes me longer to finish (keep second guessing your work)

End up spending too much time on a task (therefore not an efficient use of time)

Stress over rituals like procrastinating before a deadline

Postponing comps

Rewriting papers again and again and again and again

Overpreparing to compensate

Feeling like I was "cheating" because I knew how to write and was getting good

   marks

Fear of inadequacy can lead to freezing and feeling overwhelmed

Paralysis in face of "higher power"/authority

Fear of completing comprehensive exams—we'll never know enough

Anxiety

Unsatisfied with assignments

Fear of original ideas (over cite)

Not afraid to look stupid, because know it is the case

Disconnect with assignment/writing products

Performance vs. risk taking

Discouragement from the outset—expectations are so high that they are

crippling

Become compartmentalized by feeling you need to read and study everything in

one subdiscipline or specialization

Constantly being graded

These are the statements made in answer to the Question 3: "How do or might impostor

feelings express themselves in your professional development?"

You have to publish more

Performance anxiety

Reduced applications for career opportunities

Overworking (feel like you have to go to everything)

Not applying for grants/awards

Not applying for good opportunities

Limiting publications

Inhibiting networks/professional connections

Avoiding advisors

Feeling like you are producing substandard work

Submitting work to low impact factor journals/low attendance conference

Not taking risks

Feeling less competent than your coworkers

anxiety

Reception of criticism—can be paralyzing

Catastrophizing

Over prep for conference papers (endless hours for a 15 minute talk)

Lack of ability to externalize criticism

Over preparing and impact on time use

Creating impossible situations for yourself

Worry about ability to work in a new place

Not applying for scholarships

Not going to conferences

Feeling like you stand out

Afraid to participate (e.g., in conferences)

Health and hobbies become add-ons or secondary

Fear to submit papers

Hold back career advancement

Self-exclusion from promotions

Inhibits critiquing work of others

Don't apply for more challenging jobs

Denial of needing to upgrade skills

Won't ask for a raise

Unqualified

Competitiveness

Afraid to start

Fear of spontaneous questions at presentations

Intimidated by supervisors and profs

Not finishing program

Fear of publishing and putting yourself out there

Fear of new things

Afraid of not being hired

Afraid to contribute

Doubts about our abilities

Afraid of whether you can accomplish the task

Afraid of not belonging

Afraid of criticisms

Afraid of failing

Hiding at conferences

Reluctant to speak to supervisor (guilt)

Avoidance behavior

Massive writer's block—academic papers

Finding comfortable smaller conferences where I fit in

Don't want undue stress of presenting papers

Pressure that accomplished people have published in journals; how can one

    compete?

Taking on too much

Overworking

Feelings of incompetence

Inability to ask for help

Fears presenting papers

Choose friendly conferences

Barriers with colleagues

Limits research

Competitiveness among colleagues

Problems balancing between personal/professional life

Affects personal relationships

Refusing to submit funding apps

Turning down opportunities

Not applying for jobs

Reluctance to give papers/fear of questions

Fear of getting "scooped"

Not sleeping

Avoidance of conferences

Fear of projecting an image with nothing behind it

Over estimate others—under estimate self

Acceptance (or lack of) at being right/correct

Wanting to be good at everything

High standards for self—especially after recognition

Fear to contribute

Fear haven't contributed enough

Don't seek opportunities to present to peers and belittle praise

Feel underqualified for "real job"

Seek courses for skill development

Hesitant to mentor others

Reluctant to praise self in job cover letters etc.

May avoid risk in career development, stick to known jobs

Don't take risks

Perfectionism

Unrealistic expectations of yourself and others

Constant evaluation is crippling

Never feeling ready

Don't even try applying for program funding

Procrastination

15 year PhD/fear of moving on

Inability to integrate teaching and learning into process

Failure to keep perspective

Stuck in a rut/fear of not being able to maintain success

These are the statements made in answer to Question 4: "How do or might habits, values and behaviors in the culture of higher education contribute to the formation of your impostor feelings?"

Lack of recognition for accomplishments from supervisors and profs

Lack of interaction with supervisor and classmates (isolation)

Faculty maintains hierarchy to maintain status

Administratively structured to produce competition (i.e. funding, applying to

programs)

Move to corporate funding and how this affects funding for certain programs

Social categories

Discouragement of interdisciplinary studies

Expectations on level of knowledge on part of faculty

Students not ready for university; no transition facilitated from high school

Lack of feedback/support with regard to work

University is much larger than high school, many more are also at a high school

level, you're not the best anymore

Taught to regurgitate other's knowledge instead of how to think for ourselves

Competitive culture (grades, awards, prestige, hierarchies)

Subjectivity vs. objectivity; made to feel wrong

Law school aggressively competitive from day one

No mentors

No networking, collegiality

Economics of system—get you out quick

Lack of funding forces you to leave

These workshop findings suggest emergent processes of aggressive

competitiveness, scholarly isolation, lack of mentoring, and valuing product over

process arising from interrelationships between graduate students and faculty and others in the dynamic network of higher education give rise to impostor feelings. One way of interpreting this finding is that impostor feelings arise through a process of collaboration emerging from the nonlinear dynamics of this network of interrelationships. Further empirical research, including focus group work, needs to be done to collect data to confirm my hypothesis about the four emergent processes.

On this enactive model, impostor feelings cannot be seen as caused by linear interactions, but rather by "circular or reciprocal causality," also called "downward causation" (E. Thompson, 2007, pp. 424-427; Thompson & Varela, 2001, pp. 419-421). A central feature of founding a conception of the impostor phenomenon on circular causality is the idea that reciprocality defines impostor feelings. The idea of reciprocality points to the ways in which impostor feelings are collaboratively formed.

The collective behaviors of any nonlinear, dynamic system are constantly self-organizing through "positive and negative feedback interactions." The feedback is information understood by enactive theorists "in the sense of *informare*, to form within (Varela, 1979, p. 266, as quoted in E. Thompson, 2007, p. 57). A nonlinear, dynamic system "becomes informed by virtue of the meaning formation in which it participates, and this meaning formation depends on the way its endogenous dynamics specifies things that make a difference to it" (E. Thompson, 2007, p. 57; Kelso & Kay, 1987; Turvey & Shaw, 1999). The meanings of higher education's states are "formed within (*informare*) the context of the system's dynamics and structural coupling" (E. Thompson, 2007, p. 59).

Emergence through self-organization has two directions (Thompson & Varela, 2001). First, there is local-to-global determination or "upward causation," as a result of which novel processes emerge that have their own features, lifetimes, and domains of interaction. Second, there is global-to-local determination, often called "downward causation," whereby global characteristics of a system govern or constrain local interactions (Thompson & Varela, 2001, p. 419).

This is reflected in the research about the graduate student experience that I discuss above and my workshop findings. What complex system theorists mean by circular causality is that "global patterns both arise from local interactions and govern or constrain those interactions" (E. Thompson, 2007, p. 424). E. Thompson (2007) explained:

> In synergetics, a branch of complex systems theory, a vivid but unappealing metaphor is used to describe this global-to-local influence. The global, collective-variable dynamics is said to influence local behaviour by "enslaving" the network elements into a particular dynamic regime. (E. Thompson, 2007, p. 424; see also Haken, 1983)

Downward causation is the "determinative influence that the relatedness of the system's components has on their behavior" (E. Thompson, 2007, p. 428). Campbell (1994), building on Marilyn Frye's (1983) concept of "social uptake," helps us to understand the ways that emotions, such as impostor feelings, are "blocked," "dismissed," or "concealed." This determinative influence is not compatible with determinism, but rather is due to the kind of "relatedness" of the system's components, a *relational holism* involving "nonseparability" or "entanglement" that takes "energies" not "forces" as fundamental (E. Thompson, 2007, p. 429). In this model, impostor

feelings point to sources with greater power to enforce culturally condoned habits of inattention. "'Social uptake' is defined as necessary to the success of emotions" (Campbell, 1994, p. 480). Social uptake can be illustrated by this example of a woman who becomes angry watching her mechanic alter and ruin the successful adjustment she herself had made to her carburetor. When she then expresses her anger he calls her a "crazy bitch" and changes the subject. Not only does he refuse to "uptake" her anger, but he displaces it and depicts her as crazy. Her emotional expression is successfully "blocked" through this social interaction. In sum, Campbell explained emotions are not idiosyncratic or an individualized phenomena, but are collaboratively formed through "social uptake" and "blocking."

The "relational holism" (E. Thompson, 2007, pp. 427-431) of the impostor phenomenon carries within it "inscribed habits of inattention" (Boler, 1997, 1998, 1999, 2004a, 2004b). These sites of social control, as Boler described them, suggest the reciprocal ways in which impostor feelings are collaboratively formed. Given that impostor feelings are lived relations of power manifest in terms of emotions and structures of feeling, where "structure" is understand in dynamic enactive terms, then the impostor phenomenon can be seen as a form of bodily, spontaneous coping. Impostor phenomenon research needs to study specific concrete contexts and lived experiences. An enactive view of impostor feelings does not view impostor feelings as socially constructed in the context of interpersonal relationships. It understands emotions in their full social and political context not merely as expressions of a social setting, but as public, intersubjective, dynamic co-emergence or codetermination; as the

"cognition and affectively charged experience of self and other" (E. Thompson, 2005, p. 408).

2.4 Concluding Remarks

Understanding the impostor phenomenon as a *dynamic habitus signature* reconfigures ways of measuring and treating the phenomenon. Measuring the phenomenon becomes about identifying and exploring the emergent processes that give rise to impostor feelings in higher education: aggressive competitiveness, scholarly isolation, lack of mentoring, and valuing product over process. Responding to the impostor phenomenon involves *Practising against* these emergent processes. To achieve this faculty, students, and staff will need to become engaged in producing a viable habitus, will need to be "prepared to take on the burdens and blessings of place, identity, materiality, and history, and to work within the locational possibilities and limitations, found and made, of human cognitive-corporeal lives" (Code, 2006, p. 5).

Practising against emergent processes means literally beginning the long-term process of changing emotional habits, values, and practices. The best place to begin is by introducing small practices that oppose these emergent processes; for example, introducing mentoring practices and teaching against aggressive competitiveness.

Practising against these emergent processes will affect and change teaching and learning; how we experience our identities as instructors, learners, administration, and staff; development and circulation of ideas; the model of scholarly community; what counts as service to an institution; institutional structures; the routines founded on academic assumptions and processes; structuring of academic work; graduate training;

formation of values and habits; modes of scholarship; kinds of academic work; and

scholarly communication across disciplinary lines and divergent methods of analysis

(Damrosch, 1995).

CONCLUSION

❧

WHY TEACHING AND LEARNING AREN'T IN THE HEAD

This thesis attempted to show the importance of a broad enactive approach in education. Much work remains to be done, but Part I traces a path from the foundations, origins and history of enactive philosophy to Part II, a sketch of a broad enactive perspective that has the potential to challenge, reframe and reconfigure problems, issues and practices in education in ways that improve teaching, learning and research communities.

This thesis established that a broad enactive approach is grounded in an understanding of embodied mind, dynamic co-emergence, and human experience. At stake in a narrow account that focuses on only one or two enactive tenets is the ability to capture *what it is like to be* (Nagel, 1974) a human organism. Chapter 1 provided criteria against which to measure the potential and range of enactive educational theory. The meaning, scope, and promise of enactive education originates in the broad theoretical roots of embodied dynamicism, a cognitive scientific theory of mind; dynamical, nonlinear systems and complexity theory; and two phenomenological traditions of direct experience, continental European philosophy and the Buddhist discipline of mindfulness awareness.

Chapter 2 explained how of a narrow, enactive approach generates a problem-space in educational theory, research, and practice characterized by the inability to account for personal subjectivities or the individual cognizing subject, and to address

central and inevitable issues in education, such as justice, ethical action, or power relations. The narrow, complexity phase of enactive education was shown to be limited by its narrow focus on emergence and dynamic systems (only one of the three foundations of the broad enactive approach), and its lack of consideration for the special importance of embodiment and human experience (the other two theoretical roots of the broad enactive approach).

This thesis showed that the promise of enactive education lies in a well-rounded, broad, enactive theory and practice. Chapter 3 provided a comprehensive example of a broad, enactive educational theory, Dewey's philosophy enactive view of mind, cognition, embodiment, experience, and dynamic co-emergence. It discussed: Dewey's account of perception as embodied action; Dewey's broad enactive theory of cognition and mind; understanding of the meaning of experience and his phenomenological method of examining experience; embodiment thesis with reference to his solution to the mind-body problem; theory of dynamic co-emergence and self-other co-determination. Dewey's broad enactive standpoint of embodiment, experience, action, cognition, and mind can disentangle the problem space of the complexity heritage.

Part II of this thesis showed in a practical context that the knowing and feeling subject cannot be reduced to a cognitive-linguistic self, not in the head or the shared-learned behaviour of a culture, or the head plus a culture, but in a unitary lived-body-environment structure that emerges over time, a history of embodied cognition dynamically coupled with a world.

Chapters 4 and 5 explored the potential of a broad enactive approach to reconfigure educational practices in ways that "are crucial to developing and sustaining habitats and collectivities conducive to enabling people to live well together" (Code, 2006, p. 89). Chapter 4 showed that a broad enactive approach has the potential to reconfigure responsibility, ethics and justice in education. It argued that a broad enactive perspective on embodied cognition, dynamic co-emergence, and human experience contributes to understanding how relations of power and domination are enacted and provides somatic resources that have the potential to develop moral responsibility and enable community building.

Chapter 5 showed that a broad enactive approach to understanding the enactment of impostor feelings in higher education has the potential to reconfigure teaching, learning and research practices. Chapter 5 defined the impostor phenomenon anew as an ecologically specific *dynamic habitus signature,* dynamic co-emergence of one's lived body and the surrounding environment. It hypothesizes that *emergent processes* of aggressive competitiveness, scholarly isolation, lack of mentoring, and valuing of product over process give rise to impostor feelings in the context of higher education.

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