

Second Degree Dialectics: Learning and David Harvey's Dialectics

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Abstract

This thesis argues that our world is based in process. Through acts of learning, we are able to create permanencies to understand these processes. This movement of the creation of permanencies is a dialectical movement explained by David Harvey's theory of dialectics. The dialectical movement that is learning becomes the differentiation between space and time, which allows us to form spaces and times for being in the world. In this way, spatio-temporalities find their genesis in the act of learning. It is important to note that these spatio-temporalities are not indeterminate, but are constrained by causal mechanisms and generative processes that are real (i.e. exist in a way that is not totally dependant on agency). Because of this, learning beings (animals, humans, etc.) create a spatio-temporality for themselves individually. Humans, though, have the added ability to share their spatio-temporalities and their meanings with each other. This aspect of human learning creates an understanding between multiple spatio-temporalities to allow a shared cultural meaning of the world. This cultural act of human learning is a dialectical method engaged with a dialectical world, or, what is called here, second degree dialectics. This allows human learning the opportunity for political action, whereby we can learn and then act collectively in non-violent and emancipatory ways.

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Finally, I would also like to acknowledge Dr. Donovan Plumb for all of the opportunities he has provided me and for introducing me to Dialectics.

Dedication

I would like to dedicate this to my family...

and to my horse. She is a heck of a horse, but a poor dialectician.

Chapter One: Introduction

When I began my Master's degree, I entered a program titled "Adult Education." To be quite honest, I really was not sure where the degree would take me. Originally, I was attracted to ideas expressed in historic Nova Scotian traditions in adult education such as the Antigonish Movement and the Co-operatives, which had helped communities to survive and prosper in difficult times.

As I moved through the program, I investigated many different aspects of the traditional understanding of adult education, as well as many aspects of adult education that are not so traditional. For example, I explored philosophies of learning and human development that are not normally encountered in the discourses that prevail in the field.

Interestingly enough, as I changed and grew, so did the program. In the middle of my degree, the name of the program was changed from "Adult Education" to "Lifelong Learning". The thought behind this was that, often, the term Adult Education referred to adult basic education, skills training and adult literacy. The term Lifelong Learning, the professors in the program argued, better represented the wide variety of issues that the program covered.

Although it remains to be seen if changing the name of the program was a good choice, one thing seems true. The field of lifelong learning represented a much larger field in which I felt I was studying. To get a better handle on what exactly lifelong learning is, some of my fellow students and I began to investigate what happens when we learn. As we explored learning theory, I began to realize that there is a dearth of research in the adult education literature on the nature of learning. In response, I began to expand the scope of my search to investigate notions of learning more broadly. This thesis represents

the results of this broader, cross-disciplinary investigation of the nature of lifelong learning. As I detail in the following pages, I have come to the belief that it is imperative for us to understand learning. It is through learning that human beings are able to make meaning together and engage in meaningful and just action. Learning serves as a powerful generative mechanism that allows us to act socially and culturally. This means that it is through learning processes that communities become possible. As I deepened my study of learning, I began to realize that I was gaining an understanding of the causes of historical phenomena like the Antigonish and cooperative movements. In a round about way, I once again found myself pondering the very things that had originally attracted me to the field.

My goal in this thesis is to address the troublesome and often neglected question of what learning actually is. While it is beyond the scope of a masters thesis to fully address this question, the thesis remains a good context to take first steps towards developing an adequate theory of learning. In particular, it is a good place to explore the implications of recent developments in the social sciences related to learning. I have often lamented that in the adult education literature, learning is rarely considered within broad contexts of research. Adult educators are much more likely to reference each other in the literature than they are to break through the traditional boundaries that define their field and to consider, discuss, and allow themselves to be challenged by new and rapidly developing ideas in other disciplines.

In the following pages, I engage with new ideas that are developing in the social sciences in order to argue that learning is dialectical. I contend that, when learning happens, we create permanencies from processes in the world. Very often, we forget (or

misunderstand) that the world from which we derive these permanencies is always fluid and transforming. If we remember this fluidity, however, we realize the things we learn are not static representations of the world. Instead, the things we learn are representations of a dynamic and ever changing reality. Although I would argue that learning is always a dialectical movement, we have often perceive only the permanencies that this learning generates. When this happens, we fail to appreciate the fluidity of knowledge and learning, and overly reify the meanings that we create through learning.

It is my contention that understanding dialectics and actively engaging a dialectical method opens up a very different view of learning. When we realize that our understandings are fluid and that we are constantly generating new meanings and proceed methodologically in an open and dialectical fashion, we place ourselves in a very different position from which to understand learning. In the following, I call the process of adopting a dialectical method to understand a dialectical phenomena (like learning), as second degree dialectics. The importance of second degree dialectics is that, although we understand that what we learn is changing, we can still use permanencies to share common understandings and meanings. Concerted political action remains possible, even in a fluid and unfolding world. The understandings and meanings we learn together (and establish as permanencies) do not manifest as dogmatic ideologies; rather, they become a body of cultural tools that we can share to co-ordinate action and reach new understandings. Thinking dialectically, in sum, allows us to deepen our understanding of the complexities of learning while at the same time generating possibilities for concrete political action.

The dialectical theory that I use in this thesis is derived primarily from David Harvey's (1996) theory of dialectics. I was attracted to Harvey's theory, because of his clear recognition that the things we learn are not static representations but rely on our ongoing participation in learning processes. Harvey stresses the importance of creating understandings and permanencies as a basis for participating in society in ways that are just. He stresses that, unlike some normative positions on knowledge that reify meanings as static entities, a dialectical understanding of permanencies allows for our dynamic and ongoing participation in the production and reproduction of meaning. Importantly, however, Harvey maintains that the processes from which we create meaning, are not indeterminate. This is a crucial difference from Harvey's dialectical position and a postmodern point of view. The processes of the world, while ever changing, are very real and act as attractors (de Landa, 2002), to what we learn. For instance, while we can create permanencies and meaning about something like the environment, there are real mechanisms that will "attract" us to specific meanings. As Harvey (1996) explains:

Social constructions of space and time are not wrought out of thin air, but shaped out of the various forms of space and time which human beings encounter in their struggle for material survival. ... To say that time and space are social constructs does not deny their ultimate embeddedness in the materiality of the world. (pp. 210-211)

In order to substantiate the different claims I wish to make in this thesis, I articulate my argument in three major stages. In the first stage (Chapter 2), I introduce the concept of dialectics. Dialectics not widely discussed in the field of adult education, and, when it is, discussion is often limited to Continental, and ancient Greek philosophical

traditions. The purpose of this chapter, then, is to provide a general description of what dialectical theory is as well as to offer a more specific overview of the dialectical theory of David Harvey. An important part of this chapter will be to trace the emergence and development of dialectical theory from Hegel, to Marx and, finally, to David Harvey.

With this preliminary account of dialectical theory at hand, the second stage (Chapter 3), investigates the important ways that Harvey's dialectical theory connects with other important and emergent traditions in the sciences and social science. A brief examination of Bohm's notion of the implicate order helps further deepen our understanding of the ontological foundations of Harvey's dialectical theory. A summary examination of the discourses of critical realism helps further broaden and strengthen our understanding of the way dialectical theory can help form the basis of a rigorous theory of learning. The advantage of these discourses is that they help clarify themes and concepts that are often dense and unfamiliar, and that deal with difficult ontological notions such as causal relations, order, and realism. This chapter helps to reveal the full extent of theorizing on dialectics and positions the arguments of this thesis in the larger context of the social sciences.

Finally, in the third stage (Chapter 4), I begin to sketch a dialectical theory of learning. I argue that a dialectical theory of learning can help reveal the differences between the ways animals learn and humans learn (through the use of cultural tools). Expanding on this account, I also argue that, if we use a dialectical method to understand the dialectical process of learning (second degree dialectics), we place ourselves in a position to create contexts that make political action possible. This political action, as part of the project of modernity, has come under great scrutiny (particularly by

postmodernists) as something that can oppress and create injustice. In response to this criticism, I contend that the best example of this form of political action is “non-violence.” Rather than being oppressive, I argue that humans have the ability through dialectical cultural learning processes to create equitable and socially just learning contexts. Learning in a non violent and socially just learning context is an important aspect of learning theory. As Freire (1990) points out, violence does not just act as a one way street, but oppresses the entire learning context.

Chapter Two: Dialectics

In general, dialectical thinking has not played a strong role in the formulation of prevailing theories of learning. Rather than viewing learning in a dynamic and open-ended way, most learning theorists treat it very instrumentally as the acquisition and internalization of knowledge. The purpose of this chapter is to lay the groundwork for theorizing learning very differently as a dialectical movement that generates permanencies in space and time. To help in this task, the chapter draws on social theorist and geographer, David Harvey who, in recent theoretical explorations, has developed an especially rigorous and relevant theory of dialectics. The chapter examines Harvey's work in three steps. First, in order to provide a basic foundation for subsequent chapters, it examines Harvey's basic principles of dialectics which he articulates in *Justice, Nature and the Geography of Difference* (1996). As well, the chapter also examines the linkage that exists between Harvey's dialectical thought and the dialectical theory of his philosophical predecessor, Karl Marx.

Next, to further deepen our understanding of the ways dialectical theory can serve as the basis for a theory of learning, the chapter examines the dialectical theory of Marx's own predecessor, Frederick Hegel. At the same time as Marx was deeply indebted to Hegel's notion of the dialectic, he held that it needed to be changed dramatically from Hegel's idealist conception of the dialectic, to a realist conception. The chapter argues that Marx's reformation of dialectical theory is especially important in this context as the Hegelian dialectic has negative implications for understanding learning.

Finally, the chapter elaborates on two foundational concepts of Harvey's dialectics, process and permanence, in its final section, 'Mooring and Mobilities'. This

heading, borrowed from John Urry (2003), becomes a starting point for examining a range of contributors thinking about the concepts of process and permanencies. A clear understanding of these important concepts, the chapter suggests, is essential for understanding the ways dialectical theory can help underpin a powerful theory of learning.

2.1 David Harvey's Theory of Dialectics

In the opening chapter of *Geography and the Nature of Difference*, David Harvey (1996) recounts the tale of a conference on globalization held at Duke University in the fall of 1994. When the conference became tense and the arguments became hard to follow, Harvey began to find himself intrigued with another group of people staying at his North Carolina Hotel. This group of people, he relates, consisted of families of “remarkably well behaved” (p. 1) children and modestly dressed but very outgoing parents. He followed the people to a conference room, to learn that he had stumbled upon the Southeastern Regional Meeting of Evangelical Pentecostal Preachers. Rather than returning to his own conference, Harvey decided to stay for the evening to take in the proceedings of the Evangelical meeting. Reflecting on his experiences that evening, Harvey relates the following:

The preacher who opened the ceremonies that evening did so with the following invocation. “Through these four days,” he said, “we have come to understand the foundational beliefs that keep us firmly on the rock.”

Foundational beliefs! I wondered what on earth would happen if I started to talk about foundational beliefs in the globalization conference. The deconstructionists would work with icy precision, the relativists would

callously sneer, the critical theorists would rub their hands and say “this simply will not do” and the postmodernists would exclaim “what a dinosaur!” And I myself agree that all foundational beliefs should be scrutinized and questioned (p.2).

This led Harvey to the following reflection:

The task of critical analysis is not, surely, to prove the impossibility of foundational beliefs (or truths), but to find a more plausible and adequate basis for the foundational beliefs that make interpretation and political action meaningful, creative, and possible (p.2).

So what exactly does Harvey mean by this? An excellent example of finding a basis for beliefs that makes action meaningful comes from the method that Harvey himself demonstrates in his book *Spaces of Hope* (2000). In this book, Harvey expands on the work of his French predecessor, Henri Lefebvre (1991). Lefebvre was a geographer who, while trying to understand urban structures, came to realize that the spaces in a city (buildings, parks, streets, etc.) are not fixed and concrete (pun intended), but are entities that are constantly being produced. The idea of the constant production (and reproduction) of entities led Harvey to liken this type of thought to Alfred North Whitehead’s (1922, 1969) process-based philosophy. The problem that arises for Harvey is that, while it is true that everything that we experience can be imagined to be fluxes and flows, we “are in daily practice surrounded by things, institutions, discourses, and even states of mind of such relative permanence and power that it would be foolish not to acknowledge those evident qualities” (p. 8). Indeed, these permanencies are necessary to

understand anything about the fluxes and flows that make up the world. As such, Harvey continues on with Lefebvre's analysis not only to understand the processes which produce urban space, but just as importantly, what processes *should* produce the permanencies (i.e. what processes are socially just, and will create socially just spaces). For Harvey, this kind of exploration is the work of dialectic methodology.

In much the same way Harvey studies urban space, this thesis examines what processes create learning (chapter 4.1), as well as what processes we should employ to create socially just learning environments (chapter 4.3, 4.4). Employing a dialectical method to study learning as a dialectical process help us understand how, as humans, we have the ability to participate in producing emancipatory collective action.

Harvey's main task in *Justice, Nature & the Geography of Difference* (1996) is to develop a dialectical theory of urban development. As he studied cities, Harvey realized that, if we are to understand what a city is, we cannot simply conceive it as made up as physical structures. Instead, Harvey asserts that we must understand that the permanencies in a city (such as buildings and roads) are part of larger unfolding processes (such as capitalism, transportation, etc.). To help clarify the linkages between permanencies and processes, Harvey attempts to define what he understands to be the principles of dialectics. Although greatly influenced by Marx, in trying to define dialectics, Harvey does something that Karl Marx always refused to do. As Harvey acknowledges, Marx believed that "the only way to understand his method is by following his practice" (Harvey, 1996, p. 48) and that "the reduction of dialectics to a set of 'principles' might be self defeating" (p. 48). This is because, if we are to understand

that things are made of process, we cannot rely on so called things (such as principles) as a basis of understanding.

Harvey argues, however, that developing his dialectical principles is a necessary type of groundwork. This groundwork or “going back” (p. 49) is a means through which we can grasp dialectics. Once we have grasped the concept, we then can precede forward “onto a terrain of action on which the principles themselves, in the fashion of Marx, disappear into a flow of theoretical and political practices” (p. 49). What Harvey is asserting is that, once we understand the principals of dialectics, we must understand that they themselves are only products of a process. In this way, the principles of dialectics are like the secret orders given to Inspector Gadget on the cartoon show of the same name. Once read, Inspector Gadget’s orders always self-destructed so they could never be read again. Like the exploding orders, the principals of dialectics enfold back into the realm of process from which they arose. They exist only so that we can begin to understand the realm of process.

What is important about Harvey’s concept of dialectics is that he does not deny the existence or importance of things or the material world. Instead he stresses that in understanding the world the emphasis must lie in the realm of process. This becomes the basis of Harvey’s first principle of dialectics¹.

Dialectical thinking emphasizes the understanding of processes, flows, fluxes and relations over the analysis of elements, things, structures, and organized systems.

¹ Readers will note that not all of David Harvey’s eleven principles are listed, or mentioned here explicitly. Some principles have been incorporated together, while others work their way into the general discussion of this thesis.

... There is a deep ontological principle involved here, for dialecticians in effect hold that elements, things, structures, and systems do not exist outside of or prior to the processes, flows, and relations that create, sustain, or undermine them. (pp. 49-50)

Harvey expands this point in principle number two.

Elements or “things” (as I shall call them) are constituted out of flows, processes, and relations operating within bounded fields which constitute structured systems or wholes. A dialectical conception of both the individual “*thing*” and the *structured system* of which it is a part rests entirely on an understanding of the processes and relations by which the thing and the structured system are constituted. ... Dialectics forces us always to ask the question of every “thing” or “event” that we encounter: by what process was it constituted and how is it sustained? (p. 50)

There are a number of important elements that Harvey introduces in his first two dialectical principles. The first is his emphasis on flows, processes and relations. This is hardly a new way of conceptualizing the world (as we will see later when we consider Mobilities later in this chapter), and Harvey himself uses the process philosophy of Alfred North Whitehead (1922, 1966, 1969, 1985, 2004) to come to a critical understanding of the ontological basis of elements, things and structures.

The second element Harvey introduces is that dialectics is, essentially, a realist approach to understanding the world. Most often, realism is understood as material realism, but here we are challenged to understand dialectic realism as having an

ontological basis in the sense of causal relations. That is to say, the things and structures in the world exist as conceptual abstractions of processes and flows. We will return to the ontological implications of this dialectical thought in Chapter 3, as well as the implications it has for learning theory in chapter 5. In sum, Harvey's dialectics requires us not only to deepen our critical understanding of things that exist in the world, but to understand more clearly the ontological basis of those things. For Harvey, to understand the things that exist in our world, we must try and understand the processes constitute and sustain them.

According to Harvey, adopting a process-based ontology means more than simply identifying how a specific process or processes causes a specific event in the form of an historical cause and effect. As Harvey explains, in his third principle, "The 'things' and systems which many researchers treat as irreducible and therefore unproblematic are seen in dialectical thought as internally contradictory by virtue of the multiple processes that constitute them" (p. 51). This principle connects strongly to recent developments in complexity theory (Jervis, 1998; Lewin, 1999; Mainzer, 2003) that theorize how the emerging dynamics of processes generate permanencies through multiple and entwined causal mechanisms. For example, Harvey details the ability of humans to integrate energy and information flows into a body, and then to internalize and reorganize these flows into something creative. Because of this, the complex processes that create permanencies, are not static and passive, but are dynamic and generative. Harvey's most important point, here, is that is that, every change contributes to a dialectical movement that allows the permanence to be constantly (and creatively) changed and re-constituted, which at the

same time enables the permanence to develop its own generative mechanisms that affect the processes around it.

In his fifth dialectical principle, Harvey explains that, “Space and time are neither absolute nor external to processes but are contingent and contained with them” (pp. 53). For Harvey, it is crucial that we understand that process is not something that is a transient stage between entities, or something that occurs to create an entity or ‘thing’. Rather, a key point of dialectics is to understand that we exist *in* a world and within ever-changing spaces and time. We are never in a position simply to act *on* a stagnant domain. The mistake of segregating space and time from process also entails conceptualizing the world as outside our own process of existence.

If we return to Harvey’s story about his meeting with the Southeastern Regional Meeting of Evangelical Pentecostal Preachers, we begin to understand the importance of the fifth dialectical principle. On the way out of the meeting, Harvey spotted a t-shirt with the slogan emblazoned on it “GET RIGHT OR GET LEFT” (p. 3). The quotation is taken from a bible verse where God is represented as having things on his right or left side. Harvey’s main assertion about this principle is that, “Processes do not operate *in* but *actively construct* space and time” (p. 53). So when he saw the t-shirt with a reference to God’s right and left, he understandably balked. If God is a permanence created by a process, it is interesting that people would view her as operating *in* space, in much the same way as cartographers of the French enlightenment depicted the landscape as objective, abstract and static².

² As an added theological question, it makes one wonder that if God is omnipotent (as is believed by many monotheistic religions), could (s)he have a right side and a left side. As Leibniz (1965, and in Harvey

Similar to Harvey's refutation of absolute and external conceptions of space, time and process, anthropologist Tim Ingold (2000) draws on Martin Heidegger to critique a Cartesian model of space (i.e. Newton's conception of space). Heidegger's ideas are valuable here because he distinguishes between availableness and occurrentness in describing how one can make sense of their world. The method of availableness allows us to understand the spaces around us as we interact with them in a way of being 'in the world'. The method of occurrentness (as used in Cartesian thought) "takes as its starting point the self-contained subject confronting a domain of isolable objects (p. 168)." While occurrentness has us treat the world as a contained object, Harvey, Ingold, and Heidegger would rather conceptualize the world as being a product of availableness, that is to say, the world becomes available to our process of primacy, as we exist in the world.

Harvey echoes Ingold's line of Heideggerian thought which describes place as the "locus of being" (1996, p. 299) and quotes Heidegger as to what happens when we fragment our "being in the world" (availableness) when we try to control space and separate it from process and our existence (occurrentness):

1996) argues, to have a side, one would have to have a locus of being. That is to say, God would have to be able to be in a certain place or an identifiable point. Having a place would require that God could not be everywhere. So to have a discernable side (right or left), God would have to have an exterior to her locus of being. If God is omnipotent, (s)he could create this exterior, but once created, could (s)he still be omnipotent? If God were still part of this exterior, (s)he couldn't really have a side at all, and for it to be exterior to God's locus of being, God could no longer be omnipotent.

This point is not an argument against God, however. Rather I would suggest that Harvey's principles of dialectics allows people to conceptualize the idea of God (or any process) as something that constructs space rather than being *in* space.

All distances in time and space are shrinking. ... Yet the frantic abolition of all distances brings no nearness; for nearness does not consist in shortness of distance. What is least remote from us in point of distance ... can remain far from us. What is incalculably far from us in point of distance can be near to us. ...

What is it that unsettles and thus terrifies? It shows itself and hides itself in the way in which everything presences, namely, in the fact that despite all conquest of distances the nearness of things remains absent. (Heidegger from Harvey, 1996, pp. 299-300)

Harvey examines various mapping techniques to illustrate how we objectify and control

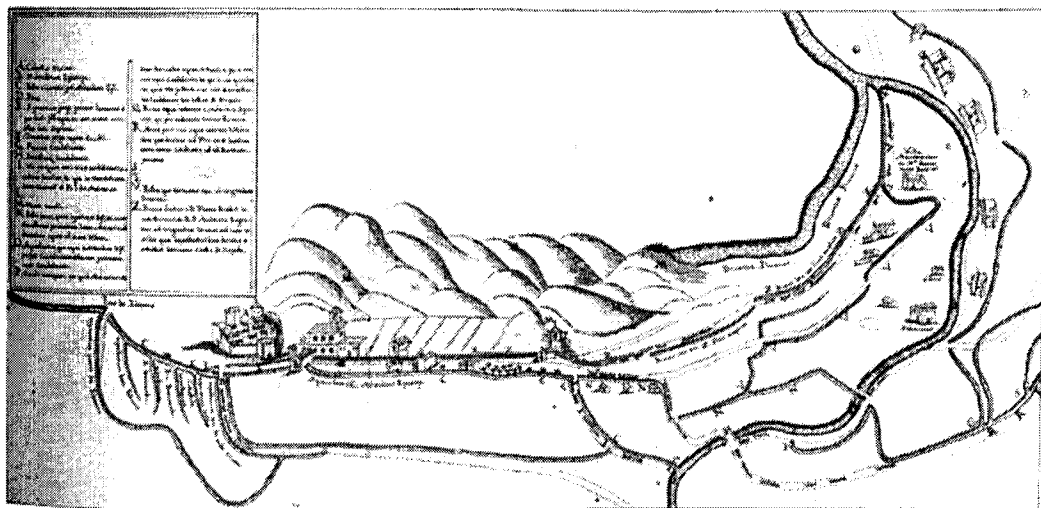


Figure 1.1 (Taken from Harvey, 1989a, p. 243)

space through the conquest of distances. He details how our conceptions of space and world change as we begin to conceptualize our existence as separate from the processes that create our world. In the first map, (Figure 1.1) Harvey provides an example of the *Vue de Cavaillon et ses environs*, from the XVIIIth century. The map details a road

running by houses and country side in a fashion that would seem rather odd to modern cartographers because, as the road turns, the artist also changes his vantage point to allow the map to detail their experience of being in the world.

Harvey explains that the mediaeval artist “believed that he could render what he saw before his eyes convincingly by representing what it felt like to walk about, experiencing structures, almost tactilely, from many different sides, rather than from a

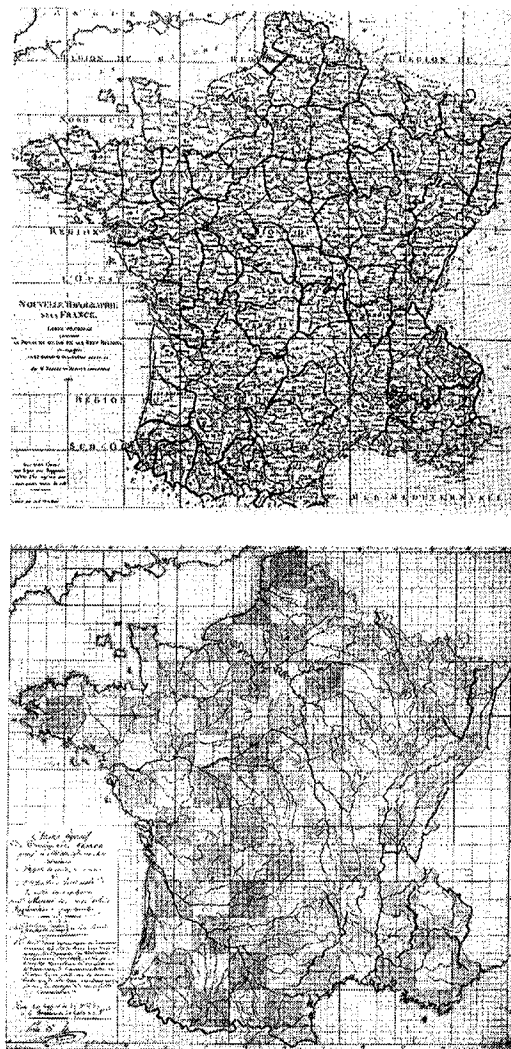


Figure 1.2 (Taken from Harvey, 1989a, p. 256)

single overall vantage” (Edgerton, 1976, from Harvey, 1989a, p. 241). The cartographer, in this instance, was attempting to limit the separation of space and time from the processes that constrain and contain them. In this case, the space and time of the map actively represents the process by which the cartographer experienced the land. The map represents the landscape as the artist walked about his lifeworld. The cartographer, in this instance, made little effort to strategically divide the landscape from what was directly experienced as is usually seen in recent maps.

Harvey notes that, as the project of modernity marched along, space and time began to be perceived as separate from each other. For example, the French maps of the enlightenment (Figure 1.2) began to do this by conceiving space as universal, abstract and stable. Harvey notes that Euclidean geometry provides the basis for this cartographical perspectivism. It led to a means of defining our world in terms of fixed spatial co-ordinates. Space then, becomes un-dialectically removed from our existence and other processes that create spatio-temporalities. The danger of this is that it leaves the landscape and environment vulnerable to being seen as commodities or as tools for the use of social power. The use of space as social power can be seen in many different contexts. It can be seen in the case of the so called ‘landless emancipation’ of slaves in Barbados (Beckles, 2004), Jamaica’s former Prime Minister Edward Seaga bulldozing west Kingston slums to create the political/gang stronghold of Tivoli Gardens (Gray, 2004; Gunst, 1995), and Halifax’s creation and subsequent destruction of the African-Canadian community of Africville (Magill, 1999).

Ingold (2000) offers an interesting complement to Harvey’s critique of visual representation (and conceptualization) of the world. In his writing on landscapes, Ingold

rejects the view that “landscape is a cultural image, a pictorial way of representing or symbolizing surroundings (Daniels & Cosgrove from Ingold, p. 191).” Rather, landscape is something that escapes the dualism of viewer and viewed and is not “identical to nature, nor is it on the side of humanity against nature. As the familiar domain of our dwelling, it is *with* us, not *against* us, but it is no less real for that. And through living in it, the landscape becomes a part of us, just as we are a part of it” (p. 191). Ingold represents this concept with his representation of viewing the world as A) lifeworld and B) as a Globe (Figure 1.3).

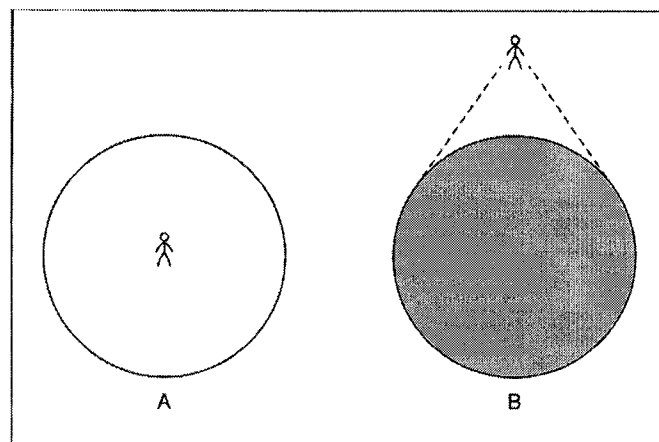


Figure 1.3 (Taken from Ingold, 2000, p. 209)

Like Harvey’s assessment of the transition in mapping, Ingold, too, points out some of the traditional forms of representing spatio-temporalities that are not absolute or external to processes. One such representation comes from Giovanni Camillo Maffei, in 1564 (Figure 1.4).

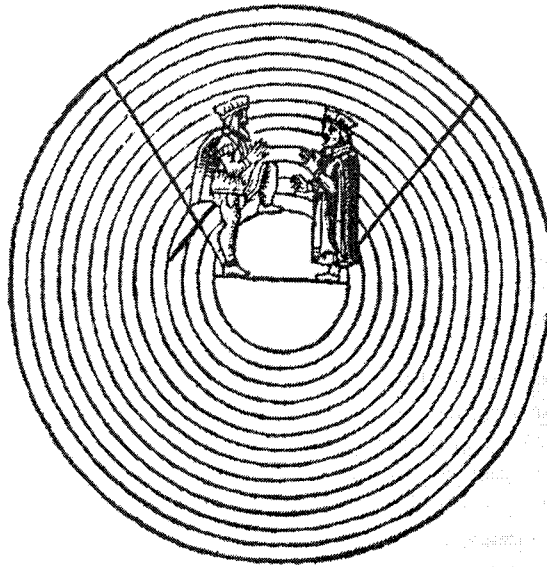


Figure 1.4 (Taken from Ingold, 2000, p. 210)

Maffei's illustration shows the fourteen spheres of the world, where early astronomers saw the cosmos as a series of spheres, with the process of their existence central to all spheres. Maffei's main point was that as attention and understanding were drawn outward, a new sphere was penetrated. That is to say, as people discovered something new about the world, they built on what they all ready knew (i.e. previous spheres). Regardless of whether a new sphere was reached though, existence started as a part of all the spheres. Thus, as someone set out to experience the world, the primacy of practice existed as a part of the "fourteen spheres of the world", and not as something that stood apart from the world, and discovered it from outside.

A central feature of the principles of dialectics is understanding of the relationship between parts and wholes. Harvey notes that, "Parts and wholes are mutually constitutive of each other" (p. 53) (principle six) and, "The interdigitation of parts and wholes entails the interchangeability of subject and object, of cause and effect" (pp. 54) (principle

seven). Finally, Harvey notes that, “Change is a characteristic of all systems and all aspects of systems” (p. 54), and, “Dialectical enquiry is itself a *process* that produces *permanencies* such as concepts, abstractions, theories, and institutionalized structures of knowledge which stand to be supported or undermined by continuing processes of enquiry” (p. 55) (principles nine and ten). These principles really lie at the heart of understanding the dialectical method. Little would be accomplished if, in understanding dialectics, we did not use it as a method itself. The process of dialectics allows us to form understandings that become fluid and allow for their understandings or permanencies to exist as dynamic and complex entities. These permanencies, then, allow for and, if truly dialectic, invite more dialectical enquiry.

The ability to understand the world and the generative processes that create it comes from a long history of critical theory. Harvey uses his dialectical method to understand the processes that create cities (1973, 1985a, 1985b, 1987a, 1987b, 1989b, 1989c, 1996, 2000), modernity and postmodernity (1989a, 2003), globalization and the environment (1989a, 1989b, 1996, 2000, 2005). Most importantly, though, he does not just use dialectics as a method to analyze the preceding topics, but attempts to employ dialectics as a way to deal with these topics in a just and emancipatory manner. In this way, Harvey follows the Marxist tradition of Critical Theory.

When Marx posited his notion of dialectics, he reformulated the dialectical tradition. For Greek philosophers, the dialectic was utilized as a form of logic. Aristotle (1970, 2004) posited dialectics so that arguments might be made using assertions that, while not provable, remain irrefutable. Later, Hegel (1977a, 1977b, 1991) used the

dialectic to show a procession of thesis-antithesis-synthesis of ideas to the end of history (I will examine Hegel's dialectic more closely in the next section).

Marx felt that the traditional forms of dialectics, failed to address the reality of our relationship with the world. That is to say, the Hegelian form of dialectics as ideas, supposes, in a constructivist way, that our ideas create the world. In *Grundrisse* (1993), Marx states the following:

Hegel fell into the illusion of conceiving the real as the product of thought concentrating itself, probing its own depths, and unfolding itself out of itself, by itself, whereas the method of rising from the abstract to the concrete is the only way in which thought appropriates the concrete, reproduces it as the concrete in the mind. But this is by no means the process by which the concrete itself comes into being. (p. 101)

Based on this insight, Marx began to lay the groundwork for a materialistic theory of dialectics (Cornforth, 1975; Lefebvre, 1970; Rader, 1979). Marx's dialectical materialism had an important aspect of change built into its philosophy (Woodfin & Zarate, 2004). The aspect of change allowed dialecticians to see the world as dynamic and complex but, unlike Hegel's dialectics, could also account for the material things in the world in the same manner that Hegel viewed ideas. The tension of process, and unity of opposites that Hegel saw in ideas, Marx could now apply to processes and permanencies and the ideas that constitute and are constituted by them. On a very practical level, the open-endedness of Marx's dialectical view of the world offered many of Marx's students reason to believe that it was possible to act politically to bring about emancipatory social change.

An example of this can be seen in one of the most notable students of Marx's dialectical theory, Theodor Adorno (1966). Adorno took up Marx's critique of capitalism, but in his and Horkheimer's, *Dialectic of Enlightenment* (1944), he argued that the industry of culture was entrenching capitalism by engaging people in mindless commodity fetishism. As Susan Buck-Morss (1977) notes, this led Adorno to think that his work as a philosopher was to:

undermine the already tottering frame of bourgeois idealism by exposing the contradictions which riddled its categories and, following their inherent logic, push them to the point where the categories were made to self destruct. It was this goal, the accomplishment of a liquidation of idealism from within, which Adorno had in mind when he formulated ... a "logic of disintegration". (p. 64)

Adorno's theory of dialectics relied on a theory of negativity, not just as a way to deconstruct capitalism or bourgeois idealism as suggested in the previous passage but as a way to reveal the uncertainty of things. This was, in essence, a response to the Hegelian notion of dialectics. Whereas Hegel posited dialectics as the movement from thesis-antithesis-synthesis, Adorno felt that there was no possibility that things could be resolved in a neat formulation of an unequivocal synthesis (Buck-Morss, 1977). In this way, Adorno's theory of negativity in dialectics serves the same purpose as Harvey's theory of process in dialectics. Both theorists attempt to highlight the fluidity and transience of the world in an attempt to deepen our understanding of it. Their emphasis on negativity and process in dialectics serves to depict the world in a dynamic way and engages us in an ever-continuing process of enquiry. By bringing to light this emphasis on transience and negativity, it allows us to continually question our understanding of

things, but from a standpoint that allows for permanencies in understanding and in material and social structures.

2.2 Hegel's Dialectic

In "Transformative and Restorative Learning: A Vital Dialectic for Sustainable Societies," Elizabeth Lange (2004) claims to have drawn upon Marx's notion of the dialectic to study issues of transformative learning and the interrelation of the Marxist dialectical method. It is my assertion that Lange is in error in making this claim and that her methodology and underpinning philosophy is much more Hegelian than it is Marxist. It is important, I argue, to have a clear grasp of the differences between Hegel's and Marx's notions of the dialectic because, while Marx's dialectic (and, subsequently, Harvey's dialectic) can underpin emancipatory action, Hegel's cannot. As Lange's position so clearly illustrates, the Hegelian dialectic is very limited as a method for understanding lifelong learning because a) it is purely a phenomenological method and b) it's reliance (and indeed transformative learning's reliance) on the individual can not take into account the conditions of structures and "situatedness" (Wenger & Lave, 2003) in which learning occurs. Both of these aspects are clearly contrary to the Marxist emancipatory project.

The Hegelian dialectic has most commonly come to imply the "thesis, anti-thesis, synthesis" (Williams, 1985) philosophy of identity. Hegel's dialectic, as elucidated in the "Phenomenology of Mind" (1977), does not account for things except the *geist* or the spirit of the dialectic. In Raymond Williams' "Keywords" (1985), he describes Hegel's method as making the "spirit primary and the world secondary" (p. 107). This statement though, may be gracious in attributing anything but *geist* or spirit to Hegel's dialectic.

This dialectical process which consciousness executes on itself – on its knowledge as well as on its object – in the sense that out of it the new and true object arises, is precisely what is termed Experience. ... Consciousness knows something; this something is the essence or what is *per se*. This object, however, is also the *per se*, the inherent reality, *for consciousness*. Hence comes ambiguity of this truth. Consciousness, as we see, has now two objects; one is the first *per se*, the second is the existence *for consciousness* of this *per se*. (Hegel, 1977. p.142)

As we can see, what Hegel terms “object” is different from what we see in the Marxist exploration of dialectics.

Michael Rosen (1982) argues that Hegel’s neglect of anything other than *geist* in his dialectic is inextricably linked to his Absolute Idealism. Rosen also expands on Hegel’s quotation above by explaining this thesis, anti-thesis, synthesis movement of consciousness on itself by elucidating the relationship of consciousness’ “common conception” (*Vorstellung*) and its “thought” (*Gedanke*). Rosen sees the thesis, anti-thesis, synthesis transformation from *Vorstellung* and *Gedanke* not only the role of the dialectic for Hegel, but also the basis for philosophy. He quotes Hegel to assert “the difference between common conception [*Vorstellung*] and Thought [*Gedanke*] is of special importance because philosophy may be said to do nothing but transform conceptions into thoughts... .” (p. 59). Obviously, the importance of the dialectic is intrinsic to the very practice of philosophy. The role of the *Vorstellung* as “common conception” is seen as a given and the dialectic synthesis is seen in the transformation of it into a form of pure thought or *Gedanke*.

This is the approach of the dialectic that Lange takes in her study. In it she details the mental transformation of the participants based on a thesis, anti-thesis, synthesis method based on Jack Mezirow's (1991) transformative learning theory. This learning theory relies on a meaning scheme (or thesis) , followed by a disorienting dilemma (anti-thesis) followed by a new and transformed meaning scheme (synthesis). Similar to Hegel's dialectic, there is little consideration for factors that influence the individual's mental schemes such as cultural, structural or material realities (for that matter, there is little consideration as to what creates the individual!). For this, Mezirow has been highly criticized by Clark & Wilson (1991), Collard & Law (1989), Griffin (1987), Hart (1990), Neuman (1993), and Tennant (1993). Mezirow and the school of transformative learning have not answered these criticisms to the satisfaction of its critics. Mezirow does come close to dealing with other non-mental factors in citing social events as a trigger for a possible "disorientating dilemma" He mentions feminism as a trigger for women to question their roles in life, but then reverts this to be a phenomenon which plays out in a Hegelian (mental) dialectic (1991). Mezirow sees this transformation as taking place as a given meaning scheme (*Vorstellung* or common conception, for Hegel) followed by a opposite "disorientating dilemma" (or anti-thesis) to be followed by a transformation (into what Hegel calls, *Gedanke*, or pure thought).

For whatever reason, Mezirow and Lange feel comfortable operating within a methodology solely in the realm of the mental. Hegel is much more explicit in why he does so in his own philosophy. As Desmond (1992) explains, for Hegel the "other is internally related to the self" (p. 285). Desmond explains that the "Hegelian dialectic implies that the self can never be fixed to any univocal self-identity" (p. 285). But the

attempt to have the “voice” of the self as multi-faceted in reality has actually backfired as the only thing that is considered in the equation in this “absolute selfhood” (p. 295) becomes narrowed to exclude important factors. In a section entitled “the Problem of the Individual” in his *Critique of Dialectical Reason* (2004), Jean-Paul Sartre, articulates the problem of the individual.

On this basis, the individual disappears from historical categories: alienation, the practico-inert, series, groups, classes, the components of History, labour, individual and communal *praxis* – the individual has lived, and he [*sic*] still lives, all of these in interiority. But if there is a movement of dialectical Reason, it is this movement which produces this life, this membership of a particular class, of certain milieux and of certain groups; it is the totalisation itself which brought about his successes and his failures, through the vicissitudes of his community, and his personal joys and sorrows. Through his love or family relations, through his friendships and through the ‘relations of production’ that have marked his life, the dialectical bonds reveal themselves. For this reason, his understanding of his own life must go so far as to deny its distinctiveness so as to seek its dialectical intelligibility within human development as a whole (p. 51).

Roy Bhaskar (1998) also echoes Sartre’s concerns over the Hegelian method. He objects to the method because he sees it as a derivative of Hegel’s epistemological status. That is to say, that the Hegelian totality of knowledge is “constellationally closed” (p. 584) and the dialectical movement (Bhaskar identifies both teleonomically and teleologically generated dialectical movements) is purely internal. This means that we are left up a theoretical creek without a dialectical paddle when we try to understand the

transition between logic and nature, or, as Bhaskar puts it, “the alienation of the absolute idea” (p. 585). Bhaskar ultimately levels an interestingly similar critique to Sartre’s but instead of emphasizing external relationships, he puts most of the weight of his criticism on a Marxist theory of geo-history:

[I]t is equally obvious that processes occur in geo-history which are not, at least with respect to some determinate characteristic and within some determinate space-time band, negating but purely accretory, cumulative engrossments or developments. Generally one cannot say a priori either the geo-historical outcome or result (dr0) of a Hegelian-dialectical type will

- a) consist of the resolution of the contradiction, inadequacy or lack (drt)
- b) consist in a rational or reasonable resolution of it (dr’)
- c) consist in a rational resolution which conforms to the Hegelian form of radical preservative determinate negation (dr’’) – a form which, in its concrete employment, only makes sense if one is prepared to distinguish between essential, significant or valuable characteristics and those which are not
- d) and affords us reconciliation to life (dr’’’), let alone
- e) encourages mutual recognition in a free society (dr’’’’).

Waiving this last for a moment, we can say that Hegelian dialectic identifies what is patently a limiting and special case of a more general schema which can be written as

$$dr0 \geq drt \geq dr' \geq dr'' \geq dr'''.$$

Any general theory of dialectic will have to be able to situate the conditions of possibility and limits of non-resolutionary results, non-reasonable resolutions,

non-radical-preservative-determinate-negational reasons, and non-reconciliatory radical preservative determinate negations (p. 587-588)

The focus that Bhaskar takes here is similar to Adorno's negative dialectics where, even if one applies the dialectic to ideas, there cannot be the expectation that the antithesis can be resolved in synthesis.

The focus on individualism is problematic for learning theory. Obviously, there are many things that remain unaccounted for when the focus of dialectics and indeed lifelong learning is on the individual. The Hegelian dialectic of individualism that Lange and Mezirow employ has deep implications for the field of lifelong learning.

Notions of individualism have driven theories like Malcolm Knowles' "Self-directed learning" (1980). While self-directed learning (SDL) has enjoyed great popularity, there have been many critics of the method. Donna Chovanec (1998) argues that SDL has "focused solely on the individual learner and paid scant attention to the social aspects of the learning environment" (p. 305). In his work *The Modern Practice of Adult Education* (1980.), Knowles articulates his philosophy about the nature of learning and knowledge. Knowles claims that:

[learning] is an internal process controlled by the learners and engaging their whole being – including intellectual, emotional, and physiological functions. Learning is described psychologically as a process of need-meeting and goal striving by the learners (pp. 55-56)

Later, he claims that, "The critical function of the teacher, therefore, is to create a rich environment from which students can extract learning and then to guide their interaction

with it so as to optimize their learning from it (p. 56)". Knowles posits that this philosophy of learning (as an internal process) is an evolution from traditional theories that saw the learning process as a transmittal of knowledge to a storage area of the learner's mind. But Knowles still treats knowledge in the same manner as something that is decontextualised in individual limbo to be "extracted" as an object from its genesis in a cultural spatio-temporality.

Kollock and O'Brien (1994) hint at one of the problems of individualism: that the notion of individualism only occurs because we have collectively articulated a shared meaning of the term. This is to say that individualist notions only occur because of a social process. Because of this, theories that espouse individualism are privileging or are putting all of the weight on the product (individualism) and are not seeing the real process (a collaborative cultural negotiation).

Michael Welton also brings forth a criticism of Knowles' notions of the learning process, in his article *'Vivisectioning the Nightingale'* (1987):

Conformist psychology is ransacked, because of its individualistic assumptions and apparent applicability to the needs of the adult learner. Contextual frame factors blur and fade into the background, and adult education as a complex socio-political process conflates to learning as a psychological process. (p. 52)

Welton describes a metaphor used by Alexander Laidlaw, to describe adult education as a nightingale that is being vivisected. Laidlaw offers this unpleasant image to reveal how education as an organic and living entity that is a creature unto itself that is destroyed by objectification and instrumentalization. Knowles' concept of learning as an object that the

learner can “extract” and then internalize is one example of this destructive vivisectioning process.

Finally, one of the most persuasive arguments about the danger of an individualized and internalized dialectic comes from Canadian philosopher Charles Taylor (1991). He contends that individualism overemphasizes the single actor and, as a result, forms a “monological consciousness” (p. 308). According to Taylor, “[monological consciousness] stands in the way of a richer and more adequate understanding of what the human sense of self is really like, and hence of a proper understanding of the real variety of human culture, and hence of a knowledge of human beings” (p. 307). Taylor continues to ‘hem’ the notion of monological consciousness by adding that, “we cannot understand human life merely in terms of individual subjects, who frame representations about and respond to others, because a great deal of human action happens only insofar as the agent understands and constitutes himself or herself as integrally part of a ‘we’(p. 311).”

While theories of dialectics have existed for a long time, we must be careful in our understanding of the idea not to conceptualize it in a way that is limited to individualism. This is especially true in a field (education/learning) that has a history of struggling against individualism.

2.3 Moorings and Mobilities

In *Global Complexity* (2003), English sociologist, John Urry’s uses two terms that connect in interesting ways to Harvey’s notion of the dialectic: “moorings” and “mobilities”. Urry explains these terms as follows:

[C]omplexity derives from what I have described as the dialectic of moorings and mobilities. If, to express this far too simply, the social world were to be entirely moored or entirely mobile, then systems would not be dynamic and complex. But social life seems to be increasingly constituted through material worlds that involve new and distinct moorings that enable, produce and presuppose extensive new mobilities. So many more systems are complex, strangely ordered, with new shapes moving in and through time-space. (p. 138)

In Section 2.1 above, I hinted at what can happen when a dialectical balance between process and permanence is not found and “moorings” (permanencies) dominate thought (in that case it was the representation of space in maps). The following section explores Urry’s term “mooring,” as a way to come to grips with the consequences of over-emphasizing moorings, or material and physical aspects of the world. Then, the subsequent section uses his term “mobilities” to highlight the difficulties of conceptualizing the world as process. Finally, the chapter ends by showing how Harvey draws on philosopher Alfred North Whitehead to understand the world of process and permanencies in a dialectical balance.

Moorings

Christopher Byrne (2001) argues that the Greek philosopher Aristotle took great strides towards developing a deep-rooted theory of a material cause in the *Metaphysics* (1998) as well as *Physics I, II* (1970). Aristotle contribution to the history of ideas, Byrne contends, is his development of the notion of Material Realism. Aristotle made the claim that things, such as the letters of an alphabet, are a type of matter (Byrne, 2001, pp. 88). Material Realism contends that the material cause of a phenomenon can be applied to an

“independently identified object or group of objects” (p. 88). Also, Byrne identifies that Aristotle determines that there is not one central thing that acts as all material causes in the universe. Rather Aristotle articulates five categories of material causes; earth, water, air, fire and ether (p.88). These categories can be (indeed must be) combined in complex objects like bronze (Byrnes example) or more elaborately, in humans. To make bronze, water and earth are combined. In this case, bronze is assigned the title of “proximate material cause” (p.89). What is interesting is how Aristotle then goes about hierarchically ordering the compound elements. As Byrne explains, “whatever sorts of things they may be, they all fit somewhere in an ordered series that is arranged according to what each of these material causes is itself made of” (p. 89). Of interest here is the way Aristotle offers an ordering system of material objects that arrays them from a top end to a bottom end.

Aristotle’s notion of material causes has a few important if not somewhat subtle implications. He uses the examples of earth, water, air, fire and ether as things that cause material things to exist. In doing so, he claims to be able clearly to identify many of these things as physical material entities. In fact, all five are permanencies which Harvey stresses are the result of complex processes. While these material causes can have implications for other material things, they are not really the ontological basis for material things in the world (although a dialectician could argue that their processes are). However, the emphasis that Aristotle puts on the physical “moorings” means that his material cause (or the ontological basis for material things), is in itself something physical.

Aristotle does explain that these things have the ability to change when they come from “nature”, but other objects remain static:

Some things are due to nature; for others there are other causes. Of the former sort are animals and their parts, plants, and simple bodies like earth, fire, air and water – for we say that these and things like them are due to nature. All of these things plainly differ from things which are not constituted naturally: each has in itself a source of change and staying unchanged, whether in respect of place, or growth and decay, or alteration. A bed, on the other hand, or a coat, or anything else of that sort, considered as satisfying such a description, and in so far as it is the outcome of art, has no innate tendency to change, though considered as concurrently made of stone or earth or a mixture of the two, and in so far as it is such, it has. (1970, p. 23)

Of interest in this passage are the claims that a) things that are not made from nature (beds, coats, art) are “made” from physical entities such as stone or earth and b) these things have no innate tendency to change. The first claim points to the assertion that the ontological basis for a physical thing relies on another physical thing. The claim means that, unlike a dialectical view of things in the world, Aristotle views some objects as static. This is consistent with Aristotle’s view of space as a container or vessel that exists to hold whatever exists in the world (Casey, 1998). We have already seen how the idea that things would exist *in* space instead of creating space is un-dialectical. In Chapter 5 we will return to examine how these ideas effect learning (i.e. conceptualizing knowledge and learning as static). But for now, we can deal with a very direct link to epistemology that results from this thought.

When we treat permanencies as existing *in* space, this means that vision becomes a privileged way of determining meaning. Suzannah Biernoff (2005) argues that, for the

Aristotelean tradition, learning and cognition becomes associated with and reliant on vision. A good example of this would be the use of the term “I see” to mean “I understand.” Vision then “connects us to the truth as it distances us from the corporeal” (Keller & Grontkowski cited in, Biernoff, p. 40). Clearly, this type of thought underpins much of the Western philosophy of mind-body dualism.

In the renaissance, Francis Bacon further expanded on Aristotle’s thought. Bacon claimed that sensible species were responsible for perception, and that sight occurred when an object impresses its form on the person’s brain (Biernoff, 2005). Not only does epistemological thought rely on sight, but learning can be something that is an individualist act. That is to say, our learning becomes something that is done when we coordinate our sensory perceptions (most usually sight) with the corresponding external mooring. When Bacon wrote *The Advancement of Learning* (1973), the philosophy of education was so saturated with individualist notions, that he had to address the concerns that learning would lead people to “privateness” and “slothful” behavior (p. 12).

As we have seen, Harvey contends that the reliance on moorings as something that exist *in* space stem from the rise of Euclidean geometry. Euclidean thought supposes that we can predict material phenomenon, and these phenomenon exist objectively in a static spatio-temporality. Daniel Dennett (2003), explains this concept by examining the work of Pierre-Simon Laplace, a French physicist and mathematician. As a materialist, Laplace thought that, if an “intellect” (p. 28) could know all of the forces that animate nature and all of the positions of the things that comprise it, then we would be able to predict the future as clearly as we can remember the past. Figure 1.5 shows the “Laplacean Snapshot” (p. 28) of three atoms at three time periods.

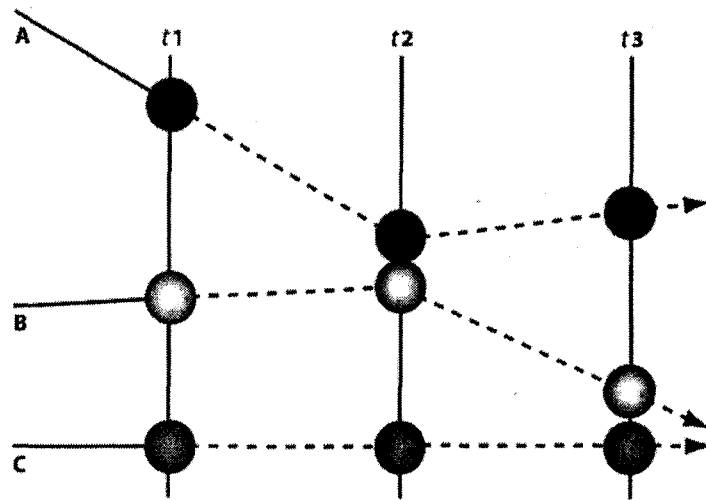


Figure 2.5 (Taken from Dennett, 2003, p. 28)

The “intellect” or the viewer of the diagram in time 1 ($t1$), would know both the position and the forces acting on the three atoms. From this, an intellect would be able to predict the future of the position and forces in time frames two ($t2$) and three ($t3$). This understanding of the world continues to be a lucrative one. When viewed in this manner, scientists are able to make accurate predictions about the nature, position and movement of permanencies in the world. To understand the limitations of this mechanical world view, and to appreciate more fully why scientists have started to argue for a more dialectical view in recent years (Levins, R. & Lewontin, R., 1985), it is important, now, to turn our attention to Urry’s notion of mobilities.

Mobilities

For much of Western history, philosophers and scientists have believed that, to understand the world, it was enough to understand the “moorings” of the world. As Harvey points out, however, dialectics requires that, as well as moorings, we need to understand the “processes, flows, fluxes, and relations over the analysis of elements,

things, (and) structures” (1996, p. 49). In short, Harvey is referring to what Urry has called, “mobilities.” To understand a theory of mobilities, it is helpful to turn to the early work of Heraclitus of Ephesus. Heraclitus is surmised to have written around 500 B.C. (Hussey, 1999) using a very unusual style that consisted of collections of individual fragments distinguished both by their linguistic density and the resonance between the fragments themselves (Kahn, 1981). As Charles Kahn points out, due to their linguistic density, the fragments appear almost riddle-like and capable of invoking a multiplicity of ideas in a few words. Over time, much of Heraclitus’s work has been lost to us. T.M. Robinson (1987) records one hundred and twenty nine fragments and Kahn (1981) documents one hundred and twenty five. Kahn (1981) points that most accounts of Heraclitus’s life are fabrications based on some of his fragments. The account of his life, written by Diogenes Laertius (1972), for instance, was “obviously fabricated” (Kahn, p. 1), but served as the basis for Friedrich Nietzsche’s (2001) writings on Heraclitus’ life.

Heraclitus’s work is both intriguing and often misunderstood. It has been argued that we have been “cursed by their (Heraclitus’ fragments) enigmatic obscurity” (Waterfield, 2000, pp. 32). Some have attributed Heraclitus’s writing style to the culture of his time, a predominantly oral one, which relied on paradox and metaphor (Waterfield, 2000). While this might be true, his enigmatic method has proven to be apt on another level. Heraclitus’ message was based in what is called the unity of opposites. His tendency to place opposites in tight interrelationship reflects his attempt to posit an ontology that conceives the entire physical world as one. In Aristotle’s terms, this makes Heraclitus a material monist. Heraclitus’s project of unification can be seen in fragment 8: “What opposes unites, [and that the finest attunement stems from things bearing in

opposite directions, and that things come about by strife]” (Robinson, 1987, pp.15). This theme occurs again in fragment 10: “Things grasped together: things whole, things not whole; <something> being brought together, <something> being separated; <something> consonant, <something> dissonant. Out of all things <comes?> one thing, and out of one thing all things” (Robinson, pp. 15).

Robinson observes that, very often, Heraclitus supports the sameness of opposites. This, however, is not entirely true. A better understanding of his position would be to say that he espouses the interconnectedness of opposites. Heraclitus saw the world as a “unity, a functioning whole, like the bow or the lyre. The world is forever ‘connected,’ ‘turning back’ upon itself in an everlasting process of cyclical change,... just as the bow and the lyre are each ‘connected’ wholes, ‘turned/bent back’ upon themselves to form that balanced tension which makes them what they are” (Robinson, pp. 184). For Heraclitus, the connection of opposites was the factor that created unity in the world. His example of the bow is used to illustrate the necessity of opposition if things are to remain stable. The bow only becomes a bow when there are two opposing forces at work on the bowstring. These forces hold the string taut and transform a normal stick into the bow. Not only do the opposing forces co-exist, but both are necessary for the world to exist.

Heraclitus’ notion of the world as something that is turning back upon itself is not an easy one for the English speaking world to comprehend. In Jurgen Habermas’ (2002), *Knowledge and Human Interests*, the translator, Jeremy J. Shapiro, laments the same problem in attempting to translate the German word *reflektieren* to the English *reflect*. In English, the connotation of reflection is often understood as an act of psychological work to be done on an object. In other words, it is a mental operation that reflects *on* something

that exists independently of the reflector. This perspective has been strongly influenced by material realism. In German, however, the word *reflektieren* means “the act in which the subject reflects on something is one in which the object of reflection itself recurves or bends back in a way that reveals its true nature” (Habermas, 2002, pp. 320; and a similar example in; Habermas, 1987c, p. 18). Shapiro attributes this linguistic difference to the influx of German Idealism and its dialectic treatment of subject and object. Because of this, Heraclitus’ notion of a monastic world that is turning back on itself is perhaps better understood in German.

What has been hinted at already, but now needs to be made explicit is that, what is most important from Heraclitus’ philosophy for us, is the notion that the world is in constant flux. Even though he believed in the wholeness of the world through the unity of opposites, for Heraclitus, there is nothing static about that world. Most notably, it is evident in his most famous fragment, “One cannot step twice into the same river, nor can one grasp any mortal substance in a stable condition, but it scatters and again gathers; it forms and dissolves, and approaches and departs” (Kahn, 1981, p. 53). There is a great deal of debate surrounding this fragment. As Kahn points out, it does not come from Heraclitus’ own work but from Plato’s *Cratylus* (1992) who attributes it to Heraclitus. The character Cratylus gave voice to Heraclitus’s philosophy, adding that one could not step into the same river even once because you, yourself, are constantly changing. In this way, Cratylus takes the role of what is described as an extreme fluxist (Cohen, 2002). Plato, well familiar with Heraclitus, came to believe that the material world was unreal because it was unknowable due to constant change. For Plato, the real and knowable world had to be immaterial.

D Wyatt Aiken (1991) observes that Aristotle is critical of Plato's doctrine of transcendental ideas because of the influence of the doctrines of Heraclitus. Aristotle contended that Heraclitus' doctrine that "All sensible things are incessantly in flow" and that knowledge of things in flow are impossible (Aiken, 1991, pp. 33). For Aristotle, the effect of Heraclitus' claims is that, because matter is constantly in motion, material phenomena cannot be known. In response to Heraclitus's position that "the most beautiful order (in the universe)... is a heap of sweepings, piled up at random" (Robinson, pp. 71) is his much more stable "concept of order." In the end, much of Aristotle's philosophy can be seen as a reaction to the ideas like Heraclitus'.

For Aristotle, and indeed many others, these ideas of fluxism are troubling. In a search for knowledge about the world, fluxism was a major stumbling block. After all, how can we have knowledge about things if they are constantly changing? If the world is in a state of flux, knowledge, at best, is sufficient for the briefest of moments. For Cratylus and Plato, we may even be denied that brief knowledge. Like Cratylus' statement about not being able to step into a river once, we are changing so much we may not even be able to grasp any knowledge even momentarily.

For Heraclitus, ontology is based in process or experience. Reality is not comprised of unchanging objects. Instead, it is in flux and in process. It should be noted that understanding the nature of this process is not as simple as understanding material phenomena as objects that are constantly changing. This is the understanding that is perhaps most common in the tradition of material realism. Edward Hussey argues convincingly that Heraclitus' ontological process is a form of "unity of opposites." Hussey suggests that Heraclitus' fragments articulate three connected theses. The first is

that “the unity is more fundamental than the opposites” (p. 96). The second is that “the opposites are essential features of the unity” (p. 96). And finally, “the manifestation of the opposites involves a process, in which the unity performs its essential function” (p. 96). If we apply this to one of Heraclitus’ own examples, we can see that in the case of a bow, it is the unity of the opposite forces on the bow that creates the material structure.

While one might think that Heraclitus ontology would be interpreted this way, in many cases, it was not. For the most part, his legacy remained linked to constant change instead of constant unity of opposites.

The philosophy of so called mobilities or flux was popular in the Greek tradition as well as in Zen Buddhism. In recent years, many writers of the popular science genre have compared quantum theory with traditional accounts of Zen Buddhism. The marriage has sold and continues to sell many books for writers like Capra (1980), Zukov (1980), Talbot (1993), Harris Walker (2000), and Wolf (2004). Einstein foresaw the appeal that process philosophy would have when he observed that people would likely be more interested in the mystical aspects of quantum mechanics (Laughlin, 2005). The joining of Buddhism and quantum theory is intriguing pairing because of the amalgamation of what are perceived as binary opposites such as science and spirit, east and west and traditional and modern world-views.

One of the connections between Buddhism and quantum theory revolves around the fluxist idea of experience, or for many Buddhists the concept of “being in the moment.” To be in the moment is simply to exist without reflection or any kind of cognitive reification. In describing this state, Stambaugh (1990) argues that Buddha nature escapes much of the western conception of being and instead is impermanent.

Evan Harris Walker (2000) recounts Huang-lung's set of questions for potential Buddhist monks to 'test' their ability to be in the moment

Question: Everybody has a place of birth. Where is your place of birth?

Answer: Early this morning I ate white rice gruel. Now I'm hungry again.

Question: How is my hand like the Buddha's hand?

Answer: Playing the lute under the moon. (p. 144-145)

In both of the above questions, existence is based in experience in the Buddhist reality. When the potential monk is asked where s/he is born, the suitable answer is not to describe the physical realities of her or his existence. Instead, the right answer is an account of the processes at work in his or her continual birth. A person becomes born when their consciousness is based in experience. This is similar to the second question about the potential monk's hand. There is no physical reality that would make his or her hand become like the Buddha's. Instead when the hand exists in the experience of lute playing, it reaches a certain enlightenment (Walker, 2000).

There still remains a very important debate that arises from the ashes of Heraclitus' fragments. Heraclitus' ever changing state of the world as well as Zen Buddhism's ontology of experience meet a very important critic in Aristotle. Aristotle made an important claim when he expressed that we could never have knowledge about things that are in constant flux such as pure experience. Most would agree that we, as humans, do have some knowledge of the world. Even if one were to disagree, the very fact that we are able to debate the idea would mean that we have a shared knowledge of something, language, for example.

But fluxist doctrine and philosophy of ‘mobilities’ are not just something from the past or limited to Eastern religions like Zen Buddhism. Harvey also points out that modern philosophers like Alfred North Whitehead (1920, 1922, 1969, 1985) are advocates of what is being referred to here as mobilities.

Whitehead was a process-based philosopher who set about trying to understand what he termed the “historic world” (1966, p. 86). For Whitehead, the historic world consisted of something very different from what many scientists, mathematicians and philosophers held them to be. He asserted that what we should be dealing with are “throbs of pulsation” (p. 86) and “lives of plants, lives of animals, lives of men [sic]” (p. 86). In doing so, Whitehead claims that we are positioned to understand the ramifications of multiple potentialities (a point on which he criticizes Renee Descartes) and spatio-temporal connections. The point that Whitehead makes about spatio-temporal connections is important. Harvey stresses (and would be stressed here) that understanding spatio-temporal connections is essential to understand a dialectical method. Whitehead stresses understanding the world in both space and time in the face of Newtonian physics which was mired in its insinuations of physical forms of order (similar to Aristotle’s material cause). His alternative was that the essence of life would only be found in “the frustrations of established order (p. 87).”

For Whitehead, one of the fallacies of an established order is to be found in Plato’s conception of absolute reality which is devoid of transition (1966). Whitehead criticizes Plato’s eternal mathematical forms. He uses the phrase “twice-three is six (pp. 91-92)” meaning two times three equals six, to make his point. Whitehead points out that, if we use this mathematical operation as an absolute, as does Plato, it becomes merely a

matter of equality identification. That is to say, we are only identifying that twice-three is the same as six. The problem Whitehead sees with this method is that it contains no new truth. Whitehead suggests that the equation be viewed as a process (twice-three) and its issue (equals six). Even then, he suggests that “the issue of one process is part of the material for processes beyond itself (p. 92).”

To further illustrate the point that there are no static numbers, Whitehead furthers his example by using the term “six equals six” (p. 93). All numbers are symbols of the process from individual units and the compound group. In this way, the number six represents a process of combination (in this case it was twice-three) and the issue of the process represents what Whitehead calls datum for further processes.

While Whitehead stresses the importance of process in the more theoretical field of mathematics, he also bases his philosophy of flux in a more Heraclitian physical example. Instead of the example of Heraclitus’ river as a physical agent of change in the world, Whitehead uses Cleopatra’s Needle on the Charing Cross Embankment (2004). Cleopatra’s Needle is a monument which sits on an embankment of the river Thames in London. Whitehead’s illustration of the Needle is what he terms an ‘object.’ For him, objects are entities that become situated in an event or a stream of events. When this happens the object embodies the character of the process. In this case, the example of a monument is not as clear, but if we were to use a bank, we would say that the ‘object’ named bank is situated in the event ‘X’ (perhaps ‘X’ would represent capitalism or another event which would give rise to the object named bank). Like Whitehead, Harvey applies this method to describe a city. Note the similarity to Cleopatra’s Needle.

The “thing” called a “city” is the outcome of a “process” called “urbanization.” A dialectical approach ... says that (a) processes are more fundamental than things, (b) processes are always mediated through the things they produce, sustain and dissolve, and (c) the permanencies produced (including ways of thought, institutions, power structures, and networks of social relations as well as material objects) frequently function as the solid and immovable bases of daily material existence (1996, p. 418).

With an understanding of the world as driven by processes and the interrelation of beings in the world, Harvey finds that Whitehead contributes to our understanding of the principles of dialectics (and indeed the world itself). Harvey (1996) acknowledges that it is Whitehead’s reconceptualization of spatio-temporality that led to the development of an “adequate language with which to capture process, motion, flux, and flow without abandoning the obvious common sense idea that we are surrounded with things possessing relative stability and definable properties (p. 256).” Whitehead’s philosophy was not stuck in a static understanding of the world solely as a mooring, but could provide meaning and a basis of understanding what he called, events and organisms, which an experiential ontology of mobilities and flux could not.

Harvey points out that the basis of Whitehead’s philosophy hinges upon understanding that physical entities do not exist first in space where they act upon each other. Rather, space is caused because of the interaction of bodies. Space is “only the expression of certain properties of their interaction” (Lowe, 1962 cited in Harvey, 1996).

From this philosophical basis, there are two major points that we will examine from Harvey’s understanding of Whitehead’s process philosophy. The first point is that,

unlike Leibniz (1965), Whitehead allows that time and space may be differentiated from each other. For Whitehead, the organism is generated when space differentiates itself from temporality to allow for the emergence of a permanence. Our understanding of the organism emerges with it. In the same way, we have used Urry's concept of "Moorings and Mobilities" to explain dialectics, Whitehead contends that our understanding of the world occurs when space (like moorings) becomes differentiated from time (mobilities).

As we have seen in Harvey's fifth principle of dialectics, "space and time are neither absolute nor external to processes but are contingent and contained within them" (1996, p. 53). What Whitehead and Harvey are stressing is that our cognitive abilities allow us to have moments of differentiation so that we can learn about the world. This differentiation allows us to escape the transience of being-in-the-moment and to represent what is happening in our world. I return to this point in chapter 4, when I examine the capacity for human learning.

The second point is that Harvey understands that "multiple processes generate multiple *real*... spatio-temporalities" (p.259). This means that there may be many processes at work that conspire to create an organism. The difficulty we have describing processes at work that create a monument like Cleopatra's Needle are due to the complexity and possibly infinite number of processes at play in the space. While a classical understanding of the monument would be to understand it as existing in one space and one time, there are actually a number of very real processes which are creating "an indefinite number of discordant time-series and an indefinite number of distinct spaces" (p. 259, Whitehead cited in Harvey, 1996).

For both Harvey and Whitehead, “multiple reals” do not mean that a multitude of processes producing a multitude of spatio-temporalities leaves us with a relative accounts of objects in the world as postmodernists might insist. Things (Harvey examines money, while Whitehead sticks with his broad example of ‘organism’) still have social and shared meanings and these shared meanings (or attentions) must be accounted for.

Whitehead explains it this way

Amid the alternative time-systems that nature offers there will be one with a duration giving the best average cogredience for all the subordinate parts of the percipient event. The duration will be the whole of nature which is the the terminus posited by sense-awareness. Thus the character of the percipient event determines the time-system immediately evident in nature. (p. 259, Whitehead cited in Harvey, 1996)

Harvey, echoes the sentiment, in the classical Marxist example of money.

Money... has multiple uses and it is quite possible for each use to determine a different spatio-temporality. Yet money is, in the end, just money so the term operates as a kind of umbrella to indicate a wide range of “compossible” or “cogredient” uses of a consistent and coherent entity endowed with certain qualities. The fact that some of these uses may be contradictory *vis-à-vis* other uses in now way detracts from the overarching coherence of the money concept. (p. 260)

Both authors stress that, despite the complexity of the processes that constitute the world, it is not relativistic. They stress that the “whole of nature” has an “overarching

coherence,” that can underpin a common conception of real processes or “cogredence” that people achieve about the structures of the world.

This point is similar to Plato’s concept of ideal forms, found in the Socratic dialogue, *Phaedo* (1975). Plato considers that things like beauty can come in many different forms, shapes and sizes. Nevertheless, we still can identify different aspects of beauty in many different situations, including situations that we have never been faced with before. Plato contends that this is because all beauty shares an aspect of the ideal form called ‘beauty’. Ideal forms are known to us through *a priori* knowledge, and are the perfect (i.e. most beautiful) forms. The beauty that we see in different objects display characteristics of the ideal form of ‘beauty.’ It is for this reason that we are able to recognize them.

Harvey and Whitehead’s example of cogredence differs from Plato’s in two important ways. The first, is that, of the multiple ‘real’ spatio-temporalities, none is supreme. As Whitehead explained, the cogredence is formed by a duration in time that offers an average ‘real’ rather than a supreme or ideal form.³ The second is that the unification of knowledge, or cogredence, that we gain from multiple spatio-temporalities

³ One interesting point to note about Plato’s Socratic dialectic and ideal forms comes from an astute *Philosophy Now* (March/April 2005) reader identified only as “Thomas A.”. In his letter to the column “Dear Socrates” (p. 31), Thomas questions whether Socrates (by way of Plato) was dedicated to a method of reason or to insight. This is because while Socrates adhered to the logical and verbal dialectic as the path to wisdom, He also claimed that the forms were the only “real” in the world. His understanding of the forms, though, are derived from a mythical and intuitional method. This raises the question as to how much weight the Socratic dialectic (and method of logical dialogue) has in deriving wisdom and truth, even for Socrates and Plato.

and multiple reals, does not come to us from *a priori* knowledge. Rather, as we have seen, both Harvey and Whitehead take the realist approach and assert that it is nature that offers us the generative mechanism that will form our cogredent understanding of the world.

Perhaps Wittgenstein explains the point of multiple reals with a unifying cogredence when he writes about games (Wittgenstein, 1973, Pigliucci, 2005). Wittgenstein proposed that in trying to identify the unifying aspect (or cogredence) of multiple reals, we resort to the ideas of family resemblances or clusters. Wittgenstein attempts to account for the defining features of a game across the many reals of diverse game systems. In this way he attempts to account for the many aspects of games such as chess and soccer in much the same way that Harvey attempts to account for multiple aspects of money. But Wittgenstein realized that few terms (if in fact any) can adhere to an essentialist definition of their properties.

The second way Harvey's and Whitehead's notion of cogredence differs from Plato's ideal forms is that Harvey and Whitehead exhibit an understanding of the generative mechanisms of process as a basis for a realist philosophy. We have already seen the importance that dialectics places on both the process of the world and how we are able to create entities, moorings, permanencies and reifications through the cogredence of the differentiation of space and time. Chapter Three returns to the idea that nature offers a 'real' generative mechanism based of process and how we can come to learn of it.

Chapter Three: Dialectics, Realism, and Ontology

Harvey argues that the idea of dialectics has important ontological implications. To fully understand the principles of dialectics and what they mean for learning, it is important to explore these ontological implications. From the outset, the Marxist dialectical tradition supported a realist ontology. For Marx, the structures of the world have a real and material basis. Harvey's realism differs from Marx's, however, in that Harvey's dialectics stresses the understanding of process as what is real. Understanding Harvey's realism helps us to articulate its implications for learning theory. Understanding the ontological implications of dialectics, helps us to distinguish the contributions of a dialectical theory like Harvey's from postmodernism and social constructivist notions of how humans learn.

Chapter Three will explore Harvey's realism in three sections. In its first section, the chapter will use David Bohm (whom Harvey himself draws on to present a scientific method through quantum theory) to exemplify a dialectic method. This method emphasizes causality as a form of realism.

In the second section, the chapter examines Bohm's notion of the implicate order. Bohm argues that, while the world is not always predictable, neither is it indeterminate. Bohm's rejection of indeterminacy is key in understanding dialectical realism, as indeterminacy would privilege agency (and the complete freedom of people to create reality) over the structures of the world. Like Bohm, Harvey rejects the idealistic view of unfettered agency. A dialectical view rejects indeterminacy as it does not take into account the structural realities that can shape learning processes (i.e. gender, race, geography).

Finally, in the third section, the chapter examines the nature of realism and uses the work of critical realism to describe Harvey's process reality.

3.1 Quantum Theory and Causality

As Thomas Kuhn (1962) described, a scientific paradigm and world view often serves as a basis for other (often contradictory) scientific paradigms. Currently, this is the case of Quantum Theory. For hundreds of years, Western societies took for granted the ontological base underwriting Newtonian physics. According to Newton, if we want to study an object (a proton for example), we should "describe what it is at a particular moment in time: where it is located in space, what its mass and electric charge are, and so forth" (Smolin, 2001, pp. 52). We describe the state of the particle by assessing its objective qualities as if it is a static thing. As quantum theorists point out, however, the conception of time is not accounted for in this study of objects. Traditional Newtonian science proclaims that we can study objects at several moments in time to see how the proton changes. In this way, the series of measurements in Newtonian physics becomes like a "series of movie stills-they are all frozen moments" (Smolin, pp. 53). Because of its tendency to freeze objects in time, traditional physics can no more give us an account of the objects that it studies than a painting of a hockey game can tell us about the game itself.

In opposition to this view, quantum physicists attempt to posit an understanding of things in both time *and* space. Rather than trying to understand the world as interacting objects, quantum theorists view the world as a history of processes. Although there are many different views of the implications of quantum physics, in the view of David Harvey and others, quantum physics stands as an excellent example of a science

underwritten by a dialectical ontology. To understand more clearly how this might be so, the next section examines what has come to be known as the Copenhagen interpretation, and how some of its contradictions have been resolved by Bohm's own Causal-Ontological interpretation. Not only does Harvey use Bohm's work in explaining the ontological ramifications of dialectics, but it will be argued that theories of indeterminacy in the Copenhagen interpretation can set an incomplete precedent for thinking about learning and dialectics. The answer to this can be found in Bohm's causal interpretation and his notion of the implicate order.

The Copenhagen Interpretation, and Schrödinger's Cat

The Copenhagen Interpretation of quantum physics was one of the early attempts to come to terms with the meaning of quantum reality. As Bohm explains (1987b), the central feature of this interpretation was that objects, like an electron in a laboratory, have only *potential* existence until they are observed (by a person or a measuring device). The notion of the potential existence came as a way of coming to grips with the movement of particles in quantum leaps, whereby a particle could "jump" from one position in time and space, and instantaneously appear in another without passing through the intermediate space. It can even occupy multiple positions within the same time period.

What the idea of quantum potential meant was that things rested in a state of limbo until they were observed, thereby releasing their quantum potential. This has been shown in quantum experiments such as Schrödinger's Cat (Gribbin, 1984). Erwin Schrödinger's mythical cat served as a thought experiment to explain what quantum potential and the philosophy of uncertainty meant. John Gribbin (1984) explains the paradox where we find Schrödinger's cat in a box that we can not see into. In the box,

there exists a vial of radioactive substance. If, during a set amount of time, any of the radioactive material breaks down, it triggers a hammer to smash the vial. The radioactive substance then fills the box and kills the cat. Because scientists have not always been able to track or predict the movement of electrons and things at a much smaller scale, the Copenhagen interpretation insisted that instead of being able to talk about what *may* have happened to the cat, we must say that the cat is neither alive nor dead. This is because, at the level of electrons, they can make “jumps” and exist in a non-predictable manner, until an observer “freezes” the electron and accounts for its being in a space and a time. When the electron is not being measured or observed, its existence operates more as a wave, than as a particle. This has led to the discussion of “wave-particle duality” (Bohm, 1980, p. 163). In essence, we account for the position of the electron, even though we know that it is always moving unpredictably, like a wave. The Copenhagen interpretation extrapolates this method to the scale of the cat and says that there is the equal potential for the cat to be alive as it is to be dead. Only if we are to view the cat, like viewing the electron, do we eliminate the wave movement, and create stable matter. Up to the point of creating a permanence or a reification of the state of the cat in the box, the cat is neither alive nor dead. In this manner, the power of the observer traps the quantum potential and “creates” the state of the cat. The Copenhagen interpretation insists that up until the point of an observer, trapping the wave movement into a particle, the states of the cat’s state of life or death is unreal (Gribbin, 1985). The state of the cat, and indeed everything else in the world, exists only because we have created them out of a process of indeterminate chance. The wave-particle duality, then, collapses to only include the material particle to

be studied. This focus on the individual's mental powers creating the permanencies in the world are akin to Hegel's idealism as dialectic.

Eventually, Hugh Everett (Gribbin, 1985) offered up another alternative to the Copenhagen interpretation. Everett theorized that, in every potential state (i.e. the cat being dead or alive), both potential events exist as "real" events. The major difference that Everett saw was that the two states exist as separate worlds. In one world, there would be a dead cat and in another world, there would be a living cat. The number of alternate worlds would split off at every potential event, so there would exist an almost infinite number of possible worlds or bizarre universes.

As a side note, Erwin Schrodinger was so shocked by what the quantum realities of the thought experiments were, that he was quoted as saying "I don't like it and I'm sorry I ever had anything to do with it" (Gribbin, 1985, p. vi). We can begin to see how thinking dialectically, or through a process based lens, adds significant complexity to our understanding of the world.

Bohm's Causal-Ontological Interpretation

Just as Marx posited a realist interpretation of Hegel's dialectics, Bohm uses a dialectical method to offer an alternate explanation to the Copenhagen school. Like Harvey and Marx, Bohm's dialectical thought emphasized realism, or what Bohm would call a causal-ontological interpretation. The crux of Bohm's argument was that, simply because something could not be predicted (like, Schrödinger's Cat), does not mean that there is no generative mechanism to cause the event. While the Copenhagen interpretation saw the causes as unreal (they were only potential events) until they were observed, Everett saw all potential as real, so that the cat being dead and alive were both

real (albeit contradictory) events. Harvey's view of multiple "reals" though does not mean that any potential event could exist (like Everett), but took the Marxist approach that the permanencies that we would create, would always take place in the framework of processes that we encounter and create in the world. Harvey's explanation is very similar to Bohm's reply to the Copenhagen Interpretation, to Everett, and to the indeterminists. It is useful to examine his argument more closely as it provides a good sense of how we can use dialectics to understand a complex reality.

3.2 The Implicate Order

In his work *Wholeness and the Implicate Order* (1980), Bohm espouses his theory of an ever "enfolding-unfolding universe and consciousness" (pp. 218). This theory, which is based on his quantum experience, begins with his assertion that the world is comprised of processes that belong to "one total flux" (pp. 63). This is obviously contrary to mechanistic theories of physics that rely on fragmentation and reduction to study a concept. Bohm's dialectical thought is also contrary to theories that simply posit learning as a mechanism for cognitive knowledge acquisition. These mechanistic learning theories rely on an *explicate* ordering process of the universe while Bohm is talking about a *implicate* ordering process. That is to say, the nature of the universe's processes are constantly enfolding and in folding with each other, rather than something that is laid out statically and objectively. Learning, in this view, is not a step by step process for attaining skills or knowledge, but engenders us in the complexities of cultural life. Learning becomes something that entwines and enfolds us into the meshwork (Plumb, 2004c) of life.

What is important to remember about the implicate order is that it does not deny that there are material things in the world (as experiential ontologisms have been shown to do), nor does it deny parts of the whole order. But in true dialectical manner it realizes that the material things are created from our own perceptions of the processes in flux. In this manner, material objects are like mental pictures of the flowing process. As well, the implicate order maintains that there are parts to the one total flux of processes. Bohm privileges neither the part nor the whole, because, for him, both are abstractions. The part is an abstraction from the whole, while the whole is an abstraction from the parts (Bohm, 1985). Both are mutually constituted of and by each other. Bohm's notion would suggest that the part and whole would be constituted instantaneously. As well, the implicate order means that there would not really be any stratification in reality as wholes and their parts are only abstractions from the total flux.

Bohm's Notion of Order

In Chapter 2, we examined an aspect of Aristotle's material cause which, for Aristotle, served as a basis for the material order of the world. Bohm (1980) also examines the Cartesian and Euclidean notions of order which have dominated the discipline of physics for centuries. Bohm illustrates, not just how ideas of order played an important part in understanding the world, but also how we have developed language to communicate the order of the world. For instance, he examines how the Cartesian notion of 'coordinate' implies a function of ordering. When we plot coordinates on a grid, we are simply defining them in terms of the X,Y, and (possibly) Z axis. For Bohm, the notion of the coordinate can not be described as a "natural object" (p. 144) because it serves only as a cognitive schema for an arbitrary understanding of the world.

What is rather interesting about the idea of coordinates and grids, is that Bohm surmises that Aristotle would find them of little use. This is because, while Aristotle conceptualized his material cause as heirarchical, it was to understand the universe as an organic entity. The conception of coordinates and grids really only becomes powerful when co-ordinates and grids are employed in an effort to understand the world as a machine.

For Bohm to explain his notion of the ‘implicate order’, he must first critique the Cartesian position of coordinate order. Classical physics perceived order as what Bohm calls the “attention to similar differences and different similarities” (p. 147). These differences were expressed in the terms of a ratio, which he saw as the basis for a broad way of perceiving order. This critique was necessary for Bohm, because classical notions of order could not account for things with a “general order” (p. 146), that is to say things that cannot have their qualities defined by a grid system. This includes (but is not exclusive to) “the order of growth of a living being, the order of evolution of living species, the order of society, the order of a musical composition, the order of painting, the order which constitutes the meaning of communication, etc. ” (p. 146)

Bohm illustrates the classical conception with three examples. The first is the linear conception of points ordered on a straight line as in fig 3.1 (p. 147).



Figure 3.1 (Taken from Bohm, 1980, p. 147)

While the points all have the same direction, the only difference becomes the position. The spatial displacement between all of the points are equal, so Bohm expresses it as $A:B::B:C::C:D::D:E$ (p. 147). This is the order of a curve of the first class, or a curve with only one independent difference.

Next, Bohm considers a curve of the second class, or a circle (fig 3.2)(p. 147).

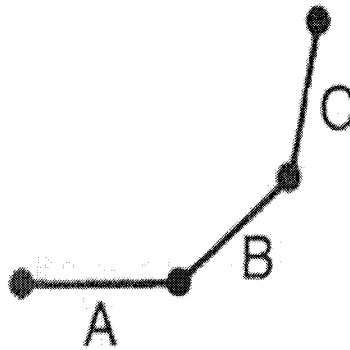


Figure 3.2 (Taken from Bohm, 1980, p. 147)

While there are two variables for the curve of the second class (direction and position), the circle still has the same ratio ordering as a curve of the first class. That is to say (again) $A:B::B:C::C:D::D:E$. The third example of the classical conception of order that Bohm uses is that of a helix, or a three dimensional object. Here it becomes a curve of the third class, as the angle between the lines becomes the third factor, along with both direction and position. As with the first two examples, when we utilize the classical conception of order, the ratio still remains the same: $A:B::B:C::C:D::D:E$.

In all three examples, the conception of ordering relies upon the *similarities of the differences* of the curves. As expressed in the ratio, we have seen that these similarities

remain the same. This means that the classical conception of an ordered thing is one where we can be assured that any future additions will have the same similarity of difference. Let us use as an example, the ordering of four people from youngest to oldest. Let us assume that their names, and order from youngest to oldest, are Robin, Sue, Donovan, and Robert. The similarity of difference between each one is that they are older than the person before them, and younger than the person after. Therefore, like the curves, we can express the similarity of difference between them as $A:B::B:C::C:D$. This means that between each person, all share similar differences. Robert (as represented by D) has existed longer than Donovan (as represented by C). Likewise, Sue (as represented by B), has existed longer than Robin (as represented by A). The difference between C and D, is the similar difference between A and B, in that one is older, and one is younger. The equation also acknowledges that all intermediate steps in between are the same difference as well (in this case, there is only one step and that is "B:C"). Even though the ages of the four people may (or may not) be the same difference, we can still express the ratio this way because the ordering process was only looking at who was older. For classical ideologies of ordering, the most important aspect of this conceptualization schema, was that of its predictability. Returning to the example, if two even older people enter the room, we can easily order them at the end of the line, and we would simply have to extend the equation to include two other people $A:B::B:C::C:D::D:E::E:F$.

But Bohm calls to attention of a case where a curve may have a number of straight lines at various angles (fig 3.3)(p. 148).

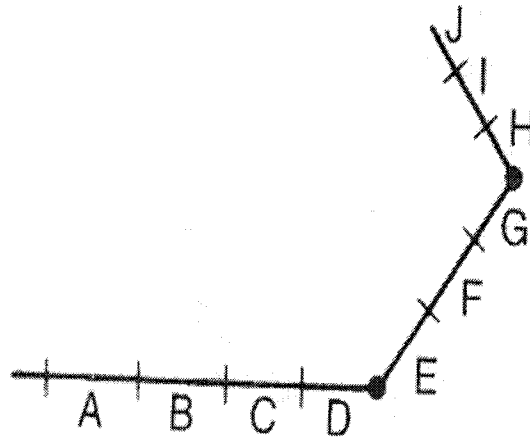


Figure 3.3 (Taken from Bohm, 1980, p. 148)

In this case, Bohm is left with a case of “not only *similar differences* but also *different similarities of the differences*” (p. 148, original italics). But that does not necessarily mean that the curve is disordered or having no order whatsoever. Bohm explains that, if we are to examine the first line, we can represent it as such, $A:B:s_1::B:C$ and allow the symbol s_1 to represent the first kind of similarity. In this case, the first kind of similarity represents direction along the line ABCD. Likewise, Bohm represents the other two lines as $E:F:s_2::F:G$ and $H:I:s_3::I:J$. As in the first case, s_2 and s_3 represent the similarity of the second kind and similarity of the third kind. These differences of successive similarities become what he calls a “second degree of difference” (p. 149). From this we can represent a second degree of similarity in the curve as, $s_1:s_2::s_2:s_3$.

In this way, Bohm argues that things that may appear to be random, actually have an order or a causal mechanism behind it. He points to curves of lower degrees as having

orders that at lower degrees can predict the whole entity. But for things such as paintings, Bohm argues that the order of one part cannot always predict another part of the painting. Because of this, we can not rely use the term “disorder”, but rather must refer to different degrees of order.

Herein lies the dialectical aspect of Bohm’s implicate order. Simply because something cannot be predicted does not mean that it is indeterminate. Bohm would maintain that while in many cases we can not see *a priori* the order of nature or things in the world, this should not be taken to mean that there is not a very real causal structure that he would call the implicate order, or even later he would point to the super-implicate order (2003). This order (or generative mechanisms) of the world is not one that can be seen *per se*. The importance of Bohm’s quantum interpretation is that like the dialectical theories of Marx and Harvey, it stresses that, while we can create our own spatio-temporalities, there are causal mechanisms that constrain and contain the ways in which we can do so. This means that while the world is not indeterminate, there does not need to be an aspect of predictability to maintain causal mechanisms.

The problem of indeterminacy cannot be overstated. In Margaret Archer’s (2001) work, she objects to Lyotard’s and to Durkheim’s view that the “self” does not amount to much on the grounds that the “self” is treated as indeterminate material. When this happens the “displacement of the human subject” (p. 19), becomes an example of downwards conflation (where shortcuts are taken in sociology to allow the parts to dominate people). For Archer, the parts are society as a whole, not part of the society. Clearly indeterminacy is contradictory to the dialectical method evident in Harvey’s principles.

The implications of rejecting indeterminacy of the structures of the world (as does Bohm) and social structures and selves (as does Archer), means that all these things (such as gender, class, race, geography and self) can all determine learning outcomes. We cannot necessarily (or even adequately) predict what will be the outcome of learning, instead, as I will argue in chapter 4, we can only attempt to learn through a dialectical method, which will allow for the development of the potential of “being human” (both in the sense of Archer, 2001; and Vanier, 1998). Because of this, when it is said that we create spatio-temporalities for ourselves, we may create time and space that was non-existent before that point, but we do so around a framework of generative mechanisms that exist as the “mobilities” we have studied.

Because of the dialectical movement between the things in the world, and the ever-moving processes that create them, Bohm and other writers (Capra, 1982; Smolin, 2001; Talbot, 1992; Wilber, 1985a, 1985b) use the analogy of a hologram. For Bohm, the hologram analogy is used to explain the processes of the world that act as generative mechanisms.

3.3 Ontological Causal Relations, and Realism

The hologram analogy that Bohm raises offers an interesting perspective on realism and generative mechanisms. We can use this analogy to deepen our understanding of realism and causal relations. In doing this, we are able to understand how dialectics escapes the pitfalls of indeterminacy.

In the seventh season of Star Trek: Deep Space Nine, we find that the federation’s only Ferengi officer, Nog, has been wounded in a battle. The wounds to his leg require that the station’s doctor amputate his leg. Unable to deal with the

psychological aspects of the loss of a limb, Nog refuses to come out of his uncle Quark's holosuite. The holosuite is a modification of the original holodecks where complex holograms are made and whole interactive worlds can exist in a single room. The program that Nog becomes obsessed with is one of Vic Fontaine's Las Vegas lounge in 1962. Many of the station's officers, including the counselor in charge of Nog's rehabilitation, become increasingly concerned with this and bring it up with the hologram Vic, who has artificial intelligence, and is well aware that he is a hologram. After many days in the holosuite, Vic finally addresses Nog's unwillingness to face the "real" world.

NOG

*What do you think about moving the craps tables
Over to the south wing and expanding the slot
Machines out into here?*

Vic glances over the plans

VIC

Good idea.

Nog is a little surprised when Vic suddenly rolls up the blueprints and puts them away

VIC

I'll think it over.

NOG

But I'm supposed to meet with the architect tomorrow morning.

VIC

*Not anymore (pause)
It's time for you to go, kid.*

NOG

Go where?

VIC

You know where. It's time to end the program.

NOG

But... we've got work to do... we have a casino to build.

VIC

No we don't. This is just a fantasy... it's not real.

NOG

It's real to me and it's real to you – and don't say it isn't. I know better.

VIC

You're right – it's very real to me. But I'm a hologram, Nog. I'm not a person. Until you came along, I'd never been on for more than six or seven hours straight.

NOG

I know! But now you're running all the time. Isn't it great?

VIC

It's incredible. Since you've been here, I've slept in a bed every night... gone to work every day... had time to read the paper, play cards with the boys. I've had a life. And I have to tell you, it's a precious thing. I had no idea how much it means to just... live.

Now, I'm going to return the favor and give you your life back.

NOG

But I don't want that life anymore, Vic. I'm perfectly happy here.

VIC

What "here"? There is no "here". Don't you get it? This is nowhere. It's an illusion. And so am I. In fact, the only thing in this entire program that isn't an illusion is you.

NOG

Okay. You're right. But I'm not ready to go back yet. I need more time. So let's just sleep on this and we'll talk about it tomorrow.

VIC

Kid... I hate to do this to you, but you're not giving me any choice. Computer ...

NOG

No, don't!

VIC

... end program.

The hotel room vanishes, leaving Nog alone in the empty Holosuite. His old cane clatters to the floor.

For years now, the holosuite, and the original holodeck, (from the series Star Trek: The Next Generation), have been acting as catalysts for thought experiments by philosophers. Almost always, a scenario plays out (like the one above), where a computer generated hologram with artificial intelligence, challenges a cast member as to what is "real" and what is not. Bohm saw an advantage in viewing the world as a hologram. The

hologram exists as a product of a causal mechanism, and in turn (like the holosuite), affects the processes and ultimately the permanencies.

In Michael Hymer's (2000) work *Philosophy and its Epistemic Neuroses* he addresses one of the problems with the term "realism":

The term *realism* has acquired so many different, at times conflicting, connotations in so many different contexts that it might seem prudent to avoid it altogether. (I shall not exercise such prudence.) *Realism* has at one time or another been used to refer to a view regarding the existence of universals, as a synonym for *materialism* or *physicalism* (in contrast to *idealism*), as a view about the existence of unobservable entities postulated by the sciences (in contrast to *instrumentalism*), as a view in the semantics of natural languages that takes the meaning of a sentence to be given by its truth-conditions, rather than its assertibility-conditions (as is contended by proponents of "antirealism"), and as the related, but distinct, view that the truth-conditions of sentences of natural languages in some sense "transcend" our abilities to recognize them. (p. 13)

If we are to use the term "realism," then, we must examine the nature of what is real in a dialectical world. One use of the term "realist" would posit that there is something that exists outside of human existence. In this way, if all people ceased to exist, a realist would understand that there would be still something that was "real" in existence. For Marx, in his reply to Hegel's dialectics, he stressed a material realist position. But Harvey's dialectics, infused by the process philosophy of Whitehead, stresses that what is real are the processes and flows that act as generative mechanisms of the world. Harvey's understanding of Schrödinger's Cat would be that we need to

understand that, even if there was not an observer to trap the quantum potential, there would still be real causal mechanisms at work to either kill the cat or not. Dialectics, then, offers us an interesting concept of what is real by stressing the universality of process.

In *Being and Time* (1962), Martin Heidegger explains the problem of seeking ontological reality in permanencies or moorings and not within dialectical process.

...‘being’ cannot indeed be conceived as an entity; ... nor can it acquire such a character as to have the term “entity” applied to it. (p. 23)

The being of entities ‘is’ not itself an entity. If we are to understand the problem of Being, our first philosophical step consists in not ‘telling a story’ – that is to say, in not defining entities as entities by tracing them back in their origin to some other entities, as if Being had the character of some possible entity. Hence Being, as that which is asked about, must be exhibited in a way of its own, essentially different from the way in which entities are discovered. In so far as Being constitutes what is asked about, and “Being” means the Being of entities, then entities themselves turn out to be what is interrogated. (p. 26)

The essence of Heidegger’s concern sheds light on a subject that is often mired in questions of the auditory output of trees that crash in unpopulated forests⁴. If we are to focus the question of reality, existence, being, or *dassin* (as the German term is often used) on the entity or the permanence itself, we become caught up in a loop of inquiry that will only allow us to see a small part of its being. In fact, when only the entity is focused on, it may be argued that the “real” part of that entity’s existence is lost to us.

⁴ That is, if a tree falls in the forest, does anybody hear?

What is lost in examining only the entity are the causal and generative mechanisms that Harvey's dialectics and quantum mechanics stress as generators of the things in this world. The entity can only reveal to us something about the nature in which we learned about its generative process through conceptual abstraction. Heidegger's point may have in fact helped the characters (or at least the writers) of "Star Trek" to try and sort out the dilemma of what was real and what was not. The constant reference to different people, things, and worlds that are created by the holodeck, spirals into a self-referential examination. Perhaps it would have been helpful to examine the question dialectically and ask "what *processes* are real?". The question then arises: How can we come to understand the "real" process of the world when we only have entities such as words, terms, shared understandings and conceptual abstractions to work with? For better or worse, we surely couldn't understand the reality of process without the mediation of entities or permanencies (Plumb, 2004a). Herein rests the importance of learning. While conceptual entities like words are not static, they do have a certain stability that arises through the dialectical differentiation of space and time and allows them to have a history and to occupy a space in our world.

In recent years, the field of Critical Realism has made advances in trying to understand the concept of generative mechanisms as seen with Archer, (1996, 2001, 2003); Bhaskar, (1993, 1998); Danermark *et al*, (2002); and Sayer, (1998, 2000). Danermark *et al*, argue that "all knowledge is conceptually mediated and thus it is impossible to make neutral observations of 'facts' about reality" (p. 41). Like Aristotle and his critique of Heraclitus, critical realists argue that, if things remain in the realm of process, we have no method of understanding them. Danermark *et al* argue that the job of

understanding things (and the job of the social sciences) requires that we operate with “conceptual abstraction(s)” (p. 41, plural added). Danermark *et al* suggest that one of the underpinnings of these conceptual abstractions is to understand “key concepts such as ‘structure’ and ‘causality’ (p. 41).” Here again we see just how crucial Bohm’s theoretical project of order and causality are. Bohm offers dialecticians an almost irresistible argument that compliments the critical realist’s assertion of the importance of causality in the social and traditional sciences.

Danermark *et al* describes the nature of the conceptual abstractions.

Abstractions are necessary because they enable us to explain and understand concrete phenomena. For abstractions to be helpful, though, concrete phenomena must be the starting point of the abstraction process. Furthermore, it is a characteristic of this abstraction that we are dealing with a *process*. Different phenomena or problems may need rethinking, before we decide what we can abstract from them. (p. 50)

Danermark *et al*, build their theory of conceptual abstraction from the realist idea of generative mechanisms. Studying a “concrete problem” (p. 51) involves a double movement from the concrete to the abstract process of generative mechanism, and back. I would argue that this movement is dialectical where we differentiate between spaces and times to produce permanencies from process.

As we have seen in Bohm’s work, dialectics relies on a causal interpretation of the “real”. Although this understanding is not necessarily predictable it does not mean that it is indeterminate. The nature of the real is found in the study of Harvey’s understanding of process, and is explained by the understanding of Critical Realism’s generative mechanism. Dialectical thinking, conceptualized in this way, has great

implications for a learning theory that is willing to conceptualize the complex mechanisms that cause and shape human learning processes.

Chapter Four: Dialectics as Learning

In this chapter, I examine how learning is a dialectical process. In sections 4.1 and 4.2, I discuss and distinguish animal and human learning. Then, in sections 4.3 and 4.4, I draw upon Harvey's contention that dialectics is crucial for making political action possible, to contend how, using a dialectical method on a dialectical process (what I call second-degree dialectics) can provide the basis for learning that is non-violent action.

4.1 How We Learn Dialectically: Animal and Human Learning

In education, it is somewhat remarkable how seldom ask the question, "what happens when we learn?" Most often, when the question is asked, a very simple and unproblematic response is given: learning is the correlation of mental events to reality. People learn as they "find things out" about the world.⁵ A reductive explanation of learning such as this has two problems. First, it denies the importance of agents and agency in the world and resorts to an ideology of fatalism in education. Second, it presupposes that the world exists as a static and untouched entity, just waiting to be learned about. This does not leave any kind of influence on the effects that a learning agent has in being in the world. But if I were not here, realist interpretations of dialectics requires that something would continue to exist (in some form) without me. The same could be said for any human, or indeed all of humanity. The importance of agents takes

⁵ In this section, the term "world" is used many times. It is important to note that the term is not used to describe the particular world of Earth, instead, it is used to describe all that we exist in i.e., a lifeworld. This of course, could include other planets, stars, ideas, philosophies and understandings. In Wittgenstein's *Tractatus Logico-Philosophicus* (2004), he makes the claim that "1 The world is all that is the case" (p. 5), "2.04 The totality of existing states of affairs is the world" (p. 9) and "2.063 The sum-total of reality is the world" (p. 9).

into account all beings with an ability to learn, i.e. to make conceptual abstractions (which we will call learning) about the process of being. This encompasses not only humans but all learning beings. These beings have the ability to react to physical or mental stimulus and create a mediated world. This mediated world, as we have seen through the lens of dialectics, is the only understandable and conceivable reality. But there is a point of difference that will be examined next. While I would argue that the dialectical differentiation between space and time allows conceptual abstractions to happen for all acts of learning, humans and animals possess somewhat different tools for bringing about this differentiation. The difference of the tools between animal learning and human learning is that of cultural attention.

There are processes in this world which can react physically to stimuli. Rocks can change in response to factors such as erosion, heat, pressure and force. Plants change in a similar way. Any visitor to a grade seven science fair will likely see how a bean stalk can navigate a cardboard maze to find a light source. A plant can grow “around” things to maximize its growing potential. It can also react to seasons which are slow to change and keep its foliage longer in the fall. Proof of this is seen by farmers, gardeners and horticulturalists every time a season is slow to change, and physical stimuli in the plants react to the stimuli around them. In this way rocks and plants (indeed the environment) become processes that react physically to the world around them. Obviously, my world is vastly different to the world of a rock. Can it be said that these entities learn about the world?

While there is an act of sense operation at work for these entities, it is purely a reactionary one. In fact, it can be said that these reactionary acts, because of the inability

for the rock or plant to reified or create permanencies out of its experiences are only pure experience (that is to say, unless permanencies are created by an onlooker with the ability to learn). This fact is important. One may argue that, left to its own reactionary/experiential reality, a plant would grow and create permanencies that, at a later time, someone could witness. If we return to the chapter on quantum physics, however, it is clear that, with the plant, only the process is changing. There is not actually a so called plant whose growth we can measure until a learning actor engages with it. Only then does the plant's growth (or even the plant itself) become something reified. Herein lies the difficulty of understanding a process based world. Learning actors have the ability to understand things, but only by way of creating permanencies in the world. What happens in an experiential-based world of plants, rocks and high achieving Zen Buddhists, cannot be described in material terms. It cannot be given metaphor, for metaphor requires the use of permanencies. It cannot be accounted for by learning agents because it would not happen within a scope of time. As well, as we have seen in earlier chapters, the conception of space, as we have the ability to conceptualize it (take Aristotle's notion of space as a container), could not apply here either. These experiences cannot even be said to happen in zero time, for the use of the adjective zero denotes a type of material scale. The problem is that they cannot even be learned about. Plants and rocks cannot learn to react in a certain way to prevent or anticipate events. They are only able to react to a specific incident. The reaction is an event for which they are hard-wired to perform. What is lacking is the ability to retain or even create knowledge.

If we return to Chapter 2.3, we can now see why Whitehead's revelation of the differentiation between space and time is so important. If organisms (to borrow

Whitehead's own term) cannot make this differentiation, they lack the ability to learn. This is because the dialectical differentiation of space and time allows for learning to create representations of process.

As actors in the world, animals have the ability to exert a reactionary presence in the world as plants and rocks do. The difference is that, because they have the ability to create knowledge, animals can learn about the world. Creating knowledge requires the capacity for memory. Indeed the factor of memory is important, but there are many things that one could learn, and then forget. In fact it seems that it would be impossible to imagine a learning organism that has not forgotten something in their existence, regardless of the experience's duration. Simply because something is forgotten, we cannot really say that it was never learned. The prerequisite of memory in learning, then, is the ability to remember temporarily. Knowledge does not require a factor of truthfulness or correlation of mental function to reality. What it does require is an interplay of sense perception (or experience) and memory. This interplay creates a certain type of meaning making or cognition. My horses learn about their environment through navigating experience and sense perception. If my horse were to be turned out in a new pasture, she would quickly begin to learn the limits of the pasture, perhaps by brushing up against the fence. Perhaps she already has experienced the physicality of a fence in her old pasture and through a meaning making event of sense perception and memory, she knows what a fence is and avoid it. With this skill of learning, animals (especially mammals) are able to predict some phenomenon in this world as well as see causal relations. For example, a dog or cat will learn what the sound of a can opener means. Through their past sense experiences and a little bit of memory, they know that it is

supper time and come running like Pavlov's dog would drool. This type of animal learning is greatly demonstrated in Tomasello's (1999) work with primates.

Not so long ago, I had the opportunity to sit and watch a horse show with an old friend of mine from Calgary, Bob Grimshaw (2004). In his seventies, now, Bob has had a long career working with horses and has even won a world championship in Western riding in the 1980s. As Bob and I watched the show, there was one particular stallion who was getting more and more "anxious" as the show went on. The stallion, who knew it was breeding season, was beginning to act "study," as is term in the horse industry. As he neared various mares during the show, he would shake his head and call out to them. The rider soon became visibly frustrated with the declining control he was experiencing with the stallion.

I turned to Bob, and anxious to pick the brain of a much more experienced horseman, I asked what he would do if the horse were his. Bob, who was never one to disappoint when it came to interesting stories, told me a true tale of what happened to him just a few years back on a ranch in Arizona. At that time, there was a woman who had the exact same discipline problem with a show horse stallion she owned. The woman came to Bob Grimshaw and his son thinking that a top horseman like Bob would know of a way to better handle her stallion so that it would pay attention to the rider and not to other mares around it. Bob asked her if the horse had ever been turned out with other horses. She replied that because of the value of the stallion, she had always kept the stallion separate from other horses.

While many people would wait for the horse to misbehave and then attempt to discipline the horse the same way that you would discipline an ill-behaved dog, Bob had

a different plan. He simply turned the stallion out into a pasture with four or five Burros in it. The Arizona burro, is a small donkey that has been used as a pack animal and can thrive in the desert sun. The burros were female and were grazing at one end of the pasture. When the stallion was let out, they only turned momentarily to see what had been led into their pasture. The stallion, who was in excellent shape, trotted around the pasture momentarily, before seeing the burros. He then trotted down to the smaller animals, calling out to them friskily. The stallion pursued one in particular and mounted her in an attempt to breed. The burro, who was not in heat, reacted the same way any mare who was not in heat would, and kicked at the tender underside of the stallion. Surprised by the kicks, the stallion jumped back, but the kicking did not cease. Instead, the other burros in the pasture came to the aid of their pasture mate and all began kicking the stallion. Before long, the stallion had stopped his philandering ways and began to pay much more attention to grazing than breeding. The stallion was kept in the pasture and learned that there were types of behaviour that were acceptable if he wanted to hang out with his burro friends. As is almost always the case, the much better socialized stallion soon began to pay much more attention to his rider under saddle. This story is not a unique one. It is quite a common practice to allow stallions to learn that the females in the herd are usually the ones that will monitor social behaviour in a group.

The question that arises then, is why not reason with the horse? Could we not shame the stallion into behaving in a more appropriate manner? Could we not evoke a moral argument about his “sinful” behaviour? I ask these questions rhetorically of course, as animals cannot react to cultural reasoning. Tomasello (1999) details this in his discussion of the terms “social” and “cultural”. Animals have the ability to be social. As

the case of the Burros and the stallion show, the animals (eventually) were able to exist as a social herd. But the inability of having cultural tools, such as language meant that all learning had to occur as a result of a direct physical encounter and memory making tools.

Tomasello (1999) recognizes that humans can learn in a very different manner. I stress that the key word here is *can*. For humans can (and indeed do) exist in the world the same way that plants and rocks do (for instance, we do not have too much direct control over basic body processes like beating hearts, immune reactions or cell metabolism), and we can learn about the world the same way animals do. But humans are privy to a whole new method of meaning making about the world. This lies in our ability for cultural learning. For what is different about the ability for human learning is the ability for encultured people to negotiate meaning and hold joint attention about permanencies. Stressed in this example is the term encultured. As Tomasello illustrates, there are often cases of autistic people, and I would add people with advanced dementia, who are limited in the ability to engage of a dialectical process by learning with others. They may experience something in the world, however, in many cases, they are unable to share in many instances of the creation of permanencies of culture.

According to Lev Vygotsky (1978), that human development is a product of learning social and cultural roles. When Vygotsky first put forth this thesis, it was quite revolutionary, as up to that point, it was assumed that a person would develop all of the necessary cognitive ‘equipment’ and skills necessary to be encultured as they grew older.

4.2 “If You Can Read This Bumper Sticker- You Are Encultured”

So what are the implications for the concept of learning that humans can develop cultural and social tools, while animals can only be social? The idea of enculturation may

be best explained, not by eminent social philosophers but perhaps by “Far Side” cartoonist, Gary Larson. Larson’s cartoons are well known for his depiction of animals, and their imagined forays into the world of human culture. Take for example the dog who is trying to lure a neighboring cat into a trap in a clothes dryer. All the while, the dog is hiding around the corner hoping that the cat follows the signs that read “cat fud” into the trap. The humour is partly the fact that the scheme, and the trap, are Wiley E. Coyote-esque. But the other humorous factor is that every one knows that neither animal would be able to use the cultural tools of language to fall into, or to create the trap.

Enculturation is the factor that has led people like Daniel Dennett (2003) to claim that “human beings, unlike all other species on the planet, are knowers. We are the only ones who have figured out what we are, and where we are, in this great universe”(p. 22). Perhaps Dennett, gets a little carried away when he claims that unlike all other species, we are “knowers”. Certainly animals do have knowledge about a great many things. Many animals indeed carry around knowledge of consequence of actions (like my horse and her knowledge of her fence), and similarly, predictability of events (such as house pets running to the kitchen, when they hear the sound of the can opener). But what Dennett is getting at is that there is a certain type of knowing, and more importantly for us, a certain type of learning that humans can achieve.

Cultural learning is a very powerful tool that has emerged in humans and, as Dennett and Taylor (1991) both explain, it is one that is only a fairly recent event. Again, Taylor (1991) and Kollock and O’Brien (1994) contend that cultural learning has provided the basis for the cultural formation of concepts such as the individual. Note here that if we are to conceptualize a directionality between the concept of the group (or

culture) and individual, both authors show that the individual is not the basis for the group but rather vice versa.

But what exactly are the differences for encultured learners. If we return to two related scenarios, we begin to see the difference between the capacity for human learning. Let us start with the scenario of the 'new dog'. Imagine that there is an old dog that has lived with his owner for all of his life. The dog, who has been in a pattern of feeding, has long ago learned that the sound of the can opener means that food bowl will soon be available. Imagine though, that the owner decides to bring a new dog into the house. This new dog, although very healthy and well fed, has never heard the sound of a can opener. As well, the dog has always been fed at a different time than the old dog. Imagine then, the first day of feeding both the dogs in the household. The old dog would hear the sound of the can opener at supper time would gallop to the kitchen (or wherever his bowl may be). The new dog, unaware of both the sound of the can opener and the time of dinner, would surely be a little confused. He may see the other dog, and sensing his excitement, follow along and perhaps even join him in a pre-dinner frenzy. The new dog, when given the food, may then learn that the sound of the can opener before bedtime in the evening may mean he will be fed. In reality, for a dog to learn this, it would probably take a few more occurrences.

But let us go back to the time before the new dog heard the can opener and was given the food. In this time, the two dogs would have just met. We can all imagine what would have happened when two strange dogs would meet for the first time. There would probably be the mandatory sniffing of rear ends. Perhaps the younger dog would attempt to play with the older dog. There may even be an act of dominance attempted by one of

the dogs, to set into place certain rules of engagement (much like the previous story of the stallion and the burros). All of this behaviour is certainly familiar to most as classic *social* behaviour of dogs. But at this time we should ask our selves, “how can the new dog learn about the correlation between the can opener and being fed?” There is really no way, through strictly social behaviour for the old dog to teach the new dog, or for the young dog to learn about the sound of the can opener, before the young dog can experience it for himself. Even then, it may take a couple of direct experiences with the can opener and food for the new dog to learn the correlation.

To further illustrate the point of difference between cultural learning and social learning, let us add one other hypothetical situation to the story. Suppose that both of the new dogs are now well settled into their new home. Both of the dogs have learned what sound always precedes their feeding, and both have settled into their social order. But one day when the owner of the two dogs goes to let them out in the morning, the owner stumbles on a shocking sight. For on the front lawn, someone has erected a sign with the symbol of a Swastika on it. Let us surmise as well, that the owners of the dogs are too young to have experienced the horrors of war. It is very conceivable, that, like myself, the owners of the dogs have never seen any acts of violence or terror committed under the symbol. They have never been beaten up by (or even run into) a member of a neo-nazi group that would use the symbol. But as we could imagine, if they have heard stories of the war, or have seen the symbol in an encyclopedia or elementary school text, their reaction would surely be drastically different than the dogs’.

The dogs would probably continue to frolic on the lawn as they would most every day, unaware of the powerful symbol on the lawn. For the dogs, who would have little

way of knowing who their grandparents were (or even conceptualize the idea of multiple generations) would lack any cultural tools that would spawn the idea of a “Long Memory” popularized by folk singer Utah Philips (Sorrels & Philips, 1996).

If we were cruel people, we could teach the dogs to have a fear for the symbol. We could simply hold up a Swastika and strike the dog every time the dog would see it. Other than a direct sense experience with violence and the symbol, animals could not share in meaning making about the symbol.

Granted, it may be that the new dog, for whatever reason, was able to foresee that he, in his new home, would only be fed after there was an odd sound coming from the room where the humans ate (i.e. the can opener). This could indeed be the case. As a human, I can not really tell what the mental state of the dog could be at any given time. Indeed many attempts to do so only end in an projection of my world anyway. So let us grant for a moment that the new dog had indeed *a priori* knowledge that there would be the sound of a can opener, before he would be fed. This would mean that the dog was either very lucky at guessing, or had a very special talent. But alas, this miraculous talent of foreseeing the events before his feeding, is hardly a cultural tool. There is no evidence that the dog could share cultural tools with other dogs, and there even is a question as to whether a hypothesis or a canine *a priori* “vision” could even be classified as learning. I will leave this as an open question here, as my point is not to investigate this or whether animals could (in the future) develop cultural skills. Rather I would use this example to show the power that is available to humans through the dialectical process of cultural human learning.

What is interesting about the concept of human and animal learning is the nature of interaction involved with the two cases. In animals, there is a very immediate and primal physicality involved in the learning process. We have seen the cases of animals touching, smelling, and eating as paths to learning. Because of the lack of cultural tools, there is always a need for a basic physical relationship for learning to occur in a non-cultural environment. For humans, the same physical relationship is necessary, however it can become very complex and subtle. Take for instance, the example of distance education where a student in China is taking a class from a university in Halifax. The student still maintains a physical link to the teacher. This may take the form of a keypad, internet wires, telephone lines and waves that bounce off satellites in the planet's orbit. Obviously, these connections can be very complex, but remain crucial to the learning process of both animals and humans. This connection is perhaps best understood by Marx's theory of sensual interaction. As Harvey details

Material practices occupy their key position because Marx believes that sensual interaction with the world is the privileged grounding for all forms of human knowledge and for all understanding of what it means to "be" in the world. And Marx is not alone in this belief – it grounds much of western science, for example. Material practices are the measuring point precisely because it is only in terms of the sensual interaction with the world that we can re-figure what it now means to "be" in the world (1996, p. 93).

Indeed, in true dialectical fashion, this sensual interaction not only grounds all forms of human knowledge, but the reciprocal remains true as well. That is, our ability to learn allows us to differentiate between space and time and creates sensual interaction.

The question that is intriguing here becomes, what is it that gives us culture, to be able to negotiate meaning and learn the way we do?" Unfortunately, this question will have to remain open here, as we could go on for a long time with this subject. What is interesting, though, is that Tomasello *et al* (2004), point to ontogenetic factors in the development of culture and joint attention, or what they call "dialogic cognitive representations" (p. 1). These factors are both developmental and evolutionary, as humans develop a "species-unique motivation to share emotions" (p.1). They point out that the ontogenetic factors of humans do not exist in great apes or some children with autism.

An interesting point about the usage of language as a cultural tool has been made recently by Temple Grandin (2004). Grandin, an autistic woman, makes the claim that through her autism she has insight into how animals perceive the world. It is her claim that her autism requires that she think visually about the world rather than linguistically. While Grandin's autism is not so severe that she is unable to communicate with others, it allows her to be able to learn about the world both culturally and as animals do (what she describes as visually). Tomasello also makes use of the term "autism" to describe the inability to learn culturally. When described this way, we could also refer to so called autistic aspects of Habermasian (1987b) systems which impair the usage of cultural learning. In this regard, we could think of aspects of sweatshops or internment camps that restrict some flows of cultural learning to the people involved the same way that autism may restrict some cultural flows to a person.

Something happens to the dialectical aspect of learning when these cultural tools are employed. While animals learn dialectically about the world, that is to say, creating

permanencies out of processes, through culture many humans can create new processes (capitalism, love, justice etc.). These processes are brought about by somewhat different generative mechanisms (i.e. culture) but still rely on the same dialectical movement and differentiation between space and time. In *Communities of Practice* (1998), Etienne Wenger uses the terms “participation” and “reification” to describe a movement towards learning that is best described as dialectical. At the cultural level of a human community, Wenger describes the participation and reification as the negotiation of meaning.

I intend the term *negotiation* to convey a flavor of continuous interaction, of gradual achievement, and of give-and-take. By living in the world we do not just make meanings up independently of the world, but neither does the world simply impose meanings on us. The negotiation of meaning is a productive process, but negotiating meaning is not constructing it from scratch. Meaning is not pre-existing, but neither is it simply made up. Negotiated meaning is at once both historical and dynamic, contextual and unique. (pp. 53-54)

Wenger sees the importance of stressing what we have seen as generative mechanisms or as Bohm would call it an implicate order. This is important to remember that, even though meaning may be made of theoretical cultural concepts (i.e. love), there are generative mechanisms (in this case it could be histories, prejudices gender etc.) that shape our meanings that we abstract from processes.

4.3 Non-Violence, Emancipation and Second Degree Dialectics

In July of 2004, a man known only as Sanat from Minneapolis, Minnesota, sent an e-mail to the Learning Societies Conference (Sanat, 2004). The story was about a Thai/Vietnamese restaurant that he often enjoyed frequenting close to where he lived.

Every time that he walked into the restaurant, Sanat encountered a large fish tank behind the cashier with a large fish in it. One day, Sanat walked into the restaurant to find a second smaller fish being put into the tank with the larger one. Sanat watched the small goldfish hide behind the air tube in the corner of the tank while the much larger fish continued to swim around the tank at his usual leisure. As he watched, he knew something was a little odd to have an amalgamation of two fish that varied so drastically in size. Eventually, someone told Sanat that the smaller goldfish was what was called a feeder fish and was eventually to be eaten by the larger fish. Sanat was somewhat bothered by this concept. It wasn't that the fish would be eaten by the larger. This type of situation plays itself out in the wild every day. Eventually, Sanat came to realize that what bothered him was that the feeder fish had lived an existence only to be the larger fish's dinner. Sanat came to the realization that this was the essence of violence. It was not just the act of death or being eaten that was violence, but rather it was a violent act because the fish had its role in the world limited to simply being "dinner". Violence, as this example illustrates, can be understood as the limitation of roles from achieving their potential. Both physical and cultural violence are capable of limiting roles. In cases of sexual assault, the role of the victim becomes limited to the object of sex or sexual desires. This concept has led Caroline West (2003), to juxtapose the freedom of speech argument to argue *against* pornography on the grounds that the objectification that occurs ends up taking away from the ability of some (i.e. actors and women as a whole) to adequately enter public discourse and dialogue.

If we expand our examples of the violence through the limitation of roles, we can apply the definition to many different situations – the exploited worker who is seen as

only a means to an end, the minority that gets labeled as lazy or prone to steal, the murdered gang member who was shot because his gang flag was the wrong colour. Indeed, there are an infinite number of situations that can be called violent. In these cases, the physical act is violent because of how it limits roles. Take for example a victim of sexual assault. After the person is objectified as a sexual object and the physical harm is done, there can still be a certain cultural violence in classifying the person only as “victim” or “raped”. This type of violence can only occur through cultural tools. It serves as an example of the danger that comes along with these tools. Interestingly, it was once (and perhaps still is) told to people that may find themselves in a situation of sexual assault, that they should start to tell their assailant all the personal details they can about themselves. This may act as a deterrent as it eliminates the objectification of the person’s role as a victim.

So how does learning dialectically serve as a basis for non-violence and emancipation? While there can be many examples of cultural violence, we can also use our cultural tools to act non-violently and employ the cultural tool of emancipation. Indeed, this may be one of the most important parts of any Marxist dialectical project. Marx had little interest in simply understanding the dialectic; rather, he saw it as a necessity to use dialectics as a part of critical theory to remedy some of the ills in society.

In these examples of the violent limitation of roles, the role that is forced upon the victim becomes over-reified. There is little to no ability for the aspect of mobility or participation in the definition of roles. Instead of roles changing and being negotiated, the victim of violence is left to embody a single (or at least very few) roles. Hence, when the person being sexually assaulted, begins to tell their assailant information about herself,

the assailant begins a dialectical movement, differentiating many new spaces and times about the person and the person's humanness. In essence, the act of learning the many roles of our existence, is at the heart of non-violent action. As Jean Vanier (1998), would describe, this embracing of roles, including weakness, allows for us to "become human". The act of learning the many roles of a being does not simply entail a quantitative action. That is to say, it is not simply a matter of learning a set number of things about someone and when we can identify a number of roles, we enable non-violent action. While understanding social and cultural roles are important, (Charles Taylor, (1991a), attributes these roles to the basis of identity theory), I would argue that the method of conceptualizing the roles of organisms to be the key to non-violent action. This method is something that I will call Second Degree dialectics. We have seen in the previous pages that when we learn, we create conceptual abstractions by the differentiation of space and time, from fluxes and flows into permanencies. In this way, learning agents participate in bringing about dialectical movement into the world. When we have created these permanencies however, we may fall into the trap of over-reifying the concept to the point where dialectical movement grinds to a halt. What becomes crucial is that, with cultural ability, humans have the great responsibility of sharing attention, or providing joint meaning to these permanencies. Like the example of the swastika and the dogs, any over reification by non-cultural learning agents, remains only at the realm of direct experience with the learning agent. This means that any violence that a dog may experience which is learned to be associated with the symbol of the swastika, can never be shared with others. But now let us consider, the act of limitation of roles, or the over reification of roles on a cultural level. When we allow for the ability of shared attention, and couple this with

over-reification, we begin to see things such as systemic racism, sexism, and genocide. In many of these cases, people become engendered (pun intended) with a limited role of other people, as they learn their way into certain groups. Often, without any direct experience with another cultural, racial, linguistic, or sexual group, people will learn the belief that one group is superior to another. The role of the believed subordinate group then shrinks in the minds of both groups, and then the opportunities to participate in public and private life.

When this happens, we must employ our ability for second degree dialectics. That is, we must be able to employ a dialectical method on a dialectical thing. In this case, the so called thing is what we have learned dialectically. I would argue that all learning happens dialectically, whether we are actively aware of it or not. However, to act non-violently, we must then engage our thought process into a dialectical state and think dialectically about what we have learned. This allows two things to happen. First, we begin to assume a critical method of examining our thinking and learning. Second, and perhaps more importantly, we begin to engage with the fluidity that is our experience. Unfortunately, as Harvey (1996) and Plumb (2004b) point out, thinking in this second-degree dialectic proves to be notoriously difficult.

Engaging in a dialectical method, or second degree dialectics, allows our cultural tools of learning (language, music, art etc.) to grasp the dialectical aspect of mobility. This is crucial when we strive not to limit roles in a violent manner.

The limitation of roles can happen in a number of ways. We have already seen a number of very overt examples like sexual assault, murder and robbery. But there are many times when people with very good intentions limit roles. This might happen, for

instance, when humans are reduced to being economic producers, or when people separate themselves from things we consume and the roles (life-force) that other people have invested in these things.

Let us look at the first example of understanding humanity in terms of economics. Marx (1967), and later Walter Benjamin (in Tiedmann, 1999) both used the term “phantasmagoria” to describe the limiting of roles in the world to “things”. More specifically, it was a certain commodity fetishism in which “a *Blendwerk*, a deceptive image designed to dazzle, is already the commodity itself, in which the exchange value or value-form hides the use value ⁶” (Tiedmann, 1999, p. 938). Indeed, both Benjamin and Marx stressed that not only are the use values hidden away, but the social relations in the mode of production and mode of consumption escape our understanding and critique. The workers and labourers involved with the phantasmagoric product then are limited in their role to producer. In many cases though, workers would be lucky to be considered at all. When market participants fall into phantasmagoria, human agency begins to fall by the wayside, and instead we slip into channels of predetermined outcomes. While many people believe to be acting in their (and other) interests, they are only operating in a world of fetishes engendered by the conception of objects and their thingishness.

To a lesser severity of phantasmagoria, people still engage in the limitation of roles through their disassociation from the chain of consumption. This is somewhat

⁶ It is somewhat interesting to compare the conception of phantasmagoria, as the deceptive image designed to dazzle, becoming the commodity itself, and Jean Baudrillard’s (1995) argument about how the dazzling hype of the gulf war took the place of the actual fighting. Although it is important to note that in Tiedemann’s analysis of phantasmoria, he never denies that there is still a real commodity or underlying value to the dazzling image.

different than classic phantasmagoria, as people do not strive to consume a dazzling image, rather it becomes a sort of malaise in failing to realize their connectedness to the goods they consume. One of the best examples of this is often seen in food, where people will often buy subsidized international food (where there is no knowledge of the conditions of workers, or environmental costs) instead of opting for more expensive small farm produce. One would have to look no farther to see the detrimental side and an excellent solution to this problem than the Antigonish movement in Nova Scotia (See Baum (1977), Coady (1939), Grace (1995), Lotz & Welton (1987)&(1997), MacInnes (1978), and MacLellan (1985)).

Often commodity disassociation occurs in neo-liberalist thought or in instrumental reasoning critiqued by Habermas (1987a) and Taylor (1991b). Taylor states:

...the ways the demands of economic growth are used to justify very unequal distributions of wealth and income, or the way these same demands make us insensitive to the needs of the environment, even to the point of potential disaster. Or else, we can think of the way much of our social planning, in crucial areas like risk assessment, is dominated by forms of cost-benefit analysis that involve grotesque calculations, putting dollar assessments on human lives. (pp. 5-6)

Commodity dissociation is central in many of David Harvey's works as he explores the limitation of roles in people and cultures placed upon them by other's actions involving globalism, urban structures and modes of production. At this stage, I will not go into a critique of globalization or capitalism, but rather use them as examples of instrumental reasoning and the way that it propagates violence through the limitation of roles.

4.4 Second Degree Dialectics, Non-Violence, Dialogue, and Language

If we have tools available to us that allow us to engage in a dialectical method with the world, what are they? Perhaps we can look to the struggle that many have had in describing dialectics with language as a tool and not a hurdle. We have seen how Whitehead used the word “event” (Harvey, 1996, p. 52) to describe the things which exist. Harvey himself chose to use the term “permanence” (1996). Although Marx allowed dialectics to conceptualize the flows of the material world, dialectics have always allowed for change and transformation on some level. For Hegel, it was ideas; for Aristotle, it was reasoning. For culture, one of the most important uses of language that encompasses fluidity, and allows for the exploration of roles, is dialogue.

In his work on Indian home rule (2001), Gandhi contends that in “home rule” the voice of the English must be incorporated. Not only was Gandhi advocating dialogue for the emancipation of India, but, as a method, Gandhi chose to write in the form of a dialogue between the “reader” and the “editor”. This kind of method has been employed by Bohm (1987, 2002, 2003 and Krishnamurti & Bohm, 1985), and Freire (Freire & Shor, 1987; Freire & Horton, 1991). What is interesting about this method is that the writers understand that the ways in which we engage in dialogue and language can potentially bring about the limitation of roles. This is, unless we engage our cultural powers of a dialectical method with our usage of language. In fact, the term dialectic is derived from the Greek term *dialegesthai*, which means to converse (Friedrich, 1968).

Dialogue, has a great potential to allow us to explore our vast array of roles as cultural agents. The ability to use language as a dialectical method has been a considerable hurdle for humans over time. Harvey and Whitehead have struggled to create permanencies of words, and still maintain the fluidity of the world. Bohm argues

that our use of dialogue and language should employ a rheomode or a flowing mode (a term derived from the Greek verb 'rheo' which means 'to flow') (1980). A rheomode of language, stresses an understanding of language in the same way that quantum physics requires a dialectical view of permanencies.

The reason for this is not only that the subject-verb-object form of the language is continually implying an inappropriate division between things but, even more, that the ordinary mode of language tends very strongly to take its own function for granted, and thus it leads us to concentrate almost exclusively on the content under discussion, so that little or no attention is left for the actual symbolic function of the language itself. (Bohm, 1980, p. 40)

A rheomode for Bohm, is a way to tap into participatory thought. This participatory thought has been seen in cultures where people "felt that they were participating in some of the things that they saw – that everything in the world was participating, and that the spirit of thing was all one" (2004, p. 96). Harvey and Ingold make a similar point about being "in" the world. The notion of the rheomode also highlights the non-violent nature of engaging in the world dialectically or with second-degree dialectics. By understanding the fluidity or process of the roles of cultural beings and the world we live in, we can allow for the full development and recognition of our roles. An understanding of second degree dialectics really undermines the absoluteness that is falsified through the illusion of objectivity. In this same way, we understand fluidity and process as a point of not understanding or being uncertain. A dialectical method is similar to Adorno's Negative Dialectics (1966), and Roy Bhaskar's (1993) conception of dialectics that stems from absence. Indeed, it could be argued that most

dialectical projects have a common thread of contradiction, absence, or unity in opposites. Bhaskar (1998) explains that, “Real negativity, understood most simply as absence, or, qua process, absenting, and a fortiori the critique of ontological monovalence, is vital to dialectic. Absenting processes are crucial to dialectic conceived as the logic of *change* – which is absenting (p. 592).”

The obvious question that would then arise is to why this thesis is not written as a dialogue, that would record the duality of speakers in a conversation. I would argue that, when authors write as a dialogue, its purpose is to draw attention to the fluidity of knowledge. This can be done through the internal conversations we have with ourselves (Archer, 2003). Dialogue does not necessarily attempt to privilege any form of cultural learning process, or communication. Instead, it attempts to account for alterity and the “other” in the same way that Edmund Husserl’s task (1967), detailed by Derrida (1978) is to account for the other in his phenomenological method. This means that the other is not constituted necessarily *by* my experience of dialogue but *with* it. The dialectical method then must act as a destabilizing project for the limitation of other’s roles. It does so by re-asserting alterity and the otherness of roles. Within dialogue, the otherness of roles includes other people, ourselves and our lifeworld. Caution is required, though, for the other can be used for good and bad. Often, people are target for acts of hatred simply for being the other. As Derrida details (1978)

“The Other is the only being who I may wish to kill,” but the only one, also, who orders that “thou shalt commit no murders,” and thus absolutely limits my power. Not by opposing me with another force in the world, but by speaking to me, and by looking at me from an *other* origin of the world, ... (p. 104).

The destabilizing aspect of dialogue and dialectical learning is not a deconstructionist project, though, but it does attempt to include the fluidity of process and the exploration of roles. As I quoted Harvey at the first of the thesis, dialectics, dialogue, and critical analysis attempts to “find a more plausible and adequate basis for the foundational beliefs that make interpretation and political action meaningful, creative, and possible (p.2).”

Dialectics are necessary for any learning to occur. Indeed, on an analytical level, a dialectical theory is necessary to understand ontology. But for encultured beings, when we actively employ David Harvey’s dialectical method to learning (call this second degree dialectics, or a dialectic method on a dialectic thing) we engage in social and cultural complexity which when applied to human learning serves as a basis of emancipation and collaboration. Not only is the world dialectical, but encultured humans can employ a dialectical method of moorings and mobilities, and of processes and permanencies, to understand the world and each other (and indeed knowledge and learning) which avoids the endarkment of knowledge and the violence of the limitation of roles, and drives cultural tools forward in socially just manner.

Chapter Five: My Culturally Negotiated, Dialectically Reified

Cogredence of Space and Time (Formerly Known as Conclusions)

During a research trip, on a warm spring night in Kingston, Jamaica, I traveled in a van to Hellshire Beach (pronounced in Patois as *Hell-sha*) for a supper of red snapper. The fish was cooked by the local fish mongers over an open fire in small wood huts by the beach. In the van was Donovan Plumb (supervisor of this thesis), myself, and three other students, two of whom were Jamaican. I was lucky enough to sit by a Jamaican woman, who was my age (twenty-four, at the time). She explained to me that her thesis was about “Take telling,” a term that referred to a way of speaking to others, by using a position of power (so that the person would take what you are telling them, without any input). This was usually found in relationships in which the male used his position to tell the female what to do. She was studying this to see how people in these situations learned. After she had explained this to me, she asked me what my thesis was about. The conversation continued something like this.

“My thesis?” I asked.

“Yes, Robert,” Donovan said, looking back from the front seat, “Why don’t you tell them about your thesis.”

Ultimately, no matter how proud you are of your thesis, that question always becomes the most dreaded question of any graduate student.

“Ummm, Adult Education.” I muttered, staring at my shoes, hoping that I could get away from answering the question with that answer. There was an awkward pause in the van though as we were all adult education students and the answer was a bit on the

general side, to say the least. After a couple of seconds bumping down the Jamacian road, I decided that I would indulge them a little more as to what I was doing.

“Well,” I continued “It’s about the theory of dialectics.” I looked at the rest of the van who, were either looking quietly straight ahead or directly at me with blank looks. “Dialectics would assert that the world is ever changing, and the things in the world are created by us as permanencies. I would argue that learning is the creation of permanencies out of process.” There was still no sound in the van except for the faint hum of Bob Marley’s “Iron, Lion, Zion” coming from the tape deck. A little disheartened, I continued, but with a little lower (and perhaps, a somewhat more pathetic) voice. “I would argue that we can use dialectics to learn non-violently. This has major implication for theories of learning.”

My fellow students were looking at me with that kind of blank look that you never want to see after you have explained your thesis. I once again reverted to look at my shoes and muttered again, “Yes, adult education.”

Although I am not alone in being excited about the study of dialectics, I have resigned myself to the fact that it may not be the most popular subject to study in the field of education. It is a bit of a shame that the theory of dialectics may not be the most popular, or at times, the most accessible subject, because there are a number of implications of dialectics that are crucial for edu-learners to understand.

As we have examined in Chapter 2, Harvey’s theory of dialectics requires us to examine the way we exist in the world. For many, it could be fairly radical switch to try and think dialectically about the world. Indeed, on a personal level, I find myself constantly challenged to try and understand my existence and the existence of the world

dialectically. It seems so easy (perhaps that is why it is done so often) to understand only the moorings of the world. But thinking of the world as static and unchanging has a great pay-off. When we only account for moorings, or permanencies, we feel like we can predict and control the world. The common understanding of the world issues a challenge to quantum physics. In a world where results are of greatest importance, dialecticians like David Bohm have great difficulty asserting the fluidity of knowledge and rebuking the indeterminacy of the world. But what happens when we attempt to learn in a world of moorings? For one, it allows us to transfer information effectively. If we can eliminate the things that we cannot control and manipulate what we can, we can truly manage the results that we set out to accomplish. How much someone has learned can be measured easily. If a student has assimilated fifty-one percent of the information that we have shared with them, then they can pass.

I would argue, however, that, despite the widespread belief that it is possible to predict and control learning, this type of learning is still happening dialectically. A space and a time of an idea, is still being differentiated, for the learner. This differentiation happens as the result of a real process, which acts as a generative mechanism (Chapter 3). If it is happening culturally, then others will influence and be influenced by this as well (Chapter 4). This dialectical movement explains what happens in the story of the measurement of grades. But, while dialectics explains what is happening while we learn, what I have tried to argue, as well, is that we can use this dialectical method to create learning that is, at its essence, non-violent (Chapter 4). Using a dialectical method to understand a dialectical thing, such as learning, is really a second degree dialectics. This

is the same as a second degree emotion (an emotion about an emotion, i.e. I am happy that I feel loved), or a second degree desire (i.e. I wish I did not crave cigarettes).

In attempting to understand the structures of reality, Abel (1976) makes the claim that:

We must avoid two complementary errors: on one hand that the word has a unique, intrinsic, pre-existing structure awaiting our grasp; and on the other hand that the world is in utter chaos. The first error is that of the student who marveled at how the astronomers could find out the true names of the distant constellations. The second error is that of the Lewis Carroll's Walrus who grouped shoes with ships and sealing wax, and cabbages with Kings... (Abel in, Leshan & Margenau, 1982, p. 23)

It has been my contention that thinking dialectically enables us to avoid both of these errors. Instead of relativising a learner's position in the world, a deliberately employed theory of dialectics, what I have called second degree dialectics, enables us to engage in non-violent and emancipatory political action.

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