∞ PEDAGOGY OF COSMIC PLACE ∞

An Introduction

March 2015 Vol. I

Discovering Universality with Montessori & the Natural World

"I never told you about that letter Jane Crofut got from her minister when she was sick. He wrote Jane a letter and on the envelope the address was like this: It said: Jane Crofut; The Crofut Farm; Grover's Corners; Sutton County; New Hampshire; United States of America. But listen ... it's not finished. The United States of America; Western Hemisphere; the Earth; the Solar System; the Universe; the Mind of God - that's what it said on the envelope. And the postman brought it just the same!"

Thornton Wilder, 1938, *Our Town*.

Abstract

This paper explores Montessori's Cosmic Education as it embodies Pedagogy of Cosmic Place and its potentially transformative role through an Eco-cosmological view in restoring the human-Earth-Cosmic relationship. The paper includes an exploration of Cosmic Place, and the major influences that shaped my understanding of what it means such as systems theory, Neurophenomenology, the role of The Story of the Universe, the role of Nature, the origins of Cosmic Education and ways to enhance the Montessori pedagogy with ideas from contemporary educators and scientists. The paper also includes an exploration of environmental place-based education, mainstream education as well as Indigenous and Russian alternative teaching practices within the context of Pedagogy of Cosmic Place. The potential role of Pedagogy of Cosmic Place in mainstream learning environments is also explored.

∞ EDDY PRESS ∞

5762 Hwy 7 East, P. O. Box 54099, Markham, Ontario, Canada. L3P 7Y4

E-Version

ISBN: 978-0-9876867-9-4

Books may be ordered through booksellers or from:

www.eddypress.com

PEDAGOGY OF COSMIC PLACE

Discovering Universality with Montessori & the Natural World

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March 14, 2015.

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Introduction

I am an eternal being able to trace the roots of my existence back to the fiery ball of Creation. I journey through this present life expression observing the critical times we are experiencing, the unrest, the destruction of Earth and her inhabitants. From my perspective, humankind has been traveling at a reckless speed on a material road that is leading us toward mass extinction. Viewing the world through the lens of a Montessori pedagogue, I believe that the decisions we make today have the power to shift us into a higher, nobler, more loving way of being, lifting us above the highway of potential destruction and giving us wings to fly. I ask myself, "What role I can play in helping the human race earn its wings?"

Italian physician and educator, Maria Montessori, laid the foundation for a rich, integrative learning experience for the child between six and twelve, using The Story of the Universe as a unifying agent. She raised the bar for educators with her vision of Cosmic Education: a holistic pedagogy which orients and inspires learners as they come to understand themselves, the Earth and her inhabitants within the vast, cosmological context. My present view as a Montessori educator is to observe humanity not from an ambitious, egotistical perspective, but rather as a sculptor chiselling quietly away in the highest peaks of a Gothic cathedral. I view the Universe from an angle of deep beauty and positive energy as I search for a balance between a couple of elements in order to carry the art of teaching forward into the future. My question becomes, "*Given the state of destruction on Earth today, as well as the advancements in scientific thought regarding systems theory and the common origins in the primordial fireball of*

creation, what role can the Montessori vision of Cosmic Education play in restoring a balanced, harmonious human-Earth relationship?

Montessori proposed in a 1946 lecture that we live in a world that has caught us by surprise (in MM Montessori, Jr. 1976, 1995, p. 70). In Western culture, it seems that our technological advancements have surged ahead without the benefit of a mature conscience to guide the creative process of invention. While some might say that technology will save us from the brink of environmental destruction, others such as philosopher and author Jiddu Krishnamurti (1953, 1981), have quite the opposite view:

> Technical knowledge …will in no way resolve our inner, psychological pressures and conflicts and it is because we have acquired technological knowledge without understanding the total process of life that technology has become a means of destroying ourselves. The human who knows how to split the atom but has no love in his heart becomes a monster. (p. 19)

Krishnamurti and Montessori suggest that we have advanced too quickly without evolving our consciousness or maintaining love as our guiding principle for invention. Geologian and cosmologist Thomas Berry (2006) suggests that we have arrived at a most critical stage of environmental disaster as a result of our increasingly anthropocentric view within the web of Creation and our efforts to live as separate and superior agents. Brian Swimme (1984), mathematical cosmologist, sheds light upon what he says are our futile attempts to live outside the web, which have led us toward disaster: "What else could we have expected, trying to live outside our habitat? Can a whale live in hydrochloric acid? Can an oak tree send down roots into a tar pit?" (p.122).

Perhaps we are in an environmental tailspin and need to raise our awareness to an "Eco-cosmological" (Gang & Morgan, 2003) level of perception, where we can begin to restore our relationship within the vast web of Creation and reawaken to the sacred role of human consciousness within it. If this is so, is it possible that education is our most effective, long-lasting transformational tool? As a participant in The Institute of Educational Studies (TIES) program, I found myself contemplating what I feel to be some of the most poignant factors with regard to education and more specifically, the Montessori vision of Cosmic Education. I considered how this integrative, holistic pedagogy through its Eco-cosmological view, offers us a path toward the evolvement of human consciousness into that of the "mature human" (Swimme in Rogin, 2007) so that we might guide ourselves through this urgently needed phase of transition. In terms of the need for an awareness of our place within the cosmological order, Berry (1999) states:

> Indigenous peoples…live in a universe, in a cosmological order, whereas we, the people of the industrial world, no longer live in universe. We in North America live in a political world, a nation, a business world and economic order, a cultural tradition, a Disney dreamland. (p. 14 -15)

During my TIES research, therefore, I sought to find a way to foster an awareness of humanity's place within the cosmological order. I began to explore the concept of 'place' in education, but from a cosmological perspective; subsequently, I was inspired to begin developing the concept of 'Pedagogy of Cosmic Place'. Could the extension of the term 'place' from an ecological to a cosmological level provide an avenue for building a bridge between humans, Earth, and Cosmos? I began to explore Cosmic Education as it inherently embodies the concept of Pedagogy of Cosmic Place along with ideas as to how educators might extend the use of this

concept in the learning process in order to further facilitate a shift toward an Eco-cosmological view in our work with children. I came to see the natural world as a bridge to the Cosmos that will offer the child a concrete connection to her or his own cosmic heritage. Therefore, it became evident to me that there is a need for a more intimate and spontaneous connection with the natural world in the learning process. As educators and cosmologists have suggested, I believe the need for creating effective, long-lasting change is crucial to our times. Cosmic Education, through the concept of Pedagogy of Cosmic Place and the natural world as bridge to the Universe, may offer essential tools for the evolvement of the human race during these critical times not only within the Montessori tradition but in mainstream education as well.

In describing the crucial need to create effective, long-lasting change, Swimme (in Rogin, 2007) suggests that we are, in actuality, in the process of creating a whole new species of humans. As we morph from the old world *Homo sapien* at the end of the Cenozoic Era, we are creating a new phylum of humans: the *Eco sapien* (Gang & Morgan2003) with the dawning of the new "Ecozoic Era" (Swimme in Rogin, 2007). David Bohm (1991), physicist, suggests that what is ultimately required to bring about authentic change is a shift in consciousness: "We'd have to consider changing society fundamentally but we couldn't do that without changing the whole consciousness…" (p. 203). According to Swimme (1984), in losing our way, we have lost sight of the higher purpose of the human as an integral part of the Universe as well as a way through which the Universe perceives and experiences itself (p.122). This has led to what Bohm (1991) calls a crisis in meaning that is also "…a crisis of consciousness for meaning is at the core of consciousness" (p.204). Assuming that humankind is, as these authors suggest, in a crisis of consciousness, I came to wonder what role the concept of Pedagogy of Cosmic Place, when woven into the fabric of a learning experience, can play in restoring what appears to be a

disconnect from 'cosmic consciousness' or an awareness of ourselves as integral members of the Universe. Can orienting ourselves within the vast cosmic tapestry and developing a sense of place within it restore meaning to our lives?

Through its implementation, Cosmic Education offers a sense of Cosmic Place and subsequently opens the door toward realization of a higher purpose for the young generation by rendering them cosmically conscious creators in the vast web of Creation. In the Montessori environment, The Story of the Universe as a unifying agent inspires awe, wonder, and appreciation for the Cosmos in the learner's heart. As children come to understand themselves and the Earth within a vast, cosmological context, this Eco-cosmological lens of perception opens the door to experiencing universality. Children recognize the common origin of all things and are inspired to embrace the meaningful role they play as co-members and contributors to the web of existence.

As my research and study in the TIES program progressed, I began to understand that there may be room to expand the Cosmic Education curriculum. The reasons for this were twofold: firstly, to update material to more accurately reflect contemporary scientific views of systems theory and the origins of the Universe and secondly, to address the present needs of the human-Earth relationship. TIES co-founders and professors, Marsha Snow Morgan and Philip Snow Gang partially inspired this avenue of research with their development of a meaningful array of concepts, curricula pieces and materials to enhance the Eco-cosmological view in the Montessori learning experience. Further insight and inspiration for this research came from Swimme (1984) and the primordial dynamics explored in his book, *The Universe is a Green Dragon*, as well as from TIES professor Enid Larsen (2008), and her insights regarding the role of passion or 'Eros' in education. Additionally, insights regarding observation in the teaching-

learning process were gleaned from the young science of Neurophenomenology which was first developed by physicists Francisco Varela and Humberto Maturana (Laughlin et al, 1990). An exploration of the Kin School of Russia created by experimental educator Mikhail Shchetinin also added new dimensions to my TIES research as well as North American, First Nations' pedagogical practices and contemporary environmental education programs.

As I explored ways to expand Pedagogy of Cosmic Place in the Montessori environment, through my practicum experience and research in Neurophenomenology, I came to realize that the concept of Cosmic Place might also be applied and developed within mainstream learning environments using Nature as a bridge and gateway to The Story of the Universe. My 25 years of experience in the field of education has been both with Montessori students and students of all ages from mainstream learning systems. Over the years, I have searched for ways to offer elements of Cosmic Education to mainstream students in order to share an integrated, loving understanding of the role of humans within the Universe. Through Pedagogy of Cosmic Place, it is my hope to offer a new, meaningful angle of exploration to both non-Montessori and traditional Montessori pedagogy.

The paper begins with an exploration of the meaning of Cosmic Place and the quantum principles that have helped to shape my understanding of what it means. It then looks at education within the context of contemporary systems theory followed by an exploration of indigenous educational practices as they embody Pedagogy of Cosmic Place. What follows is an exploration of mainstream education and its influence upon the human-Earth relationship and an examination of education within a cosmological context. Models of environmental education lead the dialogue toward a more in depth exploration of Pedagogy of Cosmic Place. This paper then looks at ways to enhance the concept of Cosmic Place within the vision of Montessori's

Cosmic Education with new ideas from contemporary educators and scientists. An exploration of Shchetinin's Russian Kin School adds further depth to the discussion about Cosmic Education. The paper finishes with an exploration of the role of Nature as a bridge to the Cosmos and the potential role of Pedagogy of Cosmic Place within contemporary learning environments.

The first chapter begins with an exploration of the principles of systems theory and the concept of Cosmic Place within its context.

Chapter I: Understanding Cosmic Place

"The voyage of discovery lies not in seeking new vistas but in having new eyes."

Marcel Proust 1871 - 1922

In 1929, scientist Edward Hubble looked through a telescope and discovered that an expanding Universe is moving away from a common point of origin. This revelation has opened the door to radical changes in thinking and perspective within the scientific community, and has created a new understanding of our place within the Cosmos. The mechanistic interpretation of a gloomy, universal scape doomed to inevitable collapse influencing human culture for the past 300 years, sharply contrasts the newly evolving systemic vision of a vastly interconnected Cosmos. The new view presents humanity with the realization that through its intricate network of relationship, rivers of creativity and perpetual transformation are unfolding across the web of existence. It appears we no longer live in a Cosmos comprised of finite parts but are engaged in a dynamic, ongoing process: a 'Cosmogenesis'. The implications of such a discovery are far-reaching as we begin to orient ourselves within the largest text without a context – the Universe itself and find ourselves grappling with the notion that we are cousins to the stars. In *Rethinking Education,* Gang (1989) writes:

> The consequence of [Hubble's] discovery was the realization of an expanding universe in juxtaposition to the dominant world view of a fixed universe. An expanding universe! Expanding from what? The most immediate connotation is that it must be expanding from a singular origin. That is the universe had a common beginning and that all of us

> and everything we see, touch, smell and know, are further articulations of an explosion that occurred some...[13.7]...million years ago. We are one! (pp. 32-33)

With this new discovery, suggests author David Toolan (2001, 2003), a story of origin was born (p.138), or perhaps we might say, was 'rebirthed' into mainstream human culture. The Story of the Universe remains an integral part of mythology in indigenous cultures while the more mainstream, secular world seems to have gradually detached itself from such remembrance or acknowledgement of cosmological origin (Berry, 1999, pp. 14 - 15). Swimme (2007) suggests in film maker Neil Rogin's *Awakening Universe*, for example, that we tend to think of ourselves in smaller categories such political, cultural or economic as opposed to cosmological. As environmental educator, Christopher Uhl (2004) remarks, "We rarely take time to look up at the stars." (p.11). With Hubble's discovery of an emerging Universe coupled with further confirmation from scientists Arno Penzias and Robert Wilson in 1963 and the recording of the "…primordial sound wave of the birth of our Universe…" (as cited in Toolan, 2001, 2003, p.139), it seems to me that The Story has undeniably presented itself: "Suddenly, the cosmos had a history, a narrative story, going from almost nothing to a very big something" (Toolan, 2001, 2003, p. 139). It appears with these remarkable discoveries that we not only have the opportunity to embrace The Story of the Universe but also to come to the realization that we are an integral part of its continued unfolding. This awareness offers multifaceted opportunities to wonder – not only about our purpose within the Cosmos but also how humanity might consciously and actively make a meaningful contribution to the next chapter in this vibrant, epic, ongoing tale of Cosmogenesis. Perhaps most importantly, it offers us a communal cosmic address in

our shared point of origin within the primordial fireball. At last we find ourselves *"At Home in the Cosmos"* (Gang, 2014) as The Story unites us together, in spite of widespread, differentiated world views. The Story, in essence, appears to offer us our undeniable universality.

It seems then that these important scientific discoveries over the last century have reaffirmed our Cosmic Place within the universal tapestry. Add to this, the evolving systemic theories within the scientific community, and a greater understanding of our role within this perpetually evolving narrative of independent yet interdependent systems emerges. Berry (1999) writes:

> The story of the universe is now being told as the epic story of evolution by scientists. We begin to understand our human identity with all other modes of existence that constitute with us the single universe community. The one story includes us all. (p. 200)

In the following section, I will explore the concept of Cosmic Place within the context of systems theory.

Systems Theory and Cosmic Place

The Story of the Universe embodies the theme of unity, giving us an understanding of our place within the Cosmos through the concept of common origin as well as by offering a systemic view of perception where everything in the Universe is interdependent and defined by interrelationship. A shift away from a mechanistic

Newtonian view toward a systems view is underway as ecologist and educator Uhl, (2004) explains:

> Western science over the past five hundred years has focused on understanding nature's parts. By reducing the world to its parts,…scientists believed they could understand it…The reductionist approach has been extremely fruitful but, in the end, not wholly satisfactory. Scientists now know we cannot fully understand the essence of things by simply taking them apart. The whole is more than the sum of its parts. For example, when iron and nickel are blended, they produce a material, steel, with a tensile strength far greater than the combined strengths of iron plus nickel. The properties of any 'whole' are the result of the interactive relationships among the parts and these interactions produce 'emergent properties'
>
> …The relatively new field of systems science serves as a kind of counterpoint to exclusively reductionist and mechanistic approaches to science. Scientists with a 'systems' orientation are primarily concerned with understanding patterns of interactions – relationships among the parts – and this orientation leads to different ways of speaking about and seeing the world….
>
> …In the reductionist mindset, each human being has sharply defined boundaries…However, in the systems view, human beings are seen as participating in larger patterns and of flows. Rather than being mostly separate, people are mostly connected through flows and interactions of matter, energy and information… relationships are primary and the way to ensure well-being is to soften one's boundaries and become permeable to the whole. (p. 253)

In this new worldview, hierarchies are replaced by holarchies with "…no implication of *less important*" (Morgan, 2013). Humans no longer play a dominant role at the apex of a hierarchy but are inseparable within the vast and magnificent web of Creation. According to Gang (1989), this systemic view of perception brings us to a new way of interacting with Nature. We began in the Hunter Gatherer Age as *Humanity-in-*

Nature/Cosmos, progressed into the Agricultural Age as *Humanity with Nature/Cosmos* and then adopted an air of superiority over the natural world during the Mechanistic-Industrial Age as *Humanity over Nature/Cosmos*. Presently, we are moving into a more integrated way of being in the new *Age of Humanity through Nature/Cosmos* (Gang, 2014).

It would appear that a theory originally put forth by biologist Ludwig Von Bertalanffy as "General Systems Theory" in the 1950s and further developed and explored by others, such as scientists James Lovelock and Lynn Margulis, physicist Fritof Capra, professor John Briggs, holistic physicist David Peat, Gang, Morgan, and Swimme, compliments and adds a new dimension to the theme of interrelationship across a Cosmic landscape that is embedded within The Story of the Universe. Margulis and Lovelock's Gaia hypothesis, for example, proposes that the Earth is a whole and sentient being in her own right, nesting in the Cosmos (in Briggs & Peat, 1999, 2000. p. 159). The Dynamic Systems Theory of Chaos discussed by Briggs and Peat (1999) in their book, *Seven Life Lessons of Chaos: Spiritual Wisdom from the Science of Change*, explores the properties underlying the appearances of Chaos, particularly in terms of open systems and their ability to self-organize into anew. These theories within the context of The Story are moving center stage while Newtonian ways of perceiving the world where everything is quantifiable (Capra, 1996, p. 19), are now beginning to dissipate. Systems theory is not only adding to our understanding of the nature of the Universe and interrelationship between systems but also points to our integrative, participatory role within the Universe and therefore potentially offers us a greater understanding of our sense of Cosmic Place. An exploration of some of the principles of systems theory follows to offer a more detailed explanation of the theory and its influence on my perspective of self within the Cosmos.

Principles of Systems Theory and Understanding Cosmic Place

In his book *Rethinking Education*, Gang (1989) proposes several specific principles within the context of the new systems science. These principles gave me a deeper understanding of the concept of Cosmic Place. Exploring these ideas not only helped to raise my awareness of the human experience to a cosmic level, but also helped me to evolve my understanding of the nature of the relationship of humans within the vast web of Creation. As a result, I have developed a more profound sense of gratitude for life and reverence for my role in the Cosmos as a universal being having a human experience. The following section begins a discussion of these ideas commencing with the overarching theme of systems theory: *The Principle of Unity*.

The Principle of Unity

Interestingly, so much of what I have come across in esoteric studies since my youth conveyed the *Principle of Unity* that is now being proposed by contemporary systems thinkers. When I began studying Chi Quong 20 years ago, I had a conversation with my Master about the energy field. “We are all one,” she said.

Though I had heard it said many times before over the years and tried my best to believe it wholeheartedly, I was really only ever able to absorb it in a metaphorical

sense. This time was no different, and the Chi Quong Master must have sensed my doubt. So she persisted, took me over to the window and pointed outside to the busy downtown traffic, the cement buildings, bus shelter, streetcars, people and perhaps the one inkling of the natural world in the form of a tree and said, "See? We are *all one*…We are one energy field – the traffic, the cars, the people…There is no separation between us." The memory of that pivotal moment has stayed with me. As I pondered the truth of the Chi Quong Master's statement over the years, I eventually realized that it all made perfect sense from an atomic point of view. Gang`s (1989) explanation of the Unity Principle, one of the four principles of the new paradigm of thinking mentioned in his book *Rethinking Education,* helped me to crystalize the concept in my mind and heart:

> Our picture of the universe is becoming completely devoid of any isolated entities - even isolated energy fields - because, if all material objects are made of particles which are patterns of energy, and if all the forces which act between such objects are also made of particles which are patterns of energy, then the whole of creation must be a single, enormously intricate web of interconnected vibrational patterns. (p. 43)

Capra's (1996) discussion about quantum physics and the perception of parts adds further confirmation to the Unity Principle: "Ultimately – as quantum physics showed so dramatically – there are no parts at all. What we call a part is merely a pattern in an inseparable web of relationships" (p. 37). Swimme (2011) concurs, writing: "The universe is not a collection of objects, but a communion of subjects" (p. 23).

As we gradually begin to make a shift in thinking from a Newtonian view of the Universe to a systemic view, Gang (1989) suggests along with the *Principle of Unity*, this

new emerging paradigm includes but is not limited to the *Principle of the Participant Observer* and the *Principle of Dynamic Aspects of Nature*.

The Principle of Participant Observer

This principle suggests that the observer as an inseparable part of the whole is also a participant and thus an influence on the observation process: "In the words of Heisenberg, 'What we observe is not nature itself but nature exposed to our method of questioning'" (Capra, 1996, p. 40).

The meaning of the *Principle of Participant Observer* became particularly apparent to me as I engaged in observation from a neurophenomenological perspective for my research and a portion of my practicum during a project titled *"Exploration of Neurophenomenology: A Fall Garden Experience"*. The term 'Neurophenomenology' was first proposed by scientists Charles Laughlin, J. McManus, and Eugene d'Aquili in 1990, and was later expanded upon by Varela (Laughlin et al, 1990). It is my understanding that this new science is reaching for a connection between the mind, brain, and consciousness and seeks to answer such questions as: Why do we perceive appearances in a particular way and what are the biological processes that affect perception? What is the relationship between the first and third observer and can these perspectives work in partnership to reveal a more enriched, holistic view of that which we observe?

The purpose of my research was to experience a teaching-learning opportunity (See *Figure 1*) and to later observe a filmed recording of the event from a

neurophenomenological point of view which included both a third person perspective of "me observing others" followed by a first person or "me observing myself." In order to explore Neurophenomenology, I chose a lesson to present to a group of multi-age mainstream students that relates to my emphasis area. My role was as facilitator, guide and observer.

Figure 1. Harvesting Carrots, *Fall Garden Experience,* 2013.

Through the *Fall Garden Experience* observation, I understood more concretely than ever that since we share a unified field of energy, inevitably an observation outcome is influenced by the observer's interrelationship with the observed through the *Participant Observer Principle*. This new understanding seemed to underscore one of the aspects of Neurophenomenology that I find most intriguing: the validation of the first person, subjective orientation in research or as Varela (2003 in Rudrauf et al) suggests:

"…breaking the taboo of using phenomenal data as valid". Since we are each influenced by our own unique structure, each of us is set up for perceiving our world in a unique way. For this reason, taking into account the first person subjective view is important. Mariotti (1996) explains:

> The world in which we live is the world that we build out of our perceptions, and it is our structure that enables us to have these perceptions….If the reality we perceive depends on our structure – which is individual - there are as many realities as perceiving people. This explains why the purely objective knowledge is impossible: the observer is not apart from the phenomena he or she observes.

As I attempted to do the observations, I discovered that it was impossible to provide a purely objective third person observation of the event as Mariotti (1996) suggests. As objective as I tried to be, I could not separate myself from the event nor isolate the individual participants from their interactions with each other, myself, the immediate setting or the Universe itself! Moreover, my experience seemed to confirm that observers can be limited by questions they seek to answer as well as by any preconceived assumptions they might bring to the observation process. I realized this particularly as I viewed the film. As I tried to narrow my focus of observation to the lesson about leaf decomposition, I found I was distracted by so many other avenues unfolding among the participants that had been caught by the camera. For example, I observed 2 year old Trina's efforts to experience a sense of belonging with the group by copying the older children's leaf raking skills. I realized by narrowing my focus to my personally prescribed agenda during the event, I was unaware of so many other rich opportunities for observation.

Margaret Wheatley (2006), writer and educator, discusses the quandary about the observation process from the quantum physics' perspective and asks: "Is it awareness that evokes the world? Is there any such thing as reality independent of our acts of observation?" (p. 63). She then goes on to describe the double – slit experiment carried out by physicists which suggests that which is observed is 'evoked' by the observer. In the experiment, the dualistic nature of electrons acting as either waves or particles appears dependent upon the scientist's intention to open either one or both slits. With both slits open, the electron acts as a wave; with one slit open, the electron behaves as a particle. Wheatley describes: "On its way through one slit, the electron acts in a way that indicates it "knows" whether or not the second hole is open. It knows what the scientist is observing for and adjusts its behavior accordingly" (p.64). The results of the experiment seem to suggest that manifestations are a response to the observer's expectations or thought processes. Is it possible that the reality observed takes form in response to my questions and assumptions about what I am seeking to observe? Author Fred Wolf (in Wheatley 2006.) states,

> If the world exists and is not objectively preexisting and solid, before I come on the scene, then what is it? The best answer seems to be that the world is only potential and not present without you or me to observe it. It is in essence a ghost world that pops into solid existence each time one of us observes it. All of the world's many events are potentially present, able to be but not actually seen or felt until one of us sees or feels. (p. 63)

Wheatley (2006) further elaborates on our role as co-participants and creators of our world:

> No one, not scientists, nor leaders nor children simply observes the world and takes in what it offers. We all construct the world through the lenses of our own making and use them to filter and select. We each actively participate in creating our worlds. (p. 65)

Wheatley's (2006. p. 65) discussion suggests as does Varela's (in Mariotti, 2006) research in neurophenomenology that the purely objective observation is impossible. I now understand more clearly that we live in a participatory Universe and why it is paramount to consider as many individual views as possible: the fuller the treasury of perspectives, the greater the potential for creativity. The view of the Universe as a vastly interconnected network of systems nesting within systems in dialogue and influencing each other, as the physicist influences the electron's form (Wheatley 2006. p. 64), seems to emphasize the importance of interrelationship. It also seems to suggest a benefit to understanding ourselves as co-participants and co-creators within the Universe. Wheatley (2006) confirms: "It would seem that the more participants we engage in this participative universe, the more we can access its potentials and the wiser we can become" (p. 67).

As a result of these insights regarding the *Principle of Participant Observer* and my observational research in Neurophenomenology, my awareness and understanding of my own sense of Cosmic Place was greatly enhanced. I came to realize that as observer, I was influencing and being influenced by the ecological sphere of human - Earth relations within the immediate context of the fall garden. At the same time, I was aware of myself as a cosmological being engaging with the Universe on a vast scale. I felt as if I experienced Nature as a bridge to the Cosmos at these times or, in other words, the full circuit of human-Earth-Cosmic interconnection. This Eco-cosmological view contributed greatly to

my understanding of what it means to have a conscious awareness of Cosmic Place while experiencing life from the human vantage point.

The Principle of Dynamic Aspects of Nature

This principle focuses on interrelationship between elements through their movement and transformation as opposed to viewing them as isolated objects: "Modern science no longer views subatomic entities as objects at all; now they are viewed as dynamic patterns or processes. Movement is not just one of their properties. It is their essential nature" (Gang, 1989, p. 36).

One of the most transformative realizations I have had as a result of the TIES experience is the emphasis upon the nature of interrelationship between systems across the Universe. It is my understanding that, rather than isolated parts and entities competing to dominate and destroy each other, systems of the Universe are in an infinite flow of dialogue or reciprocal responses (Scharmer, 2000). As I became aware of myself as a cosmological being in perpetual relationship with the Universe and all systems within it, a new understanding of my sense of place within the cosmological order unfolded. Whether consciously aware of this relationship or not, I am engaged and having an effect upon the Universe. This realization ushers in new responsibilities about consciously co-creating through positive thoughts, intentions, and ideas, as well as about developing effective dialogue techniques to ensure a flow of understanding on a human level. As Bohm (1996,

2004) suggests, attention to our thoughts and our approach to dialogue would bring about the most meaningful form of communication where we can share ideas, collaborate, and create on the tacit ground free of assumptions and with the good of the whole in mind and heart (p.16). Regarding thought and the need to address our thinking patterns to bring about positive change in the world, Bohm (1996, 2004) states:

> Thought is emerging from tacit ground and any fundamental change in thought will come from tacit ground…There is an even deeper tacit process which is common. I think the whole human race knew this for a million years; and then in 5 thousand years we have lost it because our societies got too big to carry it out. But now we have to get started again and communicate…We have to share our consciousness and to be able to think together in order to do whatever is intelligently necessary. (p.16)

An understanding of Cosmic Place confirms that I am not an island secluded in my own personal haven of thought. I have a responsibility to develop my thinking patterns, to practice suspending assumptions, to hold my thoughts up for scrutiny through "proprioception" (Bohm, 1996, 2004. p.84) before sharing them with others and, ultimately, affecting the web of Creation as a result of this sharing. This practice of proprioception leads to the level of "participatory thought" which tends to unite people rather than fragment as Bohm (1996, 2004) implies: "Participatory thought sees that everything partakes of everything – it does not have an independent being" (p.99).

It appears to me that both Varela and Bohm have similar ideas about what might be perceived as constrictions on a person's ability to observe, interact, and experience the world. Varela, like Bohm, seems to be suggesting that people raise their perspective to a higher ground – the tacit - by cleansing their consciousness of limited world view in order

to more fully engage in dialogue not only with each other but also with the appearances of reality. Is it possible that this higher ground of perception leaves people free to experience with the eyes, mind, heart, and consciousness of pure love? Does this release of constriction or limitation on our perspective lead us toward experiencing what Varela (as cited in Scharmer, 2000) calls the emergence of the "Virtual Self" or the individual "distributed over multi-levels"? Is the tacit ground, where the full "Virtual Self" unfolds bringing people to a level of consciousness where they are able to experience universality? Varela (as cited in Scharmer, 2000) describes the process of emerging into the "Virtual Self" experience as a "…constant reframing of yourself into what seems to be more real. You know, the paradox of being more real means to be much more virtual, and therefore less substantial and less determined." As I understand Varela (as cited in Scharmer, 2000), as the individual expands across multiple levels of awareness, the self becomes increasingly decentered, which, in turn, allows people to gain a sense of their universal interconnection:

> Solidarity, compassion, care, love – all of the different modes of being together – appear when the self-owned is decentered. Now that to me is a great gift of the universe. Since we are not solid and private and centered, the more we get close to all our reality, the more we are who we are. That is, both you and I. Not just me, but the "us-ness" in us. Which is another way of saying that my mind is not my mind. It is a mind that requires interbeing.

Varela's suggestion of the "interbeing" (as cited in Scharmer, 2000) brings to mind the metaphor of the spinning vortex and the human experience as described by Briggs and Peat (1999, p.28). Within its centre, the vortex finds its singular identity, yet progressively toward its outermost edge, it finds a greater sense of universality. I am

wondering if like the spinning vortex, as interconnected beings when awareness expands to the outermost edge of our personal energetic fields, the self is rendered *One* or rather finds its sense of "interbeing" within the vast cosmic web. If this is so, is the emotion of love the conduit to our awareness of "interbeing"? Furthermore, might this state of awareness also be defined as the "tacit ground" (Bohm, 1996, 2000. p. 16) where thought in its purest form first emerges in the absence of world view? I also wonder if the experience of "Virtual Self" or "interbeing" (Varela as cited in Scharmer, 2000) offers self a more concrete sense of Cosmic Place. As a result, I am left pondering the implications of the concepts of "tacit ground", "interbeing", and "Virtual Self" for the teaching-learning process and how they might be addressed to further a sense of Cosmic Place within the child. As Montessori (1948, 1987, p. 8) suggests, presenting the Universe to children renders them conscious of their connection to the vast Cosmos which I find very similar in nature to the descriptions of experiencing "interbeing", "Virtual Self" (Varela as cited in Scharmer, 2000) and the "tacit ground" (Bohm, 1996, 2000, p. 16). As Montessori (1948, 1987) states regarding the child and the role of The Story of the Universe in the teaching-learning process: "She is satisfied, having found the universal center of herself with all things" (p.8).

Autopoiesis and Structural Coupling

'Autopoiesis' is a term closely integrated with systems theory. It describes the nature of living systems as self-regulating, self-creating, independent, and yet, dependent.

A deeper understanding of the beauty of autopoietic systems as they structurally couple together igniting a flow of perpetual creativity across the Universe added another dimension to my understanding of Cosmic Place. I began to ponder: What is my role as co-creator in the Universe? How do I affect other systems both near and far? How are other systems shaping and influencing my being? To what extent am I an original product of my own making? For the later question, if I return to Gang's (1989) *Principles of Unity and of the Participant Observer*, I would have to say, "Not at all. I am the Universe". It seems everything I am has come from some influence in the Universe, whether it is the people in my life, the food I eat, the books I read, the air I breathe, the Nature in my surroundings. Varela (in T&C Film AG, 2005), even goes so far as to suggest that *ideas* do not belong to anyone. They are just 'out there' to be noticed. What does that imply about original thought? Is there any such thing? I am still pondering these questions. I would venture to say, however, that the way the term 'Pedagogy of Cosmic Place' evolved in my thinking process supports Varela's suggestion. It did not seem that the concept emerged in my mind appearing on the horizon out of nowhere. Rather, it evolved as a result of many influential factors such as new theories and ideas presented to me in the TIES course and my own teaching-learning experiences. It seems to me that the concept of 'Pedagogy of Cosmic Place' was already present. It was simply lying in wait to be "discovered", named and explored. Varela's (in T&C Film AG, 2005) suggestion regarding ownership of ideas and the implications regarding original thinking, seems to further underscore the idea that as living autopoietic systems we are simultaneously independent yet dependent.

Scientist, Humberto Mariotti (1996), explains the paradox about autopoietic living systems in that they are autonomous yet dependent on the surrounding environment

in order to maintain their existence and furthermore, that they are simultaneously both producers and products. The nature of an autopoetic living system, therefore, is that though it is closed and its function is determined by the structure of its own internal parts, it is also dependent upon its connection to other systems in order to fuel and insure its survival, to self-regulate and self-create. There seems to be a dichotomy at work between dependence and independence in autopoiesis. Briggs and Peat's (1999) example of a vortex illustrates how we, as living autopoietic systems might experience this paradox:

> A vortex is a distinct and individual entity, and yet it is indivisible from the river that created it…In a vortex, a constantly flowing cell wall separates the inside from the outside. However, the wall itself is both inside and outside…The vortex suggests the paradox that the individual is also the universal. (p.28)

Briggs and Peat (1999) imply that as living autopoietic systems, humans can experience both unity and separation simultaneously as "…the experience of a unique presence is also often coupled with a sensation of ourselves as indivisible from the whole" (p.28). Expanding on this idea, it seems possible then to experience 'Place' as self within the immediate spatial surroundings and the profoundly vaster 'Cosmic Place' simultaneously. My previously mentioned experience in the fall garden also seems to confirm the suggestion. During this experience, I was aware of myself as the Universe reflecting in the form of 'me' as it is suggested by Swimme and author Mary Tucker (2011 p.2) in their book *Journey to the Universe*.

Another aspect of Neurophenomenology that I found intriguing was regarding the nature of dialogue between autopoietic systems as it is specifically affected by the

process of structural coupling. Mariotti (1996) describes that we are "…structure determined systems where the organization of our parts constitutes our identity and the structure determines how its parts are physically articulated." The ongoing dialogue that flows between systems is in the form of reciprocal responses to the structures engaged in the communication. Mariotti (1996) describes: "What happens in a given moment to us depends on our structure in that moment…The moment in which a system loses its organization corresponds to the limit of its tolerance to structural changes."

What fascinates me about structural coupling is its co-operative nature that essentially gives rise to creation and innovation across the Universe. The absence of the anthropomorphized concept of competition is incredible to me and speaks volumes as to the influence of old world, linear thinking patterns that have been affecting my perception. My newly evolving understanding of structural coupling is that it is an ongoing dialogue between systems where communication perpetually unfolds in rounds of influences, interpretations, and responses. Mariotti (1996) describes the intimate relationship between structures as they couple: "…at a given moment of this relationship the conduct of one of them is a constant source of stimuli for the compensatory answers from the other." The coupling condition is reflected through the non-competitive flow of compensatory behaviors. It is through behavioral responses that one system responds to the other, that a dialogue unfolds and a relationship is established between structures (Mariotti, 1996).

The emphasis seems to be upon the ongoing dynamic of relationship across the Universe and reflects Gang's (1989) *Principle of Dynamic Aspects of Nature* (p.36). With this new understanding, there appears to be no point of arrival, only perpetual

transformation. As I contemplated Pedagogy of Cosmic Place from this angle, I was reminded of the remnants of mechanistic thinking patterns affecting my thought processes which I am still in the process of relinquishing. I realized that viewing the Universe in a cyclical way sharply contrasts detached Newtonian thinking patterns that tend to narrow my vision and lead me along linear pathways toward specific outcomes. Exploring Cosmic Place through the lens of this principle nudged me out of my old world comfort zone of predictability and invited me to embody this dynamic of ongoing creativity characterized by the element of surprise and the unknown. The door to infinite potential sprang open. It was rather like standing in the middle of a powerful river current rushing all around me. The current for me represented the realm of possibility. Understanding the Universe from this dynamic angle helped to shape my ideas about Cosmic Place and the meaningful opportunities that can come from a sharing of this dynamic with the children. It opens the door to a discussion about the infinite creative potential in the Universe, an understanding that the Universe emerged into being through the creative dynamic, about our own creative potential and the role of love and wisdom applied to the creative process.

Love as Conduit to Cosmic Place

As previously mentioned, my exploration of Neurophenomenology afforded me the opportunity to experience an aspect of my emphasis area research through a nature-based activity with a group of mainstream students and to lay a foundation for future work with this group in bridging them from the natural world to the Story of the Universe. In this way, I hoped to extend their view from an ecological to an Eco-Cosmological perspective, or, in other words, to extend the experience from 'Place' in the fall garden to Cosmic Place

in the Universe. One very key insight during my neurophenomenological research observation seemed to be regarding power of love to expand my awareness from a 'micro' to a 'macro view' by opening the pathway to experiencing "Virtual Self" (Varela in Scharmer, 2000) or a sense of Cosmic Place in the Universe. An example occurred when I turned my awareness to the non-human contributors of the event such as the soil, the microbes, or the trees within the context of the fall garden. I found myself decentering, raising my vision to a higher vantage point and merging with the whole, vast web of Creation. I was reminded of the work of deep ecologists Joanna Macy (2002) and John Seed and their development of the *Council of All Beings*, where every member of the web potentially has a voice or a perspective to be shared: "Through this process, humans are able to decenter their consciousness and merge with the whole." When I found myself observing the trees, I felt a fount of appreciation and love rising within me for their gift of leaves which were now in the process of decomposing into soil for next spring's garden. Through my expanded awareness, I felt as if I were progressing toward experiencing what Varela (as cited in Scharmer, 2000) terms as "interbeing". I found this level of awareness to be the most natural and comfortable perspective of all. It also felt to me to be the most meaningful as it was at these times that I was most aware of 'self' merged within the larger context of the vast web of Creation. It was an incredibly humbling and sacred feeling, similar to what Briggs and Peat (1999) describe as awareness of being unique and yet an inseparable part of the whole at the same time (p. 28). This experience of the power of appreciation and love as a conduit to the Cosmos had a profound effect on the development of the concept of Pedagogy of Cosmic Place, leaving me to wonder how the role of love in

the teaching– learning process as fuel toward experiencing our "interbeing" or sense of Cosmic Place from the human vantage point might be more directly addressed.

Through the Story of the Universe, an exploration of systems theory and some of Gang's (1989) major principles such as the *Unity Principle*, the *Principle of the Participant Observe*r, the *Principle of the Dynamic Aspects of Nature* and related terms such as autopoiesis, structural coupling, and Neurophenomenology, I experienced an opportunity to develop a deeper understanding of Cosmic Place. Through a deeper understanding of the nature of interconnectivity and the relationship of self within the vast cosmic web, our power of influence, the effects of the nature of our dialogue, our participatory role and the power of love as a conduit to experiencing universality, led me to ponder the application of systems theory to the teaching – learning process. The next chapter explores education from the perspective of systems theory.

Chapter II: Education from a Systems Theory Perspective

"What does it mean to live in a Universe?"

Christopher Uhl, 2004. p. 11

In light of these new discoveries in systems theories, I find myself as an educator asking what might seem to be on the surface a very simple question: What is the educational ideal? Is it a closed, hierarchical unit, operating in isolation from the natural world, or do the new laws of systems theories suggest an emphasis on an open, integrated relationship with nature as the ideal? Regarding his proposal of systems theory, Von Bertalanffy states:

> The organism is not a static system closed to the outside and always containing the identical components; it is an open system in a (quasi) steady state …in which material continually enters from, and leaves into, the outside environment (Capra, 1996, p. 48).

Applying Von Bertalanffy's insights about living organisms to learning environments, I see a closed learning environment as one that segregates itself from nature, society, and the Cosmos. The traditional school model is based on a hierarchical model of administration with compartmentalized subject areas and the content is delivered through a series of repetitive, predictable, top-down modes of instruction. Mainstream pedagogy is most often based on a Lockean or "empty vessel" perception of the child and a factory model of learning. Information is downloaded into children, who are the passive recipients of knowledge. (Lillard, 2005, 2007. p.14) Does it not follow, then, that the

communication or sharing of ideas is largely predictable within such a system, as a great deal of it is scripted and therefore, narrowed by prescribed learning outcomes?

Also regarding communication, from my perspective as a college professor of philosophy of education and teacher of mainstream students, the mainstream school has traditionally been an isolated setting without diverse input from the outside world, further limited by interior feedback loops that repeat standardized curricula which contribute to a static learning atmosphere. In that case, there would seem to be a more limited range of possibilities for creativity and innovation, which aligns with Swimme's (2011) description of closed, elliptical galaxies that characteristically lack a creative capacity (p.23). I am wondering if we can apply this understanding about creativity within closed elliptical galaxies to the flow of creativity within the teaching-learning environment. Perhaps it is possible that the range of creativity in any learning environment is largely determined by the degree to which the school has segregated itself from the diverse web of organic and inorganic life around it? If so, then the degree of segregation determines the access to a fresh infusion of new and diverse thinking that would potentially open the door to collaboration and innovation. In the case of mainstream education, though some efforts are now being made, the dialogue with the local environment and vast web of the Cosmos remains, from my perspective, limited. Briggs and Peat (1999, 2000) describe the consequences of the "Limit Cycle" that unfolds within closed systems:

> Limit cycle systems are those that cut themselves off from the flux of the external world because a great part of their internal energy is devoted to resisting change and perpetuating relatively mechanical patterns of behaviour. To survive in such a rigid system ….everyone must resign a little – or often a great deal of their individuality by blending into the automatism. (p.40)

My years as a Montessori guide have offered me an opportunity to observe a learning system where the flow of energy, communication and potential for creativity spontaneously unfolds throughout the day. From my experience, an authentic Montessori learning environment appears to function as an open, spiralled, living system that is deeply aware of its connection to the web of existence. Feedback loops of communication within the learning environment are infused with new and diverse input from the world beyond the school walls, which helps to fuel ongoing creativity and innovation on individual, small group, and collective levels. As Morgan (in Gang & Morgan, 2003) suggests, the process of self-creation or autopoiesis, characteristic of open systems, unfolds within the learning community on a spontaneous, ongoing basis, and benefits everyone. Morgan (in Gang & Morgan, 2003) remarks in the CD - Rom titled *Introduction to Montessori Radical Education*:

> The child is in process of self-creation or adaptation or finality or autopoiesis. There is a source of creativity in relation to the Montessori theory of adaptation regarding the relationship between the entity and environment. Adaptation is supposed to be a cognitive act yet it is actually a co-creative process of adaptation – a mutually enhancing process.

I see the process of self-creation ongoing within the Montessori spiralled system reflected in the theme of creativity embedded in Swimme's (2011) description of a spiral galaxy which facilitates ongoing creativity or the making of stars (p. 23). Specific aspects of the Montessori spiral model of education that create a more dynamic flow in the learning environment and contribute to the unfolding of autopoiesis are:

- Individual learning pace for each child: Children move through the materials and lessons at their individual pace according to their levels of mastery and interests.
- The prepared environment: The learning environment is reality-based and prepared with love in order to meet the needs, interests and natural tendencies of the children. The Montessori materials are accessible to the children giving them the opportunity to create and take responsibility for their own learning paths as they have the freedom to choose work based on their own interests.
- Integrated subject areas: Subjects are woven together, with The Story of the Universe as the central, unifying theme. The centralizing theme gives fluidity to the curriculum as connections are made throughout the teaching-learning process across the subject areas.
- Emphasis on co-operation: The non-competitive atmosphere fosters a nurturing of self, others, classroom, school, society and globe. The learning community becomes a model of peace as the children flow independently yet collectively as a cohesive social unit.
- Mixed age grouping: Children are grouped in 3 year levels which offer opportunities to nurture, mentor and model across the ages. Grouping children together in 3 year age cycles also helps to eliminate competition and allows students to move ahead at their own learning pace.
- Intrinsic and collective motivation: Freedom to choose within the Montessori community fuels intrinsic motivation to work and learn. Awareness for the good of the whole learning community is also fostered. The children are

collectively motivated to work together in support of each other and to take responsibility for their learning environment. At times, the group may work collectively on a specific class project such as a fund raiser or theatrical event. Extrinsic rewards such as stickers or grades are conspicuously absent in the Montessori learning environment. The children's work is its own reward and inspires the pursuit of learning.

- Freedom and responsibility: Freedom to choose in the Montessori environment is given within the bounds of constructive choice. Freedom is, therefore, offered within limits of the social construct of the classroom. (Lillard, 2005, 2007. p. 92). Children, for example, are free to choose work or not to work with the condition that they may not disturb the learning flow for others. With freedom to make independent choices comes responsibility for self, others and the environment.
- Three hour work cycles: Montessori learning environments provide uninterrupted work cycles generally of 3 hours in the morning and afternoon. Long work cycles contribute to the development of concentration skills by giving children the opportunity to delve deeply into work, to contemplate and to explore passions to their heart's content.
- An interactive relationship with nature, society, and ultimately, the Cosmos: In Montessori learning environments, the door is open for connecting with the world beyond the prepared environment. Contact with Nature and society is encouraged through mentorship, field trips and spontaneous outings. The Elementary *Going Out Program* connects children with the community and allows

> them to gain a sense of 'place' within their local environment. Adolescent students engage in *Occupations*/Apprenticeships in the community or on the school property with visiting mentors and local specialists. Cosmic Education provides Montessori children with a pathway to the Cosmos as they come to understand themselves as cosmological beings having a human experience.

It seems to me that if we see physicist's Henry Stapp's perception of an elementary particle defined by its interrelationships (as cited in Capra, 1996, p. 31) as a metaphorical representation of a school, then Montessori is more aligned with Stapp's systemic description of a particle in that it nurtures a set of relationships that are dynamic, flowing, and in communication with the All: "An elementary particle is not an independently existing . . . entity. It is, in essence, a set of relationships that reach outward to other things" (as cited in Capra, 1996, p.31).

The Montessori philosophy, and practice, in my view, distinguishes itself as an approach to education that is in keeping with systems theory through its emphasis on relationship and communication with the web of life - between Nature, humans, and Cosmos. My perspective through the pedagogical lens shifts from the learning environment to the broader conditions of the world today. If the goal is to find a balance in the educational process and use it effectively as a transformative tool to bring about waves of positive change, then in light of Berry's (1996) suggestion that our most urgent need is the restoration of the human – Earth relationship, should we not be directing our energies toward that end? I wonder if it is through a greater emphasis on human relationship with Nature in our learning environments that we would more effectively see ourselves as

cosmological beings and complete the full circuitry of our awareness. Furthermore, since Montessori's Cosmic Education seems to open the door to restoring a harmonious relationship with Nature by offering a sense of Cosmic Place, what might the implications be from a Montessorian pedagogical perspective for enhancing the opportunities to experience self as Universe? In the following chapter, I explore aboriginal educational practices and contemporary mainstream models of education in search of stepping stones toward building a sense of Cosmic Place through contact with the natural world.

Chapter III: A Window to the Past Guiding Us Forward

"In my Okanagan ancestral system, education occurred as a natural part of family and community in everyday living. Unlike today, education was not segregated into institutions of schooling. . ."

Jeannette Armstrong in Stone & Barlow, 2005, p.81.

Most contemporary children are no longer acquiring knowledge first hand by accompanying their parents throughout the daily tasks of family life, such as fetching water, searching for food or farming. The learning process is no longer a natural, spontaneous unfolding throughout day-to-day experiences within the context of family, nature, and society. For the most part, learning now takes place in an artificially contrived institutional setting where it is not so much experienced as it is transmitted and delivered out of context with life both physically and conceptually (Lillard, 2005, 2007. p. 224). According to Montessori (1967): "Education, as today conceived, is something separated both from biological and social life. All who enter the educational world tend to be cut off from society…People are prepared

for life by exclusion from it" (pp. 10, 11). Might it be said, then, that mainstream pedagogy perpetuates a mechanical view of the Universe? Additionally, is it fair to say that this approach breeds materialism and a competitive mindset in the heart of the learner directly contrasting the integrated view of Montessori and contemporary systems theories? Here are some examples of how the Newtonian angle of perception in the mainstream is perpetuated:

- **A Behaviourist approach.** An emphasis on extrinsic motivation by offering tangible rewards for learning in the form of stickers, percentages, and pizza lunches (Lillard, 2005, 2007. p. 9).

- **A Factory Model based on efficiency.** Meets the need for convenient organization of a student population into an organized, homogenous age grouping where curriculum is divided into separate subjects and downloaded into students in a teacher-directed learning atmosphere according to grade levels, standardized tests, and within a highly scheduled, textbook-oriented learning atmosphere (Lillard, 2005, 2007. p. 14)

- **A Lockean view of the child.** Views the student as an empty vessel, separate and therefore not an integral part of the whole (Lillard, 2005, 2007. p. 10).

- **Knowledge is perceived as a commodity.** Education is a means to acquiring material security and the underlying assumption is that the highest purpose of education is not to better the world but oneself (Margolin in Stone & Barlow, 2005, p.79).

Does mainstream pedagogy inspire students to ask themselves, "What contribution can I make to the world? What part can I play in making the world a better place?" or is the emphasis upon choosing a career path that will lead to the greatest possible "success" in life? I fear that when children are isolated from Nature and taught lessons out of context, they are receiving an underlying message of superiority over the Earth and its natural inhabitants.

I recall from my personal experiences in high school biology, for example, learning about worms in isolation from Nature through a dissection activity in a laboratory. The focus of the learning was upon the parts and functions of the annelid's internal organization without consideration for its contribution to the web of life. The focus of the learning was so narrow, objectified, and so far removed from the worm's role within the ecosystem that it left me with a separatist, anthropomorphized impression. As a young adolescent apprehensive about dissection, the focus of my energy throughout the experience became the enormous challenge of overcoming my emotional uneasiness and mastering the dissection techniques rather than focusing upon the creature that had been removed from its habitat just so that I could learn some extremely minimal aspect of its story within the universal context. I realize now that I was being taught to mute my repulsion and ignore surges of deep compassion and love for the creature lying in the dissection tray – that to feel any emotion for it was inappropriate. The message I received clearly said that to carry out the dissection without an emotional flinch of remorse was 'cool' and the route to the external reward of an 'A+'. Though I did not understand the full impact of such experiences in the biology laboratory at the time, as a Montessori educator, I now realize that I was uneasy with experience because I was not at peace with the message of detachment and underlying superiority that permeated the atmosphere of the laboratory.

The condoning of the dissection process by the biology teacher suggested to me that a callous attitude is at times necessary toward the Earth and her inhabitants; that it is okay for Nature to make such a sacrifice so that I could memorize some modest sum of facts in order to meet some prescribed grade level requirement. Learning about worms, frogs, and fetal pigs from dissection trays did not nurture an appreciation or love for the whole creature. As it lay open on its back, all internal parts exposed and labeled, the approach was analytical and the emphasis upon nomenclature and function. The underlying message was that humans are superior and have a right to extract from Nature and destroy whatever they deem necessary to meet their needs, regardless of impact.

Since my high school years, I have come to realize that learning *within* Nature offers opportunities for an intimate dialogue to unfold between children and the Earth giving them opportunities to develop an appreciation, sense of wonder, and love through direct contact. It also allows them to perceive themselves as co-participants within the web of existence and underscores the importance of maintaining a balanced, co-operative relationship with the natural environment. Nature immersion facilitates such learning opportunities by offering a broader vantage point of systems integrating within systems, of the collective of living and non-living beings structurally coupling together making contributions to the whole. Ultimately, I believe that Nature immersion opens the door to a great love and appreciation for the Earth community within the context of all Creation. My *Fall Garden Experience* research activity was designed to offer the children a deeply integrative learning experience. The learning experience seemed to be very meaningful for them as they discovered the process of soil creation within a natural setting. The children not only grasped the meaning of a worm's contribution within the context of the fall garden but they also developed an appreciation for many contributing members to the soil

creation cycle such as the trees, the decomposing fall leaves and plant debris, to the microbes. The children also experienced the fruits of the soil itself by harvesting carrots from the garden. The gleeful extraction of carrots from the Earth seemed to open the channels of appreciation and love in the hearts of the children for the soil and all contributing members to its creation process. In comparison to my more sterile mainstream learning experience in the biology laboratory, this learning opportunity within the context of Nature overall, seems to have offered a much more enriching and meaningful experience.

According to Berry (1999), our mainstream education system prepares students to dominate rather than integrate themselves through the natural world. Regarding our post-secondary institutions, he has this to say: "As now functioning, the university prepares students for their role in extending dominion over the natural world, not for intimate presence to the natural world" (p.73). Berry and Swimme (1992), see, as did Montessori nearly 100 years ago, *The Story of the Universe* as a unifying agent and context for all learning because it calls to our innermost core:

> The universe is the only self-referential reality in the phenomenal world. It is the only text without context. Everything else has to be seen in the context of the universe. The universe story is the quintessence of reality. We perceive the story. We put it in our language, the birds put it in theirs, and the trees put it in theirs. We can read the story of the universe in the trees. Everything tells the story of the universe. The winds tell the story, literally, not just imaginatively. The story has its imprint everywhere, and that is why it is so important to know the story. If you do not know the story, in a sense you do not know yourself; you do not know anything. (p.32)

Does it not follow, then, that offering curricula within the context of *The Story of the Universe* and incorporating Nature as a guide and mentor in the learning process, offers students today a unified context that would serve humanity well not only from a social point of view but also from an environmental perspective? As Montessori initially proposed in the 1930s, when

students are presented with *The Story of the Universe*, they are emotionally satisfied for they find their centre within the vast Cosmic landscape (1947, 1987, p.8) or as Berry (1999) states: "The human emerges from the larger universe and discovers itself in this universe. . . ." (p.193). Students then are able to transcend the dominant world view that is, according to Gang, (2014), characteristic of our present society in the "*Age of Humanity over Nature/Cosmos*" and embrace "…the emerging paradigm of an *Age of Humanity through Nature/Cosmos*". Our relationship to the Earth would then be brought into harmony through the experience of a "shared meaning" (Bohm, 1996, 2004, p.53) that would result from a restored, open dialogue and communication with the natural world. In the following chapter, I will examine Bohm's theory of dialogue as it may be applied to human relationship with the natural world.

Chapter IV: Dialoging with Nature

". . . they tried to take the mountain down and bring in a couple more.
More people, more scars across the land."

John Denver, 1972.

"Of all the issues we are concerned with at present,
the most basic issue, in my estimation, is that of human-Earth relations."

Thomas Berry, 2006.

Denver's observation and Berry's advice opening this section, transcends Newtonian thinking that sees humans as independent, superior beings. Perhaps we need to examine ways to re-establish human-Earth relations within the context of the kind of dialogue proposed by Bohm.

According to Bohm (1996, 2004), "The real crisis is not these events that are confronting us . . . it's really in the thoughts that are making it. . . " (p. 58), and it is therefore through lack of attention to thought, particularly through our inability to suspend our assumptions and examine thoughts by a process of proprioception before they are launched into action, that we are creating the crises of our times. Through our lack of attention to thought, we are affecting our ability to communicate effectively to such an extent that we are rarely able to meet on the tacit or common ground where, according to Bohm (1996, 2004), we can experience true dialogue (p.16).

Through our personal templates of perception, it seems we are very adept at formulating our own thoughts and opinions; however, when we converse, we have difficulty in "suspending" our thoughts so that we can hear what our partners in dialogue are saying. Instead, Bohm holds that we tend to make "assumptions" about what others are thinking as a result of the influences of our personal perceptions. We are, for the most part, unable to experience what Bohm (1996, 2004) refers to as "shared meaning" (p. 53) with one another. Rather, it appears that for many of us, the art of conversation is a unilateral act where we each take turns trying to convince the other of our respective opinions. Bohm refers to this style of communication as a discussion with an element of competition: "A discussion is like a ping pong game where the object is to win and collect points" (p.7). In contrast, Bohm describes dialogue as: "The picture or image . . . is of a stream of meaning flowing among and through us and between us. This will make possible a flow of meaning . . . out of which may emerge some new understanding" (p.7).

If, according to Bohm, dialogue between humans is paramount in helping us progress toward a balanced, peaceful existence, what can be said about the role of dialogue between humans and Nature? Is it possible that we, as a human race, have tried to dominate the conversation to the point where we do not recognize Earth as a companion in dialogue at all? In

seeing ourselves at the apex of the hierarchical scale, instead of as an integrated co-member within the web of Creation, I believe we are in danger of seeing Nature as separate from ourselves which may be the biggest assumption of all. It seems to me that, we do not suspend our thought patterns long enough to see ourselves mirrored within, or as Gang (1989) suggests *"through*" Nature (p.29).

Taking the general assumption of human separation from Nature into consideration, perhaps we can then begin to see parallels between Bohm's theory of discussion versus dialogue and the human-Earth relationship. If we have any form of communication with Earth at all, it seems to me that it takes on more the form of a discussion where we try to dominate the conversation resulting in a relay that is completely one-sided in our favor. There appears to be an underlying assumption from the human perspective of an ongoing competition in the human-Earth relationship as humanity repeatedly acts out the urge to master the natural world. We could say, for example, that each time a person reaches for the lawn mower or the hedge clipper, she or he is engaging in a human versus nature discussion rather than dialoging and creating a nurturing relationship built upon a foundation of appreciation and reciprocity.

Bohm gives the poignant example of the two great 20th century scientists, Albert Einstein of the Theory of Relativity and Neil Bhor of Quantum Physics Theory who met and felt an immediate kinship. However, shortly thereafter, their relationship faded away because they were not able to find shared meaning in their conversation. Neither was invested in what the other was conveying, but only in trying to convince the other of his respective theory. Bohm makes the point that we will never know what revelations might have come into the world if Einstein and Bhor had been able to suspend their assumptions long enough to hear each other and collaborate. Bohm (1996, 2004) uses this example to emphasize what might be his most

significant statement of all regarding dialogue: “Love will go away if we cannot communicate and share meaning” (p. 54). Within the context of the human-Earth relationship, what can we take from Bohm’s statement that in the absence of true dialogue, love dies? Is this the very crux of the matter that defines what has happened to our relationship with the planet? From the perspective of Bohm’s theory, might we say that from our end, so many of us have attempted to sever the ties so completely that we barely even have a discussion between us and the Earth? If so, then could we also say that we have lost our shared meaning and in turn, perhaps most tragically of all, that our love for Nature has died?

As humanity moved further away from living in rhythm with the natural world, it seems to me that we have disconnected ourselves from what was once a much more open dialogue. Today, for example, many of us buy our carrots frozen in a plastic bag from the grocery store so that there is no shared meaning or history between us and the source of our food. If, on the other hand, we dig up the soil in our own back yard, plant the carrot seeds and nurture them ourselves, we experience shared meaning with the carrots – we share a story together. The carrots we care for are appreciated, loved, and have meaning. A relationship with the Earth is established by engaging with her as we tend to our carrots. A dialogue with Nature is opened as we observe her needs and respond to them throughout the growing season. In this instance, we have shared meaning unfolding between humans and Nature.

We have love.

Perhaps through the restoration of true dialogue between humans and Nature, we can begin to truly recognize Gaia as a sentient being and to read the needs of the natural world, relearning how to integrate and exist seamlessly within this corner of the cosmic tapestry through

an appreciative, loving, and respectful human – Earth relationship. From a pedagogical perspective, it would then seem imperative that we open wide the doors and dissolve the walls of our classrooms in order to provide as much opportunity as possible for dialogue to unfold between children and the natural world. Since everything, including ourselves and the Earth are derivative of the Universe, we might say that in restoring balance to our human-Earth relationship, we are taking a step toward understanding our Cosmic Place in sacred co-partnership with Gaia within the vast cosmic scape.

The following chapter explores education within a cosmological context.

Chapter V: Education in a Cosmic Context

"…we could say that the connection to the cosmic dimension is rather lost. But I think people want to come back into that cosmic dimension. It is an essential dimension of the human being…"

David Bohm, 1996, 2000, p. 104

Bohm's opening quote suggests to me that we are longing as a human race to reconnect with our cosmic roots - that we have disconnected from this essential aspect of our being but on some level are searching for our Cosmic Place in the Universe. Might we find ourselves again within the vast tapestry of the Universe as a co-member within and through it all by reawakening and restoring our communication with the Cosmos? Is this a crucial step toward our progression as a human race? In light of the scientific discoveries regarding common origins,

and systems theory, it would seem we can no longer remain in denial regarding our unity or continue to think of ourselves at the apex of an evolutionary scale. We are all things and no things at the same time or as evolutionary cosmologists, Swimme and Tucker (2011) eloquently state: ". . . we are the universe in the form of a human. And every time we are drawn to and reflect upon the awesome beauty of the universe, we are actually the universe reflecting on itself. And that changes everything" (p.2).

As previously mentioned, we are in the process of creating, as Swimme (in Rogin, 2007) suggests, a new phylum of humans as we endeavor to evolve from *Homo sapiens* to *Eco Sapiens* (Gang, in Gang & Morgan, 2003), leaving behind the Cenozoic Era and progressing into a new, Ecozoic Era. Does it not seem then that our greatest opportunity to save our planet from the path toward destruction is through our evolving perception as integrated beings within the context of the natural world and Cosmos? In light of the new advances in science, perhaps it is through immersing ourselves in *The Story of the Universe* that we will find our greatest hope. Berry (1999) states:

> A new basis for the unity of humans with the larger Earth community is found in the discoveries of modern science. The more clearly we understand the science and their perceptions of the universe, the more clearly we appreciate the intimate presence of each component of the universe with every other component. (p. 194)

So, what role then, can education play in facilitating our understanding of the Cosmos, its *Story*, and our integrated role within it? Given the potential transformative role of education, perhaps learning environments have an essential role to play in opening the minds and hearts of the young generation to our cosmic heritage through a dialogue with Nature. Thomas Moore

(1996, 1997) author and lecturer, offers these insights regarding personal contact with Nature using a simple garden as a bridge to our cosmic origins:

> If our original state was to live in a garden…, then a garden signals our absolute origins as well as our continuing condition of eternity . . . If without heavy symbolism and metaphor, I make a connection between Eden and the garden outside my door, I see that nothing in life is more important than the garden. Even the simplest garden then becomes something profoundly implicated in my origins and destiny." (p. 96)

Perhaps even in the smallest of natural settings, such as a single garden bed in a school yard, there are many opportunities to approach pedagogical practice from an integrative perspective. The diverse population of organic and inorganic elements in the immediate natural surroundings can serve as model examples where each member of the populace dutifully makes its meaningful and essential contribution to the whole in the absence of hierarchy. In offering a systemic view of Nature to children, and by giving them an opportunity to build an intimate relationship with her in a natural context, children can begin to see Earth as a lifelong companion, a sentient being (Lovelock in Capra, 1996, pp. 22-23) in her own right who nests herself within the vast and far reaching web of the Cosmos. It may then be possible for the relationship between children and the natural world to become a gateway to the entire Universe in all of its awe inspiring wonder within the heart of the child. One pedagogical practice that offers a foundational model is Montessori education. Through the Montessori (1948, 1987) vision of Cosmic Education, the foundation for the bridge to the Cosmos through Nature is in place:

> Let us give [the child] a vision of the whole universe. The universe is an imposing reality, and an answer to all questions. We shall walk together on

> this path of life, for all things are part of the universe, and are connected with each other to form one whole unity. (p. 8)

From the Montessori perspective, the learner's curiosity about the origins of the Cosmos and the quest to find one's own Cosmic Place within its Story rises in the learner's heart.

Montessori trainer Phillis Pottish-Lewis (as cited in Lillard 2005, 2007) further describes Cosmic Education as:

> …a way to show the child how everything in the Universe is interrelated and interdependent, no matter whether it is the tiniest molecule or the largest organism. . . . Every single thing has a part to play, a contribution to the maintenance of harmony in the whole. In understanding this network of relationships, the child finds that he or she is also a part of the whole, and has a part to play, a contribution to make. (p. 130)

When applied, the effects of Montessori's Cosmic Education are potentially far reaching in both a natural and social context. Perhaps then, it is not surprising that part of the inspiration for the creation of Cosmic Education, which I discuss in the following section, was in response to the severing of ties by humans to the natural world as well as to the social conditions of the day.

Origins of Cosmic Education

Montessori began laying the ground work for Cosmic Education in the 1930s. From1940 - 1946, she collaborated with her son and fellow educator, Mario Montessori Sr., to further develop and apply the vision with a group of children during her World War II internment in the hills of Kodaikanal, India.

Nature's Influence

According to educator Lena Wikramaratne (in Kahn, 1979, p. 50.) who worked closely with Montessori and MM Montessori Sr. in Kodaikanal, unlike what we usually see today in contemporary Cosmic Education, the original approach was founded upon spontaneous exploration of the natural world. In large part, this was due to MM Montessori Sr.'s contribution of ecology to the cosmological vision. Regarding MM Montessori Sr.'s ecological emphasis in the teaching-learning process, Gang (2009), states:

> Mario [Sr.] (1965) addressed the notion of the "telluric economy" -- the economy of the Earth – a precursor to the use of the term "ecology". In the 1969 Study Conference on Cosmic Education at Bergamo, Mario [Sr.] said: "The child receives a vision of telluric economy, which is not astronomy, geology or biology, but all of them together interrelated through causes and effects. Everything takes part in it – the sun, the rocks, the wind, the rain, the rivers, the sea and all forms of life."

During the Kodaikanal experience, therefore, the children were immersed in Nature. On a regular basis, they would go outside to observe and collect natural materials such as leaves and flowers. Through their own observations, children would begin to see the common parts and their interrelationship – that all flowers have stems, for example. It seems to me that the Kodaikanal learning process appealed to the natural human tendency to seek orientation (MM Montessori Jr, 1956, 1957) in the world which, in turn, would have sparked interest and fueled passion for the pursuit of knowledge. It appears, for example, that scientific classification in Kodaikanal arose in response to exploration and orientation in Nature (Wikramaratne in Kahn, 1979) and not the other way around. The children had the opportunity to first discover the world and observe it which then led to the pursuit of classification. MM Montessori Sr. would also spend a great deal of time creating terrariums and gardens for the children so that they might intimately observe interrelationships unfolding in the natural world as well as making models out

of clay, rock and wood to demonstrate lessons in geography such as erosion and mountain formation (in Kahn, 1979, p. 50). In the original cosmic vision, it was the natural world that provided the fount of inspiration and motivation for learning. Educator David Kahn (1979) in an article titled "*The Kodaikanal Experience*", comments to Wikramaratne: "So you were taking real materials and creating real experiences in nature. This is in contrast to the approach today in Montessori teacher training" (p. 50). Wikramaratne (in Kahn,1979), expresses her concerns:

> Yes, it is wrong the way the natural sciences are given in the training now....what trainees are getting is how to present classification to the child. But they themselves do not know that much about nature.
>
> Kahn: So the children learn the classifications before they learn the lore and the common names.
>
> Wikramaratne: This is unfortunate. The orientation of the world must come first before you classify. (p. 50)

It is fascinating for me to realize that the Montessori Cosmic Education vision was originally so deeply embedded in the natural world. Not only does Nature exploration seem to provide a natural impetus for fueling the learning process but in offering children an opportunity to orient themselves within their local environment and realize the vast interconnectivity and interdependency within it, a foundation is laid for understanding their integrative role on a universal scale. In allowing Nature to take the lead in the learning process, the unfolding of Eco-cosmological view is fostered – a view, suggested by Gang and Morgan (2003), which has great potential to effectively address our present societal conditions and restore the human-Earth-Cosmos relationship.

Cosmic Education in Response to Social Conditions

In a 1956 lecture, MM Montessori Sr. shared this insight regarding the social circumstances of the time period:

> . . . the conditions make it much more difficult to adapt than formerly. Nowadays, not only in one nation, but in the whole world, society seems to be in a state of chaos, due both to the impact of new and conflicting ideas which come from all sides – and to economic, social and spiritual changes that have occurred…So the general feeling is that no longer is anything permanent. All feel insecure: not only as individuals but also nations. (p. 1)

In the Montessoris' opinions, a need for a stabilizing factor arose as people were no longer united under tidy cultural umbrellas - the conditions that once existed more prevalently within the more limited boundaries of village life. According to Montessori, Sr. (1956), children had become lost under the ". . . shattered nebula of mixed ideologies" (p. 38). The Montessori consensus was that children were having greater difficulty in discerning a cultural thread to which to adhere and subsequently, their ability to maintain a strong centre was at risk:

> Formerly, there was only one way to behave; the rules were fixed: traditional and hereditary…The children in such an environment had a sure guide for the achievement of their adaptation…If you compare the conditions of our time to the conditions prevailing now, to what can our children give their loyalty? Nowadays, our village is the world. Consequently, children…grow up under the impact of all sorts of conflicting ideologies. Children hear some proclaiming: "This is wrong", while others referring to the same thing say just as authoritatively, "It is the loftiest expression of what is right." To what can they attach themselves to…? (pp. 13-14)

I suggest that the Cosmic Education model is even more applicable and more urgently needed in contemporary times, which I discuss in the following section.

Cosmic Education's Role in Contemporary Times

With advances in media and telecommunication technology, it seems fair to say that exposure to the variety of worldviews in our contemporary culture has expanded exponentially since MM Montessori Sr.'s statements in 1956. Capra (1996,1997), even goes so far as to suggest that computers are actually eradicating the diverse pool of cultural world views altogether (p.69). It is probably not an exaggeration, then, to say that MM Montessori Sr.'s thoughts on competing ideologies quoted in the previous section are equally, if not more applicable to today's world. Does it not seem more difficult than ever for children in contemporary societies to find themselves within the perpetually swelling sea of conflicting ideologies presently circulating the globe?

I observe examples of this particularly in my work with immigrant families who come to Canada and bravely face the challenges of immersing themselves in our diverse, multicultural landscape. The parents, most often having come here in search of a better life for their children, tell me they struggle, feeling emotionally isolated in a new land as they make every effort to preserve their cultural traditions within their family unit. The children seem to walk between two worlds as they are infused with Western materialistic values that often strongly conflict with their original traditional heritages. It seems these families are experiencing stress and confusion as the members try to preserve their unity under a familiar cultural umbrella and at the same time, try to build a life within a new cultural landscape.

Within the context of Chaos Theory, it appears that humanity may be in the process of reorganizing and recreating itself into anew as it is prompted by various triggers or "bifurcation points" (Briggs and Peat, 1999, 2000). Are we being urged to wake up and disconnect from the mainstream negative feedback loops swirling through the sea of ideologies? Are these negative feedback loops keeping us distracted from the realization of our common origin? Briggs and Peat (1999, 2000) explain this in terms of Chaos Theory:

> We're all necessarily conditioned by society….Our habits of thought, opinions and experiences even the facts of the world are similar to negative feedback loops that go round and round to keep us in essentially the same familiar place. (p. 30)

These ongoing negative feedback loops seem to perpetuate and the environmental destruction continues at an alarming rate. David Suzuki (n.d.), naturalist and host of the Canadian television series, *The Nature of Things*, describes: "We're in a giant car heading for a brick wall and everyone is arguing about where to sit." It appears more imperative than ever that we find concrete ways to help the young generation weave its way through the chaos to the common thread that strings our hearts together. Moore (1996, 1997) suggests that "We seem to always be reaching for an elusive goal, rather than loving the world in front of our eyes" (p. 152). How, then do we divert our attention from this seeming addiction to material compensation for the loss of our interconnection within the universal web? I find Montessori's vision of Cosmic Education with The Story of the Universe at its fulcrum to be a compelling answer toward this end. It appears to offer an effective antidote and stabilizing factor for children by raising their sights above conflicting world views to a universal perspective of our common origins in the primordial fireball. As Montessori (1946, 1987) suggests: "There is something

which humanity lacks fundamentally and it is to be sought in the very origin of life. There alone can be found the key" (p. 99).

Through the power of imagination, the child's perception can open to the vast, interrelated web of the Universe, gaining a sense of cosmic consciousness across time and space. If the lines are blurred regarding loyalties to heritages and ideologies on the planet, it seems that Montessori, through Cosmic Education, strikes the chord of commonality, unifying us as citizens of the Cosmos. An excerpt from a version of The Story, *I AM the Universe. WE ARE the Universe*, that I am developing for elementary children seems to confirm:

> I AM a timeless being ever expanding the yawning depths of space and time into a vast 'cosmic something' (Vernadsky in Shchetinin, 2007). Some humans say it has been 13.7 billion years since I was a tiny primordial seed in the nothingness and dreaming the Universe into being. It's hard to imagine that everything you see around you and beyond to the farthest reaches of the galaxies and stars, all came from such a humble little beginning. Yet everywhere you look in my vast, numinous being, the imprint of our emerging from the tiny seed is there and tells our story. Did I say '*our*' emerging? *Our* story? Yes, indeed! The stars in the sky, the ant in the garden, the apple in your lunch box, your lunch box and you! Cousins! Imagine! (Richardson, n.d.)

The Story of the Universe*,* as it is presented through the cosmic vision and interwoven throughout the curriculum, continues to give children in the present day a navigational point of reference for themselves in relation to the All. Further, it also confirms key concepts that foster a desire for cosmic repatriation by inspiring wonder, love, and appreciation for all of Creation. With the presentation of The Story of the Universe, the hope is that these positive founts of emotion spring forth over time from the learner's heart through the offering of themes such as the interconnection of all life, the concept that each element makes an essential contribution to the whole through cosmic charity, and also by fostering the emergence of such

questions: 'What is my personal Cosmic Task? What contribution can I make to the whole?' As Montessori (1946, 1987) states in *To Educate the Human Potential*:

> The stars, the earth, stones, life of all kinds form a whole in relation to each other and so close is this relation that we cannot understand a stone without some understanding of the great sun! No matter what we touch, an atom, or a cell, we cannot explain it without knowledge of the wide universe. What better answer can be given to those questers for knowledge? It becomes doubtful whether even the universe will suffice. How did it come into being and how will it end? A greater curiosity arises which can never be satiated; so it will last through a lifetime. (p. 9)

Montessori's Cosmic Education, in drawing awareness to the theme of interrelationship, is meant to inspire collective motivation among learners as they are encouraged to think systemically not only in terms of the knowledge they are acquiring but also in terms of human-Earth- Cosmos relationship. In my experience as a Montessori educator, Cosmic Education inspires Earth stewardship through the theme of generosity and subsequently opens the door to an appreciative, loving, sensitive relationship with the planet as children come to see themselves integrated with natural world. As Suzuki (as cited in Lipshuk, 2004) suggests:

> If children grow up understanding that we are animals, they will look at other species with a sense of fellowship and community. If they understand their ecological place – the biosphere – then when children see the great virgin forests of the Queen Charlotte Islands being clear cut, they will feel physical pain, because they will understand that those trees are an extension of themselves. (p. 322)

Through Cosmic Education, children seem to be given an opportunity to develop an Eco-cosmological view, seeing the Earth, its inhabitants and the Cosmos as

extensions of themselves. Education in the mainstream, however, continues to be offered largely out of context with Nature as we shall see in the following section.

Education Out of Context with Nature

As previously mentioned, the Montessoris' recognized that the educational process in mainstream learning had become too far removed from the natural world as it isolated children from the environment within sterile buildings and learning institutions. Though progress is being made, segregation from the natural world in learning continues to be a serious concern in contemporary mainstream settings. Evidence of life is imported from Nature for narrowed, objectified observation out of context with its natural habitat. (Lillard, 2005, 2007, p.224).

Montessori (1948, 1987) recognized the key role that the natural world should play as the ideal model and guide in learning:

> There has been revealed to us a significant unity of method in all natural building. It is clear that nature follows a plan, which is the same for atom as for planet.
>
> Nature is the teacher of life – let us follow her ways! (p. 90).

Moore (1996, 1997) compliments Montessori's statement through this example illustrating nature's instructional role: "The soul of the tree overlaps with my own soul, so that we are more than siblings, indeed saplings as we share the same air and space. . . we can find ourselves by rediscovering the sibling relationship we have with trees" (p. 29).

When communication between Nature and the young generation takes place out of context, it appears to leave a void in understanding the complexities and nuances of

interrelationships between the object of study and its natural habitat. This was my experience as a biology student in a high school laboratory where narrowed study of natural specimens modeled an objectified as opposed to unified perception of the world and Cosmos. Furthermore, unlike the integrated approach to subject areas in the Montessori learning environment that mirrors a systemic view, the traditional mainstream has historically compartmentalized subject areas presenting them in isolation of one another. Does that not further emphasize the false impression of a hierarchical, mechanistic view of the world? As previously mentioned, according to Lillard, (2005, 2007), mainstream education ". . . separates itself from life in at least two ways. First it is physically separated, usually occurring in a special building . . . the second way in which learning is separated from life is conceptually" (pp. 224-225). Might it be said then that mainstream education offers a skewed perception of the world when teaching out of context with life and the natural world? Montessori (as cited in Lillard, 2005, 2007) confirms the need for an integrated approach to knowledge in the learning process: "Here then is an essential principle of education: to teach details is to bring confusion; to establish the relationship between things is to bring knowledge" (p. 224). What I understand Montessori to be saying is that a detailed, objectified view of a butterfly, for example, can only bring a limited understanding of the parts themselves, again as was my experience in the high school laboratory. However, learning about the butterfly within its natural habitat opens the door to understanding it as a co-participant in the vast web within the context of the entire Universe.

Might it be said then that contextual learning within a natural setting offers the most meaningful learning opportunities? The mainstream education system, with its teacher-directed learning, and isolation from Nature as guide and model, sees students, as previously mentioned, "Lockean" children or "empty vessels." These empty vessels are then filled with isolated pockets

of information in an assembly line fashion after a factory model of learning. An emphasis on efficiency within a highly organized hierarchical structure is emphasized (Lillard, 2005, 2007, pp. 6-9). By graduation, the learner appears to have collected an assortment of individual puzzle pieces never having had the opportunity to see them integrated into a whole picture or rarely having had the opportunity to connect the puzzle pieces to real, meaningful, learning applications (Richardson, 2008). The late adolescent upon graduation emerges into the world but is often left searching for a "shared meaning" between the self, the puzzle pieces, the Earth, and ultimately, the Cosmos. Krishnamurti (1953, 1981), suggests:

> We may be highly educated but if we are without deep integration of thought and feeling, our lives are incomplete, contradictory and torn with many fears; and as long as education does not cultivate an integrated outlook on life, it has very little significance . . . In our present civilization, we have divided life into so many departments that education has very little meaning, except in learning a particular technique or profession. Instead of awakening the integrated intelligence of the individual, education is encouraging him to conform to a pattern and is so hindering his comprehension of himself as a total process. (p. 11)

The discussion of the need for an integrated approach to learning in the educational process can be further expanded through an exploration of contemporary environmental models of education, which through their emphasis on sustainability, offer examples of integrated learning. The following chapter offers an added dimension to the relevance of teaching from a "holarchial" (Gang & Morgan, 2003) perspective, using The Story of the Universe with Nature as a bridge to the Cosmos, in order to allow education to do its most significant, transformative work. The chapter explores models of environmental education and the insights they offered me regarding Pedagogy of Cosmic Place.

Chapter VI: Models of Environmental Education: Toward Pedagogy of Cosmic Place

"To become fully mature as humans, we must bring to life within ourselves the dynamics that fashioned the cosmos."

Brian Swimme, 1984, p.87

With the growing awareness of the environmental crises on the planet today, it is perhaps not surprising that beyond the mainstream traditional learning systems and the Montessori circle, dedicated educators and environmentalists are offering ecologically based curricula in an effort to restore the balance of human-Earth relationship through the educational process. Efforts to open the doors of the learning institutions and re-establish a dialogue between teachers-learners and the natural world are well underway. The following sections look at some of these efforts.

Evergreen Brickworks

As part of my practicum experience, I chose to explore a variety of environmentally based programs and communities in my local area of Southern Ontario, Canada. One very remarkable example of an eco-based community centre that I discovered was a restored century-old factory called Evergreen Brickworks in the heart of Toronto. Evergreen Brick Works has received international acclaim for urban innovation and green design. The facility offers a variety

of opportunities for families and children to reconnect with the Nature in their local city, such as a co-operative organic farmer's market for local growers, year round children's garden experiences, art exhibits, nature walks, senior's community kitchen, clay workshops, therapeutic gardening, and The Green City Adventure Camp that offers children an opportunity to explore the extensive natural environment in their city. Evergreen is a Canadian national non-profit organization dedicated to making our urban spaces greener. Besides providing funding for the Brickworks, Evergreen has provided funding to over 3,000 schools across Canada to help them reclaim their natural surroundings by replacing asphalt with green spaces and school gardens.

Guelph and Caledon Regions of Ontario

During my search for environmental learning opportunities, I also explored groups within the regions of Guelph and Caledon. It was amazing to me to see how like-minded groups for schools and businesses seem to be drawing together over time and creating supportive, sustainable communities that are committed to eating, living, and learning locally.

The city of Guelph with a population of 120,000 is situated in the heart of southern Ontario, 100 km west of Toronto, Ontario Canada. Guelph offers a variety of ecologically based programs. The Guelph Outdoor ECE Preschool models itself after the Forest Schools in Europe and claims to be the first of its kind in North America. In the same vicinity there is the Guelph Outdoor Education School where children participate in outdoor, nature-based activities in the wild. The nearby Guelph University is also largely dedicated to studies in sustainable agricultural

and veterinary medicine. The region is also known for its annual Organic Conference and Expo, now in its 34th year.

The Caledon community of Ontario is an amalgamation of small villages, towns and hamlets. It has a population of 59,460 and is located 50 km north of Toronto. The community includes many organic farms and businesses as well as a local co-operative farmer's market. An intentional eco-based community called "Whole Village" is also a part of the region. Full-time residents live and work co-operatively together on several acres of land, which includes a large natural pond and maple forest. Workshops are offered in bee keeping and organic farming techniques and additionally, local school students are provided apprenticeship opportunities.

I enjoyed exploring sustainable communities in my area and appreciated their dedication to restoring the human-Earth relationship. I am in the process of giving further consideration to these areas in my search for a location for my proposed elementary –middle - high school which I intend to open in the 2014-15 school year. The school will be Montessori inspired, with an Arts-Nature based curricula integrated with The Story of the Universe as its unifying theme.

River of Words Project

The *River of Words* (ROW) project, supported by the *Centre for Ecological Literacy* (CEL) in the USA, is a beautiful example of efforts being made to "…help children fall in love with the Earth" (Michael in Stone & Barlow, 2005, p.116) through place based, environmental, arts education. ROW encourages children to "…immerse themselves in nature and asks them to observe carefully, creating an opening for emergence of the joy and wonder that the natural world can evoke" (Michael in Stone & Barlow, 2005, p.120). Through ROW, children explore

their local communities and watersheds and build a relationship with their natural surroundings based on a deep love and respect. Children express their feelings and observations from these first hand experiences in the natural world through art and poetry and submit them to ROW's annual contest. Pamela Michael, co-founder of ROW, explains the end result is "You get children who know their 'ecological addresses' as well as the names of their streets and towns. You get hope" (Michael in Stone & Barlow, 2005, p.112).

Michael suggests that ROW sets itself apart from most other environmental education programs by incorporating the role of emotions in the learning process advocating that "…activities that both inform the mind and engage the heart prove to be a powerful and effective combination" (Michael in Stone & Barlow, 2005, p.116). Going back to Suzuki (as cited in Lipshuk, 2004), if children are emotionally invested in their local environments, they will see it as an extension of themselves and go to great lengths to protect it (p. 322). Because the children open a dialogue with Nature in a very personal, meaningful way, they more effectively integrate the wisdom gleaned from the experience. The ROW program lays a pathway for lifelong love and appreciation of the natural world.

Pedagogy of Place

Environmental educator, author, and CEL board member, David Orr is taking positive strides with children by incorporating the concept of "Pedagogy of Place" in learning. Orr offers further evidence that connection to the natural world through hands on learning experiences is essential to our transformation as a human race (Orr as cited in Stone & Barlow, 2005, p.89). He suggests that the emphasis on abstract thinking and learning in mainstream

systems leaves children disconnected from the natural world and with a narrowed perspective of their immediate surroundings. This disconnection leads them toward the tendency to oversimplify and see the natural world as at their disposal in the form of "…real estate or mere resources…" (Orr as cited in Stone & Barlow, 2005, p.89)

In the absence of a direct connection and experience with immediate surroundings, there is no opportunity for emotional attachment or dialogue between the child and the natural world. Harkening back to Henry David Thoreau's *Walden* as an educational model, Orr comments that the example of Walden reflects dialogue between Thoreau and the environment as he observes, experiments and allows himself to be shaped by his experience in the natural world. For Orr (2005), "…Walden is a model of possible unity between personhood, pedagogy and place" (p. 87). Contrast this with Orr's (2005) interpretation of contemporary, mainstream learning institutions:

> Other than a collection of buildings where learning is supposed to occur, place has no particular standing in contemporary education . . . a great deal of what passes for knowledge is little more than abstraction piled on top of abstraction, disconnected from tangible experience, real problems and the places where we live and work. In this sense it is utopian, which literally means "nowhere." (p.88)

First Nations' Pedagogy

Berry (1999) says, that children ". . . no longer learn how to read the great Book of Nature . . ." (p.15), and suggests that we might look to indigenous peoples for their wisdom in terms of how they have retained the perception of themselves as integrated, universal beings:

Indigenous wisdom is distinguished by its intimacy with and participation in the functioning of the natural world. . . . Living things come into being, flourish and then fade from the scene. This ever renewing sequence of sunrise and sunset, of seasonal succession, constitutes a pattern of life, a great liturgy, a celebration of existence. (p.177) Malcom Margolin, author and publisher of Heyday Books, provides a fascinating look at the value and transmission of knowledge in California Indian pedagogy, an example of an ancient systems approach to teaching that models the contemporary concept of place-based education in the fullest sense. As in the Montessori pedagogy, the transmission of knowledge is not limited to an oral exchange between student and teacher, but is also experiential. Nature, however, appears to take a stronger lead as teacher than in the Montessori environment, as the learning process is more fully embedded within the natural world. It appears that Nature itself is the prepared environment inviting the learner to engage and glean new insight or understanding. Margolin (2005) explains:

> …wherever you went the sight of an animal, the call of a bird, the presence of a rock reminded you of an instructional story. You could not go anywhere without being informed, educated or lectured to by the world around you. (p.78)

Here we have the learner fully immersed in pedagogy of place, engaged, aware, and sharing a meaningful, open dialogue with the natural world. The culture has a reverent attitude toward knowledge that I find inherently beautiful. Unlike in mainstream schools where knowledge is considered as commodity or a means to financial security, in First Nation's pedagogy, knowledge arrives as a personal gift for the learner. This perception of knowledge permeates the culture and as a result, the learning process is considered a sacred undertaking. It is also interesting to me that part of this First Nations' pedagogical practice is to develop the skill

of discernment so that youth will know how to recognize the gift of knowledge when it is in the offing. Should the gift of knowledge be overlooked, it is believed that crucial signs and information might be missed that are meant to guide people along a destined path or, in Montessori terms, toward their personal 'Cosmic Task'. Within this First Nations' pedagogy there is also the underlying assumption that the world is not completely knowable and that we should be at peace with that notion. This perspective aligns with contemporary scientific findings and Gang's (1989) *Principle of Uncertainty* that is characteristic of the new *Age of Humanity through Nature/Cosmos*. Capra (1996) confirms this characteristic principle: "In the new paradigm, it is recognized that all scientific concepts and theories are limited and approximate. Science can never provide any complete and definitive understanding" (p.41).

Perhaps First Nations' pedagogy is an ideal example of a learning system that includes not only a local, place based education, but also the concept of Pedagogy of Cosmic Place. Not only through Nature do learners come to know and understand the natural world and their role in the local setting, but they also develop an expanded awareness of cosmic interconnections through the stories and lessons that are woven throughout the local environmental landscape:

> Animals, plants, trees, and inanimate objects are interpreted in human terms and their relation to the earth, sky, and water. A cosmological order exists, within which humans live, that values balance and harmony with all of these forces. (University of Calgary, 2000)

Through a systemic view of the natural elements, First Nation's pedagogy appears to open avenues of dialogue not only to the immediate environment but also to the vast Cosmos;

further, it allows us to see Nature as the bridge to the web of all Creation. As we dialogue with Nature in our immediate surroundings, then perhaps, so can we share meaningful communication and connection to the Universe: that as we experience Place, there is also an opportunity to experience Cosmic Place.

The next chapter explores ways that the role of Pedagogy of Cosmic Place in Montessori's Cosmic Education might be enhanced and expanded given the advances in systems theory and the environmental crisis today.

Chapter VII: Expanding the Eco-Cosmological View in Montessori's Cosmic Education

"Today we have an expanded notion of Cosmic Education that comes to us from the revelations contained within the evolving Story of the Universe. The idea that Cosmic Education may be the instrument for leading us to an integrated Ecozoic Education is compelling."

Philip Gang, 2011.

Montessori's concept of Cosmic Education appears to be as equally applicable today as it was 100 years ago. Because of the incorporation of an Eco-cosmological view, it offers children opportunities to experience Pedagogy of Cosmic Place as they move through an integrative curriculum with the epic Story of the Universe centerfold. When I first came into the TIES program, I arrived with the underlying assumption that the Montessori vision was nearly flawless; I saw little room or need to expand or enhance. As I progressed through the program, I gained a new perspective of the Montessori pedagogy. It is indeed, comprehensive and largely in tune with the needs of children and society today, yet, as the opening quotation suggests, with

the newly evolving understanding of systems theory and the environmental crises of our present day, I think there is room to augment Montessori's vision and further enrich the child's experience within a universal context.

Gang and Morgan, for example, advocate for an Eco-cosmological perspective within the Montessori learning environment that would be addressed as "…a new form of literacy and activity across all planes of development. The intention is to connect learners to Earth and Cosmos, inviting them into the Earth community and bringing the Earth community to them." (Gang, 2014). Gang and Morgan have subsequently developed *At Home in the Cosmos* (AHIC), a series of lessons that reflect contemporary scientific knowledge. Gang (2014) describes this work as:

> …an organization of significant context-setting events, or origins, that shape the human presence. Four epochs of evolution are introduced through sequenced narratives and photographs or graphic images that depict these emergences through time: The Epoch of the First Nine Billion Years; The Epoch of the Formation of our Solar System and Earth; The Epoch of Life, and The Epoch of Humanity. A fifth narration, presented first, is an index ("home page" of sorts) to these four as it highlights emergences from each of the four epochs above.
>
> Each narrative is presented with its own time line (spiral rope) with specific points for each origin... so that the participants can identify the emergences in the scheme of the unfolding cosmos.

Beyond revamping certain curriculum pieces and materials to more accurately reflect the current knowledge about the origins of the Universe, Gang and Morgan also continue to enhance and develop the Montessori pedagogy in other areas. For example, Gang (2014) has applied and examined the Eco-cosmological lens to Montessori's 'Four Planes of Development', explored and incorporated Earth Systems Theory into Montessori adolescent pedagogy, and

suggested that we might realign the purpose of adolescent education to meet the current needs of environmental crisis today. Gang (2014) explains his thought process for the proposed realignment:

> What was the source of Montessori's ideas for adolescence? …
> Could she have been influenced by a world coming out of the depression? By a globe that was still dominated by rural economics?
>
> Perhaps this is why she said we need to put the adolescent "on the road to economic self-sufficiency." It might be that in this day and age the adolescents need to be ***"****on the road to understanding and modeling sustainable cultures."* Instead of living on a farm, the school might purchase and ecologically retrofit older homes. Can you imagine the integrated learning that could come from such hands-on experiences?

Without exposure to Gang and Morgan's work evolving the Montessori vision to a new and meaningful plateau, I would likely not have been inspired nor had the confidence to unearth the concept of Pedagogy of Cosmic Place embodied within Cosmic Education, nor would I have searched for ways to enhance the experience of Cosmic Place within the Montessori learning environment. Gang and Morgan's contribution to Montessori has, therefore, been a great inspiration and influence on the shaping of my ideas and angle of research.

What follows is an exploration of some concepts and lesson ideas that I examined for enriching the Eco-cosmological view and the sense of Cosmic Place already embedded within Montessori's Cosmic Education experience.

Cosmic Place and Gestalt

Experiencing a sense of Cosmic Place would seem to offer the human mind that which it naturally seeks – Gestalt – or the whole, complete picture (Buzan, 1993, 1995, p.35) of the largest text – the Universe itself. According to author Tony Buzan (1993, 1995), we are naturally radiant thinkers seeking associations in search of the whole. Therefore, the linear thinking patterns that have been dominating world view for centuries are contrary to our natural way of perceiving. Buzan (1993, 1995), proposes Mind Mapping as a way of recording our thoughts and ideas and reconnecting with our radiant thinking patterns:

> Our brains tend to look for pattern and completion…This built-in tendency of the brain to search for completion is satisfied by the Mind Map. The Mind Map allows for an infinite sequence of associative probes which comprehensively investigate any idea or question with which you are concerned. (p.35)

The TIES program provided me with an opportunity to access a holistic view of my experience in the program through Buzan's Mind Map exercises. (See *Figure* 2) As a result of these exercises, I experienced a great sense of satisfaction and completion – as if I had found a means of representing my multifaceted TIES journey by visually depicting associations between everything I learned within the context of the Universe itself.

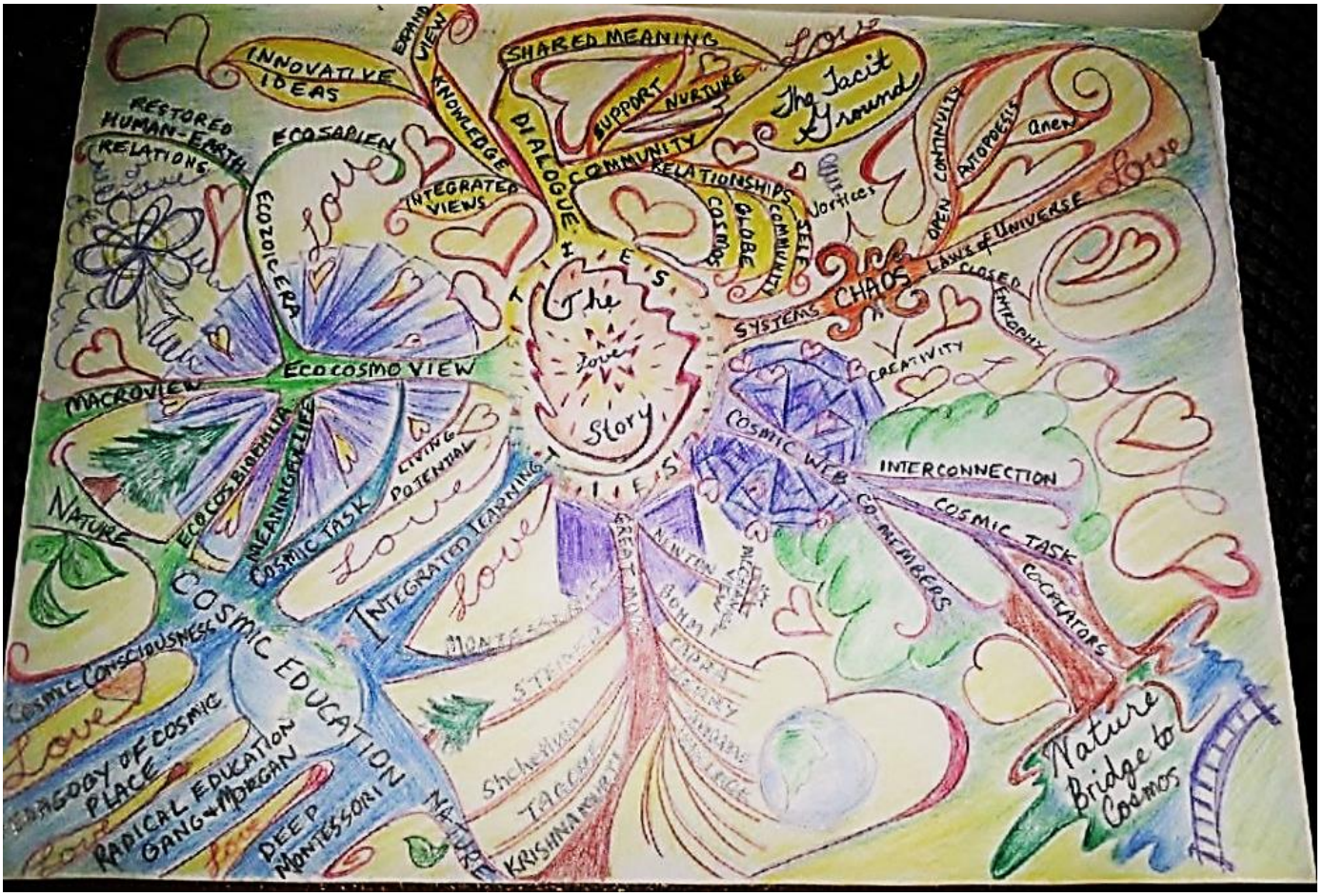

Figure 2 My TIES Experience Mind Map detailing the many avenues of thought and their integration into what has become for me The Love Story of the Universe (2013)

It seems to me that in opening the door to Cosmic Place in the teaching-learning process, we are nurturing our natural ability as radiant thinkers to seek the grand picture of the whole and our place within the universal scape. As Montessori (1948, 1987) suggests, offering the whole Universe to the child is satisfying "…and an answer to all questions" (p. 8). If this it so, then I wonder, might experiencing Cosmic Place play a significant role in leading us away from mechanistic, linear thinking and assist in returning us to our inherent, radiant thinking

patterns? Might the use of Mind Maps and direct discussions with children about the systemic view of the Universe as a reflection of human radiant thinking further assist in this process?

The next section of the chapter discusses the human-Earth relationship within the context of Rights of Being and Cosmic Education.

Rights of Being

An exploration of Rights of Being adds a meaningful dimension to Cosmic Education as it brings into perspective the contemporary societal perspective, which is grossly anthropocentric in nature. Our human centred attitude is especially apparent in the political realm regarding the acknowledgement of human rights in the absence of rights for other forms of being.

Cormac Cullinan (2010), environmental attorney and author of *Wild Law: A Manifesto for Earth Justice,* advocates the need for an alignment between human and Earth jurisprudence. In establishing the rights of Mother Earth, Cullinan proposes we will be establishing a new "DNA" on a societal level. This DNA would function in a similar way to that of a caterpillar's when it signals the larva to cease consuming and triggers a restructuring into the form of a butterfly. According to Cullinan (2008), this new societal DNA will:

> …establish a fundamental structure which will begin the process of society restructuring itself for there is no future as we can see it for a culture that continues to consume and consume... It is essential at this critical point in the history of our planet that we make a transformation –

> a transformation as significant and far reaching as the transformation of a caterpillar to a butterfly.

Berry (2006), states that it is wholly inappropriate that humans, as members within the vast and intricate web of existence, are the only beings acknowledged to have rights in our political system. He suggests that our attitude as superior beings is most detrimental of all to the web of existence. In putting ourselves above all other beings, we are also giving ourselves a sense of entitlement and license to serve our own needs to the detriment of all others. Berry (1996) proposes therefore, that all beings must have rights, though those rights differ qualitatively:

> It is absurd that only humans have rights. That's the most absurd and self-destructive thing imaginable because every being has rights.
>
> Rights come from existence:
>
> i) a right to be
>
> ii) a right to a habitat
>
> iii) a right to fulfill its role in the great community of existence
>
> Humans do not have more rights than birds but different rights. The difference in rights is qualitative.

I feel a most poignant example illustrating the need for an extension of rights comes from our closest relatives – the primates, most specifically the chimpanzees who share 96.8% of our human DNA. Roger Fouts (1997, 1998), psychologist and author of *Next of Kin: My Conversations with Chimpanzees*, reveals in his account of his first hand experiences in working

with chimpanzees many profound and immensely moving examples of the species' remarkable ability to comprehend, innovate, express, and empathize. Fouts, for example, describes Washoe, a chimpanzee in his care, demonstrating empathy and compassion when she relates the memory of the loss of her own offspring to another woman's miscarriage and sympathetically signs, "Cry" (p. 155).

I am wondering if the fact that Fouts' chimpanzees were able to learn American Sign Language and, therefore, spontaneously and authentically express themselves in a form of human language that we can all potentially understand, offers us the opportunity to raise our compassion and understanding to new heights not only for this species in particular, but for others as well. Even though their natural forms of communication may be less evident, we might wonder the depth of feeling and understanding expressed among all living forms. In his account of his experiences with the primates, Fouts (1997, 1998) explains the transformation of his perception of what it truly means to be a co-participant in the web of existence through a reflection of his life's work and his work with Washoe. He suggests that in drawing boundaries between human beings and other species, we have adopted a false sense of superiority and power over other co-members of the web:

> It was Washoe who taught me that 'human' is only an adjective that describes 'being' and that the essence of who I am is not my humanness but my beingness. There are human beings, chimpanzee beings and cat beings. The distinctions I had once drawn between such beings – distinctions that permitted one species to imprison and experiment on another – were no longer morally defensible to me. (p. 325)

The next section of the chapter explores the role of passion or 'Eros' in Cosmic Education and how it might be expanded.

Cosmic Education and Eros

During my experience in TIES, we had the opportunity to engage in creative workshops facilitated by art professor Enid Larsen. In her article titled, *The Transformation Role of Art*, Larsen (2008) explores the nature of passion or "Eros" and the role it might play in the education process. What is passion's true nature? What happens when we deny it? What happens when it is acknowledged and we flow with its energy?

In her article, Larsen (2008), is deeply concerned for the demise of creativity in contemporary society and quotes Henry Miller's insightful comment about our relationship with passion:

> Every day we slaughter our finest impulses. That is why we get a heartache when we read those lines written by the hand of a master and recognize them as our own, as the tender shoots which we stifled because we lacked the faith to believe in our own powers, our own criterion of truth and beauty. Every man, when he gets quiet, when he becomes desperately honest with himself, is capable of uttering profound truths. (p.21)

In reading Larsen (2008), I came to realize that Eros is likely another casualty of Newtonian thinking. I was aware of this on some level for I always made a conscious effort as a parent and educator to inspire and encourage children to discern their passions and live them. It seems we have the impression that only fortunate ones are able to live

their passions – that it would be an exception rather than the rule to do so. Quite often, the young generation is encouraged to sacrifice the pursuit of passion for financial security. I was recently so dismayed, for example, when my son was advised by several members of his family: "Be an accountant. You will always have a job." For a while, my son seriously considered conforming to this pressure but he eventually opted to pursue his true passion for electrical engineering. Krishnamurti states (1953, 1981) regarding the sacrifice of passion for security: "The desire to be secure creates fear; it sets going a process of isolation which builds walls of resistance around us and these walls prevent all sensitivity" (p. 122). This leads toward fragmentation as the outer self ignores the inner voice of passion. The outer self then reaches for material compensation: "When our hearts are empty, we collect things" observes Krishnamurti (1953, 1981, p.122).

After contemplating Larsen's article, I came to realize that the nature of Eros as a vibrant force in its own right at work throughout the web of Creation is largely overlooked in the educational process. By offering children a more comprehensive understanding of passion, we might assist them in discerning their potentialities and Cosmic Tasks that much more effectively and ultimately, nurture their awareness as cosmically conscious, creator beings. As Krishnamurti (1953, 1981) states, "If she does not find her true vocation, all her life will seem wasted…." (p.94). I believe that having conversations with my son over the years about the nature of passion and what life might be like in its absence helped him to follow his heart when exposed to a sea of temptation to follow the practical, financially secure route. In speaking about passion directly and helping children to recognize and understand its nature, I feel children will have the best chance for a meaningful life.

During the Creative Workshop experiences and ensuing dialogues, Larsen encouraged us to "…believe in our own powers" (Miller as cited in Larsen, 2008), to free ourselves from inhibition and tap into our innermost core so that our inner Eros might step forward and introduce himself. I had always considered myself a passionate person but it was not until my work with Larsen that I developed a deeper understanding of the creative process. A fascinating, personal journey unfolded as I began to build a relationship with Eros. By the end of Creative Workshop II, I had created an image (See *Figure 3*) which, for me, represented my deepest passions and longings for my work in the field of education. The activity was meant as an extension and compliment to my ongoing TIES research.

Admittedly, before beginning the assignment, I was dubious about the connection to my TIES work and felt my time would be better spent with my readings and fulfilling my practicum requirements. Once I relaxed into the process and committed myself to it, I became completely engrossed, losing all sense of time. When I finished the work, a great wave of fulfillment came over me. As I took some time to reflect upon the image, I was surprised to see my inner being, my passion for education and my work in TIES smiling back at me. I marvelled at this very personal representation of my authentic self and life's work integrated into a singular, all-encompassing vision. The exercise had proven to be a very meaningful extension of my work in TIES after all, and confirmed the need to address the creator-self more directly in my work with children. I had instinctively felt that art adds a meaningful dimension to the teaching-learning process but through this exercise, I was able to concretely experience a connection between my learning and a creative expression of it. I was amazed!

Larsen (2008) describes the potential role of art in education for tapping into our psyche and bringing to the surface a unified portrayal of a given subject: "Art is a means par excellence for accessing and portraying prima material, for providing a mirror to the invisible quality of sometimes ethereal, heady and conceptual material." She further explains:

> Art can bring knowledge through our body, emotions, and felt sensations as bodily-embodied knowledge (Mirochnik, 2002). The truth of art is that it can disclose the beauty of extraordinary possibilities concealed beneath the cloak of the actual, the ordinary, and the everyday. This potentiality is as real in the making of good classroom community as it is in sculpting, painting, or literary composition. (2008)

Figure 3. *"Eros Reveals My Passion for Education…for Life!"* (2013).

My reflections on the creative experience were as follows:

> This is what transpired for me with paint, canvas, clay and fall flowers...and a little silver wire! What does this mean to me - I feel it embodies my passion, energy, love for what I want to bring into the world through my work in education…
>
> The red and blue in the background started out as sweeps of colour but in the end, from my perspective, they seem to give an impression of me dancing – no longer as a ballerina – but through life still fully living my passion through Montessori and Cosmic Education. The larger clay 'nautilus' with rays represents the flaring forth from primordial fireball - that which gave birth to the Universe. The rest of the smaller nautili, silver spirals and fall flowers streaming from the flares represent perpetual creativity, Cosmogenesis. The flowers represent nature as our bridge to the Cosmos and are also a reminder of the systemic flow of transformation as they will fade, nourish the soil, sow their seed and rebirth in the spring.
>
> For me, this canvas seems to encompass the essence of my ideas for my TIES research. It likely will offer me a central image to refer to for inspiration as I write my CP. I am wondering if it represents everything I want to say in my CP but in a visual way. Perhaps I have created it…now I have to put it into linear form. (2013)

As the months went by, the image became a great companion for me as I continued to explore my emphasis area. The painting still leaps with fresh inspiration and serves as a daily touchstone confirming synchronicity with my inner passion. I am full of appreciation because it seems that which inspiration drew forth from me is now playing an inspirational role in the continued pursuit of my passion. Perhaps there is a beautiful wave of reciprocity that begins to flow when I trust inspiration and take its advice. Swimme (1984), describes the process of following passions as the pursuit of 'allurements' and goes so far as to suggest that these are the very processes threading the Cosmos together. When

I consider again the autopoietic nature of systems across the Universe in a perpetual flow of creativity in light of my new understanding of Eros, I more fully comprehend Swimme's statement:

> Each person discovers a field of allurements, the totality of which bears the unique stamp of that person's personality. Destiny unfolds in the pursuit of individual fascinations and interests ... By pursuing your allurements, you help bind the universe together. The unity of the world rests on the pursuit of passion. (p.8)

If the pursuit of passion facilitates the weaving of the universe together, does it not follow then that living one's passion opens the door to experiencing a sense of Cosmic Place? Does the creative process not call for expanded awareness of the universal creativity that is unfolding across the Cosmos ad infinitum? Gang (1989) confirms that children need to understand their inherent creative nature and its cosmic dimension: "Young people need to know that they are the result of 13.7 billion years of creation and that just as the universe has creative powers, these creative powers reside in them waiting to be used" (p.86).

The next section explores ideas for dialogue with children about passion and the calling to fulfill one's Cosmic Task through an exploration of Swimme's (1984) *"Pouring Forth"*.

Cosmic Education and the *"Pouring Forth"*

Swimme (1984), in his book *The Universe Is a Green Dragon*, offers an incredible explanation of what might be termed 'a human tendency to pour forth' when he likens it to a

Super Nova pouring forth a bounty of beauty and elements (p.148) to further fuel ongoing creativity in the Universe. I could not help but draw parallels between Swimme's description of a desire to pour forth and the realization that through waking up to embracing our cosmic consciousness, humans might begin to feel an urge to contribute something or "forge the Cosmic fire" (Swimme, 1984. p. 165), to give something back to the web of existence, to live one's passion, or as Montessori would say, 'Cosmic Task'. When I came across Swimme's (1984) concept of 'the pouring forth'(p.145), it instantly resonated with me for I have always felt a surging wave within me to pour forth, to give something to this world to make it a better, more peaceful place: "What might I contribute to this great symphony of Creation?" or "What is my passion, my greatest means of 'pouring forth' as the primordial fireball 13.7 billion years ago?". I experienced one of the most profound moments in my life when I realized that, indeed, this river that courses so deeply through my core, adding such a spark of exuberance and joy to every atom in my being is a remnant of the most glorious, radiant initial pouring forth of Creation itself. Swimme (1984) expresses:

> You are the elementary particles of the fireball elements of the supernovas, the generosity of the ground of all being. That is your fundamental nature. Our deepest desire is to share our riches and this desire is rooted in the dynamics of the cosmos. What began as the outward expansion of the universe in the fireball ripens into your desire to flood all things with goodness. (p. 148)

I feel 'the pouring forth' would add a wonderful new dimension to a child's Eco-cosmological view of her or his sacred role within the tapestry of Creation. Guiding children toward making a connection between the outward expansion of the Universe from the fireball

and their own innate desire to share their gifts with the world brings new inspiration to seek out one's Cosmic Task and enhances a sense of Cosmic Place.

From my personal teaching experience, it seems that exploring The Story from this new angle offers a beautiful extension and complement to Montessori's vision of Cosmic Education. I had an opportunity to share, for example, the notion of 'the pouring forth' with a 13 year old homeschooler who has only recently been introduced to The Story and Cosmic Education. He found the connection between the primordial explosion and his personal ongoing quest for what he might offer the world as an adult very compelling. I observed the expression on his face as he absorbed the notion. It seemed to provide a powerful bridge for his imagination leading him across time and space to the very beginning of the Universe and his Place within The Story. He was speechless!

In the next section, an exploration of what Swimme (1984, p. 149) refers to as the dynamics of the Universe provides further inspiration for meaningful expansions of Montessori's vision of Cosmic Education.

Cosmic Education and the Dynamics of the Universe

Swimme (1984) expands the discussion about the 'pouring forth' by suggesting that there is a need for humans to comprehend all of the primordial dynamics of the Universe as they continue to move through the Cosmos today (p. 149). He names them as: allurement, sensitivity, memory, adventurous play, unseen shaping and celebration (Swimme, 1984, p. 149). Swimme suggests that it may be a challenge to enter into the dynamics of the Universe with our full being

because they are essentially "invisible" to our eyes. However, in turning toward aspects of Nature, we can become consciously aware of these dynamics as they move through us:

> The Universe oozes with power, waiting for anyone who wishes to embrace it. But because the powers of cosmic dynamics are invisible, we need to remind ourselves of their universal presence. Who reminds us? The rivers, plains, galaxies, hurricanes, lightning branches and all our living companions. (Swimme, 1984. p. 151).

Toward the end of the conversation with the Youth in *The Universe is a Green Dragon*, Thomas summarizes:

> When the wind blows coolly in your face, you are feeling the activity of generosity, reminded of the great joy and destiny of celebration. And whenever you feel sunlight on your arms, you are reminded of that great cosmic flame, the unseen shaping of which permeates you and connects you to the embryogenesis of the Earth. (p.150)

Weaving opportunities into a curriculum to help foster an awareness of the dynamics of the Universe appears to offer children further avenues of exploration to contemplate and experience their universal being and to connect with the flow of primordial dynamics present all around and through us. In the following example, Swimme (2010) describes a simple, yet, profoundly meaningful way that he personally connects with his place in the cosmic tapestry on a daily basis:

> I greet the sun each morning just by reflecting for just a moment on the vastness of the sun, a million times the size of the Earth, in bestowing all this energy. And just in that moment, I remember that we are spinning around the star, and it's because of the star's energy that we exist. So that we are this star in a new form. And by doing that I remember my

> cosmological dimension. And it puts everything in perspective for the whole day.

An inspiring example of children engaging in an Eco-cosmological experience comes from the children at Nova Montessori School, in Christchurch, New Zealand, a school founded in 1989 by Morgan, where presently, both Morgan and Gang are board trustees. In the images, the children are participating in an 'Earth Roll' (Uhl, 2004, p. 19) activity in celebration of the arrival of winter (See *Figure 3 and 4*). As the Sun's early morning rays appeared on the horizon, the children on the beach 'rolled' with the Earth as she moved into the solstice position.

Activities such as Swimme's (2010) daily contemplation of the sun and Uhl's 'Earth Roll' (2004, p. 19), invite our perceptions to engage with the Solar System and Universe from an Earthly vantage point. The gift for us in return seems to be a greater awareness of our cosmological address. Swimme (as cited in Uhl, 2004) describes:

> To contemplate the Solar System until you feel the great Earth turning away from the sun and until you feel this immense planet swung around its massive partner is to touch an ocean of wonder as you take the first step into inhabiting the actual Universe, Solar System and Earth. (p. 19)

Figure 3. Winter Solstice Earth Roll. Nova Montessori School, NZ. (2013).

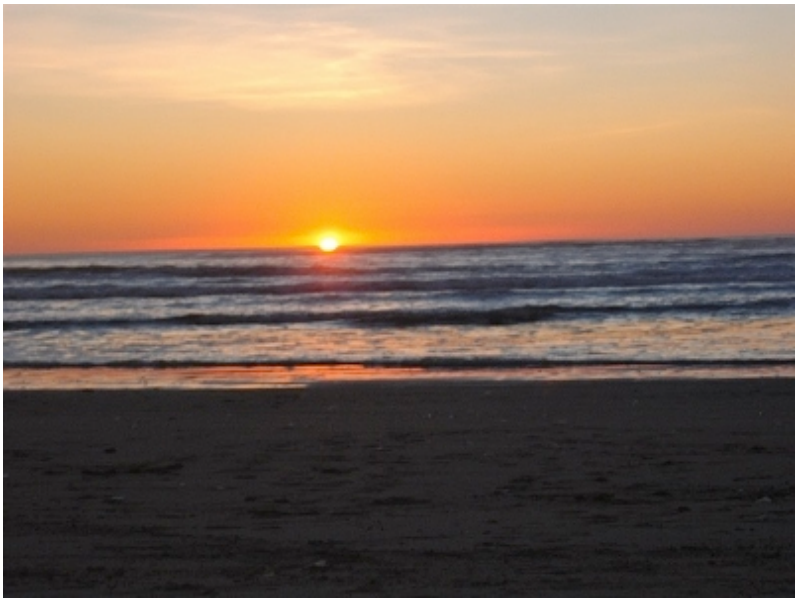

Figure 4. Dawning of Winter Solstice, Christchurch, NZ. (2013).

Engaging with the primordial dynamics in an authentic way appears to promote self-understanding and enhances awareness of the larger cosmic context in which we live, move, and have our being. Swimme (1984) calls for encounters with the natural world to bring us to this new level understanding so that we learn to read the book of Nature as Berry (1999) suggests. We will then learn firsthand what it can tell us about our inseparable role within the cosmic tapestry and rekindle our relationship with our primordial selves through the dynamics of the Universe. Swimme (1984) explains:

> We need a new human in a new Earth, creating and entering new relationships with the primary realities of the universe. In the most obvious meaning, all our difficulty as a species on this planet stems from our false relationships with the winds, seas, life, sunlight and land. It's not that we're bad; we've simply been trying to live outside our true relationships with these primordial cosmic presences. (p. 150)

In the following chapter, I explore The Russian Kin School, an example of what might be termed "Cosmic Education" in its own right.

Chapter VIII: Shchetinin's Kin School

A Russian Cosmic Education

"Our educational system boils down to an attempt to merge all knowledge into a holistic perception of space. We encourage a child to think in terms of the Universe, not just on the scale of the individual separate from everything else. His thought should encompass the whole system, as great as Creation itself – ie: the Universe. That's it in a nutshell."

Mikhail Shchetinin, 2007.

In Southern Russia, between the Black Sea and the Causcaus Mountains, there is a unique school (See *Figure 5*) under the direction of experimental academician Mikhail Petrovich Shchetinin. In its own way, the Kin School is both an embodiment and extension of Montessori's philosophy of Cosmic Education. For this reason, I am offering a discussion of Shchetinin's school – referred to as either the "Kin" or "Tekos School". Due to a lack of availability of English translations of Shchetinin's thoughts and ideas, many people in the West are unaware of his phenomenal work toward building a new humanity through the young generation.

Figure 5. "Mikhail Petrovich Shchetinin's Kin School in Russia" (2008).

The Kin School of Russia

The school population is comprised of students from over 40 nations ranging in ages from 8 to 22. Students work in collaborative groups of 12 to 15 focusing on one subject area at a time from the Russian curriculum. They focus on math, language, or physics, for example, studying the content from the most fundamental level to secondary level with very little guidance from a professional teacher. The children are collectively motivated as both teachers and learners to work together in a co-operative, joy filled atmosphere. The entire eleven year Russian school curriculum is usually completed within two years. Students progress through their curriculum stream of choice by teaching each other and seeking out the knowledge of their peers in what Shchetinin (2008) terms an "Ageless Environment".

Students are intrinsically motivated to learn, with the freedom to move about and work at their own pace. Apparently, it is not at all unusual to see an 8-year-old working

alongside a 15-year-old, for example, in support of each other's learning process. Students make their own textbooks and take examinations on their own initiative as demonstrations of mastery. Most students move through the curriculum so swiftly and effectively that by the age of 15 – 18, many of them have not only completed their high school level of education but have also acquired Master degrees from accredited universities in their areas of special interest. Shchetinin (2008) offers these insights into his pedagogy:

> Young people often conquer summits simply because they have never been persuaded that these summits are unattainable. It is our view that skill in one area of activity is made up of skills in others. Talent is a whole network of different gifts. Which means the task of developing one set of skills is expanded when all of them are set in motion together. And to bring up a specialist, consequently, one has to bring out the overall Human – the Human as a unified whole...
>
> Years are behind us now. I have held on to the conviction that humans can do everything! It is precisely through making sense of this saying that our multifunctional school, the whole school complex, the whole school-human, has been developed. Our purpose is not 'knowledge-know-how-habits'. It is not endless drilling and rote-learning, or the spoon-feeding of information. Rather, it is the raising of a person to live harmoniously, to act in harmony with society - a person who, when she sees and analyses the phenomena of life which surround her, can feel their interconnection, can perceive the world as a whole. And no matter what she becomes - an engineer, physicist, chemist, builder, teacher etc. - she will understand that she is going out into a whole, complete, unified world!

Eco-Cosmological Perception at the Kin School

Though the academic achievement of the Kin School students is remarkable, it is the deep cosmic philosophy behind it that resonates with me most particularly because the Eco-Cosmological view is honored, discussed, and implemented in a very concrete, open way. In the video documentary, *The School: Humanity's New Future* (2007), one student

reveals the evolvement of her systemic understanding and deep appreciation of the human-Earth relationship since she started the school:

> I've got a different perception of the world now. I see every blade of grass as a living being. Of course, I knew that before, but it wasn't important to me the way it is now. I now realize that absolutely everything around us – including me standing here, breathing this air, and all these trees around me – it's all part of one world, one whole.

Shchetinin's (2008) describes the cosmological view that inspires his vision for the Kin School:

> Every individual human is the Eternal Primordial. Both the eternal Result and the Eternal Source. It is on this theory, concept and philosophy that our school, the Russian Kin School is founded.
>
> The very thought that the human species is part of the Great Cosmos gives pause for reflection on the thought that the human self must be, as Vernadsky put it, a "cosmic something" which guarantees her active existence in the whole unlimited cosmic river of life. To live in the Cosmos means understanding and carrying its structure within one's self. It means clearly knowing the laws by which it operates, the meaning of its existence, and to have mastered the techniques of existing in it.

Shchetinin's (2008) description of the human as an integral part of the Cosmos, and the subsequent need to understand the laws of the Universe, to comprehend the meaning of existence and to find a way to adapt to it, seems to mirror many of the major precepts of Montessori's vision of Cosmic Education. Furthermore, Shchetinin's suggestion (2008) that living in a Cosmos "…means understanding and carrying its structure within one's self", appears to suggest, as does Swimme (1984), a need to comprehend the primordial dynamics comprising our being. The Kin students, subsequently, seem to have a strong sense of Cosmic

Place as they demonstrate an integrated Eco-cosmological perspective. One student in the film, for example, reveals a deep understanding and sense of responsibility regarding the role of humans as co-creators (2007):

> …a child receives a spiritual education here. He sees that he can influence his own destiny and that of the others – it's something he creates himself. He is the master of his life. Life isn't something you prepare for – you live every moment you breathe…If you see clearly enough, you'll assume full responsibility for each of your actions, knowing whatever you do will come back to you. And however you treat others, that's how they'll treat you.

The concept of "Agelessness" in Shchetinin's school, an intriguing variation in comparison to Montessori's three tiered multi-age grouping, is the subject of the next section.

Agelessness.

I view Shchetinin's concept of "Agelessness" as an extension of Montessori's three tiered multi-age grouping which further amplifies the idea of Cosmic Place. As previously mentioned, Montessori sees multi-age classroom settings as an opportunity to create vibrant microcosmic communities that offer learners a wonderful opportunity to observe their peers, to mentor, to share and nurture each other. Shchetinin, however, addresses the age concept in his pedagogy by eradicating it altogether. In so doing, he seems to enhance an Eco-cosmological view in the school community. Shchetinin views every human as an eternal being, as the embodiment of the eternal Cosmos and subsequently posits that to assign a specific chronological age to students is to impose limitations upon them. The

ageless learning environment, free of such limitations, self-organizes as children interact, support, and share knowledge while each student moves forward on her or his individual quest for information and understanding. Shchetinin (2008) explains:

> We can see that the division of a school population into age-groups establishes the dominance of a single-manifestation of a human and her/his experience in a single-manifestation life, thereby cutting off the memory of the Cosmic knowledge present in the human species. The principle of agelessness establishes the child as the Pristine Human, and shifts the emphasis away from the miniscule body to the Great Spirit.
>
> An age-free school population takes upon itself the task of creating the actual system of education, assigns and reassigns roles among the members of the population in accordance with the quality and characteristics of the fruits of their labours, individuals' traits of character, their inclinations etc., but never according to age statistics."

The concept of Agelessness is so incredibly beautiful to me because it aligns the child and everyone who interacts with the child in the learning environment on a cosmic plane, where they can connect with their eternal, "authentic" (Sheppard, as cited in Hutchinson, 1998, p.1) selves. In suggesting that the roots of humanity are of pristine origin, it appears that Shchetinin lays a foundation of confidence in the heart of the learner. Confidence is a necessary attribute for the young generation if they are to go forward with courage into the Ecozoic Era suggests Gang (2011). In a presentation titled, *The Future of Humanity, Qualities for Survival*, Gang quotes Eco-philosopher Henryk Skolimowski: "Any reinvention of humanity, according to Skolimowski, must start with "the renovation of confidence". He says that the "divine spark is buried within us but still alive".

It would seem that Shchetinin's concept of Agelessness not only serves to affirm the perfection of the human essence, but, at the same time, confirms a child's Cosmic Place in the vast web of Creation. In that case, is it possible that Shchetinin has created a learning model that reflects the spirit of Montessori's Cosmic Education while also expanding and addressing the cosmic nature of the human being in a very direct, honest, and applicable way?

The expansive depth of integration of the concept of the human as a cosmic, eternal being in the Kin School atmosphere leads me to wonder if, as a Montessori educator, there is room for me to delve more deeply into the vision of Cosmic Education and offer a greater depth of cosmic perception to the children. It seems to me as if Shchetinin dives deeply into the cosmic epic and brings to the surface the pearls of wisdom that relate to the eternal, cosmic human for all to see and acknowledge. A very similar collection of pearls is embedded within the Montessori Cosmic Education philosophy as well, but, in my experience, many of these, such as the pearl of Agelessness, remain submerged below the surface and though they offer an influence, it is in a much subtler way.

The next section of the paper discusses the open belief at the Kin School in using the power of individual and collective thought to create a positive learning atmosphere.

Creating a "Space of Love."

Another way that Shchetinin fosters a sense of Cosmic Place is through an emphasis on the power of collective thought infused with love. As students view themselves

progressing together, there appears to be a decentering fueled by love that unifies them in their purpose. Vladimir Megré (2010), author of the *Anastasia*, *Ringing Cedars of Russia* series, interviews a student at the Kin School in the third book of the series titled *The Space of Love.* The student is describing the collective effort through the power of thought and love applied to the construction of the school building by the students themselves:

> "One gets the impression that each brick of your building here is filled with the bright energy of a great power."
>
> "Yes, that's true," answered an older, red-haired girl. "So much depends on the people who touch them. We have done all this with love, we are trying with our mental attitude to bring only what is good and happy to our future."
>
> "Who designed this building, the columns and paintings?"
>
> "This was the result of our united, collective thinking."
>
> "Does that mean that while each one is outwardly working on their own individual task, in actual fact it represents a collective thought?"
>
> "That's right. Every evening we get together and plan out, or visualise, the day ahead. We come up with the images we want to see expressed in the design of our mansion. Some of the pupils here take on the role of architect — they give specific form to our common work, tie it all together."
>
> "Does your group recognise one of its own as a principal or superior?"
>
> "We do have a leader, but by and large it is the collective thought that is at work here — lava, we call it."
>
> "Say that again — thought is lava?"
>
> "That's right — a state of mind, an image, a desire."
>
> "Do you all work with such great delight, everybody smiling, everybody with such sparkling eyes — everybody so cheerful?"
>
> "Yes, our life is like that, since we are doing what we want, doing what we can, doing what we love to do."
>
> "Doesn't it seem to you that your mansion is something like a temple?"

> "A temple is not a form, but a state of mind. For example, the cupolas — they simply help you access a particular state of mind. The form is moulded by feeling. And it is not by chance that the form of a cupola or high roof came to us — they represent our aspirations for heaven and the descent of Heavenly Grace."
>
> "This building, where every stone is laid with a good thought, is it able to heal?"
>
> "Of course."
>
> "And does it heal?"
>
> "Yes, it does…"
>
> (p. 58)

I find the nature of the student commentary in this dialogue inspiring as it appears to illustrate that students recognize their role as co-creators and through the power of intentional, loving thought they are working consciously in their creative endeavors. It seems to me that they are communicating and creating on Bohm's proposed "tacit ground" (1996, 2004 p. 16) and subsequently, experiencing shared meaning which reveals itself in their collective creative endeavors. (See *Figures* 6 -12)

Shchetinin (2007) views on the power of thought and creation:

> Thought is not information itself; it is the quality of information. Instead of stuffing a child's head with information, we must teach her/him to recombine it in such a way that it will improve the quality of life. So, thought is the human's principle creation. This is the energy that creates the common good. We don't just reflect reality. We create reality with our thought. This is a human's main occupation and the main source of anything of value.

Figures 6- 12, Images of the Russian Kin School & Students, (2008)

The nature of the dialogue, the thought process and resulting creativity also seem to reflect the students' perception of themselves as cosmological beings. Kin School students (See *Figure 13*), through their Eco-cosmological view, appear to demonstrate macrophase wisdom (as cited in Gang & Morgan, 2003) with love as "…the motor of their moral apparatus" (MM Montessori, Jr., 1976,

1995, p. 70). The students appear to not only have a deep understanding of their inherent creative powers but also demonstrate wisdom in the application of thought guided by love.

Figure 13, Kin School Students, (2008)

It appears that the Kin School atmosphere is in many ways similar to that of a Montessori learning environment. The children in both environments seem to function as a community in a way that Wheatley (2006) suggests is an appropriate systems approach to creating a collaborative, as opposed to a competitive, hierarchical structure of organization with a dominant leader at the helm (p. 15). Furthermore, though in Montessori we do not speak directly of concepts such as collective thinking and the power of loving thought to infuse the energetic field and everything we touch with positivity, I would venture to say from my own experiences in authentic Montessori schools, the atmosphere, the materials, and everything we touch is indeed, infused with love. This positive, celebratory attitude toward life and learning results in a joy filled learning atmosphere similar to the happy environment at the Kin School of Russia that Megré describes.

After 25 years in the field of education, I can say that it is not a quality that one can readily see, touch, or define but an overall feeling of gratitude, appreciation, and love that flows through the atmosphere as students commune with each other, and the prepared environment. It seems in Montessori, like the Kin School of Russia, we create a space of love in our schools though 105we do not speak about it so directly.

Scientist and author, Rupert Sheldrake (1981, 2009), researches what he terms 'morphic fields' or energetic fields (p. xxii). From my understanding, in a cultural context, he proposes fields contain a 'morphic resonance' or inherent memory which influences social interactions within a group (Sheldrake, 1981, 2009, p. xxii). Though Sheldrake's (1981, 2009) work appears to primarily concern itself with memory as it is contained within morphic fields and transmitted, I wonder, what the implications are regarding energetic fields that are intentionally charged with love particularly in a teaching-learning atmosphere. Does Sheldrake's theory regarding morphic fields and resonance offer us some scientific explanation regarding creating spaces of love? Within a human social context, Sheldrake's work seems to confirm that humans affect energetic fields with their thoughts and actions. Shchetinin's Kin School seems to offer an example of thoughts of love and their power to create a cooperative, joy filled morphic field. With love as a conduit to decentering and experiencing our "Virtual Self" (Varela in Scharmer, 2000) or, in other words, a link to our universality, might Sheldrake (1981, 2009) and Shchetinin (2007) offer insights for enhancing a sense of Cosmic Place in Montessori's Cosmic Education? Might there be room in Montessori to invoke a deeper and more direct discussion about the energetic power of love and positive thought as powerful tools for creating spaces where we would more readily access our cosmological being? Wheatley (2006), suggests:

> The imagery provided in these field theories is quite provocative because it invites us to contemplate space differently…It seems important to at least contemplate that something might be going on in the spaces among us. Space is not empty. Unseen influences affect behaviour. (pp. 53, 54)

Perhaps by encouraging the observation of the effects of thoughts and actions infused with love in our daily interactions, Montessori educators could further a sense of Cosmic Place through deepening our understanding of our co-creative powers. It may be, however, Western culture is not ready for a direct discussion about the energetic power of human thought and its ability to create a space of love. In that regard, Shchetinin (See *Figure14*) may be ahead of his time in weaving cosmic philosophy so deeply and concretely into his learning atmosphere.

Figure 14, Shchetinin and students at the Kin School, (2008)

A sense of urgency erupts within me though as I feel the window of grace for transforming humanity's world view from the anthropocentric, utilitarian perspective to a new

Eco-cosmological view, through the education of our youth, might only be open for a limited time. I find myself wondering, "If the time is not ripe to brooch the subject of the power of thought and energy infused with love to make our classrooms, communities, and globe a better place, to nurture the "cosmic something" (Vernadsky as cited in Shchetinin, 2008) and live our higher purpose as pristine, cosmically conscious beings, then when?

The next chapter of this paper offers an exploration of my research regarding the role of Nature, my practicum experiences in the TIES program and their influence in the shaping of my ideas about Pedagogy of Cosmic Place.

Chapter IX: Nature: Bridge to the Cosmos

"The clearest way into the universe is through a forest wilderness."

John Muir, Naturalist

The concept of Pedagogy of Cosmic Place arose through my search for ways to more readily integrate Montessori with the natural world. With The Story of the Universe at the core of Montessori's Cosmic Education curriculum, I sought to build a bridge to the Cosmos through Nature in order to bring the reality of our cosmic heritage and vast interrelatedness more concretely home in the hearts of children. (See *Figures 15, 16*)

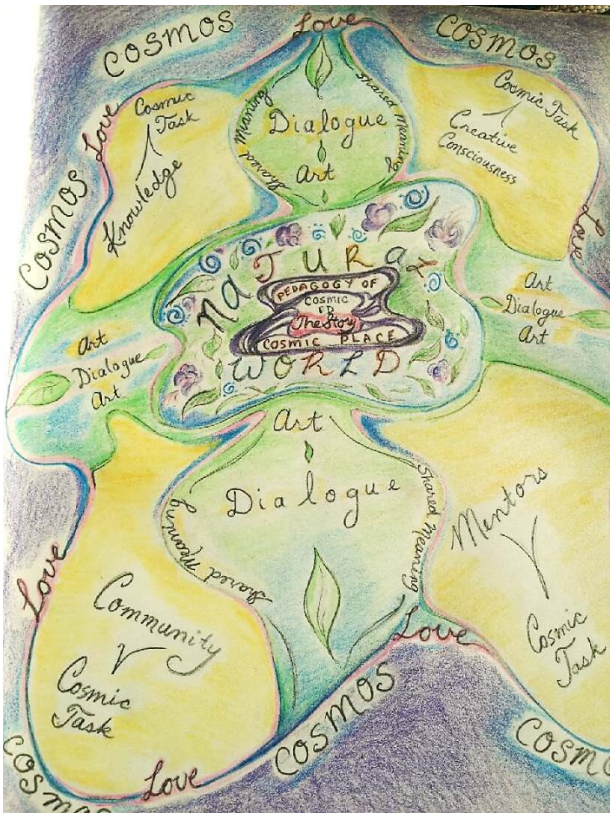

Figure 15, Mind Map illustrating evolving vision for my proposed elementary – high school. "*Pedagogy of Cosmic Place with Nature as Bridge to Cosmos*" 2013.

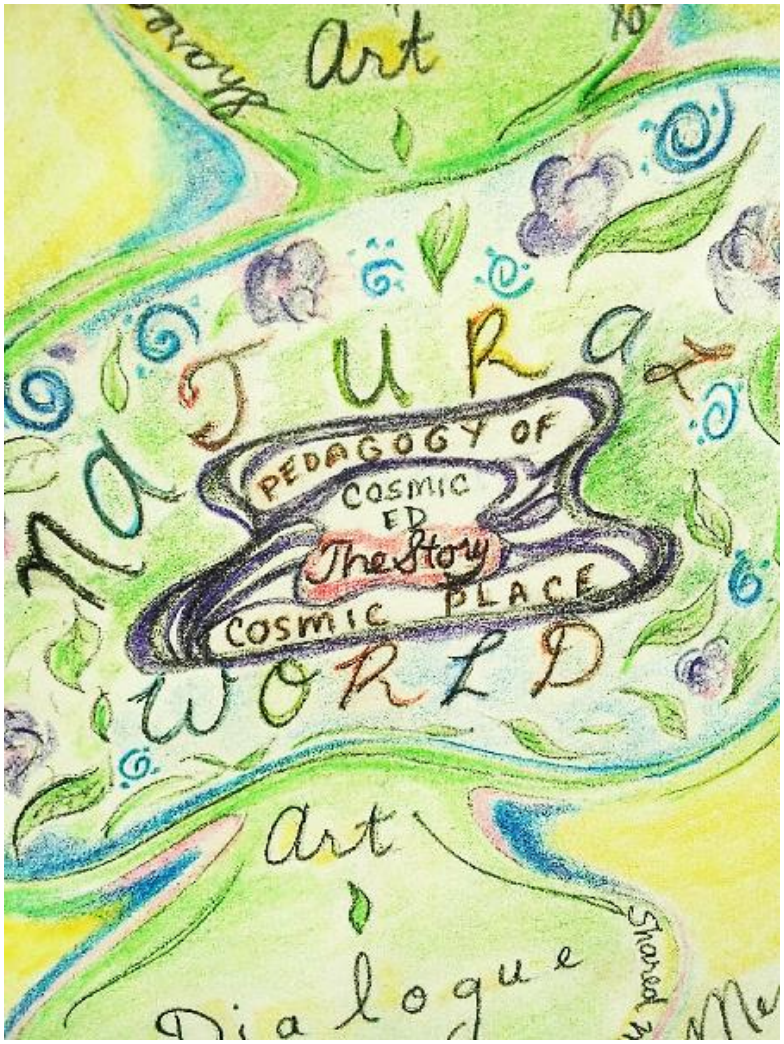

Figure 15, *Detail, "Pedagogy of Cosmic Place with Nature as Bridge to Cosmos"* 2013.

When I started to explore the role of Nature in contemporary Montessori classrooms and looked for ways to expand it, I decided to research some of the many efforts by ecologists and environmental educators to create eco-based learning opportunities for children. I realized that environmental programs which strive to provide a beautiful and meaningful systemic view of the Earth community are most often missing a crucial factor of systems theory: linking child and Earth to the largest text without a context – the Universe itself. It appeared to me that great

work is being done from an environmental perspective through the concept of Pedagogy of Place as children, through close contact with their local natural habitats, develop an awareness of their "ecological addresses" (Michael, 2005, as cited in Stone and Barlowe, p.112). However, I began to realize that with an expansion of perception from that very same vantage point within their local surroundings, it might possible to extend the scope of this awareness to a cosmological view through the concept of Pedagogy of Cosmic Place. As Swimme (in Rogin 2007) suggests, "The universe story shows how profoundly interrelated we are." Since ecology is derivative of cosmology (Gang, 2013), to add a cosmic dimension to environmental education programs seems to complete the grand picture – or 'Gestalt' - of interconnectivity by exploring knowledge of Earth based systems in a cosmological context. Studying Earth systems in isolation of our cosmic connection raises us above our anthropocentric perspective, which I see as beautiful progress for the human - Earth relationship. It seems to me, however, that it still leaves us narrowed in our vision, "Earth-centric" and apparently disconnected from the cosmic web of which we are an undeniable part. An Eco-cosmological view, through its all-encompassing perspective grants humanity its universal dimension. Swimme (1984) confirms: "Our primary teacher is the universe. The universe evokes our being, supplies us with creative energy, insists on a reverent attitude toward everything, and liberates us from our puny self-definition" (p. 167).

In searching for ways to include Pedagogy of Cosmic Place in environmental education programs, I started working with the realization that Nature, if presented in a loving, appreciative way to children, potentially forms a conduit to the Cosmos. From my perspective as a Montessorian, I realized that encounters with the Natural world afford children the awe inspiring opportunity to see themselves not only as an extension of the Earth but of the Cosmos. The minerals comprising the stone in the hand, for example, trace their heritage beyond the

planet's epic history, across even further eons of time all the way back to the primordial fireball some 13.7 billion years ago. To tell the story of the stone within the confines of Earth's history is a remarkably dramatic, volcanic tale but it represents only a small measure – 4.5 billion years - of its personal narrative. There is so much more to tell!

Applications of Pedagogy of Cosmic Place

In October 2013, part of my practicum experience involved working as a facilitator for the TIES LC24 group of graduate students. This experience offered me further insights and incentive for developing the concept of Pedagogy of Cosmic Place. I had the opportunity to facilitate a dialogue with a number of teachers from both the mainstream and Montessori settings from across North America. As we reflected upon film maker Neil Rogin's (2007) DVD *Awakening Universe* and Gang and Morgan's (2003) CD - Rom, *Introduction to Montessori's Radical Education*, some profound concerns and issues confronting educators revealed themselves. What an amazing opportunity it was to hear contemporary educators' views about human-Earth relations, their evolving understanding of The Story of the Universe, their integral role within it, and their search for ways to build a bridge to The Story through their teaching practices. I appreciated the opportunity to learn more about their views on education, their positive experiences as educators and the challenges they face. How are educators adapting to teaching in urban settings with limited access to Nature, for example? All participants in the dialogue seem to view education as a significant transformational tool in bridging humanity into macrophase wisdom (Gang & Morgan, 2003) and all would ideally love to strive for more permeable boundaries between nature and the classroom in order to help us get there.

It was quite remarkable to witness the exuberance and sheer joy rising among the teachers as they first absorbed a deep appreciation for The Story, the realization of our interconnectivity and common cosmic heritage with the stars. They welcomed the pathways laid for Montessorians into the future through Gang and Morgan's (2003) efforts to integrate this exciting news into our pedagogical practices and equip us with an Eco-cosmological view that will bridge both the children and ourselves into the new Ecozoic Era.

As the dialogue progressed over the two week period, however, the tone shifted to one of despair and worry. How might we overcome apparent barriers in the education system today that would seem to prevent us from leading children into macrophase wisdom (Gang & Morgan, 2003)? Overuse of technology and a lack of access to Nature were primary concerns. Few teachers were in a position where they could offer spontaneous access to the natural world and integrate it into the curriculum as a natural extension of themselves and Cosmos. Some educators taught in exceptionally beautiful natural settings such as the Boulder Colorado Mountains, but found it nearly impossible to disengage children long enough from technological gadgetry to experience a true sense of connection to the Earth or Cosmos. One educator, Ari Sargon (2013), wrote, "Can you imagine my frustration taking a group of students down the Pacific Coast Highway in California (one of the best drives in North America) only to have half of them with their heads down updating their Facebook statuses about what they were doing, rather than taking in the moment?"

The dialogue shifted from wonder, awe, and appreciation for The Story of the Universe, into the challenges of finding "entryways" into The Story in our daily work with children. I was admittedly alarmed how a very hopeful, uplifting dialogue among dedicated educators could quickly plummet into despair – that one day we were seeing such potential in The Story to make waves of change and the very next day, some suddenly found the task so overwhelming that they were ready to give up. It was this dramatic shift in direction from hope to despair that brought home the realization of the need for a Pedagogy of Cosmic Place that could be applied in a variety of learning styles and settings. It seemed to me that a Pedagogy of Cosmic Place is necessary as much for the sake of sharing an Eco-cosmological view with the children, as it is for fueling a belief in the hearts of educators about humanity's Cosmic Place and that we can - and are - as a human race, making the transition into the Ecozoic Era.

Addressing Fragile Hope

In attempting to address the fragility of hope among the educators, I was inspired by Gang's (2011) presentation, *Future of Humanity: Qualities for Survival.* In the presentation, Gang (2011) proposes attributes educators should be fostering in order to bridge us into the new Ecozoic Era, the first of which is 'hope'.

During the TIES LC24 dialogue, I seemed to be faced with a group of educators who had knowledge of The Story and yet felt blocked in finding pathways to share the cosmic dimension with their students. One educator, Lorie Feldman (2013) wrote: "So, we

are a relatively small group discussing the demise of humanity and our hopes for the future. Can we affect big changes? If so, how? How does the new story begin?"

Another student, Rachel Cole (2013), teaching in a poor urban setting severely lacking in natural scape, with no budget for field trips and further disadvantaged by teaching a single subject area to students, reached out to the group for suggestions. As their English teacher, Cole was searching for a gateway into The Story with her students. I saw her circumstances as the most limited among the teachers in the seminar and yet, full of potential for having a great inspirational for impact within the LC24 community particularly if she were able to find an entryway into The Story. I wrote:

> And my heart cries for Rachel in an urban setting searching for ways to build a relationship between her students and the natural world, as an entryway into *The Story*. The smallest bit of greenery sprouting through the cracks in the concrete to me speaks volumes – about the loving, resilient, autopoetic nature of the Earth and Cosmos. A dandelion pushing through the pavement is for some an unwelcome annoyance but for me a ray of hope. (2013)

Cole (2013) responded a few days later:

> I've been wrestling this week with ideas to bring the natural world into my very urban school setting. Today I brought my middle schoolers out under the big oak tree on our schools campus and I asked them to write down how they would react if they were removed from all iPhones, video games, TV etc. Students wrote down things such as "my life would lose its purpose" or "devastation". Then we read this poem by Wendell Berry:

Work Song, Part 2: A Vision

If we will have the wisdom to survive,
to stand like slow growing trees
on a ruined place, renewing, enriching it...
then a long time after we are dead

> the lives our lives prepare will live
> here, their houses strongly placed
> upon the valley sides...
>
> The river will run
> clear, as we will never know it...
> On the steeps where greed and ignorance cut down
> the old forest, an old forest will stand,
> its rich leaf-fall drifting on its roots.
> The veins of forgotten springs will have opened.
> Families will be singing in the fields...
>
> Memory,
> native to this valley, will spread over it
> like a grove, and memory will grow
> into legend, legend into song, song
> into sacrament. The abundance of this place,
> the songs of its people and its birds,
> will be health and wisdom and indwelling
> light. This is no paradisal dream.
> Its hardship is its reality.

> It was amazing how the end of our Socratic seminar actually trended into a "Bohm-esque" dialogue about how technology can be a good thing for the environment if the goal of technology is sustainability and peace, rather than greed and ignorance (as the poem states). It made me realize how powerful dialogue can be especially with adolescents when it comes to these issues. (Cole, 2013)

Cole's (2013) experience transcending the barriers of technology and limited natural setting through dialogue and poetry brought home the realization for me that the concept of Pedagogy of Cosmic Place can play a meaningful role in mainstream, urban settings. In her initial work with students under the oak tree, Cole laid a foundation and built the entryway that would grant her and students passage to The Story of the Universe at a later date. It may take a few extra steps in dialogue and activity in the mainstream to lead the students through the entrance, but based on her student response, I believe the door is now set ajar. I see the potential

for Cole to lead them across the threshold to the vast Cosmos at a point in the future. A bridge would then be in place to be traveled back and forth at will during other learning experiences throughout the school year. Cole's experience under such limited circumstances also did seem to have a positive impact on the LC24 community. Many of the educators seemed inspired by her efforts and the dialogue shifted away from the topic of barriers toward solutions.

My *Fall Garden Experience* research proved to be an example of an opportunity to build a bridge to the Cosmos from the natural world with a group of mainstream students. During the activity, I was able to set the stage for The Story by nurturing an appreciation and love for the natural world in my garden. Since that day, I have been able to meet with the same group of students again, and use the garden experience to segue into The Story. The bridge to the Cosmos with this group is now in place and can be ventured across at any time in our future work together. The children were thrilled to find their Cosmic Place within the narrative: "You mean I am cousins with the worms in the composter… the Milky Way…the Sun?!" and "I'm 13 billion years old. That's *a lot* of birthdays."

It seems to me that, once told, The Story has a naturally integrative effect as the message of interconnectivity seeps into young imaginations and associations are made. Cole's urban school experience as well as the *Fall Garden Experience* seemed to confirm for me that mainstream learning styles can incorporate a Pedagogy of Cosmic Place through The Story of the Universe and make meaningful strides toward shifting students' perceptions to an Eco-cosmological view. I also find it encouraging that it seems these strides can be accomplished even with minimal encounters in the natural world. From this experience, it also seems to me that in developing and applying the concept of Pedagogy of Cosmic Place in learning settings,

educators might be inspired to stay on track with optimism for the future. Pedagogy of Cosmic Place appears to find a dual purpose in the teaching tool kit as it unites educators in a community of hope through shared pedagogical practice while leading children toward a realization of universality.

Fortifying the Human Spirit for the Emerging Paradigm

Along with hope, Gang (2011), in *Future of Humanity: Qualities for Survival,* proposes other qualities such as courage and confidence that should also be fostered in the hearts of educators and children in support of our transition into an emerging new paradigm. Indian spiritual master, Sri Chinmoy (as cited in Gang 2011) suggests, "…courage is the constant awareness of what we are entering into, of what we are going to become, of what we are going to reveal." It might be said that The Story of the Universe lights our entryway into the Cosmos where we have the opportunity to rediscover our cosmic heritage. What revelations lie ahead as humanity re-invents and re- orients itself within the cosmic tapestry are a mystery yet to unfold. The prospect of venturing into the unknown might be a little disconcerting as old world, Newtonian thinking patterns relinquish their remaining hold. With courage as one of the qualities for survival suggested by Gang (2011), humanity might find the strength to walk forward into our newly evolving way of being.

Through The Story, and the remembrance of our pristine origins, humanity may find the added blessing of confidence, to strengthen our resolve to make a better world. Gang (2011), quotes philosopher Henryk Skolimowski's views: "Any reinvention of humanity must start with

a renovation of confidence…the divine spark is buried within us but still alive. We can reactivate it but only through the total reconstruction of the cosmos we choose to live in." Might the realization of "the divine spark…within" (Skolimowski as cited in Gang, 2011), provide an essential, yet, largely unrecognized key to our shift into the new paradigm?

Embracing Our Authenticity

Through The Story of the Universe, children are lead through inner and outer transformations (Gang, 2011). Outwardly, children come to understand humanity's place within the cosmological context and the common origins of all things. Inwardly, these realizations have profound effects as they filter through the old world, linear thinking patterns. Life has new meaning as the child comes to understand Cosmic Place and her or his role as co-participant and creator within the Universe; that all things follow the Laws of the Universe and contribute in a meaningful way to its infinite unfolding. This realization sparks a quest in the heart of the learner to seek and live her or his passion, to further the unfolding of Creation by fulfilling her or his personal Cosmic Task. Skolimowski (in Gang, 2011), as does Shchetinin (2007), touch upon one more very poignant inner realization that might also be explored when developing a sense of Cosmic Place: the realization of our pristine primordial inner being.

Today with my evolving understanding of systems theory and the common origins of all things, I am wondering why, if we can acknowledge that we are an integral part of this amazing wonder of Creation having emerged together from a single, primordial fireball, is there a possibility that we might feel less magnificent than the shimmering stars, the mighty oceans or the great humpback whale? It seems to me there is a tendency to portray the human primordial self as a barbarian to be wrestled with as opposed to a wondrous and sacred being filled with the

essence of purity and love. Is there an underlying message of hopelessness for humanity that stems from a collective low self-esteem or perhaps a deeply buried sense of guilt for having leapt ahead so far in our articulation of Creation without love in our hearts to guide our invention (Krishnamurti, 1956, 1981, p. 19)? I wonder if a strong feeling of love for our primordial essence is an essential missing key in helping us to become 'mature humans' (Swimme, 1984, p. 95)? Is it possible, in remembering our authenticity, to be as awestruck by the beauty of our own inner essence as we would of an exploding quasar? Would such a shift in perception toward self-love, carry us more swiftly into the new Era? Swimme (1984) suggests, "To live as a mature human being is to journey home and our home is enchantment" (p.95). As we find ourselves awash with enchantment for the beauty of an exploding quasar, perhaps the Universe is mirroring to us a reflection of our own inner beauty, inviting us to celebrate and love our inner being.

Many times over the years, my mother told me: "You cannot ever really love until you love yourself." I am hearing those words of wisdom now in a new light. Is it possible that we can apply this wisdom on a cosmic scale – that when we come to love ourselves, to realize our co-magnificence with the stars, the oceans and the humpback whales, only then will we be able to truly comprehend and fully experience universality? Is it along the path of self-love that humanity will find a new found love of the Cosmos and restore meaning to life? As Montessori (1948, 1987) said, "The force of that which we call love is the greatest energy of the universe." (p. 16). Perhaps a powerful dose of love for our inner being constitutes a wise remedy for our times.

When I immerse myself in Nature, a fount of love for Creation springs forth from my heart that in turn leads me to the realization of a humble river of love flowing through me. I have

no choice then but to acknowledge that in loving Creation, I, indeed, love myself for I am the Universe, as I am Shelley. This is a humble love yet mighty too for it asks me to delve deeply within my soul to search for my greatest passion for what meaningful contribution I might make to this immense and exquisitely beautiful web of existence: "What can I, with the deepest respect and love for the Universe as my guide, bring forth as a further articulation of the wisdom of Creation?" I am aware of my authentic, pristine self at these times, as a cosmological being, perhaps a "Virtual Self" as Varela (in Scharmer, 2000) might suggest, having a human experience. It feels as if I am a passenger on a wave of love as it carries me from a simple encounter in the natural world across a bridge to the broadest, most unimaginable expanse of the Cosmos.

Sheppard (1998) suggests there is hope for humanity and our transition into the Ecozoic Era as we relinquish the illusion of the inner barbarian and reunite with our authentic selves:

> Beneath the veneer of civilization…lies not the barbarian animal, but the human in us who knows the rightness of birth in gentle surroundings, the necessity of a rich nonhuman environment, play at being animals, the discipline of natural history, juvenile tasks with simple tools, the expressive arts of receiving food as a spiritual gift rather than a product, the cultivation of metaphorical significance of natural phenomena of all kinds, clan membership and small-group life and the profound claims and liberation of ritual initiation and subsequent stages of adult mentorship. There is a secret person undamaged in every individual, aware of the validity of these, sensitive to their right moments in our lives. All of them are assimilated in perverted forms in modern society: our profound love of animals twisted into pets, zoos, decorations and entertainment; our search for poetic wholeness subverted by the model of machine instead of the body; the moment of pubertal idealism shunted into nationalism or ethereal otherworldly religion instead of an ecosophical cosmology. But this means that we have not lost and cannot lose the genuine impulse. It awaits only an authentic expression. (as cited in Hutchinson, p. 1)

Conclusion

When I dwell in the realm of thought, contemplating the cosmic vision of education birthed into this world through Montessori, I cannot help but feel uplifted and hopeful for a brighter future for humanity. With Nature as bridge to the Cosmos and the vision of Montessori's Cosmic Education as it embodies Pedagogy of Cosmic Place, I believe we have an opportunity to fulfill our human destiny through opportunities to experience ourselves as eternal, pristine, cosmic beings within the vast, interconnected cosmic tapestry. I am also greatly inspired to realize that these profound, transformational experiences can be applied through a form of Pedagogy of Cosmic Place in non-Montessori learning environments and potentially make waves of positive change across a broad spectrum of teachers and learners.

Montessori's Cosmic Education, with The Story of the Universe at its fulcrum, evokes a deep appreciation and love of Creation, acknowledging all the while that as co-creators, we are here "…to evolve the cosmos…" (Montessori, 1948, 1987, p. 22). The Story brings with it a message for us about responsibility and the essential role of love guiding our invention. Also embedded within the pedagogy is inspiration to live one's passion or Cosmic Task, to acknowledge the inner Eros (Larsen, n.d.) and do our part in weaving the Cosmos together though our personal rivers of creative endeavour (Swimme, 1984). These elements of the pedagogy when enhanced by contemporary systems theory and our newly evolving scientific understanding of the origins of the Universe add a new dimension to the cosmic vision of education. Montessori, especially with this expanded Eco-cosmological view, provides a lighted passageway out of the labyrinth of crisis in meaning and consciousness (Bohm, 1991, p. 204)

which continues to largely ensnare humanity today. Through the work of Gang and Morgan, Swimme, Berry, Larsen and Shchetinin, for example, new elements can be combined to inspire educators and bring meaningful, transformative learning experiences to students. It seems to me that Montessori's Cosmic Education is a powerful and effective remedy for our times with more potential than ever to raise humanity's view to an Eco-cosmological plateau. From there we might see the vistas before us in a new light (Proust, n.d.). It is through such a fundamental shift in consciousness that we may find our higher purpose and in so doing fortify ourselves with the hope, courage and confidence needed to restore our human-Earth-Cosmic relationship. As Montessori (1948, 1987) suggests, what is first needed for humanity is "…a reverent consciousness of its dignity and worth" (p. 23). Perhaps then we will move forward with a powerful grace, having banished the inner barbarian from our psyche and restored relationship to our sacred, inner being. Berry (1999) describes:

> For we will recover our sense of wonder and our sense of the sacred only if we appreciate the universe beyond ourselves as a revelatory experience of that numinous presence whence all things come into being. Indeed, the universe is the primary sacred reality. We become sacred by our participation in this more sublime dimension of the world about us. (p. 49)

I wonder though if instead of *becoming* sacred by participating in this new universal dimension as the eloquent Berry describes, we will be merely remembering who we really are in much the same way that Shchetinin's (2008) concept of Agelessness reminds us of our eternal, perfect selves. From our understanding of The Story, we have the opportunity to become universally 'dynamized' and find our Cosmic Place within its narrative. We also come to understand that the galaxies, the stars, the ringing cedars of Russia, the chickadees, the whales,

the chimpanzees and the humans emerged together as "cosmic somethings" (Vernadsky in Shchetinin, 2008). This new understanding brings with it a realization of universality and sets our sights above worldview where we can communicate on the "tacit ground" (Bohm, 2004, p.16). "Love, of all things…most potent." (Montessori, 1949, 1984, p. 287.), becomes our fuel and inspiration for thought, dialogue and creation. Master artist, Georgi Danevski (personal communication, March 10, 2014) suggests, "When people understand their universality, they can make peace with their creator selves and apply their creative powers with love. Then we will have a beautiful world. "

Montessori confirms:

> Human beings must be inspired to seek universality until the day they die. Thus prepared and conscious of the cosmos, humanity will be capable of building a new world of peace. (in Gang and Morgan, 2003)

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Appendix: Web sites

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