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ALTERNATIVE LEADERSHIP STRATEGIES BASED  
ON EARTH-CENTERED PRINCIPLES: A DELHI STUDY

BY

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A dissertation submitted in partial fulfillment  
of the requirements for the degree of

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## ABSTRACT

### ALTERNATIVE LEADERSHIP STRATEGIES BASED ON EARTH-CENTERED PRINCIPLES: A DELPHI STUDY

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Supervisor: John Jacob Gardiner, Ph.D.

The purpose of this study was to explore alternative leadership strategies based on Earth-centered principles. Earth-centered principles are described as the natural principles in the evolution of our Universe and Earth. These are the foundational principles engaged by Nature in the evolution and creation of Earth.

These Earth-centered principles were gleaned through a review of the literature. The literature review focused on emerging concepts in quantum physics, cosmology, biology, and the wisdom of indigenous peoples. For the purpose of this research, the primary focus was the three cosmological principles of differentiation (diversity), subjectivity (identity), and communion (interconnectedness). From the field of biology, the primary focus was the principles of holon and holarchy and mutual consistency. Other areas of literature review included the history of leadership and leadership theory.

The methodology for this research study is the Delphi technique in three rounds. A panel of experts was created who nominated study participants. Of the individuals nominated, 61 agreed to participate. In Round One, the study participants responded to a series of 7 questions regarding Earth-centered principles and leadership. Results were collated, analyzed, and summarized and incorporated into the second questionnaire for Round Two of the Delphi. In Round Three, a final draft of summary results was shared with the study participants for comments.

Study findings indicate that Earth-centered principles are important to today's leaders. From the findings, three conclusions emerge. A first conclusion is that today's leaders do relate positively to Earth-centered principles. Ninety-six percent of respondents rated Earth-centered principles as *"important" or "essential to leadership."*

A second conclusion is that Earth-centered principles do have application potential into the organizational setting. Ninety-two percent of respondents see the application of Earth-centered principles into organizations as *"often" or "always" necessary.*

A third conclusion is that Earth-centered leadership, as embodying the values that emerged from this dissertation and as practicing the leadership strategies and practices that emerged from the study participants does offer a model, an alternative way of leading in the 21<sup>st</sup> century. Earth-centered leadership is "ecozoic" leadership offering values, strategies, and practices for life to be sustained in our home—Mother Earth.

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Seattle University Library  
~ to the waters of Port Ludlow and the mysticism of Nestucca Sanctuary  
~ to dissertation mountain, Little Si  
~ to Sophia

*The future belongs to those who believe in the beauty of their dreams.*

I have a dream.  
My dream is for people to care about our world.  
If people keep wasting trees, water, and Earth,  
the future won't have a beautiful world.

For this dream to come true it will take  
all of us  
being and working together.

For our future, please ponder this dream.

~ Earth's children

*May the Spirit of God always find a home in you!  
May the fire of the Spirit come burst into flame in you!  
May the breath of the Spirit enliven you and fill you with hope!  
May you always dance in the Spirit and invite others to join the dance of possibilities!*

*Spirit of the Living God,  
Present with us now  
Bless each one in body, mind, and spirit,  
And heal each one of all that harms each one.  
In the name of Jesus and our Great Spirit, Amen.*

## Study Participants

Name	Role
BiHoa Caldwell	Principal, Aki Kurose Middle School
Reverend Carla Pryne	Episcopal Priest
John Surette, S.J.	Director of “Spiritearth”
Mimi Walker	Superintendent
John E. Carroll	Professor of Environmental Conservation University of New Hampshire
Arun Gandhi	Director, M.K. Gandhi Center for Nonviolence
Sr. Miriam Therese MacGillis	Founder of Genesis Farm
Sr. Gail Worcelo	Co-founder of Green Mountain Monastery
Leo Desclos	Retired CEO of a Social Service agency
Dr. Bill Grace	Founder of nonprofit
Mary Medved, SNJM	Nonprofit leadership role
Maureen Maloney, SNJM	Director, My Family Residence
Sr. Paulita Bernuy	Post Partum doula
Sr. Jane Comerford	Spiritual life consultant
Ann Linnea	Self-employed writer and teacher
Larry Daloz	Associate Director, Whidbey Institute
Joseph R. Benitez	retired elder for the tribe
Philip Hansten	Professor Emeritus
Michael Schut	Development Director/Director Earth Ministry
Kim McNamara	Faculty, Business Technology, Ph.D. student
Charles (Tom) Springer	Retired—Attorney for the Department of Navy
Sr. Kathleen Stupfel, SNJM	Retired Parish leader
Tamara Ogg	Pharmacist, Healthcare

Charles Weems, M.D.	Vice President, Wa. Physicians for Social Responsibility
Nancy Giunto	Executive Director, Foster, Pepper, & Shefelman
Pat Thalhuber	Restorative Justice Coordinator, Circles of Harmony
Trileigh Tucker	Associate Professor, Environmental Studies
Dr. Kim Kelly	Sabre Science Naturapathic Endocrinologist
Rev. Robert Krueger	St. Francis Parish
Steve Jacobsen	Senior Pastor, Goleta Presbyterian Church
Sera Thompson	Director of Pioneers of Change
Teresa Posakony	Leadership and organizational development consultant
Dorah Lebelo	Executive Director
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Maryfrancis Lignana	Marketing program management
Dee Dickinson	Chief Learning Officer, Founder New Horizons
Theresa Mike	Director of Community Affairs
Cezanne Hardy	Unit Coordinator, EDLR Doctoral Candidate
John Costello	Contracts Administrator, Healthcare
Carolyn Ho	Educational consultant, school improvement facilitator
Linda Wood	Healthcare professional, homemaker
Penny Rempfer	Software Program architect
Tanya Marcovna Barnett	Associate Director, United Methodist Foundation
Dennis Alexander	Pastor, United Methodist Church
Carol Spalding	Campus President
Linda Haydock	Executive Director Intercommunity Peace & Justice Center

And many more, including the four-legged, two-legged, and no-legged from the mountains and forest.

## PROLOGUE

The catalyst for this dissertation is a mystical moment I experienced in a class at Seattle University, Christian Prayer and Spirituality. My teacher, Alexandra Kovats, described a transforming experience when she read *The Universe Story* (Swimme & Berry, 1992). Dr. Kovats was so impacted by the principles that have been operational in the evolution of our Universe that she devoted her doctoral research on the implication of these principles to the emergence of an ecological spirituality. These three principles, as articulated by Swimme and Berry (1992) are differentiation, subjectivity, and communion.

As I listened to Dr. Kovats describe these principles, I truly felt tingles within. My life experience in leadership and my doctoral studies in leadership came together in an enlightening moment. I reflected on what I have experienced positively in creating change in leadership in relationship to the integration of these three principles. I reflected on what I have studied in my Educational Leadership Program for transforming leadership as embodied in the integration of these principles. I reflected on the stories of the transforming leaders, whom have inspired me (Gandhi, Eleanor Roosevelt, Jesus) and whom I have experienced in my personal and professional life as embodied in the integration of these three principles. Equally important, my understanding of the leadership of indigenous peoples, specifically my Native American heritage, intuitively embraced the integration of these principles.

A question arose within. How might these principles relate to leadership? What about the emergence of a theory of ecological leadership, grounded in Earth? At that moment,

the topic of my dissertation became crystal clear to me. I felt passion within to discover and to take this exploratory journey.

A period of intense reflection began. I pondered my beliefs and understanding of leadership. Leadership is about bringing about change. Authentic leadership is about bringing about transforming change. I reviewed my life experiences in leadership—with people, with organizations. As I reflected on those magical moments, when I have experienced “flow” (Csikszentmihalyi, 1990) and “hot groups” (Lipman-Blumen, 1999), these three principles were present. As I reflected on the opposite, those experiences when change was literally impossible ~ one or more of these three principles were absent. I pondered the insights on connective leadership (Lipman-Blumen, 1996).

In the teachings of a Master Teacher, we often must “lose our lives in order to find them”. I experienced the dark night of losing my life—my life spirit—working in a toxic culture (Lipman-Blumen, 2004). In experiencing the exact opposite of these principles, I truly experienced the toxicity and trauma that can occur in diminishing our wondrous, creative human spirit, which we need in order to bring about creative, transforming change.

The field of study of *leadership* is relatively new in the evolution of our Universe. Leadership is still a mystery, yet to be fully discovered and described (Bass & Stogdill, 1990; Burns, personal communication; Yukl, 2002). I pondered this question: What better model for change, for leadership, than to research the principles operational in the evolution of our Universe for the past 13.7 billion years?

We are in the midst of another great transition. Our level of consciousness and understanding with new discoveries continue to unfold. We are witnessing the coming



together of new discoveries in science, especially in quantum physics, cosmology, and biology with “new” insights in spirituality and mysticism. Bridges of connection are being built. We are meeting in the middle of this wonderful place of “the unknown, the mystery.” We have discovered that science cannot explain all.

With this bridging, we have an opportunity to explore and to discover new insights in our understanding of leadership. This is what I wish to do in my dissertation: to research and to explore the developments in the new sciences and spirituality, with a specific focus on the three cosmological principles of differentiation, subjectivity, and communion. What can I learn with co-researchers that can add a little bit more to our understanding and sharing of our leadership story? What can I learn from Nature? What can I learn from my Native American ancestors both before me and seven generations into the future? This is my quest.

## CHAPTER 1

## Introduction

“It’s all a question of story,” says Berry (1988, p. 123). A new story is emerging in our understanding of the creation and evolution of the Universe—of Earth, of the human. As Berry states, “The Universe instructs” (Lonergan & Richards, 1987, p. 37). Humans learn about the divine, the natural, and the human through instruction received from the Universe. Any human activity is primarily an activity of the Universe; secondarily of the human. As he asserts, the Universe is the primary religious reality, the primary sacred community, the primary revelation of the divine, the primary subject of the incarnation, the primary unit of redemption, the primary referent in any discussion of reality. “For the first time the entire human community has, in this story, a single creation or origin myth... for the first time, we can tell the Universe story, the Earth’s story, the human story, the religion story, the Christian story, and the church story as a single comprehensive narrative” (pp. 37-38). A new paradigm of what it means to be human and the role of the human emerge from this story. Berry identifies that the task for the human is on the scale of “reinventing the human,” since none of the prior cultures or concepts can deal with the issues we face today.

As described by Wheatley (2005), for 300 years, Western culture has been living primarily in the old story—a story of a dualistic and mechanical worldview. She describes the new story as a “tale of life” (p. 17). In the new story, we witness a world that exhibits life’s creativity and beauty—a world where creative self-expression and relationships are the organizing energies. This new story is coming from the scientific community in empiric observations and discoveries regarding the origin and nature of our

Universe. As described by Wheatley, this story has never been truly forgotten by any of us. Many peoples and cultures—especially our indigenous and Native American storytellers—have held it for us continually.

This story of the emergent universe is now our dominant, sacred story (Berry, 1999; Toolan, 2001). Swimme and Berry (1992) provide a narrative of this alternative story, incorporating the current data and knowledge from science, indigenous peoples, and spirituality into a “new story of our Universe.” Many emphasize the absolute necessity of this “new story” to the future of humanity (Gardiner, 1998; Kovats, 1997; Sahtouris, 2000; Wheatley, 2005). Swimme and Berry assert the need for a functional cosmology that would provide the foundation for all our institutions—commercial, governmental, educational, and religious. All institutions, professions, and activities now need to be judged by the extent to which they ignore, inhibit, or foster a mutually enhancing human-Earth relationship.

Today’s physicists are telling us, based on scientific data, that the entire Universe finds its origin in a common source. Berry (1999) believes that we stand at a defining moment in our history. As an eminent cultural historian, Berry considers the great work of humanity to reinvent the role of the human in the context of this alternative story. To redefine our role, we must understand our origins—where we are and how we got here. With this understanding, we can create a mutually enhancing mode of human dwelling on planet Earth.

We need to move from our human-centered to an Earth-centered norm of reality and value. Only in this way can we fulfill our human role within the functioning of the planet we live on. Earth, within the solar system, is the immediate context of our existence. By

bringing forth planet Earth, its living forms, and its human intelligence, our Universe has found its most elaborate expression and manifestation of its deepest mystery. In the human mode, the Universe reflects on and celebrates itself in a unique mode of conscious self-awareness.

Berry's (1988, 1999) life work has been to call humanity into a new partnership with Earth in a mutually-enhancing relationship. With this alternative relationship lies the key to sustainability for all life, for the future. As stated by Cullinan (2004) and Toolan (2001), there is hope in this new story of the Universe. For the first time, all human beings can share a single creation story, and begin to see the world from the same starting point. The current story of our Universe offers many different paths in understanding and interpreting that story. The path of this research study is to understand and interpret that story as it relates to leadership. It will take leadership to accomplish the work before us. In relating the new story of the Universe to the Beatitudes, Cullinan states, "Blessed are the meek, for they shall inherit the Earth, if there's anything left when the strong get through with it" (p.14).

Berry (1999) describes the challenge before us in one sentence: "The historical mission of our times is to reinvent the human—at the species level, with critical reflection, within the community of life-systems, in a time-developmental context, by means of story and shared dream experience" (p. 159).

#### *What about Business?*

"The business of business is *business!*" This credo, articulated by General Motors President Alfred T. Sloan, in 1923, has justified virtually every business decision made in the business world ever since. As we enter the new millennium, many see increasing

signs that a fundamental change is taking place (Harman & Porter, 1997). There is talk of a “new paradigm” and an emergence of a new worldview (Berry, & Swimme, 1992; Lipman-Blumen, 1996; Sahtouris, 2000; Toolan, 2001; Wheatley, 1999, 2005).

Harman and Porter conclude, “that the role of business on the planet is shifting – *must* shift, if this global drama is to have a happy outcome. In other words, there is a ‘new business of business,’ and we must seek it together” (1997, p. 2). This will require a different type of leadership.

The business world is beginning to shift to more inclusive models of shared leadership (Kiuchi & Shireman, 2002; Iansiti & Levien, 2004; de Geus, A., 2002). As described by Bakan ((2004), however, the corporations of business still operate based on the pursuit of profit and dominating power at the expense of Earth. As stated by Toolan (2001), “Environmental concern is either a luxury or a formula for going out of business” (p. 93).

We live in a time of widening polarization, of growing fear, insecurity, and divisiveness (de Boer, 2004). The need for dialogue, for listening, and for finding unity is critical. One thing that unites us is a common home—Earth. Cultivating sustainable practices and policies that create “an ecology of unity” is the work before us (p. 3).

### *Historical Background*

Historically, according to Berry (1988), humanity’s disconnect with Nature occurred at the time of the Great Plague that struck Europe in 1347-1349. This was a most traumatic moment for the Western world. The deep aversion to the natural world that resulted has profoundly conditioned the Western cultural tradition ever since.

The 16th and 17th centuries gave rise to the Industrial Revolution and the scientific revolution, setting in motion a mechanistic and clock-work model of the Universe

(Morgan, 1986; Prigogine, 1996; Swimme & Berry, 1992; Toolan, 2001; Wheatley, 1999; Wilber, 2000). In the process of objectifying the natural world and seeing it primarily in terms of how it could be utilized for productivity, Western culture became increasingly alienated from Nature (LaBarre, 1996; Kovats, 1997; Prigogine, 1996; Sahtouris, 2000; Swimme & Berry, 1992; Toolan, 2001; Wheatley, 1999, 2005).

In recent decades, new insights from biology, cosmology, and quantum physics (Bohm, 1980; Capra, 1996; Hawking, 2003; Prigogine, 1996; Sahtouris, 2000; Swimme & Berry, 1992; Toolan, 2001; Wheatley, 1999; Wilber, 2000) and other disciplines (Kovats, 1997; McMaster & Trafzer, 2004) have raised significant questions about this dualistic, mechanistic, cause/effect understanding of the Universe. Scientists are beginning to use language and concepts formerly used by mystics related to “mystery” and the dynamic interconnection of all of creation (Berry, 1999; Fox, 1994; Sahtouris, 2000; Swimme & Berry, 1992; Wheatley, 1999). Such insights have been significant in bringing about a shift in worldview (Hubbard, 1998; Swimme & Berry, 1992; Hawking, 2003).

Early and indigenous people had an acute awareness of, and intimate association with, the cycles of Nature and of their own lives. Birth, death, and regeneration within the seasons and within their personal lives were seen as interconnected. (Kovats, 1997; LaBarre, 1996; Mankiller, 2004; McMaster & Trafzer, 2004; Nerburn, 1999; Zimmerman, 2003).

With the advent of these new understandings in science and with the bridging of the wisdom of science, humanities, and spirituality; we have a different way of listening to our Universe and our world. What is the leadership that emerges from this

understanding? The journey of discovery will be an exciting and adventurous one. This dissertation is a small step in that journey. As Native Americans greeted the newcomers to this land, "Welcome to the New World." May we greet this new world differently than in the past with open minds, open hearts, and open spirits. Let the journey begin. We have much to learn.

### *Need for the Study*

Many describe our current situation as humanity in crisis: politically, economically, spiritually, and ecologically (Berry, 1999; Handy, 1998; Russell, 2003; Sahtouris, 2000; Wheatley, 1998). As described by Harman and Porter (1997), growing numbers of people are recognizing that the worsening global environmental crises, social problems, and institutional breakdowns are not problems to be solved with technological, managerial, or legislative solutions, but are symptoms of an underlying disorder involving some of the most basic assumptions of modern society. "That underlying disorder reaches to the very foundations of Western industrial society... Nothing short of fundamental transformation of all our powerful institutions – and underlying that, of modern thought and prejudice – will alter the otherwise inevitable catastrophe (p. 3)."

The old order is showing signs of decline. Modern society is not working in many fundamental ways as described by Harman and Porter (p. 4). Marine and rain forest species are becoming extinct. Rivers are polluted from toxic waste. Air is polluted by the burning of fossil fuels and the spirit of people is polluted by toxic leadership (Lipman-Blumen, 2004). As shared by Rosalie Little Thunder:

My feelings and actions continue to be dictated by a need to repair the damage. I use the term "miners' canary" to describe the role of the buffalo as an indicator of a damaged ecosystem. It seems that indigenous people are also "miners' canaries" for humanity, though we are viewed as a

problem to be solved, not keepers of essential Earth wisdom. (cited in Mankiller, 2000, p. 73)

According to Berry (1999), we are experiencing a disintegration of the life systems of the planet just when Earth has reached a diversity and resplendence of its self-expression. What the humans are currently bringing about—this disintegration—has never happened previously in the entire 4.6 billion years of Earth history. As described by Mankiller (2004), many traditional women and men feel that the danger of our current path is becoming so great that indigenous peoples must guard The Way on behalf of all the passengers on this fragile Spaceship Earth (p. xiv).

The cause of this devastation is the mode of consciousness of a radical discontinuity between the human and other modes of being (Berry, 1999; Gardiner, 1998; Harman, 1998; Hubbard, 1998; Sheldrake, McKenna, & Abraham, 1992). Berry believes that all four of our fundamental establishments that control the human realm: governments, corporations, universities, and religions—the political, economic, intellectual, and religious establishments—are committed consciously or unconsciously to this radical discontinuity between the human and the nonhuman.

We have developed a sense of Earth as being here primarily for our use. In the 21<sup>st</sup> Century, our relentless pursuit of growth and profit is ruining the planet for the uncertain benefit of the human. The corporations (Bakan, 2004) have joined together so that now a few control vast regions of Earth. Since Rachel Carson's *Silent Spring* and *The Sea Around Us* exposed the abuses of the modern industrial system, there is a growing awareness that profit at the expense of Earth is unsustainable.

What is needed? We need a change from a human-centered to an Earth-centered norm of reality and value. How do we achieve this? How would it function? The primary



concern of the human community must be the preservation and enhancement of the comprehensive community of life.

The planet that governed itself directly over these past millennia is now determining its future through human decision. We assumed this responsibility when we ventured onto the path of empirical science and associated technology. We are now altering the entire mode of functioning of the planet.

Respected biologists in their comprehensive understanding of the biosystems of the planet, such as E. O. Wilson, Niles Eldredge, and Norman Myers, tell us that no devastation at this level has happened to the life systems of Earth since the termination of the Mesozoic Era some 65 million years ago (Wilson, 1988). We are not just changing the human world; we are changing the chemistry, the geological structure and functioning of the planet.

Decisions that affect the lives of billions of people around the globe and countless generations to come are decided on the basis of short-term economic considerations. The “technological imperative” to develop any technology that could turn a profit or destroy an enemy endangers both human civilization and the life-support systems of the planet. The world faces a sobering challenge (Harman and Porter, 1997; Toolan, 2001).

Our most valuable heritage for future generations is to recognize that our Great Work is before us—to move the human project from its devastating exploitation to a benign presence. History is governed by those significant movements that give meaning to life by relating the human venture to the larger venture of the Universe. Berry coins this the Great Work of a people. Our historical past is filled with Great Works: the Great Work of the classical Greeks in understanding the human mind, the Great Work of the medieval

cathedrals, and of the Chinese in creating one of the most elegant human civilizations. In America, we have the Great Work of the First Peoples in establishing the integral human existence within the context of Nature and planet Earth.

### *The Role of Education*

Berry (1999) stresses the importance of the university and our educational system in having a special responsibility because the university teaches all professions that impact our human endeavor. Similar to Noddings (2003, 1992), Berry believes our educational system has supported an exploitation of Earth by the teachings in the respective departments and disciplines. Berry states, “Only in literature, poetry, music, art, and occasionally in religion and the biological sciences, has the natural world received the care it deserves (p. x).”

The aim of our educational institutions needs to be in guiding students toward an intimate relationship with Earth and our role within that relationship. Berry’s vision, which he and Swimme (Swimme & Berry, 1992) have coined the Ecozoic Era, is a period when humans would become a mutually beneficial presence on Earth. That future can only be envisaged when we come to understand that the universe is composed of subjects to be communed with, not objects to be exploited. “Use” as our primary relationship must be abandoned.

As Noddings (1992, p. xi) states, “The need for care in our present culture is acute.”

Patients feel uncared for in our medical system; clients feel uncared for in our welfare system; old people feel uncared for in the facilities provided for them; and children, especially adolescents, feel uncared for in schools. Not only is the need for caregiving great and rapidly growing, but the need for the special relation – caring – is felt most acutely. (Noddings, 1992, p. xi)

Noddings argues that liberal education (defined as a set of traditional disciplines) is an outmoded and dangerous model of education for today's young.

As described by Lipman-Blumen (2004) and Leavitt (in press), toxic leadership and hierarchical organizational structures are here to stay, even with what we have learned on servant (Greenleaf, 1991) and transformational leadership (Bass, 1998; Burns, 1978).

Alternative leadership strategies and models are needed.

What types of leadership strategies are required to bring about the necessary changes for sustainable life in our organizations and on our planet? What are the principles and worldview that underlie this leadership? Little empirical research has explored the practical applications and implications of Earth-centered principles to leadership. That is the focus of this study.

#### *Conceptual Underpinnings for the Study*

We live in a different world, which requires a different kind of leadership (Lipman-Blumen, 1996; LaBarre, 1996; Harman & Porter, 1997; Wheatley, 1999, 2005). A new worldview is emerging. Our current assumptions come to us from 17<sup>th</sup> Century physics, from Newtonian mechanics. Our organizations have been set up based upon this 17<sup>th</sup> Century thinking. We have focused on the parts, designing people into functions and roles, as "cogs in a machine." We must embrace new models of leadership based on current understandings in biology, cosmology, physics, education, psychology, ecology, spirituality, and other disciplines (Carroll, 2004; Conlon, 1990, 2004; Fox, 1994; Gardiner, 1998; Harman & Porter, 1997; Harman & Sahtouris, 1998; Hay, 1997; Kovats, 1997; LaBarre, 1996; Lipman-Blumen, 1996; Noddings, 2003; Sahtouris, 2000; Swimme & Berry, 1992; Wheatley, 1999; Wise-Erickson, 2003).

In quantum physics, the focus is on holism. Systems are understood as whole systems, and attention is given to relationships within those networks. In the quantum world, *relationship* is the key determiner of everything. If people are machines, seeking to control us makes sense. But if we live with the same forces intrinsic to all other life, then seeking to impose control through rigid structures is suicide. In fact, once we begin to look into Nature with new eyes, the teachers are everywhere (Wheatley, 1999, 2005).

According to Berry (1999, pp. 136-138), there are 3 defining moments in the course of our historical destiny leading to our current situation:

1. The first is when the biblical-Christian emphasis on spirituality of the human joined with the traditions of Greek humanism to create an anthropocentric view of the universe.
2. A second occurred when this spiritual and humanist alienation was deepened into a feeling that the natural world was an actual threat to both the physical and spiritual well-being of the human. This feeling arose during the Black Death in Europe when a third of the human population of Europe died. Science and spirituality divided, losing the balance of each other.
3. A third historical moment occurred in the last two decades of the 19th Century with the transition from an organic economy to an extractive economy. An extractive economy by its nature is a terminal economy.

#### *Purpose of the Study*

The purpose of this study is to explore Earth-centered principles in relation to a different paradigm of leadership and the resulting alternative leadership strategies. Earth-centered principles will be derived from a literature review of: (1) recent understandings in biology and quantum physics (Capra, 1996; Gleick, 1993; Prigogine, 1996; Sahtouris, 2000; Wheatley, 1999, 2005); (2) cosmological principles as articulated by Swimme and Berry (1992) and Kovats (1997); and (3) indigenous, Native America culture (Mankiller, 2004; McMaster & Trafzer, 2004; Nerburn, 1999; Simonelli, 1994).

There is a need to continue to form connections between leadership and other disciplines and between these new insights and wisdom from ancient sources. What can be learned from ancient wisdom traditions and from the new findings about these traditions (Gardiner, 1998; Hays, 1997; LaBarre, 1996; Mankiller, 2004; Toolan, 2001; Wheatley, 1998, 2005)? How can this be applied to leadership and education? What alternative leadership model or strategies emerge?

In the current study, the researcher will explore alternative leadership strategies based on Earth-centered principles.

### *Research Questions*

What are alternative leadership strategies based on Earth-centered principles?

1. What are Earth-centered principles?
  - a. What principles of Earth's evolution are explored currently in the fields of biology, quantum physics, and cosmology?
  - b. What principles from indigenous peoples are being described currently on Earth's evolution?
2. How important are these principles to leadership according to leaders today?
  - a. How do leaders experience or relate to Earth-centered principles?
  - b. What implications and potential new directions emerge from Earth-centered principles for future leadership?
  - c. What alternative leadership strategies emerge based on leaders' understanding of Earth-centered principles?

### *Assumptions and Limitations*

A key assumption of this study is the following: If Nature engages certain principles to create her infinite diversity and well-organized systems, these principles have application to human life and human organizations. This assumption is supported by respected

scientists and scholars in a variety of fields (Berry, 1988, Capra, 1996; Carroll, 2004, Conlon, 1994; Harman & Porter, 1997; Kovats, 1997; Prigogine, 1996; Swimme & Berry, 1992; 1999; Sahtouris, 2000; Toolan, 2001; Wheatley, 1999, 2005). Another assumption is that our prevailing worldview impacts leadership and organizational dynamics.

This research is not an attempt to synthesize the discoveries of the hard physical sciences. Rather it explores Earth-centered principles as articulated by a few scientists and primarily by research scholars and scholarly commentators on these principles as they are derived from recent understandings from the new sciences and new understandings in Earth's evolution.

Although well-suited for the nature of this research study, the Delphi technique is limited to words on paper, which may connote different meanings. The sample size may be a limitation, although it is consistent with recommendations for using the Delphi. As described in Patton (1980), there are no hard rules for sample size in qualitative inquiry.

#### *Definition of Key Terms*

The following terms are described, as they are understood in the context of this study.

*Autopoiesis*: literally, self-creation; our first central definition of a living entity as anything that constantly creates itself (Harman & Sahtouris, 1998).

*Cognitive*: concerned with acquisition of knowledge relating to the process of acquiring knowledge by the use of reasoning, intuition, or perception. [Late 16<sup>th</sup> C. from Latin *cognitivus*, from *cognoscere* "to get to know."]

*Communion*: The universe is interconnected, each thing with all the rest. The Universe is an interwoven layer of boundedness. Every reality of the Universe is intimately present

to every other reality and finds its fulfillment in mutual presence. The entire evolutionary process depends on communion. The gravitational bond unites all the galaxies; the electromagnetic interaction binds all the molecules; the genetic information connects the tree of life; and love connects humanity and all creation. (Swimme & Berry, 1992). In reference to leadership and this research study, communion is referred to as interconnectedness.

*Cosmogenetic Principle:* every point in the Universe is the same as every other point and the dynamics of evolution are the same at every point in the universe. The universe is an emergent, ongoing, developing reality (Swimme & Berry, 1992).

*Cosmology:* beliefs about the Universe and the physical world, its origins, processes, and its future. In the past, the cosmology of a culture was synonymous with its religious beliefs. Today the story of the universe comes from science. The current cosmology is a story that is unfolding, a story that modifies itself. It is a vision of who we are and where we are and reflections on what it means to be human. "Cosmology is the story of the birth, development, and destiny of the Universe, told with the aim of assisting humans in their task of identifying their roles within the great drama" (Swimme, 1996, p. 98).

*Differentiation:* The Universe emerges as a differentiation process. From the beginning, the Universe articulated itself in unique, identifiable, intelligible energy constellations. Everything is uniquely differentiated from everything else that exists in the Universe. Each articulation is unrepeatably and irreplaceable. Each is a unique expression of the total Earth presence. (Swimme & Berry, 1992). In reference to leadership and this research study, differentiation is commonly referred to as diversity.

*Earth-centered Principles*: the natural laws in the evolution of our Universe and Earth. The foundational principles engaged by Nature in the evolution and creation of Earth (Wheatley, 1999). Earth-centered principles are given by Nature. These are the principles that have been operational throughout the history of Earth's evolution (Berry, 1988, 1999). Earth-centered principles are the self-governing processes of our Universe—the principles in the self-emergent processes of the Universe. The most basic of all principles can be identified in this context as differentiation, subjectivity, and communion (Berry, 1988).

*Evolution*: the improvisational dance of Nature over time, in which workable steps are kept while new ones are evolved toward the health and creative expansion of complexity in the whole (Harman & Sahtouris, 1998).

*Epistemology*: the branch of philosophy that studies the nature of knowledge, in particular its foundation, scope, and validity. [Mid 19<sup>th</sup> C. coined from Greek *epistēmē* “knowledge.”] (From Webster's “the study or a theory of the nature and grounds of knowledge”). Epistemology is the study of the methods and validation by which something is known—the study of the process by which knowledge is acquired. It asks the question, “How do we know what we think we know?”

*Holarchy*: the embeddedness of living entities within each other; e.g. cell, organ, body, family, community, ecosystem, bioregion, planet, galaxy (Harman & Sahtouris, 1998)

*Holon*: a living entity or system (Harman & Sahtouris, 1998).

*Mutual consistency*: the dynamic harmony resulting from the interplay of holons' self-interest at every level of their holarchy, e.g. the self-interest of an organ and of its body,



or of person and partnership, are worked out in mutual consistency—perhaps the fundamental operating principle of the Universe (Harman & Sahtouris, 1998).

*Ontology*: study of existence; the most general branch of metaphysics, concerned with the nature of being [Early 18<sup>th</sup> C. from modern Latin “study of being” from the Greek stem *ont* “being”].

*Pedagogy*: the science or profession of teaching [Mid 16<sup>th</sup> C. from French *pédagogie* from Greek *paidagōgia* from Greek *paidagōgos* “slave who leads a child to school,” from *pais* “child” + *agōgos* “leader”].

*Spirituality*: As described by Palmer (1990), the heart of the spiritual quest is to know the rapture of being alive and to allow that knowledge to transform us into celebrants, advocates, and defenders of life wherever we find it (p. 8). “Spirituality is the human being’s awareness of and relationship to the Mystery of life and her/his conscious (choiceful) response to it” (Kovats, 1997, p. 5).

*Subjectivity*: The Universe consists of acting subjects, not objects. There is no such thing as an inert thing. Matter churns with activity. An atom is a centered, self-organizing entity. Earth is a self-organizing entity. The Universe consists of subjects. The identity of the unique articulation carries with it an interior depth, a special quality that expresses not only a phenomenal mode but also an archetypal realization. This quality activated in the human creates the dynamics of the thinker, the poet, the scientist, the educator—whatever role is fulfilled by the human in the functioning of the Universe (Swimme & Berry, 1992). In reference to leadership and this research study, subjectivity is referred to as identity.

*Teleology*: the study of ultimate causes in nature; an approach to ethics that studies actions in relations to their ends or utility; any activity that tends towards the achievement of a goal; goal-directed activity. [Mid 18<sup>th</sup> C. from Latin *teleologia* “science of ends”]

#### *Summary Scope and Overview*

Berry (1999) believes our generation has been lacking in its inability to establish any intimate rapport with the natural world. This mental deficiency has brought us into the ends of the Cenozoic Era. Our present challenge is to move out of this alienation of the human into a more viable mode of presence to the natural world.

There is hope and promise (Carroll, 2004; Toolan, 2001). Many are becoming aware and awakened. As described by Harman and Porter (1997), a new subculture is arising; one that emphasizes ecological and spiritual values and honors a feminine, holistic perspective (p. 6). As described by Berry (1999), in its human expression the Universe is able to reflect on itself in a special mode of conscious self-awareness. Only in the context of an emergent Universe will the human project come to an integral understanding of itself.

So, say Harman and Porter, “the business of business is no longer just business. *The business of business must shift to playing a creative role in developing a sustainable culture on this planet. Business must take responsibility for the consequences of its mistakes and excesses of the past. Business must take a creative role in nurturing the next phase of evolution, that is taking place around the planet with a minimum of social disruption and human misery* (p. 7).” This view is supported by current commentators on business and economics (Bakan, 2004; Hawken, 1994; Henderson, Lickerman, & Flynn, 2000; Toolan, 2001).

People are increasingly overstressed and burned out in the workplace (Handy, 1998). As Wheatley (1999, 2005) states, “I believe the fundamental work of this time – work that requires the participation of all of us – is to discover new ways of being together. We must work together in new ways that require new thinking from all of us (p. xi).”

Leadership is authentic action (Terry, 1993). Leadership is transformational (Bass, 1998; Burns, 1978). Leadership is connective (Lipman-Blumen, 1996). The principles in the evolution of Earth have application for the human, our organizations, and leadership (Berry, 1988, 1999; Berry & Swimme, 1992; Capra, 1996, 2002; Gardiner, 1998; Harman & Porter, 1997; Harman & Sahtouris, 1998, Kovats, 1997; Lipman-Blumen, 1996; Sahtouris, 2000; Simonelli, 1994; Wheatley, 1999, 2005).

It is time to tell the new story. The intent of this research study is to learn about and to tell a little more of this story.

#### *Overview of Remaining Dissertation*

Chapter 2 presents the review of the literature on Earth-centered principles as described by scholars in the fields of physics, cosmology, and biology, and as described by indigenous peoples. The implications of Earth-centered principles and their applications to leadership and education were also explored.

Chapter 3 describes the methodological considerations for this study. The engagement of the Delphi Technique is discussed, including selection criteria for the study candidates.

Chapter 4 presents results and an analysis of the data from the questionnaires used in the Delphi process. Chapter 5 provides a summary discussion of findings, conclusions, recommendations for future study, and final reflections.

## CHAPTER TWO

## Review of Literature

*Introduction*

This study investigated Earth-centered principles in relation to a different paradigm of leadership and resulting alternative leadership strategies and practices. What are Earth-centered principles? Earth-centered principles were derived from a literature review of: (1) recent understandings in the sciences of biology, cosmology, and physics; and (2) indigenous cultures, with a focus on Native American values and principles.

How can the exploration of these principles expand current understanding of leadership? The review of the literature searched for the seeds of the evolutionary story of Earth as it applies to the story of leadership. These seeds were examined through the eyes of the worldview and consciousness that were in effect in the development of our leadership theories, strategies, and practices. Based upon Earth-centered principles, our current worldview, and consciousness, what alternative leadership strategies emerge?

This chapter contains three sections. The first section describes the evolutionary story of Earth from the perspectives of the sciences of biology, cosmology, and physics. What Earth-centered principles emerge from this story? How has our worldview and understanding of consciousness evolved? What is our current worldview?

The second section provides a high level overview of the values, principles, and worldview of indigenous cultures, with a focus on Native American. The current worldview is traced to its roots in indigenous cultures.

The third section presents a historical overview of leadership theory and practices. This section attempts to describe leadership theory and practices in the context of the historical and current, mainstream worldview.

The Earth-centered principles that emerged from this review are then discussed in reference to leadership implications. The Earth-centered principles are derived from the current story of the evolution of the Universe. This story is based on empiric and scientific data, as well as the knowledge from indigenous peoples.

In these opening years of the 21st Century, the human community experiences a difficult situation in its relation to the natural world. Berry and others assert that the guidance for the human is available from Earth-centered principles now being narrated from the wisdom of science, the wisdom of indigenous peoples, the wisdom of women, and the wisdom of the classical traditions. As stated by Swimme and Berry (1992):

This new situation seems to call for a new type of narrative—one that has only recently begun to find expression. This new story has as its primary basis the account of the emergent universe such as this has been communicated through our observational sciences and through our capacities for reading the evidence available to us from our new instruments, with their amazing sensitivity in receiving communications from such enormous distances and through such long periods of time. We have only begun to read the immense amount of data that we now have before us. The greater problem is not in the lack of data but in our capacity to understand the significance of the data we already possess. This data has not been sufficiently assimilated to bring about a new period in our comprehension of ourselves and of the universe itself. (p. 2)

To facilitate the assimilation and understanding of this data and knowledge, Swimme and Berry tell the “Universe story”. In describing the effectiveness of story, Kovats (1997) asks: “What difference do these scientific facts make in how we live and behave” (p. 64)? She further notes that sharing this information by engagement of story provides meaning for us, especially if we experience ourselves as part of this story. This is

consistent with the views of Bolman and Deal (1997). A story is a means of communicating values, principles, direction, and hope. Because of the engagement of story by those who are leading the way in promoting Earth-centered principles as a guide for human activity, a brief review of storytelling follows in the next section.

### *Storytelling*

Long before the emergence of reading and writing, people have told stories. Whenever people gathered, they told stories—stories about ancestors; heroes; journeys; of how the world began. Stories provide meaning, purpose, and descriptions of who we are and how we came to be. Since ancestral times, the storytellers have been passing on wisdom to those whose footsteps would follow on the path of life.

As described by Dowd (1992), “Each of us is a story within stories (§ 1).” Each individual’s story is part of the story of the father and mother. Our family story is part of the story of the town, the state, the nation, Western civilization, humanity, Earth, and the story of the Universe. We are a story within stories within stories.

In every human society, the largest context is the story of how everything began, how things came to be, and where it all is going. This story is the people’s cosmology, the “big picture” which gives meaning to existence. It helps in understanding the mysteries of life and death. It is the story out of which grows a people’s beliefs, customs, behavior, traditions, and institutions. A people’s cosmology creates assumptions and beliefs about life in a culture. According to Dowd, “Like sunglasses with colored lenses, our cosmology colors everything we see. It determines the way we perceive things... It is our reality.”

Margaret Mead stated that every culture she ever studied had a story of how things came to be in the beginning. Every human society developed a story that revealed “the truth” as revealed by observation and intuition of the origin of the world. Such stories help people in each culture determine what is valued, what is good or bad. A people’s cosmology often is their sacred story (cited in Dowd, ¶ 9).

The story of the evolution of the Universe, of Earth, is our sacred story (Berry & Swimme, 1994; Berry, 1999; Kovats, 1996; Sahtouris, 2000; Toolan, 2001). As described by Berry (1999), our problem is that we have been trying to tell the human story without telling Earth’s story. The story of the evolution of Earth is our current understanding of the mystery of how all things have come into being. We as humans represent one of the deepest dimensions of our Universe. Our intellectual, emotional, and imaginative capacities have existed as dimensions of the Universe from the beginning, as the Universe is ever transcending and inclusive with itself in all its unfolding and manifestations (Wilber, 1996).

In the human, the Universe is revealed to itself as we are revealed in the Universe. Every nonliving and living being of the Universe articulates some special quality of the Universe. As Berry asserts, nothing in the Universe is itself apart from every other being in the Universe, nor could any moment of the Universe story exist apart from all other moments in the story. The human is integral with Earth, not “other” or “separate” from.

As humans, we discover the story of how we came to be is essential. What is important is to create a story that has meaning and provides fulfillment in the world we see as *real*. As Berry states, we are in-between stories. We are in the midst of a transition of the story of Earth’s evolution and the human’s role within that story. For perhaps the

first time in history, the stories of scientists, philosophers, and religious leaders are weaving together into one coherent story told from different viewpoints. If scientists understand an intelligent cosmic consciousness as the source of all creation and spiritual leaders call that source God and indigenous peoples call that source Great Spirit, the stories are not that different.

The most encompassing story that has emerged in the latter part of the 20<sup>th</sup> Century and continues to unfold is the story of the interconnected and interrelated Universe. Berry (1988, 1992, 1999) describes this story as the sacred story of our times. He was influenced by the insights of Teilhard de Chardin and St. Thomas Aquinas. Many scholarly experts in many different disciplines are now telling the story of the evolution of our Universe and related principles governing this story.

The narrative of the Universe, told in the sequence of its transformations, constitute the comprehensive context for guidance into the future (Berry & Swimme, 1992; Capra, 1996, 2002; Harman & Sahtouris, 1998; Russell, 1995; Sahtouris, 2000; Wheatley, 1999). Through understanding this story, the peoples of Earth can reflect on the role and identity of the human. Through this story, a sense of relatedness of the human to living and nonliving components of Earth is attained. Through this story, we learn that the human has a common genetic line of development. Every living being is cousin to every other living being. We have common origin in the primordial Flaring Forth of the energies from which the Universe in all its aspects is derived (Berry & Swimme, 1992).

Until recently, this larger story of the Universe has not been celebrated. This story is the high achievement of our scientific inquiry into our Universe. In 1948, the astronomer Hoyle said, "Once a photograph of the Earth taken from the outside is available, a new



idea as powerful as any in history will be let loose" (Hannan, 2004, p. 12). In our journey to the moon in 1969, such a photograph was taken.

Scholars from a variety of disciplines are challenging humanity to continue in this story to see if this story can bring forth meaning, fulfillment, and peace in the world (Berry, 1999; Berry & Swimme, 1992; Gardiner, 1998; Harman & Sahtouris, 1998; Kovats, 1997; Sahtouris, 2000; Toolan, 2001; Wheatley, 1998; 2005). This research study's purpose is to participate in that quest—to see what the principles of the story can bring forth in the leadership story.

### *Story and Leadership*

The story of leadership has emerged within the story of the larger context of the story of Earth, the story of the Universe. As Swimme and Berry (1992) assert: "All professions and institutions need to be appreciated in the light of the single story that governs the basic functioning of the Earth as well as the entire human process" (p. 259). In understanding the Universe story, we may find understanding and meaning in our leadership story.

As stated by Teilhard de Chardin (1959), the story of the evolution of the Universe is a general condition to which all theories, all hypotheses, all systems must bow and which they must satisfy. The story of the evolution of Earth is a light illuminating all facts, a curve that all lines must follow. According to Swimme & Berry (1992), the story of the creation of Earth, which is unfurling in the scientific enterprise, provides the fundamental context, the fundamental arena of meaning, for all people and institutions of Earth. For the first time in human history, through scientific research, we can agree on the basic story of the galaxies, the stars, the planets, the minerals, the life forms, and human

cultures. This story provides the proper setting and context for the teachings of all traditions.

The story of the Universe has come out of three centuries of modern scientific work. For the first time, the cosmic story is not tied to one cultural tradition, or to a political ideology. We are in the midst of a revelatory experience. This story connects us with all beings. By wandering about and telling this story, the Flaring Forth continues by providing a fire to ignite a transformation of humanity (Berry, 1998, 1996; Kovats, 1997; Gardiner, 1998; Macy, 1988; Swimme & Berry, 1992; Toolan, 2001; Wheatley, 1998, 2005).

#### *A Brief Summation of The Universe Story*

Based upon current scientific evidence, a brief description of the major transformational events in the story of the evolution of the Universe follows in order to lay the foundation for the uncovering of Earth-centered principles. This story is being told by a variety of scholars in the fields of science, spirituality, education, ecology, and indigenous cultures. The story selected for this research study is that told by Dowd and Barlow (2004) for its ease of understanding. Barlow and Dowd offer this story and The Great Story Timeline for community use for purposes of teaching and research. It is one of the most concise and easiest to understand tellings of the evolution of the Universe.

To help see the story as a whole, from the “big bang” or “flaring forth” to the present, imagine the Universe’s 13.7 billion year history compressed into one hundred years. Each day is approximately 425,000 years. Each hour is 18,000 years; each minute, 300 years; and each second 5 years.

If we place the initial “big bang” at one second after midnight on January 1<sup>st</sup>, Year 1, with today being one second before midnight on December 31<sup>st</sup> of the 99<sup>th</sup> year, then the first atomic elements, hydrogen and helium, formed two days after the beginning of the Universe. The galaxies formed by the hundred billions when the Universe was about 7 or 8 years old.

The Milky Way galaxy, of which we are a part, is a *spiral* galaxy. The Milky Way spirals and makes one complete rotation every 200 million years. As it turns, stars are born from clouds of gas. Stars live anywhere from a quarter of a billion years to ten billion years depending on their size and composition.

Earth's solar system formed from the elemental stardust of a previously exploded supernova when the Universe was 70. The third planet out from the Sun, Earth was at the right distance to allow liquid water to exist, and had the right amount of gravity to allow atoms to form communities of molecules. As Earth cooled, it formed a crust around its molten core, like a film on cooling pudding. The vapor from its boiling interior rose upward, cooled, and formed clouds. When the surface temperature dropped below the boiling point of water, it rained for eons, and formed the oceans. The Universe was 72.

The planet came alive in the seas, in the spring of 73, with bacteria. Bacteria are the most important expression of planetary life. All other forms of life are totally dependent upon them. Bacteria would do just fine without us; we would not last a day without them.

Planet Earth learned to consume the Sun, by way of photosynthesis, by the Universe's 74<sup>th</sup> birthday. Things went smoothly until the great pollution crisis of 88, when oxygen, a gas deadly to anaerobic bacteria, poisoned the atmosphere and threatened the continued existence of life. This first environmental crisis was solved by way of *cooperation* and *mutual benefit*, or symbiosis.

The first plants achieved multi-cellularity in March of 91. As cells gathered together and committed themselves to one another, they found, in *community*, that their own survival and development was enhanced. The innovation of sexual reproduction two years later, in March of 93, made possible an enormous leap in planetary *creativity*. With sexuality, death also came into existence. For the early bacterium, death was not an inevitability. Some of the earliest bacteria are still with us today. For life forms that are sexual, death is an integral part of their existence. Death eliminates biological forms and cleans the slate for new genetic forms.

In September of 94, some creatures began consuming other creatures instead of feeding directly off the Sun. This practice made it possible to have an ecosystem, a biological community.

The development of the nervous system and brain, in worms, happened in July of 95. Backbones appeared a year later. Living beings came ashore, for the first time, in February, 97. The plants were first, followed soon by

insects. The first amphibians emerged four months later. Reptiles and coniferous trees both came into existence in December of 97. The dinosaurs appeared in May of 98. They became extinct a year later when Earth was hit by a comet off the coast of what is today Mexico. Mammals began to nurse their young in August of 98. The first birds diverged from the dinosaurs four months later.

During the first week of April, 99, eight months ago, the planet exploded with color due to the celebration of flowering plants. Human's ancestors began monkeying around only a few months ago. The earliest humans, walking upright, appeared less than two weeks ago, on December 20<sup>th</sup>. The first species to get classified as fully human, *Homo habilis*, appeared in Africa on December 26<sup>th</sup>. Human beings domesticated fire during the early morning hours of December 29<sup>th</sup>. Our species, *Homo sapiens*, is a very recent expression of the Milky Way galaxy—emerging from the life of the planet only twenty-four hours ago, at the beginning of the 365<sup>th</sup> day of the Universe's 99<sup>th</sup> year of existence.

The process of evolution continues. This is the Universe story. How will those living ten thousand years in the future, a half hour from now on this timescale, tell the story of our times? Will there even be a human expression of Earth in ten thousand years? The answer depends in large part on how humans deal with each other and the natural world over the next fifty years or so. Assuming that the human does not suffer the same fate as the dinosaurs, if we survive it will be because we made large and creative strides in cooperation, community, and love. (Dowd, 2002, ¶ 13-¶ 21)

In this story of the evolution of the Universe, several themes and principles are observed. The Universe, Earth, and all creatures that ever existed share a common origin. This reveals the interconnectedness and relationality of all with all. Time and space continue to unfurl. The human species is a further manifestation of the Flaring Forth of the original primal energies. Humans are descendents of stars and rocks, of fire and water, fish and mammals. In essence, we are indeed stardust!

### *Summary*

This scientific cosmology affirms an evolutionary, developmental, expanding Universe. As time unfolds, the Universe manifests in greater diversity and in increasing

complexity. Atoms precede molecules. Simple life precedes complex life. Dinosaurs precede mammals. The most recent species, the human, are the mammalian creatures with a mind, who are capable of self-awareness and self-reflection. Earth reflects on herself through the human.

### *Worldview/Cosmology*

For the past three centuries, Western civilization has operated under the dualistic, mechanical worldview that emerged from the Industrial and Scientific Era. Based on empirical insights from the work of many scientists, such as Albert Einstein, Max Planck, Werner Heisenberg, Erwin Schroedinger, James Lovelock, Lynn Margulis, Fritof Capra, James Gleik, Stephen Hawking, Ilya Prigogine, and others, an alternative worldview of wholeness and interconnectedness is emerging.

This alternative worldview has been described as “the new cosmology.” Is it new? The voices of indigenous peoples and the mystics consistently have described a holistic and interconnected worldview. Prior to the 16<sup>th</sup> and 17<sup>th</sup> centuries, a holistic and even sacramental view of Nature and the world existed. What changed?

“History,” says the cultural historian Thomas Berry (1999, p. 1), “is governed by those overarching movements that give shape and meaning to life by relating the human venture to the larger destinies of the Universe.” Berry describes the Great Work of humanity, as we move into this new millennium, is to transition from a period where humanity has caused devastation of the Earth to a period where humans would be present on Earth in a mutually beneficial manner. David Toolan (2001), a Jesuit theologian, Ken Wilber (2000), a present day philosopher, and Viscount Ilya Prigogine (1996), Nobel Prize winner in chemistry, provide a balanced discussion and articulation of this

transition in humanity's Great Work in the context of the prevailing worldview of the times.

Toolan (2001, p. 2) asks these questions: "What is humanity's place in the great scheme of things, in the new cosmic story that is now being narrated by the natural sciences? And what might provide a basis for the ecological ethic that our Earth cries out for?" He examines the historical origins of our present ecological challenges and argues that both science and religion are now converging on a positive reconception of Western culture's relationship to the natural world. In his words, we are in the process of forging a new social contract with Nature.

Toolan describes the development of the worldview of scientific materialism. He suggests that our current ecological ethic lies with the forefathers of modernity (Francis Bacon, Isaac Newton, and Adam Smith to name a few). Toolan claims that the scientific materialism that arose from the 17<sup>th</sup> Century of the Scientific Revolution is a central cultural source for our current ecological problems. He agrees with the late Carl Sagan and other scientists that the separation from Nature is largely a modern, post-industrial phenomenon (p. 9). Toolan describes the nature of Paleolithic cultures as a living whole governed by spiritual forces, the nature of the agricultural revolution as a garden to be cultivated, and the nature of the scientific and industrial revolutions as "parts" of a mechanical apparatus that can be constantly "remade" by human reason by *homo faber*—man the maker (p. 48-49). Appendix A contains a description as articulated by Toolan of the medieval worldview, the scientific materialism worldview, and the worldview of the new cosmology. Also included in Appendix A is the Universe Story as described by Toolan in the context of the span of one year.

Toolan considers emergence of the new cosmology as a place where cross-fertilization or mutual influence is again occurring between science and theology. He asserts (p. 3) that “if classical physics and the materialism it gave rise to are part of today’s ecological crisis, the “new physics” of our century is also part of the solution.” He shows how science, as an engine of cultural change, is now breaking down the old Cartesian dualism that created the distorted relationship between Western society and Nature.

As described by Toolan, this separation of Nature that arose eventually degenerated into an adversarial relationship with Nature. He reminds us that the environmental crisis is a problem we brought on as an unforeseen consequence of doing what we have done best. Science and technology have brought about many great achievements. We now appreciate these achievements have been exacted at great cost. As with others, Toolan asserts that our culture has not learned that Nature establishes the primary values, and what we do as humans is quite secondary and derivative.

As stated by many, Toolan affirms that the toughest challenges before us are the ingrained cultural beliefs and attitudes that have been operational in the creation of Western society based on this scientific materialism and attitudes toward the natural world. Is there hope? Is there promise for humanity? Toolan (p. 5) asserts this: “We dwell within a promising Universe...and our function, our great work, is to make something beautiful of it, to pour soul and spirit into it.”

Toolan sees promise in the new cosmology. As in the 17<sup>th</sup> Century, science once again is changing our worldview, how we think of ourselves, and our relationship with Nature. We no longer live in a Newtonian world. And as Toolan suggests, even though we as yet do not fully comprehend what this new cosmology is about, this new story of the

Universe invites us into a positive relationship with the cosmos and a new understanding of our place in Nature and in history.

According to Prigogine (1996), humanity is at a turning point. A new scientific era is beginning. We have come to the end of the road paved by Galileo and Newton, which presented a worldview with the image of a time-reversible, deterministic Universe. A new formulation of the laws of physics is occurring. In the words of Prigogine (p. 7):

“We are observing the birth of a science that is no longer limited to idealized and simplified situations but reflects the complexity of the real world, a science that views us and our creativity as part of a fundamental trend present at all levels of Nature.”

Prigogine believes that the recent rediscovery of time [i.e. irreversibility] leads to a new perspective. He feels that now the dialogue between the hard sciences on the one side, human sciences and philosophy on the other, may become fruitful as it was during the classic period of Greece. He views the 17<sup>th</sup> Century as the point after which the “great fracture” (between life and matter, interiority and exteriority) occurred. (cited in Wilber, 2000, p. 554).

Wilber (2000) describes our current crises as due primarily to a *fractured worldview* (p. 12). A worldview, he describes, that separates mind and body, subject and object, culture and Nature, thoughts and things, values and facts, spirit and matter, human and nonhuman; a worldview that is dualistic, mechanistic, anthropocentric, and pathologically hierarchical. A worldview that separates humans from, and often elevates humans above, the rest of reality, a broken worldview that alienates men and women from the intricate web of relationships that constitute the very nature of life and Earth and cosmos.



An alternative worldview is therefore needed to heal the planet and ourselves by replacing this fractured worldview with a worldview that is more holistic, more relational, more integrative, more Earth-honoring, and less human-centered—a worldview that honors the entire web of life. Wilber reminds us that this holistic theory of the “web of life” is as old as civilization itself, forming the core of the world’s great religions and wisdom traditions. What is different today is the dialogue that is occurring. As stated by Wilber (p. 14), “But it is one thing to merely have God on your side; quite another to have science on your side.” We now have this emerging worldview rooted in the hardest of scientific evidence.

Wilber provides an alternative perspective on the dynamics behind the emergence of this fractured worldview that arose from the 17<sup>th</sup> Century. As described historically, from the time of Plato and Aristotle until the rise of modern science, the domains of matter, life, and mind were considered one continuous and interrelated manifestation of Spirit, one Great Chain of Being, that reached in a perfectly unbroken or uninterrupted fashion from matter to life to mind to soul to spirit. According to Wilber, scholars generally agree that in the worldview of the Great Chain, matter and bodies and minds were seen as a vast network of mutually interweaving orders subsisting in Spirit, with each link in the chain being necessary and valuable.

With the rise of modern science—associated primarily with Copernicus, Kepler, Galileo, Bacon, Descartes, Newton, and others—this unified and holistic worldview began to fall apart, and as stated by Wilber, “to fall apart in ways that none of these pioneering scientists themselves either foresaw or intended” (p. 17). These scientists conducted their experimental studies in the realm of the material Universe, the world of

inanimate matter. In each endeavor, the material Universe did indeed look like a vast mechanism—a machine that was running down.

With the discoveries of the new sciences, which Wilber describes as the evolutionary systems sciences, different types of phenomena are observed. The discoveries of classical Newtonian science are now understood as *partial* explanations for the dynamics of the Universe. Aspects of the Universe do act in a deterministic and mechanistic fashion. Classical Newtonian mechanics covered some of the most obvious aspects of the material Universe based on the means and instruments available at that time. According to Wilber, it was the partialness of the early natural sciences, and not any glaring errors that would inadvertently contribute to the subsequent and rather horrendous fracturing of the Western worldview.

As described by Wilber, the most immediate effect was for physics and biology to go their separate ways. Natural philosophy was split from moral philosophy and natural sciences were split from the human sciences. The gaps became unbridgeable. As several contemporary researchers (Laszlo, 1987, Prigogine, 1996) have noted, it was not until the puzzle of the two opposing views of “time” was resolved in the late 20<sup>th</sup> Century that there was a sound basis for bridging the gaps between matter and mind, the natural world and the human world, and thus between the “two cultures” of modern Western civilization.

Prigogine (1996) provides an insightful perspective on events that contributed to the separations that led to a fractured worldview. What events were occurring in the world at the time of the 17<sup>th</sup> Century? This was a time of political instability and conflict between Catholics and Protestants often over religious dogma. In the midst of this strife, Prigogine

describes Descartes' search for a different kind of certainty that all humans, independent of their religions, could share. This led him to his conviction that science based on mathematics was the only way to reach such certainty.

For Einstein as well, science offered a means of avoiding the turmoil of everyday existence. His view of the human condition was at times pessimistic. He had lived through the rise of fascism and anti-Semitism and two world wars. As described by Prigogine, his vision of physics has been defined as the ultimate triumph of human reason over a violent world, separating objective knowledge from the domain of the uncertain and the subjective (p. 185).

Science and religion, each from their respective angles, are now joining forces in appealing on behalf of Earth. As described by Toolan, we are in the process of passing through a paradigm shift with the empirical discoveries of the "new" sciences. And with this shift, this new story that emerges, science and religion have different things to tell us, each distinctive. What is new and offers promise is that science, religion, and spirituality are back on the same historical trajectory, not contradicting each other.

In the words of Prigogine, "Our belief is that our own age can be seen as one of a quest for a new type of unity in our vision of the world, and that science must play an important role in defining this new coherence.... We face new horizons at this privileged moment in the history of science..." (pp. 186, 189).

The new understandings that emerge from this "new" science, this "new" cosmology carry profound implications for the Great Work for humanity of our time. Western society, its organizations and its governance, have been built based on the science of the times. From the Ptolemaic Universe worldview, monarchical and patriarchal forms of

leadership emerged. From the Newtonian Universe worldview, democratic and oligarchal forms of leadership emerged.

Since science has formed our basis for structuring our organizations and our leadership, and since we now have the discoveries from the new sciences, we have the opportunity to reinvent the role of the human, the structure of our organizations, and our leadership based on principles of the new sciences. What are these principles that are emerging from the connections and dialogue that is occurring in the scholarly realms of physics, cosmology, biology, *and including* the voices of indigenous peoples?

As described by many (Berry, 1988; Carroll, 2004; Conlon, 1994, 2004; Harman & Sahtouris, 1998; Kovats 1997; Sahtouris, 2000; Toolan, 2001; Wheatley, 1999, 2005), our assumptions based on the Newtonian worldview must change. Humans are embedded in Nature. Up until this time in history, the dominant worldview has considered the human as primary, and the Earth secondary. As emphasized by Berry (1996), the Earth is primary and the human is derivative.

Our work today is to create alternative models, based on sustainability. We must embrace the worldview of Earth as an interconnected, interrelated living system (Berry, 1988; Capra, 1996, 2002; Gardiner, 1998; Lovelock, 1979; Margulis & Sagan, 1995; Sahtouris, 2000; Wheatley, 1999; 2005)

As Berry (1999) says, Earth is viewed as resource to be used—a “use” worldview and cosmology. Humans have been telling the human story separate from the context of the larger Earth story. Science now gives us a new story. With our current instruments of observation, we can now see and hear the Universe from its beginning. The Universe has

a spiritual story. The Universe, according to Berry and others, has a spiritual dimension, and has had one from the beginning.

The alternative Earth story brings an awareness of the human as an ecological being—a part of a bigger ecosystem. Therefore, whatever destroys ecosystems and the ultimate ecosystem, planet Earth, threatens the human as well. An Earth-centered worldview values Earth's diversity, both nonhuman and human.

### *The Earth Story*

In the beginning was energy—light. This cosmic fireball expands and cools as it flares forth. Elementary particles emerge, dancing in and out of existence. Nuclei form, evolving into atoms. Out of the primordial hydrogen cloud, galaxies are formed. Within the galaxies, stars are born. Planets are created. On Planet Earth, the wonder of life eventually evolves into the wonder and mystery of the human. With the emergence of self-reflective consciousness, the Universe is able to reflect upon the beauty of all that has been created and to dream with imagination of what is yet to manifest.

What did Earth have that the other planets didn't have? Lovelock describes this as the "Goldilocks effect." Venus was too hot. Mars was too cold, but Earth was just right—just the right conditions and temperature for life.

The story of Earth continues to unfold. Scientists and scholars from many disciplines—biology, physics, cosmology, geology, spirituality, and ecology—continue to contribute to this story with their discoveries and new understandings. Sahtouris (2000, 2004a) stresses the importance of the continuing evolution of Earth's story. She encourages anyone to help find new pieces of the story and to reinterpret the evidence as a whole. Every interpretation is important as each has its own personal color and flavor.

As described by many, certain natural laws have been in operation since the first flaring forth of the universe 13.7 billion years ago and in the evolution of Earth. These natural laws continue to operate today.

### *Earth-Centered Principles*

To ascertain universal Earth-centered principles, I attempted in this section of the literature review to tell the evolution of Earth's story through the lens of physics, cosmology, biology, and through the voices of indigenous peoples. Within each scientific discipline, I selected those researchers and scholars who have been frequently cited by others in their field. I focused my literature review on those researchers and scholars who are making the connections between Earth-centered principles and organizational theory and development. These scholars' epistemology embraces an integration of the scientific and intuitive ways of knowing. Each individual experienced a critical moment—in Jungian terms, a “tipping point” in Gidwell's terms (2000)—that led them “to the road less traveled,” the alternative path. In physics, I utilized the Earth-centered principles as articulated by Berry (1988), Berry and Swimme (1992), Capra (1996, 2002); Kovats (1997), and Prigogine (1996). In biology, I utilized the story of Earth's evolution as articulated by Sahtouris (2000) and Harman and Sahtouris (1998). For Earth-centered principles and indigenous wisdom, I pulled information from the above researchers, and reviewed the work of scholars and recent dissertations in the field (Berry, 1996; LaBarre, 1996; Mankiller, 2004); Sahtouris, 2000; Simonelli, 1994; Wise-Erickson, 2003; Zimmerman; 2003). Most important, to gather Earth-centered principles from indigenous peoples, I included the voices of Native Americans (Mankiller, 2004; McMaster & Trafzer, 2004; Nerburn, 1999).

*Earth-Centered Principles from Physics and Cosmology*

*The Teilhardian Vision* (Fabel & St. John, 2003; King, 1999).

From scientific observation and mystical experience, Pierre Teilhard de Chardin derived the concept of cosmogenesis: that life evolved out of inanimate matter, but which from its inception in its most primitive form contained the seed of life. Earth literally has grown life. As humans, we have sprung from the bowels of Earth.

Teilhard was one of the first scientists to realize that the human and the Universe are inseparable (King, 1999). He understood that the only Universe we know about is the Universe that brought forth the human. He also understood that the human story and the Universe story identified with each other. He believed that the immersion into the deep creative powers of the Universe is the most direct contact a human can have with the divine. Such is the spirituality of Teilhard: a spirituality rooted in the time-developmental Universe that the scientists are now detecting.

Teilhard's desire was to see the essence of things and to probe into the mystery of life, its origin and goal. Teilhard believed a divine center exists in the rhythm of life and its evolution, at the center of the cosmos and the world. His outlook on life was mystical and yet firmly grounded in contemporary scientific research. As a scientist in geology and paleontology, his ideas were developed in direct living contact with the world.

For Teilhard, the Universe is not simply an object of scientific inquiry. It is a reality that is alive and pulsating with energy and growth. He refers to Mother Earth, the *terra mater*, as the ground and matrix of the human.

Just a few days before his death, Teilhard writes his last six pages. In them he speaks of the conflict between science and religion. He refers to the fire of a new faith in the

human. Teilhard endeavored to seek a coherence for humanity's experience and quest. He tried to convey a vision greater than what either traditional religion or science could offer. Today that vision is coming alive, with these new discoveries and observations in science and in the realm of spirituality. He believed that all human efforts, whether scientific or religious, whether action or contemplation, must lead to greater unity.

According to Fabel & St. John, Teilhard viewed the world as a uni-verse with the same laws operating throughout. He raises a relevant question and gives a definitive answer:

Is evolution a theory, a system or a hypothesis? It is much more: it is a general condition to which all theories, all hypotheses, all systems must bow and which they must satisfy henceforward if they are to be thinkable and true. Evolution is a light illuminating all facts, a curve that all lines must follow. (pp. 33-34)

As described by Fabel & St. John, Teilhard derived a perception of space-time; a vision of a continuing creation in which every new being grows organically out of what had been present before. He also described and named the "law of complexity consciousness." He believed there is a discernible direction in evolution with the promise of a "suitable outcome." In agreement with Darwin, Teilhard understood that experiment and chance play a part, but as a whole the process of evolution reveals itself as one of "directed chance." Evolution always moves from simpler to more complex forms. When life arrives, the factor of consciousness must be added, and the process designated as "complexity consciousness."

Teilhard believed that consciousness was present from the beginning. He insisted that science not only study the "without" of things but also the "within" of things. The within is the potential for higher consciousness made possible through greater complexity and



leading to heightened interiorization. He further believed that what is to be revealed, to become incarnate, is already contained within by promise, already realized in essence, the way the oak tree is present in the acorn. God is both immanent and transcendent.

Teilhard blended mystical experience with scientific observation. His mystical or contemplative faculty enabled him to reconcile his scientific inquiries with his commitment to Christian revelation as a priest. His concept of cosmogenesis and its collorary, Christogenesis, emerged as his scientific studies were illuminated by his Christian faith. Not all agree with Teilhard's perspective of the "Christification" of the Universe. What Teilhard did provide is an alternative story or myth of continuing creation within which everything else must be assimilated—a master puzzle, which helps us put pieces of the puzzle together. The evolution of life on this planet is a scientific fact, demonstrated on the basis of solid evidence by fossil remains. No scientific experiment can prove Teilhard's vision of the vast enlargement of the evolutionary process. It is a pervasive hypothesis that is being revived and studied extensively today.

As described by Teilhard (cited in Yungblut, 1988, p. 51), "All you have to do is hear the heart of Earth beating within you." We are to align our process of individuation with evolution's process of complexity consciousness. In this way, the human becomes a co-creator on Earth, participating in God's continuing creation. As believed by Teilhard, there remains a "within" at the mysterious depths of our being which contains the promise of a life form not yet incarnate on this Earth.

Although Teilhard's voice was silenced during his time, his story is now being awakened and told anew. One fellow "geologist" who shares Teilhard de Chardin's story is Thomas Berry.

*The Life of Thomas Berry* (Lonergan & Richards, 1987)

Thomas Berry was born in 1914 in North Carolina. He was ordained a priest in 1942, and received his doctorate in 1949. From 1948 to 1949 he studied Chinese in Peking, and from 1956 to 1961, he taught at the Institute of Asian Studies at Seton Hall University. From 1960 to 1966 he taught at the Center for Asian Studies at St. John's University in New York. From 1966 on, he was professor of the History of Religions and director of the History and Religion program of Fordham University. He also has taught at Columbia University, Drew University, and the University of San Diego.

In 1970, Berry founded the Center for Religious Research in Riverdale, New York—a place for studying the dynamics of planet Earth, and the role fulfilled by the human within the total dynamics of the universe. In 1975, he was elected President of the American Teilhard Association.

## In his own words:

I started off as a student of cultural history, I am primarily an historian. What I have to say are the probings of an historian into human affairs in a somewhat comprehensive context. During my university studies I sought to understand the unity and differentiation of human cultures and the dynamism that shaped their sense of reality and value. I studied especially the Chinese language sufficiently to read some of the basic classics. In 1949, I went to China for a year, and when I came back I took up Sanskrit in addition to continuing Chinese studies, so that I could get into the scriptures of Hindu India.

I had begun studying the American Indian world in the 1940s, particularly the Plains Indians. I wished to get beyond the classical civilizations, back into the earlier Shamanic period of the human community. The more I gave to the study of the human venture, the more clearly I saw the need to go back into the dynamics of life itself. I was progressively led back to what I call the study of the earth community, including its geological and biological as well as its human components. I call myself a geologist. (Lonergan & Richards, p. 3)

As Berry states, "The Universe instructs" (Lonergan & Richards, p. 37). Humans learn about the divine, the natural, and the human through instruction received from the Universe. Any human activity is primarily an activity of the Universe, secondarily of the human. As he asserts, the Universe is the primary religious reality, the primary sacred community, the primary revelation of the divine, the primary subject of the incarnation, the primary unit of redemption, the primary referent in any discussion of reality. "For the first time the entire human community has, in this story, a single creation or origin myth...for the first time, we can tell the universe story, the earth story, the human story, the religion story, the Christian story, and the church story as a single comprehensive narrative" (pp. 37-38).

As described by Swimme (Lonergan & Richards, 1987), Berry's partner in creating the vision and the new story, Berry provides a functional cosmology that enables the human community to organize towards a healthy Earth. Swimme asks this question: "What does Berry do?...Berry wonders about the revelations of the universe... Thomas Berry teaches scientists about the universe" (p. 83).

Berry has been described as an Earth scholar. Berry's work often parallels that of Saint Thomas Aquinas, whom Berry quotes often. Aquinas, living in the 13<sup>th</sup> Century was witnessing a breakdown of forms in religion, politics, and economics, not unlike our current century. Both Aquinas and Berry had a response for the problems of the day: "Go to science, rediscover the ways of the Universe. All creatures love one another" (p. 1).

Aquinas was influenced by the worldview of Aristotle. He spent much of his life bringing Aristotle's scientific worldview into culture and into Christian thought. Aquinas was an intellectual who was both mystic and prophet. His ideas had social consequences,

which made his work controversial. Ironically, he was canonized a saint by the same church that first condemned him three times.

Aristotle believed that this world is itself the most proper object of our concern and our philosophizing. Plato, on the other hand, set a secondary value on knowledge of the world as it presents itself to our senses, believing our primary concern lies “beyond” the world. Plato and Aristotle represent the two archetypes of the two main conflicting approaches of philosophy (Magee, 1998). Aristotle believed there is only one world in which any philosophizing can occur, and that is this world that humans live in and experience.

Inspired by Teilhard de Chardin and Aquinas, Berry studied contemporary science, ancient wisdom of indigenous peoples, and the wisdom of China and the East. His deepest legacy is his scholarly pursuit of understanding the cosmos. He insisted that all education and all professions are ultimately responsible to the cosmos. His sense of wonder for the Universe has not diminished with his age. He continues to dream Earth anew, dream the work of the human anew, and to dream religion and education anew.

Berry's (1988) understanding of Earth-centered values began in an epiphany experience at age 11, which was to be a reference point for the rest of his life. He walked across a creek into a meadow. This experience evoked a deeper understanding in him of creation and the powers of life. He often uses this meadow to illustrate Earth-centered values as they apply today.

By examining the history of cultures with particular reference to the foundations of these cultures and their relations with the natural world, Berry came to realize that to understand “meaning” requires an understanding of context. In his search for meaning,

he sought answers to three questions: Where are we? How did we get here? What to do about it? With emphasis on survival of Earth, he looked to the context of long-lived cultures for perspectives for application today.

Berry's primary emphasis is that we must understand the natural laws and systems of Earth and reconfigure our human cultural systems accordingly. A human economy must be based on Earth's economy. Human laws must be derived from the laws of Earth, of life. Medicine needs to be based on Earth systems.

As for our institutions, Berry again emphasizes they be re-invented based on Earth-centered principles. Berry laments the fact that corporations are controlling the political system with a primary financial aim rather than the preservation of life systems. Within the education system, he stresses that universities are narrowly focused on preparing people for corporate life.

How do we begin to study the principles and systems of the Universe, of Earth? Berry asks this question. This question is also the focus of this research study. He speaks of the importance of the "shared dream experience." Imagination is primary in the life process. We need both inspiration and critical faculty.

Berry asserts that the human in every aspect is a participatory reality—a member of the Universe community. Humanity's work as we move into the 21<sup>st</sup> Century is to transition from a period of human devastation of our planet to a period where humans are present on Earth in a mutually beneficial manner. Many agree with Berry that this transition will be no easy matter. According to Berry, this transition is akin in historical parallel to the geobiological transition of 67 million years ago with the extinction of the dinosaurs and the beginning of a new biological age. Human disturbance of this planet is

leading to the end of the abundant Cenozoic Era. Natural selection no longer functions as it has in the past, with the introduction of the human species into evolution.

Berry asks this question: What are the principles that characterize evolution itself? With an understanding of these principles, the human can then have standards to apply to our lives, to our work. Swimme and Berry (1992) articulate three principles that are foundational and integral to evolution: differentiation (diversity), subjectivity (identity), and communion (interconnectedness). As stated by Berry (1988), “these governing principles of the Universe have controlled the entire evolutionary process from the moment of its explosive origin some 14 billion years ago to the shaping of Earth, the emergence of life and consciousness, and so through the various ages of human history” (p. 44). These principles were known and experienced in the past by intuitive processes. They are now understood by scientific reasoning, although their implications have not yet been fully acted upon. According to Berry, the Ecological age must now activate these principles if the human venture is to continue.

Swimme describes Berry as a “brother to the scientists”—a fellow discoverer of the beauty of the Universe. Swimme (Lonergan & Richards, pp. 85-89) describes the main features of Berry’s cosmology:

1. The great achievement of the scientific era is the cosmic creation story.
2. The new story is an empirically-based story.
3. We live in a time-developmental Universe.
4. Everything in the Universe is genetically related. Humans and the frog are kin.
5. The universe is integral with itself. We are stardust.
6. Humanity is a celebratory species. In the human, the Universe turns back on itself in admiration and joy.

7. The three basic laws of the universe are differentiation, subjectivity, and communion.

*The Cosmological Principles of Differentiation, Subjectivity, and Communion*

As described by Swimme & Berry, the three basic laws of the Universe are differentiation, subjectivity, and communion. The breakthrough moments in scientific discoveries that ground these principles are: Einstein's research, the exploration into the atom, and humanity's journey to the moon. What are these three principles?

*Differentiation* is the primordial expression of the Universe. The Universe is differentiated. The Universe emerges as a differentiation process. Without differentiation, there is no Universe. From the beginning, after a brief period of almost formless radiation, the Universe articulated itself in unique, identifiable, intelligible energy constellations. Reality is not some homogenous sameness. Everything is uniquely differentiated from everything else that exists in the Universe. Each articulation is unrepeatably and irreplaceable, from the subatomic to the galactic, from the iron core of Earth to the flower, the butterfly in flight, and the humans who walk the Earth. In reference to leadership and this research study, differentiation is also commonly referred to as diversity.

Our planet Earth is the most highly differentiated reality that we know about in the Universe. With the human, multiple modes of expression emerge. This tendency is visible in the human in our quest for individuation—to differentiate from one's peers, family, culture. As described by Aquinas in *Summa Theologica*, the divine goodness could not be adequately represented by one creature alone—only in many and diverse creatures (cited in Berry, 1988, p. 79).

*Subjectivity.* The Universe consists of acting subjects. There is no such thing as an inert thing. Matter churns with activity. An atom is a centered, self-organizing entity. Earth is a self-organizing entity—as is the human and the butterfly. The Universe consists of subjects.

The identity of the unique articulation of differentiation carries with it an interior depth, a special quality, a mystery that expresses not only a phenomenal mode but an archetypal realization. This quality activates in the human order the creative dynamics of the thinker, the poet, the scientist, the educator, and whatever role is fulfilled by human beings in the functioning of the Universe. In reference to leadership and this research study, subjectivity is referred to as identity.

It is not enough to be different from others. From the shaping of the hydrogen atom to the formation of the human brain, interior psychic unity has consistently increased along with a greater complexification of being. The human also embarks on the inner journey to go deep within—to discover the “within” of things in Teilhard’s words. It is from this “within” that new birth and transformation takes place.

The human being is a reflective, meditating, contemplating, and praying animal. When done consciously, the human grows in interiority or subjectivity. This is the way the human discovers the richness of the “within” with which he or she has been endowed. It is from this “within” that the seed of further growth blossoms. Many believe the next step for an evolving consciousness of the species is for practices in mystical or contemplative consciousness (Hubbard, 1998).

*Communion.* Berry articulates the third principle of evolution as the communion of each reality of the Universe with every other reality. The Universe is bound in



communion, each thing with all the rest. The gravitational bond unites all the galaxies; the electromagnetic interaction binds all the molecules; the genetic information connects the tree of life; love connects humanity and all creation. The Universe is an interwoven layer of boundedness.

Every reality of the Universe is intimately present to every other reality and finds its fulfillment in mutual presence. The entire evolutionary process depends on communion. Without this fulfillment that each being finds outside itself, nothing would ever happen in the world. There would be no elements, no molecules, no life, no consciousness. In reference to leadership and this research study, communion is referred to as interconnectedness.

The principle of communion finds its most elementary expression in the law of gravitation whereby every physical being attracts and is attracted to every other physical being. Gravitation at the elementary level finds an ascending sequence of realizations through the variety of life forms and their modes of generation up to human allurements and love in its most entrancing forms.

When asked to define the context of the new cosmology, Berry described that a better phrase perhaps is “comprehensive community.” The Universe is a community of subjects, not objects. The Universe is in intimate relationship with all that exists. In previous times, our indigenous ancestors viewed the Universe as a great cosmic liturgy, with the human as a ritual insertion into the cosmological order. Ceremonies and rituals occurred at transforming moments—the rituals at each season. Ritual is a primal way humans establish their basic rapport with the natural world in its visible form.

The intensity of differentiation and the depth of interiority make communion meaningful. Perhaps the meaning of life is most profoundly experienced in communion: with God, with self, with one another. To Isaac Newton, we are indebted for our understanding of the gravitational attraction of every physical reality to every other physical reality. To Darwin, we are indebted for our understanding of the genetic unity of the entire web of living beings. To Einstein and his theories of relativity, we are indebted for a new awareness of how to think about the dynamics of relatedness in the Universe.

As Swimme and Berry assert, based on empiric, scientific evidence, differentiation, interiority, and communion are the values emerging out of evolution itself. These Earth-centered values are the touchstone for spiritual guidance. These Earth-centered values are the touchstone for leadership. Subjectivity is our identity, our interiority. Every subject is unique because of differentiation. We come together into communion.

Berry's life work has been to call humanity into a new partnership with Earth, with reverence and with wonder. He describes this partnership between humans and Earth as a mutually-enhancing relationship and presence. Berry believes this alternative relationship from our present one is the key to true sustainability for all life, far into the future.

Berry asserts that a different way of thinking about "progress" must develop in the human. Three commitments are necessary—to the natural world as revelatory, to the Earth community as our primary loyalty, and to the progress of the community in its integrity—to carry out a change of direction in human-Earth development. He identifies this task for the human on the scale of "reinventing the human," since none of the prior cultures or concepts can deal with the realities we face today.

For the healing of Earth to occur, Berry describes the importance of alternative programs and strategies for the human—functional models of human-Nature relations that could modify or remedy the current dysfunctional industrial patterns. Earth needs to be seen as the primary model in architecture, the primary scientist, the primary educator, the primary healer. In reference to this research study, Earth needs to be seen as the model for the primary leader and Earth's principles and strategies as leadership principles and strategies. Only with the ever-renewing processes of Nature is there any future for the human community.

As described by many, the Celtic spiritual genius is evident in Berry's passion for eco-justice and cosmic storytelling. His love of Earth, his sense of humor, his gift of language, his moral outrage, his primal appreciation of the wonder of the Universe, and his prophetic storytelling all point to the interconnectivity of the human and Nature, the sacred and daily life, and the divine and the human. Berry's work has strongly influenced other thinkers. Kovats is one of those thinkers on the implications of the three cosmic principles of differentiation, subjectivity, and communion.

Kovats (1997) explored the relational dynamics of the Universe through these three cosmological principles and the implications of these three principles in articulating an ecological spirituality. Using the hermeneutics of ecological consciousness, her methodology reflected a heuristic, organic approach by incorporating academic research (left brain) integrated with an intuitive knowledge (right brain) epistemology. By immersion in the "book of Nature," Kovats gained significant learning and knowledge from the natural world (p. 5). The three principles were examined in depth and as they related to other laws and principles of physics and ecology.

In summarizing the implications and teachings of the “Big Bang”, Kovats describes the critical transformation moments based on empirical, scientific data from physics, cosmology, biology, and anthropology; as adapted from Swimme and Berry (1992). These are listed in Appendix B.

Kovats describes spirituality as “the human being’s awareness of and relationship to the Mystery of life and her/his conscious (choiceful) response to it” (p. 5). She asserts that spirituality is essentially related to the structures and principles of the Universe. Furthermore, as the human is of the Universe, our spirituality must reflect and make sense of our essential interdependence with the Universe. As she states, “The foundation and grounding of all spiritualities emerges from our experience of, and engagement in, the physical world” (p. 5).

Like Berry and Swimme, Kovats asks the question: “What does it mean to be human in the context of the universe” (p. 17)? She affirms that we live in an evolutionary, developmental, and expanding Universe. She affirms that everything we do as a human species affects everything else. She affirms Berry’s insight that a functional cosmology must incorporate both psychic-spiritual and physical-material dimensions. She affirms that spirituality and cosmology are about relationships. She affirms these principles are God’s laws.

Some of the characteristics that emerged in her articulation of an ecological spirituality included respect, attentive openness, wonder and amazement, reverence, gratitude, creativity, self-reflection, trust, compassion, justice, humility, adaptivity, and community. Appendix C provides a complete list of the characteristics of an ecological spirituality as articulated by Kovats.

To summarize, in the above section, Earth-centered principles as derived from the fields of physics, cosmology, and spirituality have been described. Preliminary descriptions of these Earth-centered principles are listed in Appendix D. In the next section, Earth-centered principles as derived from biology are explored, through the primarily storyteller, Elisabet Sahtouris.

### *Earth-Centered Principles from Biology*

As an evolution biologist, Sahtouris (2000) engages Nature's principles, revealed in biological evolution, as helpful models for organizational change in order to create sustainable health and well-being for humanity within the larger living systems of Earth. Sahtouris presents a philosophy that integrates Earth's evolution with the human search to connect with our roots, learning from the billions of years of Earth's experience in the self-organization of workable living systems. As described by Sahtouris, her life work is a work of philosophy in search of wisdom, by combining science with experience. This work seeks to provide practical guidance in human affairs through understanding the natural order of the Universe to which we belong. She grounds her findings on multiple levels—intuitive, experiential, scientific, philosophical, spiritual, aesthetic, and ethical.

In a heuristic method, Sahtouris integrates personal experience with scientific research and data. She examines the research of scientists, historians, and philosophers. She then tests them in the context of the natural world. Her methodology is similar to that of Berry, Swimme, Wheatley, and Capra—the scientists and scholars who provide the theoretical foundation for this research study. Sahtouris shares her findings and

understandings via the engagement of story. Her story is told within the context of the whole cosmos.

Sahtouris integrates the traditionally separated domains of biology, geology, and atmospheric sciences to show the evolution of Earth, as a living planet. The basis of her philosophy is The Gaia hypothesis, now Gaia theory (Lovelock, 1979). This theory states Earth and her creatures constitute a single, self-regulating system that is in fact a living being. The Gaia theory continues to spur scientific research on the geophysiology of Earth and philosophic concepts of what it means to be human as part of a "living" planet. Once considered unconventional and eccentric, Gaia theory is now being recognized as a legitimate and fruitful basis for scientific investigation (Capra, 1996, p. 110).

Sahtouris is quick to remind scientists and other scholarly disciplines that science is a human activity that evolves, a living system in which conservatism must be balanced by healthy controversy. The evolution of all Earth's systems has been worked out through cooperation through conflicting interests, achieving unities through diversity. We must remember that the science of the future may be as unrecognizable to today's scientists, as today's science would be to the earlier scientific pioneers.

As described by Sahtouris, paradoxically, the separation from Nature by way of an objective mechanical worldview has led to the current scientific discoveries that make it now possible to understand and reintegrate our role into Nature's patterns. Current technology allows keener observation and the ability to share discoveries planet-wide, to work together as a body of humanity, with hope of transcending the present crisis for a healthier and more joyful future for all Earthlife.

Scientists have now recognized that we are well into the sixth great extinction of species—the first one to be caused by a single species. Still today, the human species continues in creating chaos and ongoing disaster with denial. Sahtouris compares this to the situation aboard the Titanic. Passengers refused to believe this great technological marvel would sink. The human may be a biological and technological marvel. The ship is still sinking.

Sahtouris suggests a “new world order” in the midst of the current chaos. She reminds us of the indigenous elders’ world order, based on sustainable laws of Nature: laws of balance, harmony, of giving back in full measure for all you take; laws designed to insure survival at least seven generations into the future.

Sahtouris proposes that the human species must be viewed in the context of Earth’s evolution, as a still new, experimental species with developmental stages. In this regard, the human species may still be at the adolescent stage of development. Sahtouris draws parallels between the evolution of cells and the evolution of human society. She highlights the contrast between the healthy organization of cells, bodies, and biosystems with the unhealthy organization of economics and politics in human society.

### *Holons and Hierarchy*

Sahtouris stresses the importance of recognizing the embeddedness of living systems within each other. Bodies are made of cells within organs, within organ systems, within a whole body. *Hierarchy* was Koestler’s (1978) way of showing embeddedness in Nature. Examples of hierarchy include the body within the family, the community, ecosystem, nation, planet, and so on. In any hierarchy, the situation at any level is co-determined by other levels through interactions among them. Every level within this *hierarchy*—holons

within a holarchy—balances self-interest of the individual with that of the community through cooperative negotiations. Self-interest is good as long as it is good for the community. This distinguishes holarchy from hierarchy with its unidirectional command and control organization.

Wilber (2000) provides an insightful perspective on the notion of *hierarchy*. As he describes, many theorists have found the notion of hierarchy undesirable and a cause for social domination and injustice. The opponents of hierarchy maintain that all hierarchies involve a ranking or dominating judgment that oppresses other values and the individuals who hold them and that a nonranking model is more just. Wilber suggests that these opponents to hierarchy actually propose the notion of *heterarchy*—no one element is more important or more dominant, and each contributes more or less to the health of the whole.

However, as Wilber notes, in the new sciences of wholeness and connectedness, hierarchy is described as a basic organizing principle of wholeness. In a web of wholeness, hierarchy is the organization of parts into a larger whole whose glue is a principle higher or deeper than the parts possess alone. Without this hierarchy, according to Wilber, we would find heaps, not holes—strands not a web. “Hierarchy” and “wholeness” and “holarchy” are basically names for the same thing. Wilber suggests this has occurred with a confusion of language. The real world contains natural or normal hierarchies and it definitely contains some pathological or dominator hierarchies.

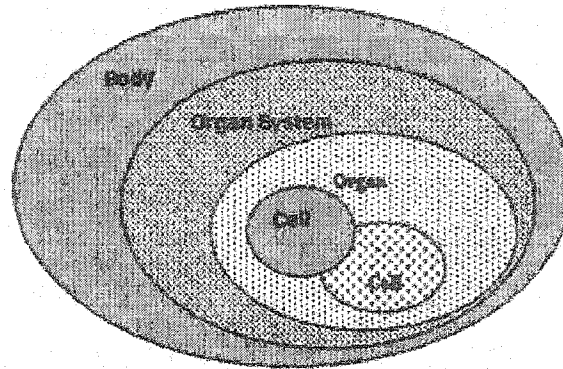
The root origins for the word “hierarchy” are *hier*, which means sacred or holy, and *arch*, which means governance. As described by Wilber, “hierarchy” originally meant *sacred governance* or governing one’s life by spiritual powers (p. 25). In the course of



history, many in hierarchical positions have used force, power, and excessive control as means to suppress others. Wilber agrees that these *domination hierarchies* based on force and control inhibit personal creativity and result in social systems in which the lowest of human qualities are reinforced and humanity's higher aspirations are systematically suppressed. Wilber described domination hierarchies as very different from hierarchies found in systems of progressions from lower to higher complexity or ordering of function. A term for these normal hierarchies might be *actualization hierarchies*. It is because of this confusion and the assumptions based on hearing the word *hierarchy*, that the term *holarchy* provides an opportunity for listening and dialogue.

The early Universe evolved by forming more and more parts within itself, many of them becoming wholes in their own right if they were consistent with other wholes surrounding them. Sahtouris makes the analogy with the nesting boxes of Russian dolls to explain the Universe of all these parts within parts, or wholes within wholes. Koestler suggested the concept of *holon* to describe each whole thing within Nature—a whole made of its own parts, yet itself part of a larger whole. A Universe of such holons within holons, is then a *holarchy*—in Greek, a source of wholes—one original whole that formed ever more complicated smaller wholes within itself, some becoming holarchies themselves. Figure 1 illustrates the concept of *holons in holarchy*:

Figure 1.

Holons in Hierarchy

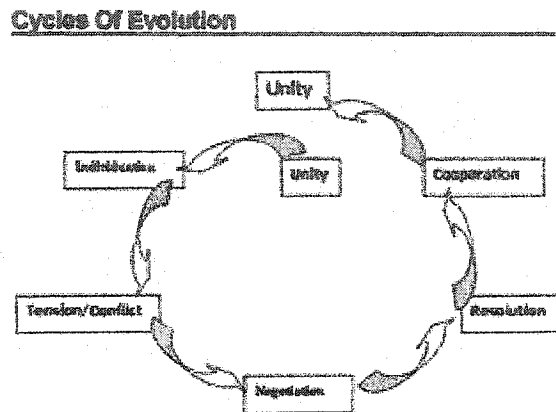
<sup>1</sup>From *Earthdance: Living systems in evolution* (p. 26), by E. Sahtouris, 2000, Lincoln: iUniversity Press. Copyright Elisabet Sahtouris. Reprinted with permission).

As Koestler (1978) described it, a holon has the autonomy of a whole in its own right and the dependence of a part embedded within larger holons. The rule of the greater whole or holon must be balanced with its self-ruling autonomy. Bohm (1980) used the word *holonomy* in this same sense when describing how the autonomy of every subatomic particle is stabilized and tempered by the rule of all other particles around it—by its holonomy. For the human, the individual must transcend self-rule and integrate with the rules of family, institution, and society. Society, in turn, must transcend simple self-rule and integrate itself with the holonomy imposed by Earth. The balance between any holon's autonomy and holonomy must be negotiated as mutual consistency if the holon is to survive as part of the holarchy.

To understand a holarchy's evolutionary process and to see biological evolution as a whole, Sahtouris describes a further concept. In studying evolution, she abstracted a cycle that appears to hold for all levels of cosmic holarchy—a cycle of evolution. She describes

this cycle as a vortex with angular momentum. Each turn of the vortex goes through successive stages of individuation, conflict, negotiation, resolution, cooperation, and unity. This is illustrated in Figure 2.

Figure 2



From *EarthDance: Living Systems in Evolution*, by E. Sahtouris, 2000, p. 25, Lincoln: iUniversity Press. Copyright 2000 by Elisabet Sahtouris. Reprinted with permission.

As described by Sahtouris, this cycle played out as cellular evolution from individual archebacteria to the formation of cooperative nucleated cells. She considers this the greatest leap in all biological evolution. In the midst of tensions and conflicts, the ancient bacteria were pushed to creativity and a diversity of lifestyles by the crises they created. They negotiated their way into cooperative ventures culminating in colonies with a division of labor so successful that they evolved into the nucleated cell. This very cell gives rise to the whole world of animals, plants, and fungi—to us.

This evolutionary cycle is evident in ecosystems. Sahtouris sees this cycle evident in the human's current struggle with today's crises. Sahtouris describes the human maturation in light of this cycle of evolution. The human starts life as a unity—undifferentiated. The human has many experiences and branches out in many directions. Humanity as it diversified and increased in population created more and more conflicts.

Technologies were developed to manage this hostility. As with the early bacteria, global hunger and global pollution are created. To solve these problems, negotiating differences is required, working out cooperative schemes. Today, humanity is faced with the challenge of forming the body of humanity around the globe. It is time for the maturation of the human species from its youthful competitive phase into a mature cooperative phase.

In this regard, the human has much to learn from Nature. Our teachers are in Nature and our conscious experience with other beings in Nature. She comments that if bacteria could achieve this without brains, cannot the humans do this with big brains?

The early bacteria invented all life's ways of making a living and created the conditions for life that is enjoyed by humans today. Trying out new shapes and movements, the bacteria eventually evolved a division of labor that streamlined individual bacteria by reducing the amount of DNA and equipment each had to carry. Various bacteria became specialists at particular jobs, such as fixing nitrogen gas. Nature always works out a balance between the independence and interdependence of individual creatures. Specialization—whether in society, ecosystems, multi-celled creatures, or bacterial networks—is a feature of whole systems that makes them more versatile and efficient through the interdependence created among the parts.

In discussing Darwin, Sahtouris notes that environments in his time were seen as places in which living things made their living, not as live parts of a living planet. The idea of natural selection, in her view, which leads to the concept of the survival of the fittest, appealed to men who were obsessed with the new social structure of industrial capitalism. Darwin, along with Lamarck, and Wallace, were pioneers in showing and

explaining how species evolve. Sahtouris believes Darwinism and neoDarwinism are misleading in today's way of understanding Nature. The notion of the separateness of each creature, competing with others in its struggle to survive, could justify English and American societies' new forms of competitive and exploitative industrial production in a world of scarcity.

Viewing evolution as a single holarchy of holons working out the mutual consistency of cooperative health and opportunity would lend to an alternative formation of society and institutions within that society. The "survival of the fittest" had social implications. It justified taking everything possible from Nature—Nature, as a collection of natural resources—in an aggressive and competitive struggle so the human could get what the human could in this meaningless, lifeless Universe. This leads to children chained to machines for generation of profit, wars fought over resources, the holocausts to weed out the "unfit." The quarterly bottom line is our newest competitive tyranny, preventing corporate CEOs from being accountable to the planet and people.

Human communities, as they got larger and more complex, evolved leadership and governments; just as eukaryote cells have evolved nuclei and as animal bodies evolved brains. Every holon that grows larger and more complicated must evolve some way of organizing itself to simplify and manage its complexity. In the beginning, when human communities got too large, they split up or budded off into new colonies, thus reproducing much as ancient bacteria did.

Sahtouris notes that communication systems in biology are prerequisites to the organization of larger living systems. Bacteria invented communications systems prior to organizing into nucleated cells. Nucleated cells invented intercellular communication

before organizing into multi-celled creatures. Sahtouris suggests the Internet will provide this role for the human species.

In sharing her 1000 year vision for humanity, Sahtouris (2004a) views three factors as most critical to the long term survival of humanity: understanding cosmic creativity, understanding living systems, and making the shift to caring and sharing.

*Understanding Cosmic creativity.* In understanding cosmic creativity, she stresses the view that humanity is embedded within a fundamentally different reality than the current scientific worldview. She views the Universe as fundamentally conscious and creative, transforming and transmuting into never-ending creative ventures. The existence of cosmic intelligence from the beginning of time is gaining support—it is not yet universally accepted.

The recognition of cosmic consciousness as the source of creation within human belief systems is coming into the popular culture, as evidenced by the popularity of such films as *What The Bleep Do We Know*. As stated by Sahtouris, science is still trailing a bit, but is revising its cosmology/worldview from one based on Newtonian mechanics to one reflecting a self-organizing living systems reality. Physics has recognized the concept of creating physical reality from consciousness for nearly half a century. As noted by Sahtouris, it may take some time to complete this paradigm shift from Nature as accidental mechanics to Nature as conscious, intelligent co-creation, but it is well under way. Once intelligent consciousness is accepted as the creative force of Nature (as it was accepted in ancient cultural knowledge), the idea of creating our own reality will enter the world of science.

In evidence for cosmic consciousness, Sahtouris cites the scientific work of Russell (Clark, 1946). Russell is known as *The Man Who Tapped the Secrets of the Universe*. He worked out a detailed and elegant model of a wave Universe in which a spiritual field of knowing exists. Russell's work suggests that the Universe can only arise from a deeper intelligence that gives it life. This source Oneness remains within the individuated Universe, appearing as a longing of everything in it to return to this source. Everything has the desire, the intelligence, and the power to create harmony with all else. Russell demonstrated this "spiritual Universe way of knowing" in his own life, by achieving unparalleled feats of creative genius in every field he touched, including those where he had no former training.

*Understanding Living Systems*. Sahtouris suggests there is ample scientific evidence to support seeing the Universe as alive and self-organizing. Biologically, Sahtouris emphasized the importance of recognizing humanity as a living system embedded within larger natural living systems and reorganizing human systems according to identifiable principles of healthy living systems. As she states, no living system can remain healthy if any part of it is ill. This implies the redesign of technology to eliminate pollution, waste, and environmental destruction. It also implies the empowerment of humans to participate in collective governing and contribute creatively to the whole community of beings.

Sahtouris describes the human form as a biological species—an embedded, self-organizing system now being pressed to evolve into a mature species. This failure to understand the human's creative role within Nature has resulted in the human's responsibility for the ongoing sixth great extinction in the history of Earth, as documented by the American Museum of Natural History in 1998. The well-being of the

human depends on cooperation with other humans and other species and on healthy ecosystems.

Sahtouris and others (Russell, 1995) view globalization as an inevitable and evolutionary healthy process for reorganizing the human species. As she describes, globalization works by cooperative, living systems principles in many ways: communications, transportation and travel, knowledge exchange, and humans rights concerns. Global economics currently are not operating according to living systems principles with its imbalances of sacrificing local economies, supporting agricultural monocultures. As a biological example, Sahtouris considers this kin to sacrificing cells to organs, or organs to the body. She notes the imperative for humanity's survival of seeing all humans as a single system, a huge family amidst an even larger family of other species that sustain us if we keep them healthy.

*Shifting to Caring and Sharing.* Sahtouris describes the recognition that humanity has operated on a needless, fear-based principle of scarcity that has produced unsustainable patterns of greed and want. This fear-based belief system must be shifted to love-based principles of caring and sharing, which raises our physical bodies to higher energy frequency levels (Hawkins, 1995).

In recognizing our responsibility and opportunity for creating our reality, Sahtouris sees hope in shifting from fear to love—from a world of scarcity and greed to one of abundance in which all people are empowered to fulfill their needs in sustainable ways. To do this requires focusing on what does work—to all the healthy practices based on caring and sharing now emerging into education, religion, and business.



Sahtouris envisions that science in the near future—especially evolutionary biology—will experience a shift in understanding that the Universe is fundamentally alive, conscious, and self-creative; that humans, like other species, are self-creating fields of consciousness, energy and matter. The human brain will be understood as a self-created interface between cosmic consciousness and material reality. Sahtouris' 1000 year vision sees science no longer as a self-contained branch, since access to knowledge will be direct. Health care will be preventive and utilize self-healing techniques. Energy will be non-exhaustible and clean, as in zero-point energy.

Sahtouris articulates her 1000 year vision, as follows:

Humanity understands itself as spirit having human experience and is having a wonderful time on this beautifully restored and abundant planet, as well as on others we share. We know ourselves as conscious creators of our realities and have long since solved ancient social and environment problems stemming from ignorance of cosmic process. Our focus is on helping each other, as well as beings of other worlds in continuing spiritual evolution. (Sahtouris, 2004a, ¶ 15)

As described, Sahtouris (2000) views Nature as conscious and creative intelligence, with biological evolution occurring as rapid response to crisis, rather than as mechanical selection within a slow system of accidental mutations. This new paradigm is emerging in all fields of science. The view that is crumbling based on current scientific evidence is that consciousness is not a late emerging property of evolution but the very source of the entire material world (Hubbard, 1998). To create the human future well, Sahtouris says we need good vistas—consciously created belief systems based on the emerging worldviews and the principles behind them.

In addition to the recognition of humanity's wholeness, Sahtouris shares that this is the first time in human history that each and every one of us is faced with daily decisions

about what to believe and think and feel about our world—what this world is, how it works, what’s happening; as well as how we choose to live our lives within it. What she describes in essence is one’s functional cosmology as defined by Berry (1988, 1992, 1996).

Up until the present, all cultures successfully lived their lives based on their respective worldview—stories of how things are—and on the principle that any other worldview would be wrong. As Sahtouris describes, independent thinkers who resisted the prevailing cultural teachings and came up with their own ideas of “how things are and what to do”—the prophets and “deviants”—historically suffered ridicule, punishment, exile, or death. This had a way of keeping a culture’s dominant beliefs intact.

She describes the current paradigm shift in worldview as a revolution in science in forcing reconsideration of science’s most fundamental assumptions and principles. Sahtouris defines life as *autopoiesis*—continuous self-creation. Since galaxies, stars, planets, organisms, cells, molecules, atoms, and sub-atomic particles all fit this definition, this implies that life is the fundamental process of the cosmos, a self-creating whole with self-creating living components in co-creative interaction. This is consistent with Earth as a living system, the Gaia Theory (Lovelock, 1979).

Sahtouris defines reality in terms of human experience. The only way to know something or to know something has happened or exists is to have direct experience of it. In a critical life moment, consistent with Jungian psychology, Sahtouris was walking along the beach, contemplating the Universe and the concept of autopoiesis. She picked up seed pods and small shells, each a version of the same spiraling form. She mused about the presence of spiral in the Universe. As she pondered whirling galaxies, she

suddenly saw the sand some twenty yards from her lift into the air and form a perfect funnel. Sahtouris felt the attraction of this spiraling, whirlwind towards her. Never having taken a physics course, she became convinced at that moment that the vortex is the real key to how the Universe works.

In an integral model of a living Universe, Sahtouris describes the cosmos as a conscious, intelligent self-organizing system in which all entities are alive, autopoietic (self-creating) and creatively collaborative. From smallest to largest, entities function by metabolic dynamics of radiation/gravity, centropy/entropy, anabolism/catabolism. She considers all living entities as self-reflective, conscious, able to learn and inextricably connected with a field of collective consciousness within which each exists with a unique perspective and a unique role. Earth life forms, including Earth herself, are a special case of complex living entities in the mid-size range between the microcosm and macrocosm of a conscious, intelligent self-creating living Universe.

Sahtouris believes that spirituality and science were separated for historic reasons. It is now time to reunite them in a single worldview. Sahtouris describes with hope the transformation that is occurring. Today's world is unsustainable—change is required; we're figuring out how. The old system is fighting to stay alive by getting more entrenched, more violent, more powerful. Sahtouris uses the metaphor of butterfly to illustrate:

If you see the old system as a caterpillar crunching its way through the ecosystem, eating up three hundred times its weight in a single day, bloating itself until it just can't function anymore, and then going to sleep with its skin hardening into a chrysalis. What happens in its body is that little imaginal disks begin to appear in the body of the caterpillar and its immune system attacks them. But they keep coming up stronger and they start to link with each other. As they connect, as they link with each other, they mature into fully-fledged cells and more and more of them aggregate

until the immune system of the caterpillar just can't function any more. At that point the body of the caterpillar melts into a nutritive soup that can feed the butterfly. (2003, p. 5)

Those who desire to create the new world co-exist within the old system. There's no point in attacking the old system, because it is dying. Better to focus on creating a viable butterfly.

What are the lessons of Nature? According to Sahtouris, these lessons are:

1. All living systems self-organize and maintain themselves by the same biological principles, which we can identify and abstract.
2. Among the principles essential to the health of living systems are empowered participation of all parts and continual negotiation of self-interest at all levels of organization.
3. Humanity constitutes a living system within the larger living system of Earth.
4. Essential to the health of humanity is empowered participation of all humans and negotiated self-interest among individual, local, and global economies as well as Earth itself.
5. Globalization is a biological process happening to a natural living system—humanity.
6. Economics that violate the fundamental principles by which living systems are organized threaten the demise of the human.
7. The evolutionary process is an improvisational dance that weaves individual, communal, ecosystemic, and planetary interests into a harmonious whole.
8. The greatest catastrophes in Earth's life history have spawned the greatest creativity! Therein lies the hope for humanity.
9. The most important lesson learned in the course of evolution is that no level of holarchy may be sacrificed without killing the whole.

In describing the evolution of cooperation, Sahtouris describes the work of Margulis (1995). Our bodies are multi-celled creatures, which actually evolved from an earlier

evolutionary phase of “multi-created” cells. Ancient bacteria, some two billion years ago, blanketed Earth, inventing all the ways of making a living still employed today (fermentation, photosynthesis, respiration). Finding themselves in crisis, they began to invade each other. Many colonies died until these creatures managed to evolve the cooperative schemes of the nucleated cell, a huge bacterial community with a peaceful division of labor. All this was achieved without the benefit of brains. Life is resilient and creative.

Some of the greatest catastrophes in the evolution of Earth have spawned the greatest creativity. Therein lies the hope of humanity. Sahtouris (1998, p. 10) describes her favorite creation myth from India: The cosmos began as a vast sea of milk in which a tiny wavelet formed. The wavelet was forever torn between wanting to be itself and longing to merge back into the sea. This story is yet another metaphor for individual and community in the endlessly creative dialogue of self-expression.

By what compass does the human species navigate these stormy seas of the current ecological chaos (Lipman-Blumen, 2000)? Sahtouris invites each and every person to join her and others on this adventurous journey where we abandon dysfunctional beliefs, taking the very best beliefs into the future, to create wonderful lives with loving hearts and spirits no matter what is happening around us. The time is now.

To summarize, the above section described the Earth-centered principles and worldview as derived from biology. These are summarized in Appendix E. In the next section, Earth-centered principles as derived from the voices of indigenous peoples is explored, with a special emphasis on the voices of Native Americans.

*Earth-Centered Principles from Indigenous Cultures*

As defined by Sahtouris (2000), indigenous cultures are held to be non-industrial cultures with ancient roots in their land. For all their diversity, they do hold common worldview elements and principles that unite them. Sahtouris describes the perspectives of two indigenous cultures that have ancient teachings concerning their relationship with industrial cultures: The Hopi Indians of North America and the Kogi of South America.

The Hopi have an ancient prophecy that tells of the Red and White Brothers, each given a different mission by Earth Mother and the Great Spirit. The Red Brother was to stay at home and keep the land sacred while the White Brother left to record things and make inventions. One day the White Brother was to return to share his inventions in a spirit of respect. It was told that his inventions would include cobwebs through which people could communicate. There would be carriages across the sky, and eventually a ground of ashes that when dropped would scorch Earth. If White Brother's ego grew so large, he would not listen to the wisdom of the Red Brother. The White Brother would bring the world to an end. The Kogi Indians have a similar mythic story. The Hopi and the Kogi are only two among many indigenous cultures that have prophecies of human's destruction of Nature as well as present evaluations of our current global crisis. Sahtouris asks, "How did these indigenous peoples know the crisis technology would bring on" (p. 327)?

In the worldviews of indigenous peoples are common themes: the universe is alive and sacred and all beings are related and interdependent. The human role is to hold Nature sacred and to live in a balanced way within it, to give back as much as is taken. The indigenous worldview of Nature is often represented by the symbol of circle—the

unbroken sacred hoop of life. The basic laws of Nature were formed in accordance with sustainability: laws of balance, harmony, mutual sustenance.

As described by Sahtouris, indigenous peoples were humble about their place in Nature. The Red Brother believed in sacred Earth wisdom. The Hopi, the Kogi, and the last free-living Aborigines now tell us that they can no longer keep the world in balance through their prayers and ceremonies. The White/Younger Brother is too powerful and must now come to his senses or complete the destruction.

Sahtouris makes the point of avoiding romanticizing indigenous people, but to learn from their traditional best—from their spiritual and scientific knowledge of Nature. In their science, Native Americans systematically acquire scientific knowledge through observation, experiment, and theoretical explanation in a framework of natural law. The purpose of Native American science is to integrate the human harmoniously into Nature, not to control Nature for the purpose of the human. Indigenous science is participatory—fostering dialogue between human and the rest of Nature.

As described by Berry (1999), with indigenous peoples, every activity is situated in relation to the directions of the Universe. For some people, it is the four directions, others six, and for the Cherokee seven. The four directions represent the wisdom of the four cardinal directions, combine with the heavens above, Earth below, and for the seventh the heart. The Universe was full of meaning in earlier times. The Universe was the basic referent in social order, in economic survival, and in healing. The indigenous people *live* in a Universe, in a cosmological order. The peoples of the industrial world no longer “live” in a Universe. (p. 14) We live in a political world, a business world, in a world of concrete and steel. “We no longer read the Book of Nature (p. 15),” asserts Berry.

To indigenous peoples the natural world was the manifestation of a numinous presence. Human societies found significance by integration of human activities into the great transformation moments of the seasons and in the movement of sunrise to sunset. Humans participated in these unending transformations. The natural world provided for the physical and psychic needs of humans.

The First Peoples of North America have an intimacy with the powers of the continent that has always guided and instructed them. A clash developed between the First Peoples of this continent and the colonialists. This was a clash between the most anthropocentric culture that history has even known with one of the most Nature-centric cultures. It was the clash between a deity perceived as transcendent to all beings and the Great Spirit perceived as immanent in all natural phenomena.

#### *The Native American Story*

As described by Mankiller (2004) and McMaster and Trafzer (2004), Native Americans are as diverse as any people on Earth. No generic Indian has ever lived. For generations, Native Americans have listened and learned from elders who passed along knowledge and wisdom through stories and songs—to be shared with those who listen well.

American Indians have unique cultures reflected through different laws, stories, dances, songs, ceremonies, and religions. Their diverse languages and cultures have always been dynamic and adaptive.

According to McMaster and Trafzer, it may be more appropriate to speak of Native universes, rather than a Native Universe. In Native American creation stories, creative forces first created plants and animals, mountains and rivers, clouds and rain—all



preparing Earth for the coming of human beings. The holy ones breathed life into being in many different ways, creating a variety of people, grouped together to share language, beliefs, geographical regions, songs, and stories. In their view, creation happened and is still happening. Creation is circular, ever present, ever moving.

The Native way of thinking embraces the circle as a symbol of unity, the use of animal totems to represent the sharing of power between the people and the animal world, and the belief that Earth is alive and sacred—to be shared by all. Beliefs are manifested through ceremony and ritual.

Although great diversity exists within Native Americans, certain beliefs are shared, especially the belief in the sacredness of the land. Different tribes share different creation stories, with a common theme that unseen creative forces formed Earth. The Creator made the Native Universe in a variety of ways with forethought and knowledge. Humans represent only a small portion of the universal whole. The whole remains a great mystery. Creative forces are set in motion with natural laws by which the living and non-living are guided—sometimes in harmony; sometimes in conflict. These creative forces are still in operation today. Spirits are alive in every cell, every atom and being of the Universe. Each is a part of the whole. Native Americans consider the Universe as a large and ever-expanding Universe.

In the Lakota tradition, life on Earth is difficult. Old Man and Old Woman taught them how to survive by hunting the buffalo and building tipis. The Lakota learned to be close to Earth and always give thanks through drumming and singing. Mother Earth, Sky World, spirit beings, plant people, and animal kin all are interconnected in close

relationship. Lakota say the buffalo are their relatives. The buffalo gives its life so the Lakota can live.

In the telling of creation stories, the principles and laws by which all things function provide the foundation for each tribe's governance, kinships, philosophies, and cultural values. Certain stories explain the rules of Nature that govern the world and the Indian people. Monsters and evil spirits sometimes appear in these stories. These monsters are usually dangerous, selfish characters who have broken the positive laws of creation that then distort the natural world. The destruction caused by the monsters brings forth heroes willing to challenge the monsters.

Native American stories describe the importance and active role of both male and female. In Cherokee traditional culture, it was believed that the world existed in a precarious balance and that right action maintained that balance. An important part of the balance was equity between men and women. Women were always consulted in matters of importance to the community. As Cherokees have adopted the values of the dominant society, this is now changing.

The healing power of Earth appears in traditional stories among many peoples. The Cheyenne embrace this healing power in the Medicine Lodge Ceremony. Ceremonies and rituals usually involve masks and other symbols. In the Sioux tradition, the pipe binds women and men alike in a circle of love, reminding them of their creative power and relationship to Mother Earth. For many Native peoples, the pipe is a symbol of the relationship between the Earth and Sky, temporal and spirit worlds, and plants, animals, and humans. The gift of the pipe represents continuance and renewal of the human spirit to the spirit of all creation. The songs and rituals keep Earth alive and moving.

As described by Montejo (2004), the Mayan culture offers much learning about past and present history. The Mayas created a great civilization of pre-Columbia America that flourished from 250-900 C.E. The Mayas built large temples and palaces, and created very accurate calendars. Most importantly, they discovered the mathematical uses of the zero and created a written hieroglyphic language that is being deciphered only recently.

The foundation of the Mayan worldview is captured in the sacred book of the Maya, the *Popol Vuh* (Montejo, 1999). This document can now help in understanding Mayan cosmology and the concept of human interrelationship with other living beings. This book was lost for centuries. Some call it the Bible of the Modern World, as it tells the Mayan story of creation.

In the Mayan creation story, the Creator and Maker, known as Heart of Heaven and Heart of Earth, names all the creatures on Earth and provides them their habitat. Humans were not created first. Plants and animals were created first and helped in the creation of the human. In this process, humans were made of corn. The Mayas have great respect, appreciation, and compassion toward plants and animals for which they pray and perform rituals. A tri-dimensional relationship among humans, the environment, and the supernatural world is the foundation of a spiritual tradition that emphasizes respect for all life on Earth. Animals found the corn that formed the first people.

Unfortunately today, the relationship with corn is changing for the Mayas. Traditional seeds are being rejected and replaced with foreign and commercial seeds. Coffee crops are replacing corn crops. The industrial corn seeds are uniform hybrids, while the indigenous corn has genetic biodiversity. The elders predict the spirit of the corn will soon disappear from the land.

In the Mayan tradition, humans were first created unsuccessfully out of wood, before the wise men and women were made of corn. These wooden humans multiplied and covered Earth, but were careless and forgot their creators. Their hearts were hardened and they lacked compassion for other creatures. Their abuse brought destruction upon Earth and humanity. Because they abused Nature and mistreated animals, these humans were punished. The sky darkened and a boiling rain fell upon Earth for a long time. All the creatures attacked the wooden people. Even their dogs condemned them.

This story reveals the principles of respect, care, and compassion for other living beings that interact with the human. If these principles are not observed, Nature herself becomes destructive.

The Earth-centered principles that are described in Native creative stories are considered by many to be the “original instructions” by the Creator. It is through the remembrance of these principles of the Creator’s “original instructions” that the spirits of place keep breathing (McMaster & Trafzer, p. 74). Every component of the Universe, in an indigenous conception, has a set of original instructions to follow so that a balanced order can be maintained. Humans are part of the natural order and exist in reciprocal relationship, accorded by original instructions.

Some biologists (Wilson, 1992) describe an approach of Nature of *biophilia*—love and kinship with Nature—and deep ecology: A discussion of deep ecology is beyond the scope of this research study. The principles of deep ecology, however, are included in Appendix F.

Native Americans have engaged humor as a survival tool and a means to self-awareness. Native humor blends irony, storytelling, and inside jokes in a witty way.

Native Americans enjoy telling about the Indian man who, when asked what the Indians called America before Europeans arrived, replied, "Ours" (McMaster & Trafzer, p. 242). When a Navajo child laughs out loud for the first time, a First Laugh Ceremony is held. This laughter is meaningful because it means the child has connected thinking with emotion. This relates to the concept of *Nitsáhaákees*, thinking which is associated with the beginning of creation, childhood, and the sunrise.

The Native American journey since 1492 has especially been difficult. Between five and thirteen million American Indians existed within the contemporary United States in 1492, and on record 250,000 lived to tell their stories by 1900 (McMaster & Trafzer, p. 77). Although many were lost, and though many today still face ethnic persecution, the people persevere. In the year 2000, the U.S. Census Bureau reported that 2.5 million American Indians lived in this country. An additional 1.6 million people report Native American ancestry (It is noted that the researcher of this study is represented in that 1.6 million people). The Census Bureau predicts that the American Indian will double by the year 2050. South of the United States there are over 44 million indigenous people today. As Native poet-activist, Trudell, teaches, "We rise, we fall, we rise" (cited in McMaster & Trafzer, p. 77).

### *Interconnectedness*

As described by many, the value of interconnectedness is still alive in modern Native American culture. The Lakota (Sioux) words *Mitakuye Oyasin* means "All My Relatives." Its deep participatory meaning, which is available to all humanity, is the gut-level understanding of interconnectedness. The Mohawk *Akwe:kon* means "All of us" and provides direction to the deep participatory holistic experience.

Lakota Sioux author and professor, Vine Deloria, Jr., describes the role modern tribal knowledge and worldviews can play towards creating a sustainable science. Native Americans provide a bridge between studying Western science and incorporating the ways of indigenous science. As stated by Deloria (cited in Simonelli, 1994):

The next generation of American Indians could radically transform scientific knowledge by grounding themselves in traditional knowledge about the world and demonstrating how everything is connected to everything else. Advocacy of this idea would involve showing how personality and a sense of purpose must become part of the knowledge that science confronts and understands. The present posture of most Western scientists is to deny any sense of purpose and direction to the world around us, believing that to do so would be to introduce mysticism and superstition. Yet what could be more superstitious than to believe that the world in which we live and where we have our most intimate personal experiences is not really trustworthy and that another world, a mathematical world exists, that represents a true reality. (p. 9)

Native Americans continually bring forth this message of unity, which is now supported scientifically by quantum wholeness—Bell's Theorem (Capra, 1982, pp. 83-85). Coyhis, a member of the Mohican nation, provides organizational development based on Native American principles. Here is his message to the business world as well as to individuals:

We are all connected. This is what the Elders have told us for a long time. If we are connected to all things, then whenever we harm anything, it causes harm to ourselves. If we destroy the air, we will be affected by what we breathe in. If we poison the Earth, we poison ourselves. We must respect our Mother Earth and she will respect us in return. We must open our eyes and obey the spiritual laws that govern the Earth and ourselves. (cited in Simonelli, p. 10)

### *An Alternative Epistemology: Indigenous Knowledge*

An alternative epistemology to the Western scientific way of knowing comes through the indigenous people. The Native American way of knowing is intimately connected to

the community. It may include visionary experiences, especially in the midst of community. The Lakota Sioux *Hanblechia* or vision quest is an extended time of solitary experience of fasting and prayer in which a person seeks specific knowledge to help self or community. Receiving a vision requires process and a strict protocol—learning is required, similar to things done in Western science.

Community is a way of knowing for Native Americans. Interactions in community are a valid and necessary epistemology for a sustainable science. For Native Americans, knowledge is derived from individual and communal experiences in daily life—in keen observation of the environment, in interpretive messages, which are received from spirits in ceremonies, visions, and dreams.

Native societies have always been influenced by the natural world. Nature is the best teacher. As stated by Jaune Quick-to-see-Smith, “The plants, animals, climate, and terrain were the outdoor classrooms that formed our worldview” (cited in Mankiller, 2004, p. 31). Sustainable, highly diverse ecological communities exist with each other in dynamic balance in Nature. As described by a Pueblo educator, Cajete (1994):

... as Western society begins to finally realize that it must forge a new ecologically-based cosmology, complete with new myths and new expressions and applications of science and technology. Western society must once again become Nature-centered if it is to make the kind of life serving, ecologically-sustainable transformations required to survive in the future. Indian people have historically expressed the kind of ecologically sustainable models, which could form the basis for the kind of educational models needed. (cited in Simonelli, p. 10)

Simonelli (1994, p. 10) shares the question of a Hawaiian native, Lehua Lopez: “What is the intention between you and Nature?” Simonelli discusses the alternative epistemology of tribal knowledge. He reviews Coyhis’ teachings of the Four Laws of Change: 1) All true and lasting change begins from within; 2) Vision precedes

development; 3) For great change to take place, a great learning must occur; and 4) In the forest, no tree can stay healed unless all trees are healed. These Four Laws of Change can be applied to leadership and organizational change, as well as the creation of a sustainable Western science.

For centuries, Western science has dominated the world culture as the predominant way of knowing and source of knowledge. It is time for other ways of knowing and sources of knowledge to enter into partnership with the Western scientific culture. The concept of sustainability is growing in popularity and significance. The voices of sustainability speak to the direction of a sustainable future—one in which a livable future is passed on to future generations. What mid-course direction in worldview and the values of Western society is needed for the human family to survive? Simonelli (1994a) argues that an important concept of a sustainable future is what he terms a “sustainable science.” He asks (p. 1): “What changes, then, in the philosophy and practice of science must take place to contribute to a sustainable future?” He attributes the unsustainability of Western science to its reliance on primarily rational and thought-based ways of knowing. The consequence of this epistemology is that scientists have tended to ignore the wholeness and inner diversity of the human being.

With an understanding of the principles and values of indigenous peoples, an increased understanding of ecological awareness follows. Indigenous peoples have the credibility of thousands of years of careful and scientific observation, in the way of knowing of *indigenous science*. Indigenous peoples have always known that ours is a participatory Universe, which Western scientists now acknowledge. As discovered with Heisenberg’s Uncertainty Principle, the Universe, and any other subject for scientific



study, cannot be observed without changing it. In Western science, physicists only recently have discovered the deep connectedness and dialogue of everything through concepts of the butterfly effect (Gleick, 1987), non-locality, and zero-point energy.

The Hopi Prophecy says the world as we know it will end if the White Brother does not heed the Sacred Way of the Red Brother. The truth of the Hopi—the need for cooperation between the ways of indigenous and industrial peoples to build a sustainable world—is vital to survival on Earth.

As foretold in ancient indigenous prophecy, a re-emergence for Native peoples will occur. The prophecy said that the peoples of Earth would be dispersed separately to the four directions. The people represented by the color yellow would be keepers of air knowledge; by the color black, keepers of water wisdom; those with the color white, the ways of fire; and the red people would be keepers of Earth. One day, prompted by the efforts of the white knowledge, the red, yellow, and the black would begin to move back together to create a time of wholeness. *That time is now.*

In 2002, astronaut John Herrington made history as the first Native American to travel into outer space. As he witnessed the cosmos, he described the experience of a “spiritual sense” of how magnificent is the “grand scheme of Mother Earth” (McMaster & Trafzer, p. 13). He adds, “We have looked over the horizon together and what lies before us is a universe of possibilities.” As stated by Debra LaFontaine, “We have to respect the natural laws of the Universe and protect all living things and support those things in the natural world that support us” (cited in Mankiller, 2004, p. 169).

To summarize, in the previous section, Earth-centered principles as derived from the voices of indigenous peoples has been explored. As described by Mankiller (2004),

though there are significant cultural differences among the more than 500 distinct tribal groups in the United States, among traditional people there is a fundamental understanding that everything is related and that all living things play an important role in keeping Earth in balance. Each community derives its unique spiritual and cultural identity from shared values, knowledge, stories, and relationships with one another and the natural world—a sharing of Earth-centered principles. These principles from the voices of indigenous peoples are summarized in Appendix G. A discussion of the epistemology of the indigenous peoples was also described, as many feel our current crises are a result of an unbalanced way of knowing.

#### *Summary of Earth-centered Principles from Review of Literature*

In exploring the first research question of: “What are Earth-centered principles?” the researcher reviewed the recent literature on principles of Earth’s evolution, as articulated by scholars in the fields of physics, cosmology, biology, theology, and indigenous cultures. As articulated by scholars and scholarly commentators in physics and cosmology the three principles that are foundational and integral to evolution are the principles of differentiation (diversity), subjectivity (identity), and communion (interconnectedness). As stated by Berry (1988), “these governing principles of the Universe have controlled the entire evolutionary process...” (p. 44). The principle of cosmogenesis is also of significance: our Universe is an emergent, ongoing, developing reality. Table 1 summarizes the primary Earth-centered principles that form the basis for this research study.

Table 1

*Earth-centered principles*

As articulated in physics and cosmology	As articulated in biology	As articulated by indigenous peoples
Differentiation Subjectivity Communion Cosmogogenesis	Diversity in holons Holon; autopoiesis Holarchy; mutual consistency Living system principles	In regards to all of creation In relationship to community Kinship with all relations; interconnected

As described by Wilber (2000), “The new sciences are, in a sense, the sciences of wholeness and connectedness. If we now add the notion of development or evolution—the idea that wholes grow and evolve—we have the essence of the modern evolutionary systems sciences” (p. 14).

The next section briefly examines potential implications of these principles for leadership. The researcher explores in more depth the applications of these Earth-centered principles to leadership in Chapter 4 of data collection and analysis. In this way, the researcher remained open to “listen” to the voices of the study participants.

*The Earth Story and Human Work*

One metaphor for changing today’s world is described in this story of a caterpillar’s metamorphosis into a butterfly:

After consuming hundreds of times its own weight daily as it munches its way through its ecosystem, the bloated caterpillar forms its chrysalis. Inside its body, new biological entities called imaginal discs arise, at first destroyed by its immune system. But as they grow more in number and begin to link up, they begin to survive. Eventually the caterpillar’s immune system fails, its body goes into meltdown and the imaginal discs become the cells that build the butterfly from the spent material that had held the blueprint for the butterfly all along. In just this way, a healthy new world, based on the principles of living systems, can emerge through today’s chaotic transformation. (Sahtouris, 2000, pp. 364-365)

Berry (1988, 1999) views our current difficulties as arising from a radical discontinuity with Nature and Earth. He asserts this: All institutions and professions, and their activities, need to be judged by the extent to which they ignore, inhibit, or foster a mutually-enhancing human-Earth relationship.

How do we build this new world? Sahtouris (2000) responds by stating that there are as many ways to build a new world of living systems as there are creative people to do it. Each person, as an imaginal disc, can contribute to the process of today's metamorphosis. What matters is that we understand the principles of Earth. From there we need only the will and love to create a better future for all living beings.

Anthropocentric, patriarchal concepts of governance that encourage exploitation and destruction of Earth's ecosystems, including the people subjected to this governance, must be replaced by those models of leadership and governance that are beneficial to the survival and integrity of Earth. All voices—human and non-human— must be heard and considered. In our organizations, who now speaks for the rain forest, for the tiger, for the children, for the woman and man, for the Aborigines and Native Americans? Astonished at the absence of women in delegations of colonial negotiators in the 18<sup>th</sup> Century, one Cherokee chief asked, "Where are your women?" (cited in Mankiller, 2004, p. 98).

As described by Hubbard (1998), Earth-centered governance is "the effort to bring transformational values into the organization and development of democracy" (p. 232). These efforts transcend, moving us forward. Governance from a foundation of Earth-centered principles seeks the best from the full spectrum of initiatives—"an emphasis on the flowering of the complete human within a regenerative planetary-universal culture" (p. 232). As stated by Hubbard, efforts to embrace these principles move us beyond

ideology into a more pragmatic approach in governance, working toward win-win, cooperative, spiritually-based, socially and economically just democracy. This is consistent with principle-centered leadership as defined by Covey (1992).

### *Earth-Centered Principles and Leadership*

According to Berry (1999), we need to provide leadership toward a viable human situation on a viable planet in a mutually-enhancing human-Earth relationship. The great model for all existence is the natural ecosystem, which is self-ruled as a community, in which each component has its unique rights and its comprehensive influence.

### *The Leadership Story*

Leadership has intrigued people since the beginning of recorded history. The study of leadership has a long history. It is a history rich in rituals, metaphors, symbols, definitions, theories, descriptions, and stories. As a field of inquiry, leadership has been studied and researched by scholars and practitioners from many disciplines. In reviewing the leadership story, I will do so from researching an alternative point of view, from the view of women and leadership. This section describes the leadership story as represented by the detailed analysis of Klenke (1996).

Klenke presents a scholarly examination of the field of leadership, with a special focus on women. As she describes, much of the study of leadership has focused on the study of "great men." In the past, leadership has primarily been the study of political leadership, exercised by a privileged group of "great men." Although history has produced some great women leaders, such as Margaret Anna Cusack, Eleanor Roosevelt, Mary Robinson, and Mother Teresa, these women are outnumbered as evidenced by the

literature on great men. Much of the history of leadership has been viewed from the lens of men. Women leaders are often not considered effective unless they prove exceptional by men's standards. As stated by Klenke, female leadership has only recently moved into the limelight of interest.

Events and legislation in the 1960s created movement in the arena of female leadership. Ecofeminism, a combination of feminist and environmental concerns, developed in the 1980s. This led to the formation of grass-roots organizations headed by women, such as Starhawk, who founded the Woman-Earth Institute. Over the last decades, women have entered many traditionally male domains of leadership, including politics and business. Abudene and Naisbitt (1992) predict that the first woman president of the United States will occur early in the 21<sup>st</sup> Century. Despite the lack of focus on women and leadership in the literature, women occupy leadership positions in education, healthcare, industry, and privately owned businesses.

How do we define or describe leadership? As stated by many, leadership means different things to different people. Though the call for leadership may be universal, there is little clarity concerning what the term means. As described by Bolman and Deal (1991), leadership is a word that conveys meaning. Many definitions of leadership imply that leadership is a good thing; we need more of it—at least the right kind, as opposed to toxic leadership (Lipman-Blumen, 2004). Leadership is a value-laden term that can engender a host of emotions.

As described by Klenke, a word for “leadership” is found in most every language. It can be traced as far back as seen in ancient Egyptian hieroglyphs. In early Greek and Latin, the word “leadership” is derived from the verb “to act.” Two Greek verbs, *archein*

(to begin to lead) and *prattein* (to pass through, achieve) relate to the Latin verb *agere* (to set into motion, to lead). The word “leader” in English dates as far back as 1000 years in its Anglo-Saxon root *laedere*, meaning “people on a journey”.

In examining the literature, leadership has been described in terms of traits, behaviors, situations, influence processes, power, politics, authority, change, goal achievement, differences with management (Bennis, 1993; Bennis & Nanus, 1985; Kotter, 1996; Rost, 1993), and others. We see leadership described in metaphors, leadership as art, jazz, and drama. Klenke describes many of the definitions of leadership that are found in the scholarly literature (p. 7). As one example, leadership is “an influence relationship among leaders and followers who intend real changes that reflect mutual purposes” (Rost, 1991, p. 102). Many (Bolman and Deal; 1995; Hendricks & Ludeman, 1996, Isaacson, 2001; Spitzer, 2000) relate the connection between spirituality and leadership.

According to Klenke, there probably are as many definitions of leadership as there are persons defining the concept. With the continuing evolution of our understanding of leadership, we are seeing leadership described as present within each of us. This is consistent with the description of leadership by John J. Gardiner (2002) in his philosophy of “leaders all.” Wheatley (2003) now describes a leader as “anyone who is willing to help at this time.”

As a scholarly studier of leadership, Klenke explores the widespread disagreement about the meaning of leadership. Rost (1991) completed an analysis of 221 different definitions of leadership between 1900 and 1990. His study of these definitions revealed that currently leadership is viewed as rational, management-oriented, male, technocratic, quantitative, cost-driven, hierarchical, short-term, pragmatic, and materialistic. This

would be consistent with leadership, based on a traditional, Western scientific worldview.

Rost asserted:

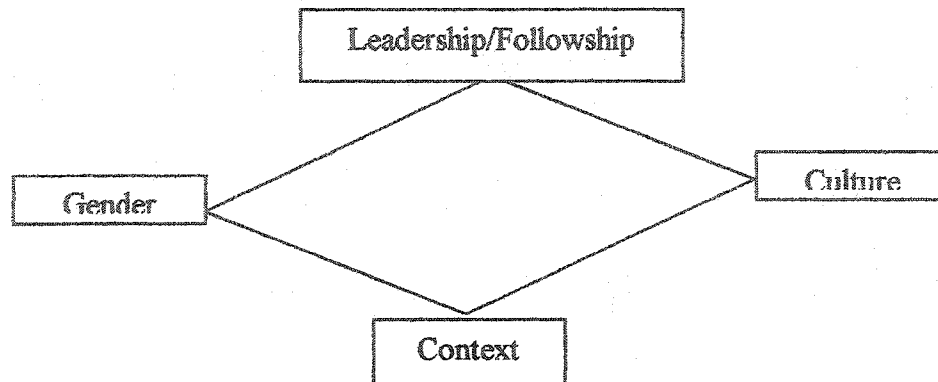
At the beginning of the 1990s we clearly have old wine in new bottles: great man/woman, trait, group, organization, and management definitions and theories of leadership that look new because they bespeak excellence, charisma, culture, quality, vision, values, peak performance, and empowerment. (p. 91)

Definitions and descriptions of leadership are often ambiguous and even contradictory. As stated by Klenke, definitions of leadership are presented as gender-neutral. Yet, women traditionally were felt to lack the traits and behaviors considered necessary for effective leadership—aggression, dominance, competitiveness, Machiavellianism, and decisiveness. In addition, such traits as tallness, a commanding voice, and assertiveness were also felt to be requisite to effective leadership—present in men; often absent in women.

Rather than attempt yet another formal definition of leadership, Klenke preferred to describe critical features of leadership—integrity, veracity, trust, commitment, morality, shared experiences, and dynamic networks. Leadership includes values of teamwork, collaboration, and the interdependence and unity of leadership and followership. Leaders who embrace these values show self-determination and risk-taking, courage, decisiveness, and a strong sense of ethics. They think systemically, metaphorically, globally, and futuristically.

Klenke depicts leadership as a diamond, as depicted in Figure 3:



*Figure 3. Leadership diamond*

The features and elements of leadership, as described by Klenke, combine in an infinite number of ways around leadership/followship interdependence, gender, culture, and context to produce varying definitions of leadership. She disagrees that a single definition of leadership is necessary to understand leadership. As she asserts, leadership is shaped by culture. Definitions of leadership change from one context to the next. She views leadership as a process and a role that can be assumed by women and men, adults and children, leaders and followers. Different times and different contexts call for different types of leadership. This means that leadership must be constantly examined, re-examined, and reformulated against the rapidly changing sociocultural, political, economic, and technological conditions of the times. This is consistent with connective leadership as described by Lipman-Blumen (1996).

#### *The Study of Leadership*

The literature on leadership is vast and has been explored by many viewpoints from different disciplines. Stogdill (1974) and Bass (1991) reviewed over 5000 published works on leadership for a synthesis of the existing literature. As stated by Klenke, despite 100 years of analysis and research, leadership still remains an elusive phenomenon.

In examining the relationship of gender and leadership, Klenke presents a historical and contextual understanding. Women have often been excluded in the study of leadership and ignored as research participants. Their contributions to leadership have been belittled, ridiculed, and distorted. As she says, "The topic of women and leadership has until fairly recently been rarely approached in empirical research" (p. 15). Most leadership research prior to the 1980s was done by men and dealt with primarily male leaders, defined as supervisors, managers, administrators, or commanders. Virtually all theories of leadership have been developed by men. This is changing.

According to Klenke, for many people, leadership has been synonymous with masculinity. History is replete with stories of male superheroes—kings, rulers, high priests, intellectual geniuses, and great artists. As Eisler (cited in Klenke, p. 15) observed, the term "woman leader" is an anomaly. "We might smile today at Schopenhauer's statement that the idea of seeing a woman governing in the place of men makes one burst out into laughter, but for many women leaders this statement still has a familiar ring (p. 15)."

Historically, leadership has been narrowly studied and interpreted through the lens of political contexts, as illustrated in Plato's vision of training leaders for the ideal political state in *The Republic*. Klenke contrasts this with today's study of leadership, which she describes with one word, diversity: diversity of theories and paradigms; diversity of ethnicity and gender; and diversity of contexts.

Today's technologies create new leadership tasks, which include what Senge (1990) has described as "building learning organizations." In the learning organization:

Leaders' roles differ dramatically from that of the charismatic decision maker. Leaders are designers, teachers, and stewards. These roles require

new skills: the ability to build a shared vision... and foster systemic patterns of thinking. (p. 442)

Leading today requires flexibility, technical competence, adaptability on the spot, commitment to innovation, and the ability to build collaborative cultures. As we live in the 21<sup>st</sup> Century, we will increasingly hear the need for new leadership paradigms, more effective leaders, better leadership education, and more diversity in the practice of leadership. As Klenke states, "Gone are the 1-minute manager, the secrets of Attila the Hun and the one best approach (p. 24)."

As Klenke asserts: "To deal with the demands for a new leadership, we must recognize the critical importance of context (p. 24-25)." In each different context, leadership manifests itself differently.

### *The Story of Leadership Theories*

The leadership literature is replete with developing and testing many different theories of leadership. There is inconsistency across the many theories. Is leadership a cause, an effect, or both? Existing perspectives of leadership include: trait and contingency theories, leader-member exchange theories, multiple linkage models, transactional and transformational theories, and most recently, connective leadership theory. To date, no universal theory of leadership has been developed that can predict leader effectiveness across a wide range of situations and contexts.

Theories of leadership are attempts to explain and/or predict factors involved in leadership effectiveness, follower performance, and satisfaction. Leadership theories have been grouped according to whether they focus on traits (in the 1930s and 1940s), behaviors (prevailing view of the 1950s), the situation (predominant in the 1970s), or a combination of these three. Underlying this classification system is the question of

whether leadership is produced by “great men/great women” (the person view of leadership) or “great times” (the situational view of leadership). Klenke provides a very detailed overview of contemporary leadership theories, with implications for women and leadership.

*Leadership as Traits.* Early in the study of leadership, it was believed that leaders possess certain physical and psychological traits. This “great man” theory of leadership assumed that traits associated with effective leadership were inborn qualities. Trait theorists adhere to the “leaders-are-born” or “gene-theory” school of thought. The results of Stogdill’s (1974) research on trait theory could not produce a consistent constellation of traits that characterize most effective leaders. Current understanding is that trait theory may offer a partial explanation of what constitutes effective leadership, as traits are still being described for leadership in current literature research.

In examining the timeline for the evolution of the Universe (Appendix H), it is of interest to discover the worldview and world events that were occurring at the time of the generation of the leadership theories. The Great Man Theory of Leadership was developed at the time of Darwin and the time of colonization of the world by the European powers.

*Leadership as Behavior.* Behavioral theories of leadership changed the focus from leadership traits to leader behaviors. Leadership is learned by acquiring a set of behaviors for effectiveness. The behavioral approach moves away from the notion that leader effectiveness resides within the person. In contrast to trait theories, behavioral perspectives suggest that leadership behaviors can be learned. Klenke identifies methodological concerns with both the trait and behavioral research on leadership.

*Leadership as Contingency.* Contingency approaches to leadership believe that leadership effectiveness is dependent or contingent upon the interaction between certain leader attributes and the characteristics of the situation. Situational variables, such as the tasks involved or the work setting, influence the relationship between leader behaviors or traits and leadership effectiveness. In order to predict which type of leader behavior will be most effective, the specifics of the situation or context are important. Contingency theories assume that different behaviors or traits and different leadership styles are effective under different situational conditions and that the same pattern is not optimal in all situations (Yukl, 2002).

In the sixties, Fiedler (Bass & Stogdill, 1990) conducted extensive research on situational leadership. His model distinguishes between two leadership styles, task-oriented and relationship-oriented leadership. In the seventies, House (Bass & Stogdill) focused on the effectiveness of the leader in increasing the motivation of the followers along the path to a goal—House's Path-Goal Theory of Leadership. A strategic function of the leader is to enhance the psychological well-being of followers, resulting in motivation to perform or satisfaction with the job. House's theory specifies four types of leader behavior: directive, supportive, participative, and achievement-oriented. Klenke (1996) describes Debbie Fields in developing Mrs. Fields Cookies as application of the Path-Goal Theory of leadership.

*Leadership as Transformation.* In the past 25 years, research on a new paradigm of leadership has emerged. Scholars of leadership refer to these theories as visionary, charismatic, transformational, and inspirational (Bass, 1985; Bennis & Nanus, 1985; Burns, 1978, Gardner, 1961, 1987, 1990; Kotter, 1990, Kouzes & Posner, 1995). These

theories describe a phenomenon of leaders in action. Terms such as vision, empowerment, self-development, and social responsibility describe some of the essence of these theories of leadership. As described by Bennis and Nanus (1985):

... leadership can invent and create institutions that can empower employees to satisfy their needs. Leadership is morally purposeful and elevating, which means... that leaders can through deploying their talents, choose purposes and visions that are based on key values of the work force and create the social architecture that supports them. Finally, leadership can move followers to higher degrees of consciousness, such as liberty, freedom, justice, and self-actualization.... The end result of the leadership we have advanced is empowerment and an organizational culture that helps employees generate a sense of meaning in their work and a desire to challenge themselves to experience success. (p. 218)

The distinction between transactional and transformational leadership is described by Burns (1978):

... transactional leaders approach followers with an eye toward exchanging one thing for another: jobs for votes, or subsidies for campaign distributions. Such transactions comprise the bulk of the relationship among leaders and followers, especially in groups, legislatures, and parties. (p. 4)

The transforming leader recognizes an existing need or demand of a potential follower. But, beyond that, the transforming leader looks for potential motives in followers, seeks to satisfy higher needs, and engages the full person of the follower. That people can be lifted into their better selves is the secret of transforming leadership. (p. 4)

Rost (1991) asserts that transformation should be the cornerstone of the postindustrial era of leadership. He further asserts that our historical theories of leadership have been caught up in an industrial worldview and paradigm that treats leadership as good management.

According to Zaleznik (1977), managers are once-borns, while leaders are twice-borns. Leaders are twice-born because they develop by mastering painful experiences during their formative years, refashioning themselves after each of these experiences. As

described by Zaleznik, leaders turn inward in order to re-emerge with a created, rather than an inherited, sense of identity. Klenke (1996) describes Lillian Vernon, Mary Kay Ash, and Oprah Winfrey as effective twice-born, business leaders.

A central theme for Klenke is that leadership is contextual, shaped by situational, historical, temporal, and special factors. The study of leadership from a contextual perspective supports the notion that leaders, at a given time and place, are the product of their particular era and the organizational or community setting in which they exercise leadership.

Each context defines leadership differently. As discussed by Klenke, business organizations frequently define leadership as a position in the hierarchical structure. Community organizations may define leadership using criteria such as effective coordination of interdependent citizen groups. Communities celebrate leaders for commitment to the common good.

Many leadership scholars and experts describe approaches for today's and future leadership (Gardiner, 1998, 1999, 2002; Gardner, 1990; Klenke, 1994; Lipman-Blumen, 2000, 2004; Wheatley, 1996). Klenke believes that critical requirements for 21<sup>st</sup> Century leaders include the ability to think metaphorically, globally, and futuristically. A common theme is the leader's ability to create, articulate, and communicate not only a vision, but a global vision.

Klenke further notes that many existing efforts attempt to theorize about leadership, as opposed to work aimed at developing models for leadership that are useful to the practitioner. Are there current models and strategies of leadership that are useful to the

practitioner? Have we made progress in the development of theoretical models of leadership? The next section of this literature review responds to these questions.

### *Leadership as Earth-Centered*

There is hope. As stated by Gardner, “The first and last task of a leader is to keep hope alive.” Imaginal cells are emerging in the field of leadership—Gardner, Lipman-Blumen, Roddick, and Wheatley, to name a few. These leaders believe there is a leader in all of us—a leader within. Given the right context and motivation to lead, all of us can develop our leadership potential.

Some have considered Thomas Berry to be an EarthSaint—the father of the new story. In a similar fashion, Margaret Wheatley could be considered an EarthSaint—the mother of the new story in leadership. Wheatley was one of the very first imaginal cells to enter the mechanical body of the caterpillar. One might ponder her initial journey as she has survived—even thrived—the attack of the immune system of the old world order.

Wheatley tells the universe story as it relates to leadership. As Berry has considered the human’s Great Work in context of this new story, Wheatley asks, “What is our work” (p. 340). She follows Berry’s urgent plea to all “to teach this new story”—“to be the clarion voices, broadcasting our message to as many people as we can reach” (p. 340).

In describing this story, Wheatley emphasizes the essential themes of creativity and connectedness. Life desires to create. People that work in organizations are good. Change is good—“life isn’t life unless it is free to create itself” (p. 349). Wheatley also notes the spirituality of the story, and that Greenleaf (2002) focused on spirit in his latter years. Of note, as more is being revealed on the spirituality from the old story, a few



‘undiscussables’ (Argyris, 1993) are emerging. Einstein also embraces the spiritual—perhaps in a quiet presence. In a conversation with his daughter, Galileo also reveals an essence of his struggle and his spirituality.

Can we create a world that works for all? Wheatley (2005) asks this question as she reflects on the conversation she had with teens. In this dialogue she asked these teens the following questions: 1) What do you want the world to be like when you are sixty-five?; and 2) What do you hope for? She observes three critical strengths in their responses. These teens know how to enjoy each other’s gifts. They know that they need each other. They love creating and they claim that freedom to create. As Wheatley shares, these three strengths only work together. What these teens illustrate is the integration of the three Earth-centered principles of differentiation, subjectivity, and communion. As Kovats (1997) demonstrated, these three principles must “dance” together. By enjoying each other’s gifts in their unique differentiation, by knowing they need each other in communion, and by celebrating their freedom to create in their subjectivity, these teens embody Earth-centered principles.

In reflecting on the “fire” of her life journey, Wheatley (2005) reflects on her feelings of frustration with repeating herself, in sharing this story again and again, because she knows she is saying things that have been said by others, over and over. She gives voice to ideas that have been expressed by mystics, martyrs, philosophers, scientists, and everyday people. She asks, “Is anybody listening?” (p. 238). Our youth is listening. This researcher is listening.

Wheatley describes her inspiration to keep sharing the story by quoting T.S. Eliot:

There is only the fight to recover what has been lost  
And found and lost again and again: and now, under conditions

That seem unpropitious. But perhaps neither gain nor loss.  
For us, there is only the trying. The rest is not our business. (p. 244)

So Wheatley asks again, "Shall I say it again?" Yes, because we do what we are called to do because we feel called to do it. "We walk silently, willingly, down the well-trodden path still lit by the fire of millions" (p. 244).

The principles of living systems and core practices as described by Wheatley (2003) are described in Appendix I. Further enhancement and applications of these principles will be explored upon completion of data collection and analysis.

Wheatley now defines a leader as anyone who is willing to help at this time. She asserts that there is no greater power for change equal to a community discovering what it cares about. As life-affirming leaders, we intentionally organize conversations among life-affirming leaders.

Examples exist of organizations which are embracing the principles of living systems and Earth-centered leadership: The Body Shop and Rotary International.

*The Body Shop Story.* Anita Roddick created The Body Shop with leadership and a culture based on Earth-centered principles. Roddick uses her business as a vehicle for social and environmental change. She views her company as a vehicle for transformation of ideas, self-education, and a sense of love (Roddick, 1991). As a business leader, Roddick is committed: 1) not to use materials in her products that involve cruelty to animals or threaten species; 2) not to cause unnecessary waste; 3) to develop service and community projects; 4) to make people part of instead of adjunct to the business process; and 5) to educate and use the workplace as a center of social change. Roddick describes the culture of The Body Shop as genuinely global, responsible, accountable, proactive, concerned, enthusiastic, ethical, honest, open, and committed to action. Roddick sees

vision as a prerequisite for leadership, and calls for authority to be grounded in moral vision.

*Rotary International.* The organizational restructure of Rotary International, as described by Gardiner (2002) provides a model consistent with Earth-centered principles, specifically the three principles of differentiation, subjectivity, and communion. The responsibility of growing diverse leaders correlates with the principle of differentiation.

The characteristics of leadership embody Nature-based values as described by Hays (1996) and Kovats (1997)—humility in egoless collaboration, service above self. Key core values for the Rotary district governor are humility, love, and service. The governor is to be: “more listener than teller, more servant than lord” (p. 4).

The Board of Directors for Rotary is evolving from patriarchy into partnership; from sovereign to steward—a move into the principle of communion. As stated by Gardiner, Rotary exists to serve the individual in serving the community. The individual is the true organizational unit—subjectivity in action.

Rotary also demonstrated indigenous wisdom in considering relational language and the sacred forms of Earth—from leadership “teams” to leadership “circles”. As the most creative form in the Universe is the spiral, it will be interesting how Rotary might embrace the creative energy of the spiral as Rotary continues to evolve.

Gardiner (p. 8) describes leadership as the essence of giving energy to others and not taking it from them. He echoes the cosmic principles in this way: “interconnectedness is our natural state”—the principle of communion; “transcend self through service”—the principle of subjectivity; and “Leaders All!”—the principle of differentiation. Gardiner describes that the most successful leaders demonstrate these attributes: a clear sense of

purpose, understanding of the environment, first among equals, foresight, willingness to act, connective, and sharing leadership. Of note, “first among equals” demonstrates subjectivity in communion with differentiation by sharing leadership.

As stated by Gardiner, “Rotary International creates a path to world peace and understanding, one person at a time, one person helping, one person helped... changing the world one action at a time” (p. 8). In a similar manner, how do we embrace Earth-centered principles in leadership? One person at a time, one person helping, Earth and all Earth’s creatures helped, one action at a time.

As Gardiner describes, “The holy ground of leadership is our own quiet presence” (p. 125). In his view, this quiet presence, this God-centered being, balanced and true, centered in values of integrity and compassion, will be the model for the next millennium. He echoes the characteristics of an ecological spirituality as described by Kovats (1996)—ecological spirituality in leadership.

Gardiner (1996), Wheatley (1996a, 1996b, 1999), Lipman-Blumen (2000), and Steichen (1994) represent the “imaginal cells” in the caterpillar of leadership in applying the principles of Nature in leadership and in organizations. As Gardiner notes, “The leaders of this global revolution will be people of quiet presence” —seeing with eyes of wholeness our fundamental interconnections (p. 117).

These early pioneers, prophets, and imaginal cells who are telling this new story in leadership also have evolved their descriptions of leadership. For Gardiner, it is “leaders all!” For Wheatley, it is life-affirming leadership; for Lipman-Blumen, it is connective leadership; for Steichen, it is “natural leadership.”

To summarize, the above section briefly described Earth-centered principles and application to leadership. The next section briefly describes these principles as they relate to the field of education. The researcher further explored application of Earth-centered principles to leadership upon completion of data collection and analysis. In this way the researcher stayed open in the analysis of data.

### *Earth-Centered Principles and Education*

As described by Sahtouris (2000), industrialism shaped human habits to its needs, which now have evolved into greeds. In the industrial world, education was designed to produce the workers. Schools trained children to be on time, to sit still for long hours with no talking to neighbors, doing what they were told, and learning what they were told to learn. As described by Sahtouris, children became “raw materials” put in the school machine and turned out as workers. Of note is a quote by the Dean of Stanford University, Edwood Cubberly, “Education takes children, raw products, and turns them into nails so they can do well in Industrial Society” (cited by Swimme, 2004).

In the new context of a mutually-enhancing human-Earth relationship, the primary educator as well as the primary healer or lawgiver would be the natural world itself. The integral Earth community would be a self-educating community within the context of a self-educating Universe. Education at the human level would be the sensitizing of the human to the communications made by the Universe about us, by the sun and moon and stars, the clouds and rain, the contours of Earth and all its living forms.

Berry recommends an awakening of the mind of the child, similar to the educational process of indigenous children. Berry suggests the importance of the child learning the

language of the Universe—learning about trees, the soil, the water, frogs, and butterflies. He fosters the redevelopment of an intimacy of the human with the larger Earth community. In *It Takes a Universe*, Berry speaks to the education of a child:

The child awakens to a universe  
The mind of the child to a world of meaning.  
Imagination to a world of beauty.  
Emotions to a world of intimacy.

It takes a universe to make a child  
both in outer form and inner spirit.  
It takes a universe to educate a child.  
A universe to fulfill a child.

As described by Berry, Earth is a self-educating community of beings. Earth's evolutionary process itself is planetary self-education. The voice of the human as well as the song of the birds and the croaking of the frog is all the voice of Earth and revelatory of the deeper nature of Earth itself. As described by Berry, education can be seen as enabling the student to awaken to this song, to the new origin myth and the immense journey of primordial energy through its long series of transformations until the present. He believes the mission of modern education is to reveal the true importance of the story of the Universe.

### *Curriculum*

Berry describes the curriculum for a set of core courses. A first course would present the evolutionary phases of this functional cosmology. This course would also include consideration of those great moments when the Universe effectively found its way through the impasses encountered along the way. Another course could be the four phases of human cultural development. Additional courses would include the study of the scientific-technological phase of human development and the emerging ecological age.

Berry recommends a course on the origin and identification of the values and principles of the Universe. For the purpose of this research study, these values are termed Earth-centered principles. The most basic of these principles are identified as differentiation, subjectivity, and communion.

The music and poetry of the Universe would be part of the curricula for the students. The students would develop a sense of the deep mystery of existence as well as insight into the architecture of the continents and engineering skills whereby the Universe has evolved.

Sahtouris (2000) proposed educational programs with a curriculum on living systems. She suggests making living systems the overarching concept for all studies. In alignment with scholars in educational leadership (Arredondo & Rucinski, 1998; Noddings, 2003; Pena, 1993, 1999), Sahtouris recommends the educational system be integrated and wholistic, as Nature itself. She notes that the skills for creating sustainability are not taught in the traditional university curriculum. Hays (1997) recommends an integration of science and the humanities in teaching science. She proposes that Earth-care values could form the foundation for an essential ethic for teaching science. These values are described in Appendix J.

### *The University*

Berry (1998) proposes that the universities need to teach the story of the Universe, as this is now available to us. The Universe story is our own story. Berry described the primary study of human intelligence as *universe-study*, or in terms derived from the Greek, *cosmology*. As he asserted, only through understanding the Universe can the human understand self or the human's proper role in the great community of existence.

*Aims of the University.* The university would be the context where the Universe reflects on itself in human intelligence and communicates itself to the human community. Since the Universe is an emergent reality, the Universe would be understood through its story. Education at all levels would be understood as knowing the Universe story and the human role in the story. The basic course in any college or university would be the story of the Universe.

Especially at the university level, the processes of reflection on meaning and values must take place. To understand our own self-leadership practices, we must know who we are and how we view the world. Self-leadership requires strategies of self-observation, reflection, self-goal setting, and self-rewards and punishment. Self-leadership is enhanced with the practices of discernment (Howell, 1996), and reflection (Arredondo et al., 1995; Arredondo & Rucinski, 1994; Delany & Arredondo, 1998).

Two imaginal cells in applying Earth-centered principles in the field of education are Montessori (1948) and Noddings (2003). In describing the education of a six-year-old child, Montessori (1948), noted that only when the child is able to identify his/her own center with the center of the Universe does education truly begin. For children to live only in contact with concrete and steel and wires and wheels and machines and computers and plastics, to seldom experience any primordial reality or even see the stars at night, is a soul deprivation that diminished the deepest of their human experiences. For the Universe, she says, is an answer to all questions. Although Montessori could not experience the empirical evidence of the intimacy of every phase of the Universe with every other phase, she knew that the child needed to know the story of the Universe.



Nel Noddings (1995) proposed that education be organized around themes of care, rather than the traditional disciplines. The aim of education should be to encourage the growth of competent, caring, loving, and lovable people. She argues against current liberal education that forces all students into narrowly prescribed curricula devoid of content they care about. She argues in favor of a curriculum with greater respect for the range of human capacities. Following Noddings's recommendations, students would be prepared to do "the work of attentive love" (p. 366). The themes of her proposed reorganization include: life cycles and stages; a respect for all forms of honest work; love and friendship; civic responsibility; and intimate relations with others including self, global others, plants, animals, the environment, objects, instruments, and ideas.

Noddings offers six steps for beginning the transformation of curriculum and instruction: 1) Be clear and unapologetic about the goal; 2) Take care of affiliative needs; 3) Relax the impulse to control; 4) Get rid of program hierarchies; 5) Give at least part of each day to themes of care; and 6) Teach students that caring in every domain implies competence. To care well, we must continuously work on our competence in science and the humanities. Caring is not mushy or sentimental. "It is the strong, resilient backbone of human life" (p. 368).

Berry (1998) states a strong personal view on the opportunity that exists in higher education: "...the first college to announce that its entire program is grounded in the dynamics of the Earth as a self-emerging, self-sustaining, self-governing, self-healing, self-educating community of all living and nonliving beings on the planet will have an extraordinary future" (p. 103).

To summarize, in the above section, Earth-centered principles and applications to education were explored. In the next section is a brief application of these principles to business.

*Earth-Centered Principles and Business*

What about our business and organizations? In the February 26<sup>th</sup>, 1999, edition of the *Wall Street Journal* were these headlines: “A New Model for the nature of Business: It’s Alive! Forget the Mechanical, Today’s Leaders Embrace the Biological” (cited in Sahtouris, 2000, p. 367). The corporate world has been organized in the context of the old mechanical worldview, with top-down command-and-control hierarchies to keep people in departmental boxes, doing the jobs prescribed. Management is about keeping them there and keeping them on their toes. As difficulties have arisen, corporations hired a flurry of business consultants going through fads to make business work better—Total Quality Management, Reengineering, Downsizing, Stream-lining and so on—with nothing bringing sustainable results. The discovery of what it is like to function as a creative living system with applications to organizations is meeting with success. Sahtouris describes the organizational and operational features of healthy living systems as they apply to corporations in Tables 2 and 3.

Table 2

*Organizational and operational features of healthy living systems*

COMPLEXITY (diversity of parts)  
 SELF-CREATION (autopoiesis)  
 SELF-REFLEXIVITY (autognosis—self-knowledge)  
 RESPONSE ABILITY—to internal and external stress or change  
 EMBEDDEDNESS in larger holons and dependence on them (holarchy)  
 INPUT/OUTPUT of matter/energy/information from/to other holons  
 TRANSFORMATION of matter/energy/information  
 COMMUNICATIONS among all parts  
 EMPOWERMENT—full employment of all component parts  
 COORDINATION of parts and functions  
 BALANCE OF INTERESTS—negotiated self-interest at all levels of holarchy  
 RECIPROCITY OF PARTS in mutual contribution and assistance  
 CONSERVATION of what works well  
 INNOVATION—creative change of what does not work well

*Note.* From *EarthDance* (p. 369), by E. Sahtouris, 2000, Lincoln: iUniversity Press. Copyright 2000 by Elisabet Sahtouris. Reprinted with permission.

By understanding these features of living systems, leadership can assess the health of any particular system and see where it may be dysfunctional. This in turn gives information and clues to making the system healthier. Organizations and communities can be analyzed for their adherence to each feature. Applying this to leadership, one of leadership's purposes is to learn to do such analyses in order to understand in what ways our systems are healthy and in what ways they are not.

Table 3

*Comparison of healthy living systems principles and corporate principles*

MECHANISM (Corporations) <i>Allopoietic</i>	ORGANISM (The Web as example) <i>Autopoietic</i>
Inventor created	Self-created
Hierarchic structure	Holarchic embeddedness
Top-down command	Holarchic dialogue/negotiation
System engineered	System negotiated
Repaired by engineers/experts	Repairs itself
Evolution by external design	Evolution by internal redesign
Exists for product or profit	Exists for health and survival
Serves owners' self-interest	Serves self/society/ecosystem

*Note.* From *EarthDance* (p. 370), by E. Sahtouris, 2000, Lincoln: iUniversity Press. Copyright 2000 by Elisabet Sahtouris. Reprinted with permission.

What would a corporation look like if it did embrace Earth-centered principles? Some creative ideas are emerging in this area (de Geus, 1997; Gates, 1998; Iansiti & Levien, 2004; Kiuchi & Shireman, 2002; Korten, 1999). To be successful in the future, Sahtouris suggests these organizations will: be autopoietic and holarchic; create value both internally and externally for all constituents; make shared destiny moral contracts with employees and society; shift from absentee shareholders to involved stakeholders; ensure the recycling of all products not consumed, treat other organizations as respected equals, and have triple bottom lines—profits, social development, ecosystem health. Sahtouris considers corporations to be a significant hope for becoming a mature species in time. Corporations are the most powerful human institution on the planet today. They have the resources and ability to make the transition from our acquisitive species adolescence to wise maturity in time to avoid disaster.

As noted by Sahtouris, the forms of the evolution of the Universe are the forms of the spiral, the whirlpool, the circle. Ancient peoples understood that the first forms to create themselves were whirling spirals. The human has created the structures of the pyramid, the box, the linear, the square. What are the implications of the spiral and the circle for organizational structure? Incorporating the use of circle has been explored and embraced in many organizational settings (Baldwin, 1998).

### *Summary*

This review of the literature first focused on the discovery and exploration of Earth-centered principles—What are Earth-centered principles? As these principles have been and continue to be told through story, a review of storytelling was explored. A review of the history and evolution of worldviews and cosmology was also explored to set the grounding for understanding the new story of the evolution of the Universe—of Earth.

A brief synopsis of the evolution of the Universe was provided in order to provide the framework for uncovering Earth-centered principles. The review of the literature then explored in depth the Earth-centered principles as derived from physics, cosmology, biology, and the voices of indigenous peoples.

To discover the implications and potential new directions that emerge for leadership, the story of the evolution of leadership was explored through the alternative voice of women's experience. Alternative leadership strategies based on Earth-centered principles for the fields of education and business were briefly explored, with more to follow upon completion of data collection and analysis as outlined in Chapter 3. A preliminary model emerged from the review of the literature, as illustrated in Appendix K.

How do we restore life? With Earth-centered leadership, returning to our roots, our grounding—animus and anima together, yin with yang, masculine with feminine—all creation coming together in a mutually-enhancing relationship in creating life for the unborn generations of the future.

This is the challenge before us, according to Berry (1999): “The historical mission of our times is to reinvent the human—at the species level, with critical reflection, within the community of life-systems, in a time-developmental context, by means of story and shared dream experience (p. 159).”

As Berry dreams (1988), the human needs to go to the Earth, as the source from which the human came, and ask for guidance. In the beginning was the dream. Through the dream all things were made. While all things share in this dream, the human shares in this dream in a special way. This is the entrancement, the magic of the world around us, its mystery and wonder. What primordial force could, with no model for guidance, imagine such a fantastic world—the shape of the orchid, the coloring of fish, the variety of sounds, the resonant croaking of the bullfrogs, and the pure joy of the predawn singing of the mockingbird?

We have a new story, an alternative worldview, based on Earth-centered principles to guide us on this journey. Wheatley (1998) sees hope in this new story. She encourages all, all those willing to help at this time, to tell this story. As she states, “If you carry this story within you, it is time to tell it, wherever you are, to whomever you meet” (p. 350). That is the intent of this research study—to tell a little bit more of the story, to learn, to teach, in a quiet presence, with humility.

Swimme equates this story and our role in it with the early Christians—they had a revelation, a profound revelatory experience. What did they do? They wandered around telling a new story—the Good News. As Swimme says, “Let’s ignite the transformation of humanity” (cited in Wheatley, 1998, p. 350).

As Swimme describes, this new story offers us a promise:

What will happen when the storytellers emerge? What will happen when “the primal mind” sings of our common origin, our stupendous journey, our immense good fortune? We will become Earthlings. We will have evoked out of the depths of the human psyche those qualities enabling our transformation from disease to health. They will sing our epic of being, and stirring up from our roots will be a vast awe, an enduring gratitude, the astonishment of communion experiences, and the realization of cosmic adventure. (cited in Wheatley, 1998, p. 351)

Responds Wheatley, “What a wonderful promise” (p. 350). We are invited into the telling. Join us in sharing this Good News—Berry, Hubbard, Swimme, Sahtouris, Kovats, Gardiner, Wheatley, Lipman-Blumen, and the voices of all indigenous peoples; past, present, and seven generations into the future.

In Wheatley’s (2005) most recent work, she examines leadership in the context of our current uncertain times. As she states, “I’m sad to report that in the past few years, ever since uncertainty became our insistent 21<sup>st</sup> Century companion, leadership strategies have taken a *great leap* backward to the familiar territory of command and control” (p. 4). In this regard, Wheatley views telling the “new story” that is emerging from the “new sciences and cosmology” as even more important. She adds, “Today, we need many more of us storytellers. The need is urgent, because people are forgetting there is any alternative to the deadening leadership that daily increases...” (pp. 4-5).

This research study is my way of accepting this invitation. The researcher of this study also maintains hope and optimism that we can learn from Earth-centered principles—the

lesson plans and curriculum of Earth—to create alternative leadership strategies for a better world for all creation. That is the purpose of this research study—to share a little bit more in the evolution of the leadership story. It will take leadership. Our time is now.

It will take leadership.

Chapter 3 describes the proposed methodology for this study.



## CHAPTER THREE

## Research Design and Methodology

*Introduction*

The purpose of this study is to identify Earth-centered principles and explore these principles in relationship to leadership—to a different paradigm of leadership and resulting alternative leadership strategies. A growing body of literature is emerging describing Earth-centered principles from the lens of biology, quantum physics, cosmology, and indigenous wisdom with their applications to our human story. Leadership is part of this story. Seeds of Earth-centered principles are being planted in the field of leadership (Gardiner, 1998; Steichen, 1994; Wheatley, 1999, 2005)

As stated by many, (Berry, 1999; Carroll, 2004; Conlon, 1990, 1994, 2004; Hubbard, 1998; Swimme & Berry, 1992; Sahtouris, 2000; Wheatley, 1999, 2005), we must reinvent our role as humans based on this new story of Earth and the Earth-centered principles guiding this story. A new story is emerging; a new story in terms of the recent and continuing empirical discoveries in the sciences. We now have a better understanding of the evolution of Earth and guiding principles underlying this evolution. Science and spirituality are rejoining in our quest to understand this story.

A different worldview is emerging—a worldview that has been understood by our indigenous ancestors, continuing into the present day in the wisdom of Native Americans and other indigenous populations. This new worldview is based on our connection to Earth. As articulated by Kovats (1997), the experience of and our engagement in the physical Universe inform every dimension of our being as humans in the world.

Our institutions and our leadership theories have developed based upon the mechanical worldview of the 17<sup>th</sup> Century. This is changing. With our new discoveries and understandings, how do we reinvent the human in the context of this new worldview? It will take different leadership. What is this leadership? What are the implications for leadership? This is the focus of this research.

### *Research Questions*

This study explored alternative leadership strategies based on Earth-centered principles. The research questions investigated are:

1. What are Earth-centered principles?
  - a. What principles regarding Earth's evolution are explored currently in the fields of biology, quantum physics, and cosmology?
  - b. What principles from indigenous peoples are described currently about the evolution of Earth?
2. How important are these principles to leadership according to leaders today?
  - a. How do leaders experience Earth-centered principles? What meaning do they give to their experiences?
  - b. What alternative leadership strategies emerge based on leaders' understanding of Earth-centered principles?

The nature of the phenomenon to be studied and the scope of the study called for qualitative research. Among the various qualitative models available, the Delphi technique is well-suited for the type of research needed for this study.

This chapter is divided into two main sections. In the first section, a brief review of the Delphi technique is described. A sampling of the range of applications in which it has been used will demonstrate its flexibility and limitations. Section two describes the actual methodology used in this study.

*The Delphi Method*

The Delphi model is a qualitative research method, which facilitates bringing the opinions and concerns of a diverse group to consensus. Dalkey and Helmer used the Delphi in the Rand Corporation in the 1950s and the 1960s as a method to discovering group opinion, specifically as it projected the future. As described by Delbecq, Van de Ven, and Gustafson (1975), it has gained considerable recognition and is used for a variety of objectives in a variety of different research settings.

The Delphi technique functions as a focus group or interview tool. Delphi uses a series of questionnaires. It employs collective opinion or subjective response to input. The Delphi technique operates on two principles: that several heads are better than one in making subjective conjectures; and that, experts, within a controlled, intuitive process will make conjectures based upon rational judgment and shared information (Callahan, 1996; Dalkey & Helmer, 1962).

Delphi is a research method that involves written response to designed questions, feedback of individual and/or collective response, and opportunity for modifications by respondents of earlier responses (Delbecq, Van de Ven, & Gustafson). This methodology elicits judgments, insights, or opinions of members of a group without bringing the group together in face-to-face interaction. The Delphi method is especially useful when involving experts who are geographically distant.

The Delphi is a group process, which uses written responses as opposed to bringing individuals together. It is a means for aggregating the judgments of a number of individuals in order to improve the quality of decision-making. Delphi lets people remain anonymous and prevents domination by certain individuals.

Although there is strong agreement on the effectiveness of the Delphi technique, considerable variance is possible in the Delphi format relative to design and implementation. The Delphi technique serves a variety of interests: planners, managers, researchers, educators, and decision-makers. The Delphi is useful in overcoming common barriers that occur when groups face the task of defining problems and exploring solutions. The Delphi is a method designed to increase the creative productivity of group action, facilitate group decision, and stimulate generation of ideas; while saving human effort and leaving participants with a sense of satisfaction (Delbecq et al, 1975).

#### *Process*

As described by Callahan (1996), Delphi uses a carefully designed program of sequential individual interrogations through the use of questionnaires. This eliminates the need for committee activity or focus groups. The questionnaires include information and opinion feedback.

Delphi is essentially a series of questionnaires. The first questionnaire asks individuals to respond to a broad question or series of questions. Each subsequent questionnaire builds upon responses to the preceding questionnaire. The process stops when consensus is approached among participants, or when sufficient information exchange has been obtained.

As stated by Callahan, it is the series of questionnaires, which form the unique methodology of the Delphi technique. Dalkey and Helmer introduced the technique with a series of four questionnaires. Delbecq, Van de Ven, and Gustafson later outlined specific processes for conducting Delphi studies, suggesting it may take two to five

rounds to obtain the data and consensus desired. Each round after the first round provides each study participant with a group summary of the data as well as an opportunity to restate the individual's position.

Considerable variance in design and implementation is possible in Delphi formats. Variations revolve around: a) whether respondent group is anonymous; b) whether open-ended or structured questions are used; c) number of iterations of questionnaires and feedback reports necessary; and d) what decision rules are used to aggregate judgments.

The specific form of the Delphi is determined by the nature of the problem being investigated and constrained by the amount of human and physical resources available. It may also vary during implementation if results indicate that a revision will yield more useful or complete information.

#### *Reliability and Validity*

As described by Fink and Kosecoff (1998), a reliable survey results in consistent information. A valid survey produces accurate information.

Van de Ven (1974) found that open group discussion can lead to generalizing, conforming, socializing, and inequality in member contribution. This can result in the generation of a small number of lesser quality ideas. The Delphi method allows group members to exchange information about individual beliefs and ideas without imposing group pressure and judgment on each other. Compared to open group interaction, the Delphi method has been found to yield high quality, specific results by supporting controlled problem and task focus, equality of respondent contribution, and independent judgments (Delbecq et al, 1975).

According to Dalkey (1969), the controlled feedback of Delphi minimizes biasing

effects of dominant individuals and the distraction of irrelevant communications. Helmer (1967) concluded that Delphi fills the niche of obtaining relevant intuitive insights from experts with the least amount of contamination.

#### *How Has Delphi Been Used?*

Delphi has been used in many different settings. Today, it has become a multiple use planning and decision-making tool.

The foundational work in defining the Delphi method was done by Helmer and colleagues at the Rand Corporation. Since then, the Delphi has been utilized effectively in many different research settings, including the field of education and educational leadership (Callahan, 1996; Hays, 1997; Jacobsen, 1994). Delphi has been used for technological forecasting, program planning, systems analysis, problem identification, and determination of values, competencies, and criteria.

Dalkey and Helmer, the developers of the Delphi, used this technique to predict the future. Weaver (1971) effectively used the Delphi to help people think about the future as an aid in probing priorities held by members of an organization. Cyphert and Gant (1971) reported the use of the Delphi technique to facilitate educational planning and consensus building at the University of Virginia School of Education.

Based on his experience in using the Delphi methodology in schools in Washington State, Rasp (1973) urged others to use Delphi to collect judgments and to establish consensus about future probabilities. He affirmed that anonymous responses were more reliable in leading to reasonable and objective input than the activities of interpersonal conferencing. Rasp encouraged school personnel to use the Delphi as a tool to build consensus in future planning.

The Delphi method has been used effectively in the field of educational leadership research. In a modified use of a two- round Delphi, Forbes (1977) gathered consensus around curriculum and instruction options in elementary school programs. She used information obtained from the review of the literature to generate questionnaire items.

Hogan (1993) utilized the Delphi technique to obtain consensus in what schools value in conflict and mediation training. Like Forbes, he used the review of the literature to develop the first round questionnaire. Study participants were obtained through direct referrals from superintendents of all the school districts in Washington State. All twenty-five participants responded to his original nine questions. Consensus was obtained around the top values shared for schools in Washington State.

Purpur (1993) found the Delphi technique useful in identifying the purposes and effectiveness of elementary schools in the Roman Catholic Seattle Archdiocesan Catholic Elementary School System. He involved the entire school leadership population in his Delphi process. He interviewed select follow-up participants to elicit further information.

Van der Voort (1979) chose the Delphi method as an effective way to identify and prioritize the services and programs of the United Way. Based upon her research of United Way, she developed a list of service goals grouped into broad categories. Respondents were asked to consider human needs in rating each statement, using a Likert scale. Consensus was obtained around service goals.

Jacobsen (1994) used the Delphi to explore the relationship between spirituality and transformational leadership. An international panel of nine experts was asked to nominate 3-5 leaders in secular organizations who embody transformational traits. In Round One of the Delphi, participants responded in writing to seven questions regarding the relationship

between spirituality and leadership. Results were collated, analyzed, and summarized in the form of seven statements. In Round Two, participants were asked to concur or suggest revisions. In Round Three, a final draft of the seven statements was sent out for comments. The study revealed that spirituality plays a vital role in the personal and professional activity of the participants.

Using a two-stage, modified Delphi method, Hays (1997) identified and explored values and views of Nature Writers and scientists that might underlie an essential ethic for teaching science in the new millennium. Stage One comprised the first round of the Delphi and involved content analysis of writings by a select group of American Nature Writers from the early 1800s to the present. In Stage Two, comprising three rounds of the modified Delphi, perspectives of Nature Writers were imbedded in questionnaires and presented for response to a select group of scientists connected with research and education at National Laboratories across the country. Earth-care values were identified which were held in common by the Nature Writers and scientists and could form the foundation for an essential ethic for teaching science.

Callahan (1996) conducted a Delphi study of the competencies needed by leaders of Roman Catholic faith communities in Western Washington. Study participants were asked to name and rate competencies they felt leaders in faith communities shared. The Delphi process surfaced a list of thirty-five competencies. Her study documented a shift emerging in understanding of the Church. Respondents indicated they envision the Church as disciple and servant in the next five years.



As described, many studies have effectively and reliably utilized the Delphi technique. In each study, repeated rounds of questionnaires are used to aid in naming future needs and to serve as a consensus-building tool. Flexibility in using the Delphi allows the tool to be adapted to suit the group and question being examined. Each researcher reported the Delphi as an effective methodology in planning for the future, in facilitating a conversation among experts who are geographically dispersed, and in obtaining consensus.

#### *When Should Delphi Not Be Used?*

There are three critical conditions necessary to complete a successful Delphi: a) adequate time, b) participant skill in written communication, and c) high participant motivation. Delphi should not be used when time is limited. As a rule of thumb, the minimum required time for a Delphi is about 45 days. The overall time of the Delphi varies depending on the number of rounds and how quickly respondents follow through.

#### *Delphi Study Participants*

Once general characteristics of desired respondents are agreed upon, a nomination process should be used to select specific respondents. Nominators knowledgeable about the research topic select participants in a Delphi study. According to Delbecq et al. (1975), participants should be personally involved in the problem, have a level of expertise that contributes to the study, and a level of interest in the outcome of the study.

#### *Sample Size*

The size of the respondent panel is variable. With a homogeneous group of people, ten to fifteen participants may be sufficient. With a heterogeneous group, few new ideas are generated once a sample size exceeds thirty well-chosen participants (Delbecq et al).

Accordingly, given a homogenous group, any more than 30 well-chosen participants is not likely to increase the range or diversity of the outcome.

#### *Limitations of the Delphi Technique*

The concerns and limitations noted by those using the Delphi effectively include careful selection of panelists; the need for the researcher to avoid the tendency to guide, shape, or force consensus; and the need for the data to be summarized and presented carefully.

Vague or easily misinterpreted wording in the questions can be a limitation of the Delphi method. The researcher is advised to take care in avoiding ambiguous or ambivalent wording when preparing statements for the questionnaires and in synthesizing participant's comments.

Delbecq et al. described these characteristics of the Delphi as having the possibility of inhibiting performance by the participants: a) the lack of opportunity for social-emotional feedback in the communication process, creating a feeling of detachment; b) lack of opportunity for verbal clarification or comment on the feedback report; and c) handling conflicting or incompatible ideas on the report by simply pooling and adding the votes means conflict may not be resolved.

#### *Methodology Developed for This Study*

##### *Rationale*

This research study identified Earth-centered principles. Further, this study assessed how leaders experience or relate to these principles and identified alternative leadership strategies based on these principles.

The advantages of Delphi for this study included: engaging a diverse and broad community in dialogue, involving people in dialogue anonymously through repeated questionnaires, building consensus around Earth-centered principles and implications for leadership, and the opportunity to project alternative leadership strategies based on Earth-centered principles for today and in the future.

The Delphi method was well suited to the qualitative and subjective nature of this research study. Responding to questions about principles and values required from participants a level of concentration and reflection that may not generally be supported in a typical group interaction for building consensus. The Delphi method allowed the respondents sufficient time to consider such a topic. Participants responded when convenient, reflecting and pondering as desired, within a certain prescribed span of time.

As the study participants were geographically dispersed, the Delphi method was well suited to obtain information as the study participants could not be brought together physically.

The Delphi allowed study participants to explore ideas, to consider the opinion of others, and to modify or stay with their own opinion or to move to a group mean. Delphi as a methodology allowed all to share opinion and values equally.

### *Study Design*

As described previously, the Delphi model is an effective means for creating meaningful dialogue. For this research, a three round Delphi was used.

Following the review of the literature, a panel of experts was selected. This panel nominated persons identified as having knowledge of Earth-centered principles and recognized as authentic, life-affirming leaders.

The three rounds of the Delphi were:

1. In Round One, the participants were asked to complete a questionnaire on Earth-centered principles, implications for leadership, and recommended alternative leadership strategies based on Earth-centered principles.
2. In Round Two, the responses from Round One were summarized and the group was invited to respond to this summary.
3. In Round Three, a final summary was offered to the group for final response.

Following the final round, results were analyzed quantitatively using STATVIEW and qualitatively with content analysis. This analysis formed the basis for the study findings and conclusions.

#### *Content Analysis: Review of the Literature*

The researcher examined the writings of futurist scientists and scholars, recognized for their expertise in Earth-centered principles and indigenous wisdom. These writings were reviewed to answer the research question: What are Earth-centered principles as articulated by each writer? What are the implications of these Earth-centered principles for our role as humans?

The fields of science and indigenous wisdom are vast. As described by Russell (1985), in our understanding of our current worldview, we are often like fleas on a elephant. As scientific fleas, we map out the terrain of this elephant. The back of the elephant is our worldview. A paradigm shift occurs when one or a few fleas decide to jump off the elephant, and see a different worldview based on different observations and discoveries.

Throughout history, many have embraced an alternative worldview—Siddhartha, Jesus of Nazareth, Hildegard of Bingen, Mechtild of Magdeburg, Meister Eckhart, Margaret Anna Cusack, Francis of Assisi, Aquinas, Ignatius of Loyola, Teilhard de Chardin,

Copernicus, Galileo, Newton, Einstein, Berry, Swimme, Kovats, Wheatley, Gardiner, and Lipman-Blumen. These alternative voices are hard to accept by those holding a different worldview until further observations become available. Often the new discoveries, ideas, and theories are rejected initially.

The review of the literature consisted of those scientists, scholars, and scholarly commentators who are recognized by scholars and peers for developing theories and applications based on their articulation of Earth-centered principles. Included were scientists and scholars from the fields of biology, physics, cosmology, ecology, spirituality, evolution, cultural history, and education. These individuals also are considered the “imaginal cells” (Sahtouris, 2000) of the future in promoting an alternative worldview. These individuals are identified as futurists who actively engage in international lecturing and consulting on these principles with applications in today’s world. Individuals selected for inclusion in the review of the literature also embrace alternative ways of knowing.

Of note, the individuals selected share the experience of a “tipping point” (Gladwell, 2000)—an epiphany that transformed each life onto an alternative path. In the words of Moses, these experiences might be termed “burning bush” moments.

Selected writings of each of the following scientific scholars, scholarly commentators, and storytellers with expertise in indigenous wisdom were examined:

*Elisabet Sahtouris, Ph. D.*

*Brian Swimme, Ph. D.*

*Thomas Berry, Ph. D.*

*Wilma Mankiller*

*Fritjof Capra, Ph. D.*

*John Jacob Gardiner, Ph. D.*

*Jean Lipman-Blumen, Ph.D.*

*David Toolan, S.J.*

*Ilya Prigogine, Ph.D.*

*Willis Harman, Ph.D.*

*Alexandra Kovats, Ph. D.*

*Richard Simonelli*

*Margaret Wheatley, Ed. D.*

*Barbara Marx Hubbard, Ph. D.*

*Pierre Teilhard de Chardin*

*Native American chiefs and elders*

Not all works by any one scientist or scholar were examined. Selected works, with emphasis on Earth-Centered principles, were included. The researcher did not attempt to conduct an in-depth review of each scientific discipline. Rather, a broad scan of respected, representative writings of scientists, scholars, and scholarly commentators from their respective fields were examined. Other scientists and writers were filtered in, as appropriate.

Procedures for collecting data and analyzing the content of the scientific writings included review of the writings for descriptions of Earth-centered principles as articulated by the scientists and scholars. The researcher conducted a comparative analysis of the Earth-centered principles to identify common meaningful clusters reflecting common principles. Through a process of adjusting and redefining to eliminate overlap, the researcher created a table of Earth-centered principles representing the essence from the new sciences and the voice of indigenous peoples.

Procedures for collecting the Earth-centered principles and analyzing the content of the literature was scientific, emergent, intuitive, and interpretive similar to the essence of qualitative research as a discipline. Investigative sources from the literature included those principles as stated and described by the writings of the scholars in the field of science, spirituality, and indigenous peoples.

In addition, the researcher utilized an intuitive approach by spending significant time reading “the book of Nature” to discern learnings from the voices of the natural world. As described by the methodology of Kovats (1997), the researcher sought “to immerse myself in the cathedral of creation...to explore an embodied way of knowing” (p. 13). This intuitive approach was consistent with indigenous science, as described by Simonelli

(1994a; 1994b). In the spirit of the researcher's Native American ancestry, the researcher utilized ritual, discernment, and ceremony to connect with generations from the past and seven generations into the future. Most of these rituals occurred in the mountains in the vicinity of North Bend, Washington—most frequently Little Si.

*Face Validity.* To determine the extent to which the Earth-centered principles gleaned from the review of the literature covered the content as articulated by the represented scholars, where feasible and appropriate these scientists and scholars were invited to be a member of the panel of experts for this research study. They were invited to review the study proposal, study design, and construction of data collection instruments. Specific feedback and recommendations on study design and questions on the data collection instrument were provided by 10 of the 18 members of the panel of experts. This resulted in the elimination of one question deemed duplicate, and wording changes for clarity. In addition, the cover letters, informed consent form, and data collection instruments were revised and refined based on review of the Seattle University Investigational Review Board and the dissertation committee.

#### *Procedures for Use of Delphi in This Study*

The specific procedures for this study design were to:

1. Select a panel of experts. The criterion for the panel was an individual, by virtue of publication or vocation, who is recognized as a scholar and futuristic thinker in knowledge of Earth-centered principles.
2. Send a letter to potential panel members describing the research study and inviting him or her to participate in this study. If the individual agreed to participate, the panel member was invited to comment on the study proposal, with particular emphasis on review of the data collection instrument to obtain face validity.
3. Nominate study participants. Each member of the panel of experts was asked to nominate 3-7 potential study participants.

4. Finalize list of study participant nominees based on meeting criteria for participation in the study.
5. Send a letter or email to each potential study participant describing the research study and inviting him or her to participate.

To learn the relationship of these Earth-centered principles in application to leadership, the researcher utilized the Delphi method in three rounds. The Earth-centered principles were presented to nominated leaders in the form of questionnaires. Three rounds of questionnaires were used referred to as Questionnaire 1, Round Two Response Form, and Summary Results. A cover letter accompanied each questionnaire.

#### *The Three Rounds of Delphi Used in This Study*

*Round One.* In Round One, a packet of materials was sent to all study participants. This packet included a letter describing how the participant was nominated and the nature of anticipated study involvement, the questionnaire, a summary of the project, and a self-addressed, stamped envelope for return.

Questionnaire 1 asked study participants to respond to a series of demographic questions. Information on age, leadership responsibility, gender, and ethnic origin were requested. Responses to the questionnaire were analyzed. Each study participant was assigned a code name to ensure responses remained anonymous. Frequencies of responses were noted. For questions that called for general, open-ended responses, participants' comments were analyzed thematically. Each response was then categorized by inclusion within a group representing a broader theme.

*Round Two.* In Round Two, study participants were sent a letter describing the task in the second round of the Delphi, a response form, and a self-addressed, stamped envelope for return. In the response form, the original questions were restated and a brief summary



of the group responses was provided. The study participants were asked to respond for concurrence. If the statement did not adequately reflect the beliefs and experiences of the study participant, the participant checked "revision suggested" and used the space provided to offer response. Study participants were also asked to rate the identified leadership strategies that emerged from Questionnaire 1.

Responses to questionnaires returned in Round Two were then analyzed. Suggestions for revisions were evaluated. When the suggested revision was seen as improving the clarity of the summary statement, it was adopted as a revised statement. When the suggestion changed the response in a way that was not in accord with the group response, it was noted, but not included.

*Round Three.* In Round Three, study participants were sent a letter describing tasks for this final round, which included response to the Summary Results. If study participants concurred with the findings, no response was necessary. If study participants did not concur with the summary findings, space was provided for notation on the form. A stamped envelope was provided for return. Any comments were noted in the final summary of the project.

#### *Select Interviews*

In addition, the researcher invited one of the master teachers of the "new story"—Thomas Berry—to be interviewed for insights on Earth-centered principles and implications and applications for leadership. Berry, as a scholar, visionary, and independent thinker, has gained the respect and attention of leaders in fields as diverse as education, economics, ecology, philosophy, politics, science, religion, and history. Berry describes himself as "Earth scholar." He has been described as EarthSaint and Meister

Thomas Berry (Fox, 1999).

*Selection of Nominators for Study Participants*

For this study, the dissertation research committee, whose members have expertise in leadership, participated in the nomination process. A nominator panel of experts was selected from scientists and individuals with knowledge and experience with Earth-centered principles. A list of 30 persons was identified who met the expert criteria. A letter was sent to each person, describing the project and inviting him or her to participate (Appendix L). Included in the mailing was a nomination form (Appendix M) asking for the names of 3-7 persons who met the stated criteria for study participants, and a self-addressed, stamped envelope for return.

Of this group of 30, 18 agreed to participate in the study by returning the nomination form and 10 provided feedback on study design and construction of the questionnaire. Two of the 30 preferred to be described with a "special acknowledgement" rather than being listed as a member of a panel of experts. The panel is described in Table 4.

Table 4

*Panel of Experts*

Name of panelist	Qualification
Dr. Thomas Berry	Cultural historian, Passionist Monk, eco-theologian, author
Dr. Sharon Callahan	Associate Professor, School of Theology and Ministry, Seattle University, leadership scholar
Dr. James Conlon	Director, Sophia Center, Holy Names University, Oakland, Ca, author, degrees in chemistry, theology, social science and culture and spirituality

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Dr. Beverly Forbes	Leadership scholar, former associate professor of Educational Leadership, Seattle University, creator of Theory F Transformational Leadership Model
Dr. John Jacob Gardiner	Professor, Educational Leadership, Seattle University
Dr. Hazel Henderson	Futurist, author, syndicated columnist and TV producer, founder of Ethical Marketplace, LLC, consultant on ecologically sustainable human development
Dr. Jean Houston	Scholar, philosopher, and researcher in Human Capacities, a principal founder of the Human Potential Movement, author, creator of a Mystery School and a school for Social Artists.
Barbara Marx Hubbard	Author, futurist, social architect, lecturer, and visionary
Dr. Loretta Jancoski	Professor <i>emerita</i> and former Dean, School of Theology and Ministry, Seattle University, director of the Center for Water and Ethics
Dr. Alexandra Kovats, CSJP	Professor in ecological spirituality at Seattle University, Holy Names University, Wisdom University, spiritual companion, speaker
Dr. Marianne LaBarre	Faculty in spirituality, leadership and spiritual formation, Director for the Pastoral Leadership Program, Seattle University, spiritual director
Dr. Valerie Lesniak	Professor in spirituality, spiritual direction, and spiritual synthesis, Seattle University, spiritual director
Dr. Edgar Mitchell	Retired astronaut, independent writer and lecturer
Native American Elder	Author, university professor
Dr. Parker J. Palmer	Writer, teacher, activist, founder of Courage to Teach, consultant for social change, spirituality, and education
Dr. Sharon Daloz Parks	Associate Director, Whidbey Institute, Clinton, WA, prior faculty at Harvard University, author

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Dr. Elisabet Sahtouris	Evolution biologist, futurist, author, organizational consultant, scholar in Living Systems Design
Professor Charlene Spretnak	Faculty, California Institute of Integral Studies, author, pioneering work in ecological thought and social criticism, women's spirituality, and Green politics movements.
<i>Special acknowledgement to:</i>	
Dr. Margaret Wheatley and Dr. Brian Swimme	
Dr. John Chattin-McNichols	Associate Professor, School of Education, Seattle University, statistical consultant

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Consistent with the Delphi nomination process, nominators could nominate self as a study participant by completing a study questionnaire. Eleven members of the 18-member panel of experts elected to complete study questionnaires. The panel of experts named 57 nominees as potential study participants.

#### *Study Population*

The study included leaders with knowledge in Earth-centered principles, nominated by a panel of experts. The panel of experts was asked to nominate leaders who, in their opinion, had the following characteristics:

1. Experienced leaders, successful in their fields and experienced enough to reflect on Earth-centered principles and relevance and application to leadership and alternative leadership strategies.
2. Diversity in gender, age, ethnicity, and role in leadership.
3. The researcher sought to capture the response of educational leaders, youth leaders, cosmological leaders (including an astronaut), political leaders, Native American leaders, and international/national influential leaders.

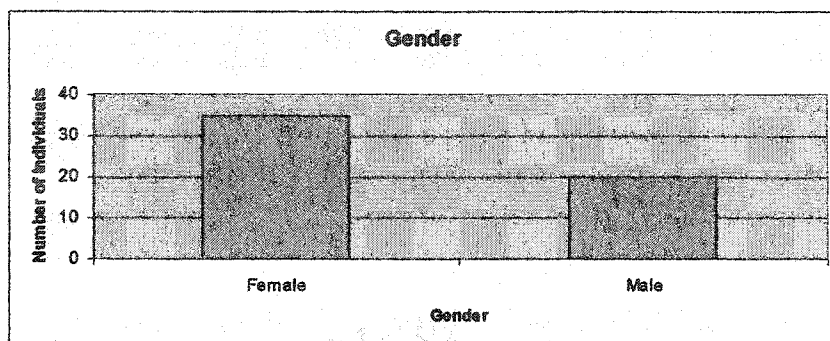
The researcher sought a sample size of 20-30 study participants, as recommended by Delbecq et al. (1975) for a homogeneous group. In addition to the 57 potential study participants nominated by the panel of experts, through the technique of “snowballing,” study participants nominated an additional 41 leaders who they felt met the study criteria. This yielded a total of 98 letters of invitation (Appendix N) sent to these nominees in March and April, 2005, to ensure the desired sample of 20-30 study participants. As of April 30, 2005, the study sample of 61 participants emerged. Of these 61 respondents who agreed to participate in the study, 55 individuals returned Questionnaire 1 for a response rate of 90%. As stated previously, 11 of these 55 study participants were members of the panel of experts, who nominated self in becoming study participants.

The acknowledgements contain a list of those study participants who gave permission to have their names listed as study participants. This list was generated at the request of study participants who requested to have their contribution acknowledged or who requested to know the identity of the study’s community of participants. As the level of involvement of participants in Delphi techniques is more demanding than other survey techniques (Delbecq et al, pp. 84-85), a study sample of 55 respondents agreeing to participate was rewarding to the researcher in the level of interest of the research topic. The use of follow-up postcards and emails were used to encourage return of questionnaires.

*Demographics.* The participants reflected a diverse range in terms of gender and age as illustrated in *Figures 4* and *5*. The researcher desired diversity in ethnicity. Although the percentage of participants of diverse ethnicity reflected equal or higher percentages in reference to the U.S. population, the exact numbers were small. Of particular interest to

this study was the voice of Native Americans. Native Americans represented 7.3% (n=4) of the study sample (N=55) as compared to the U.S. census of 1% of the population. If the total number of study participants of diverse ethnicity were combined (n=10), this represents 18% of the study sample. The ethnic background of the study sample is illustrated in *Figure 6*.

*Figure 4*



*Figure 5*

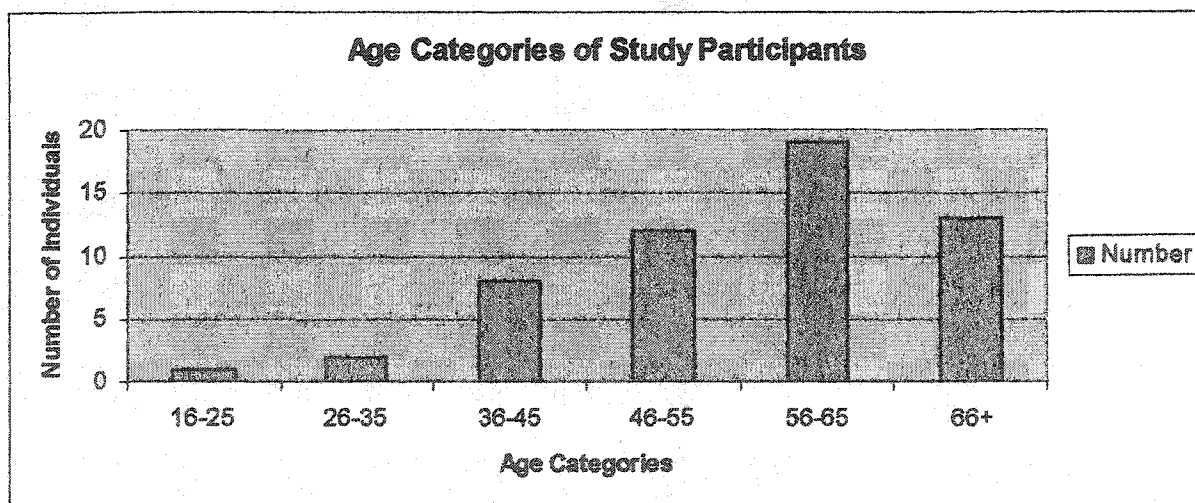
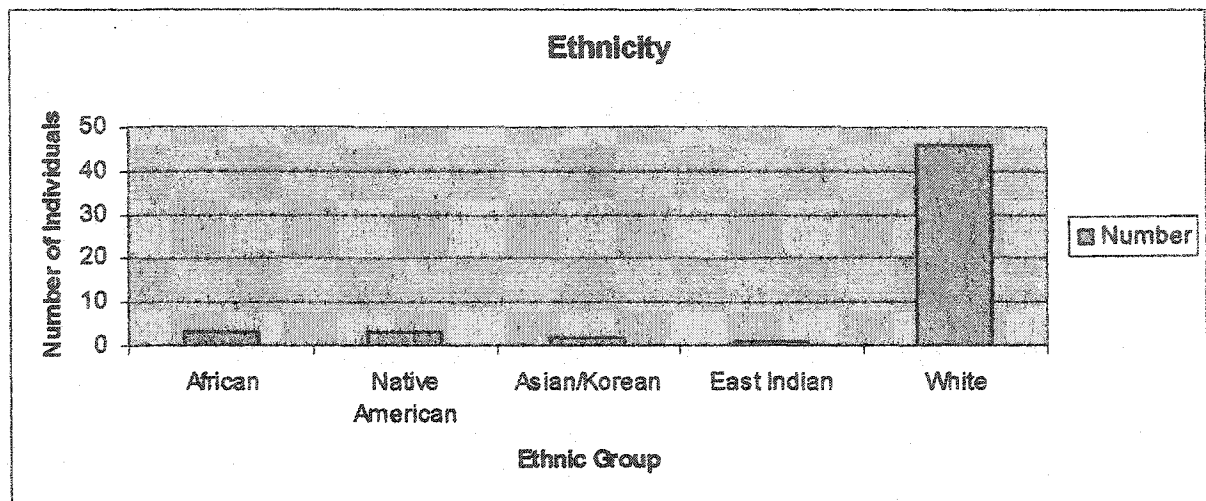


Figure 6



*Geographical Location.* The study sample represented 11 states from the United States. Forty-three study participants were from the West Coast: 35 in Washington, 6 in California, and 2 in Oregon. Two study participants were from South Africa.

*Role or Work.* The study participants provided a variety in job, work, or organizational positions (Appendix O) including healthcare, leadership scholarship, education, spirituality scholars, founders of nonprofit organizations, physicians, attorneys, CEOs and Executive Directors, religious sisters, an astronaut, a mountain climber, Native American elders, and priests/clergy.

#### *Data Collection: Questionnaires*

*Questionnaire 1.* The study participants were asked to respond independently to carefully designed questions based on Earth-centered principles and leadership to answer this research question: How important do leaders feel Earth-centered principles are to leadership? Each leader was asked to rate each Earth-centered principle's importance to his or her work in leadership. Each participant was also asked to provide comments.

Questionnaire 1 (Appendix P) sought insight into how leaders relate to the natural

world—their experience and relationship with the phenomenon of Nature and Earth-centered principles. The study participants were encouraged to share their own stories.

1. What has been your experience with Nature, with Earth-centered principles and leadership?
  - a. At any time in your life, or in your work, have you ever had an experience in Nature, or working with the Earth-centered principles that helped you in understanding leadership?
  - b. How was this experience important to your development as a leader?  
Please describe.
2. Based on your understanding of Earth-centered principles, please describe five leadership strategies that emerge for you?

### *Reliability*

The questionnaire was tested on six volunteer respondents. Each individual was given the questionnaire twice, separated by at least one week and no more than twelve days. Responses were analyzed using the statistical measurement of “percent agreement” and a determination of a standard test for correlation. A minimum test statistic for reliability is a .3 to .5 coefficient (Ary, Jacobs, & Razavieh, 1985, pp. 235-237). The analysis of percent agreement yielded 94% agreement on the questions requesting a quantitative rating and 100% on the general content of the open-ended questions. Although the test statistic for reliability coefficient was .9, the test pilot sample of 6 was small. The percent agreement statistic is a more reliable measurement of reliability with this sample size (Chattin-McNichols, professor, Seattle University, statistics consultant).

*Second Questionnaire.* In Round Two, the 55 study participants who returned



Questionnaire 1 were sent the second questionnaire, entitled Round Two Response Form (Appendix Q). The second questionnaire contained: a) a quantitative summary table of combined ratings of all participants on each of the Earth-centered principles, b) individual ratings, and c) a compilation of comments made by participants to justify ratings. Participants were asked to review the comments, the compiled ratings, their individual ratings, and to indicate for each rating whether they agreed with the previous rating or wished to make a change. As of May 28, 2005, 44 Round Two Response Forms were returned for a response rate of 80%.

Responses to this second questionnaire were then analyzed. Suggestions for revision were evaluated in terms of the entire range of the group's earlier responses. When the suggested revision improved the clarity of the summary statement, the revised statement was adopted as the summary statement. When the suggestion would have changed the response that was not in accord with the group response, the suggestion was noted, but not included. The ratings for the identified Earth-centered leadership strategies were ranked according to frequency, with determination of group means for each strategy.

*Third Questionnaire.* In Round Three, participants were again sent a letter describing their responsibilities for this final round (Appendix R). The third questionnaire included a summary report on final results from the first and second questionnaires. Two options were offered: If the study participant concurred with the summary report, no response was required. If the study participant did not concur with study findings, space was provided for comments to be returned in a self-addressed, stamped envelope.

#### *Data Analysis*

A statistical analysis of results from the questionnaire was conducted using

STATVIEW, which calculated mean and median scores for the ratings of Earth-centered principles. Respondents' comments on the principles, their stories, and their recommended leadership strategies based on identified Earth-centered principles were analyzed, using an emergent, constant comparative method for determining themes, clusters, and a typology for displaying study results.

Delbecq et al (1975) suggested a total time limit of 45-90 days to ensure a high participation from the beginning of a Delphi to the end. Effort was made to structure this research study to conform to that time limit.

### *Research Ethics*

The investigator of this research adhered to the principles of respect, beneficence, and justice in study design and treatment of study participants. Full considerations in study design was given to full disclosure, respect for privacy, fair treatment, risk-benefit ratio, and informed consent.

The confidentiality of information received from interviews and questionnaires was protected. Any request by a study participant to withdraw from the study was honored promptly. One study participant did request withdrawal from the study upon receiving the questionnaire. This individual stated that the concepts of Earth-centered principles are not words used to describe this individual's work. This request for withdrawal was respectfully and immediately honored.

### *Summary*

This chapter described the qualitative research context, design, and overall methodology of this study. Data analysis and study results are the subject of Chapter 4. Study findings and recommendations will be stated in Chapter 5.

## CHAPTER 4

### Results

This chapter presents the findings from the Delphi as obtained from the questionnaires administered March, 2005 through May, 2005. Since the previous chapter documented the process of Delphi and reported the demographic profile of the study participants, this chapter only considers the data obtained through the questionnaires.

Each round of the Delphi will be analyzed in turn with specific consideration of each question on the questionnaires. The series of questionnaires surfaced both quantitative and qualitative data. The quantitative data resulted from inclusion of a Likert type scale which allowed respondents to rate the importance of information asked in respective questions. For each question, data will be given initially in its quantifiable form. A statistical package in the program STATVIEW was used to compute all statistical data. Specific excerpts from the questionnaires that add depth to the analysis will be given where appropriate. Taken as a whole, this chapter provides the foundation for the discussion, summary of findings, and conclusion that follows in Chapter 5.

#### *Round One*

Round One received the most detailed responses from the respondents and provided the starting point for the Delphi process. Following is an analysis of the data according to each question on Questionnaire 1 (Appendix P).

**Question 1: How important do you believe Earth-centered principles are to leadership?**

The responses are described in Table 5.

Table 5

*Earth-centered Principles and Importance to Leadership*

N=55

	3 Essential	2 Important	1 Somewhat Important	0 Not at all Important	Group Mean	
	Number of Responses				Mean	SD
	% of Participants					
Rating of Importance of Earth-centered principles to leadership	36 65%	16 30%			2.7	.47

As indicated, 95% of respondents rated Earth-centered principles as “essential” or “important” to leadership, with a mean rating for the group of 2.7. Three study participants did not rate this question in the first round of the Delphi.

One respondent from the panel of experts wrote:

Leadership has a lot to do with influencing others about change. Differentiation in a leader is the ability to see others as different from yourself, to respect that difference, and to promote the well-being and thriving of that other person. It is only because we are different that we exist at all. Recognizing and honoring our own difference is foundational to recognizing and honoring the difference of others.

Interiority, subjectivity, autopoiesis—this is the core out of which we come. If we have little self-knowledge, work to win approval of others rather than to create conditions for others to thrive, and lack authenticity, we will fail as a leader.

Communion is the beginning of existence. Subjects always move toward communion—by nature we seek, need, must have communion. But as soon as communion occurs, something new is created. A leader without communion can only dictate or promulgate, not lead. Communion is the test of difference and interiority—unless these lead to communion they are suspect.

A Native American respondent commented:

A lot depends on one's background, family. The importance of Earth-centered principles depends on the person but given the way I was raised, it is very important, essential. But I understand that not everyone thinks this way.

From a Catholic sister, who is founding a monastery based on Earth-centered principles:

I think the principles are essential because they are "foundational wisdom" and "forces of guidance" that have been operational for 13.7 billion years. The principles are tried and true; they support life and ongoing evolution. As leadership takes on "planetary dimensions" these principles will be essential as differentiated subjectivities come together in communion to make decisions that affect the whole and the future.

An 85 year old study participant commented, "If we are moving toward transformative leadership, I believe these principles are essential. Leaders must honor interiority, protect diversity, and foster communion." A complete list of study participant comments is included in Appendix S.

The respondents clearly indicated that Earth-centered principles are important to leadership.

**Question 2: At any time in your life, or in your work, have you ever had an experience in Nature, or working with Earth-centered principles that helped you in understanding leadership or have helped you in your effectiveness as a leader?**

**Please share a story of this experience.**

Question two elicited a broad range of responses and stories shared. Fifty-one of fifty-five responses said "yes" and described stories of this experience. Twenty-seven

responses described experiences in Nature, twenty-two responses described experiences at work, and two responses described “dream/light” experiences. In examining the stories, Table 6 provides a summary of themes and frequency of reporting.

Table 6

*Themes from Stories of Experiencing Earth-centered Principles in Nature or at Work*  
N=55

Identified Theme	Number of Responses*
“Felt sense” of inner peace and understanding	29
Transformation in life or in life’s work	23
Deep feeling of interconnectedness and interrelatedness, described as “we are one”	22

\* Study participants often described more than one theme in his/her story and experience

Of those reporting a life transformation as a result of experiencing Earth-centered principles in Nature, eight chose to become teachers of these principles. Respondents shared stories of camping adventures in a hurricane, working on a farm, the peace experienced at 50 feet under the water in scuba diving, trimming sails to adjust to the winds, and meditating for discernment on the swamp and the flow of the river in tackling life’s challenges.

Two youth leaders from Africa shared these stories on experiences with communion in Nature in helping to understand work dynamics:

I was raised in a way where being in nature was a continual touching in. In an ongoing process, being in nature and working with the elements (weather, fire, soil) helps me to experience my own goodness and wholeness and connectedness. Being in nature is as often chaotic and challenging as is peaceful and enchanting. My experience of putting up a

tent in the rain or being hungry trying to build a fire with wet wood have also taught me to hold my center in the midst of chaos. These are all invaluable lessons for organizational life. I remember in my first job in a fast paced environmental consulting firm. I would stand in the hallway on my way to an intense team meeting and imagine myself back at a Buddhist-inspired summer camp I used to attend and then lead (<http://www.shambhala.org/suncamp/>). I would connect with the vastness of the imagined sky and my own inherent resourcefulness that I knew I had when I was there. It always brought me to a space which added something indescribable but incredibly helpful to the working dynamics.

I always tell people that one of the most amazing experience for me, is being on safari. When you are out in the wild, with only an open truck to keep you feeling 'safe,' in those moments when you know that you are exposed to giant elephants or poisonous snakes, I always feel most 'alive' and most honest. There is no trickery. The most important part of the experience is respect. Respect for nature and all things living in that moment. You understand human limitations and vulnerability and I think this brings out an honesty in us. I reflect a lot in my journey of leadership in thinking about what about that experience applies in everyday life. That feeling of being most alive, most respectful and most aware of vulnerabilities I find, pushes/enables me to be myself and be honest with those around me.

Another study participant described communion with "unity in diversity"—the transformation into forming community by experiencing the allurements of the beauty of the Hidden Falls of Mother Earth:

Many times. For example, climbing from the base of the Grand Teton to Hidden Falls. During the climb, each family or couple seemed to be an independent entity. When the group reached Hidden Falls, as each couple began to be affected, not only by the beauty and power, but by a sense of being drawn into it and then drawn as it were into one another. It happened in an instant. People were no longer strangers. They were talking cheerfully, in a friendly way, asking if others would like them to take photos for them, etc. Mother Nature had gathered her children. Touched by her love and inspiration they were ready. I believe to join together for the good of the Earth and the human family.

There was no exploitation. There were no adversaries. Everyone was gentle, cooperative, relational, interdependent. The Earth seemed to be saying to all of us, "I have befriended you. Now, befriend me and one another. We are one." No one was excluded. For that moment we experienced the *Basileia*, the community. Everyone belonged.

A teacher described using Nature's principles to help students understand a success approach to life:

I used to teach environmental science and was fond of relating environmental principles to life. My favorite truth is about lichens. Lichen is a very hardy life form, so much so that it is a pioneer species (often one of the first forms of life in a biome) and can live at the extremes of heat, cold, shade, etc. The secret of lichen's "success" is that it is a community not an individual species. The lichen is made up of an algae that provides food through photosynthesis and a fungus that provides roots.

The shortest story came from a member of the panel of experts, who simply said, "Yes, a transcendent epiphany in space flight that raised these very questions."

For a walk through all the stories, Appendix T contains a transcription of each story shared by the respondents. According to the study participants, Earth-centered principles, as experienced in Nature or in the workplace, help in understanding leadership and leadership effectiveness.

**Question 3: Please consider Earth-centered principles in relationship to leadership. Then identify five leadership strategies or practices needed for Earth-centered leadership.**

From the 55 study participants, 240 strategies or practices emerged. In consultation with 2 members of the panel of experts and 2 test pilots, these strategies and practices were grouped according to common elements and themes, creating a list of 47 distinct leadership practices or strategies, as listed in Appendix U. The exact wording from the study participants was used for these strategies. These strategies were then presented to the study participants in Round Two of the Delphi process for concurrence,



completeness, and rating of importance. The analysis of the leadership strategies will occur in the next section in discussing results from Round Two of the Delphi.

**Question 4: How do you see the potential application of Earth-centered principles into organizations?**

As described in Table 7, 91% of respondents see the application of Earth-centered principles into organizations as “often” or “always” necessary. The study participants’ comments are listed in Appendix V. In the words of one respondent, “The key word is *potential*. For an ‘ecozoic’ model of human organization, these principles will be critical. Conscious organizations are already working towards that.”

Another respondent noted the difference between “espoused” beliefs versus “principles in action” (Argyris, 1993) in noting that: “Diversity in regards to all creation gets a lot of lip service within organizations—quite the buzz words, but I notice great difficulty in communicating this to non-believers. These principles are always necessary but not always understood or appreciated.”

A Catholic sister recognized the importance of leadership in paving an alternative path in organizations. In her words, “Organizations are often not functioning within the context of these principles. A good leader, who is functioning would be adept at seeing when and how these principles can be applied so as to move the organization in the direction of an Earth-conscious context.” In this regard, a leader embracing Earth-centered principles can function as a “butterfly” in context of chaos theory (Gleick, 1988). Briggs and Peat (1999) provide seven such life lessons in the context of chaos theory.

Table 7

*Earth-centered Principles and Application into Organizations*

N=55

	5 always necessary	4 often necessary	3 occasionally necessary	2 seldom necessary	1 not necessary	Group Mean	
	Number of Responses					Mean	SD
	% of Participants						
Application of Earth-centered principles	29 53%	21 38%	1 2%			4.6	.50

**Question 5: What is your definition or description of leadership?**

With 55 study participants, 55 descriptions of leadership emerged. This illustrates the importance of understanding that leadership is contextual. The respondents described leadership in many different contexts, reflecting the unique identity of each respondent. The descriptions of leadership are detailed in Appendix W. Common themes emerged in these descriptions, illustrating the concept of unity in diversity. These themes are described in Table 8.

Table 8

*Leadership is...*

N=55

Description	Number of Responses
Influencing/inspiring/facilitating, with <i>genuine presence</i> and modeling, the emergence of the <i>authentic self</i> , in self and in others— <i>subjectivity/identity</i>	31
Understanding and valuing the <i>interconnectedness</i> of the “ <i>whole</i> ” in goal achievement for the individual and the organization— <i>communion, holon/holarchy</i>	30

Holding a vision and evoking dreams with a future-focus while understanding the present reality—including knowledge of current conditions and future trends on Planet Earth	19
Embodiment/modeling of “values into action” with trust, honor, love, and integrity	18
Transformational as a catalyst for creating change <i>with</i> others—action	17
Respecting diversity by honoring all voices with an open, listening, and reflective heart— <i>differentiation</i>	13
Serving others in helping to achieve recognized needs— <i>servant leadership</i>	13
Creating a safe “container”/space for community and emergence of self	12
Being alive with passion, reverence, and appreciation for beauty— <i>with celebration</i>	7
The art of evoking creativity—a creative process	6
Contextual, with Earth recognized as a primary context in decision-making	6

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Other responses included: embracing risk & fostering experimentation (4); courageous in “standing unshaken for beliefs” (4); humble—a learning process (4); hiring the right people (4). Other responses include: effective communicating via stories (2); building hope (2); honoring humor (2); spiritual (2); compassionate with understanding of grief and loss (2).

In examining the many different descriptions of leadership, the Earth-centered principles of differentiation (diversity), subjectivity (identity), and communion (interconnectedness) were primary themes. Evoking of the authentic self (subjectivity) emerged as the most frequent theme in the leadership descriptions from this group of respondents.

**Question 6: Please describe the characteristics of a leader who embodies Earth-centered leadership. In other words, please describe a leader who embodies life-affirming or life-enhancing leadership.**

The characteristics and values that emerged from the 55 study participants were very consistent with the values of Nature and values of ecological spirituality as described by the research of Hays (1997) and Kovats (1997). Table 9 lists the values of an Earth-centered leader as described by this sample of respondents.

Table 9

*An Earth-centered Leader Values...*

N=55

<b>Earth-centered Leader Values</b>	<b>Number of Respondents</b>
Community/Interrelatedness	41
Respect/Diversity	32
Evokes authentic self/subjectivity	28
Humility	27
Mutually-enhancing human-Earth Relations	24
Authenticity	24
Attentive openness/listening	24
Intellectual openness/Knowledge	22
Love/Care	20
Courage/Strong/Embraces risk	19
Self-awareness	17
Ethical/Moral/Values/Truth/Reconciliation	16
Vision	16
Flexibility	15
Change catalyst/Evolutionary agent	14
Creativity and imagination	12
Spirituality/Sense of sacred	11
Teacher/learner	11
Reverence and gratitude/Celebration	11
Compassion	11
Responsibility	10
Trust/Trustworthiness	10
Self-reflection	9
Seeks wisdom/discernment	9
Sense of humor	9
Wonder and amazement/Values beauty	8
Collaborative	8

Genuine presence/Mindfulness/ In the "Now"	8
Able to let go/Surrender	5

These values are pictured graphically in Appendix X. Again the principles of differentiation, subjectivity, and communion emerged as primary values of an Earth-centered leader. Some respondents chose to list a leader he or she believed embodies Earth-centered leadership. The individuals described include Pope John Paul II, Gandhi, Wangari Maathai, Nelson Mandela, Mother Teresa, Martin Luther King, Jr., and Ann Linnea (co-founder of PeerSpirit on Whidbey Island).

**Question 7: How important do you believe the following Earth-centered principles are to leadership?**

In this question, the researcher intended to capture the importance of the specific Earth-centered principles of particular interest to the focus of this research study. Table 10 describes the ratings of the respondents, number of responses, and group mean for each principle.

Table 10

*First Questionnaire: Ratings and Ranking of Earth-centered Principles*

Principles in Rank Order	N=55				Group Mean Scores in Rank Order	
	3 Essential	2 Important	1 Somewhat Important	0 Not at all Important	Mean	SD
	Number of Responses % of Participants					
Communion (Interconnectedness)	51 93%	2 4%			3.0	.19
Differentiation	43	9	2		2.8	.50

(Diversity)	78%	16%	3%			
Subjectivity (Identity)	36 65%	12 22%	2 3%		2.7	.55
Holon/Holarchy	31 56%	15 27%	5 9%		2.5	.67
Understanding the story of Earth's evolution	21 38%	20 36%	11 20%	1 2%	2.2	.80

Communion received the highest rating, with 97% of respondents believing communion to be “essential” (93%) or “important” to leadership. Ninety-four percent of respondents rated differentiation as “essential” or “important” with subjectivity receiving a combined rating of 87%.

Of particular interest to the research was how study participants would respond to the concepts of *holon/holarchy* and understanding of the story of Earth's *evolution*. The terms *holon/holarchy* come from the field of biology, and in essence describe in alternative words the principles of differentiation, subjectivity, and communion. One member of the panel of experts expressed a concern with the term *evolution*. With the diversity of the study sample, how would they respond to “an understanding of *evolution*”? Of particular interest then was the finding that 83% of respondents believed the concepts of *holon/holarchy* to be “essential” or “important” to leadership with an “understanding of the story of Earth's evolution” receiving a combined rating of 74%. The detailed comments from each of the study participants is listed in Appendix Y.

#### *Statistical Analysis*

Although conducting a statistical analysis on the data findings was not a primary focus of this research or the research question, the study sample did represent diversity in gender, age, and ethnicity. The researcher conducted a quantitative analysis of the data using STATVIEW to explore if statistically significant differences occurred in mean

responses from the respective subgroups. In comparing the means of two subgroups (gender and ethnicity), the researcher conducted an unpaired t-test comparison. In comparing means of more than two subgroups, the researcher conducted a comparison of means using ANOVA as the statistical test.

All statistical tests were based on the null hypothesis, assuming no difference between the samples. Each test produced a corresponding  $p$ -value, which was used to determine the statistical significance of difference between means. If the  $p$ -value  $< .05$ , it meant that it is unlikely that such a difference would occur by chance. The detailed data and graphic analysis are included in tables in Appendix Z. A brief summary of statistical findings follows.

*Gender.* The means of the two groups of females and males were almost identical for the mean ratings of Earth-centered principles and importance to leadership, application into organizations; importance of communion, subjectivity, and holon/holarchy. The males' mean of 2.4 for importance of Earth's story was higher than that of the females' mean of 2.0. This was not statistically significant. The female mean of 2.9 was higher than that of the male's mean of 2.6 for the importance of differentiation. This was statistically significant at a  $p$ -value  $< .05$ . The mean of 2.6 for males still indicates a rating of differentiation to leadership as "important".

*Code.* As ten members of the panel of experts participated in the study by completing questionnaires, this allowed a comparison of mean responses of the panel of experts with the study participants. A subgroup of ten does allow for appropriate conducting of inferential statistical analyses (Chattin-McNichols, statistical consultation). The mean responses of the panel of experts and the study participants were essentially identical for

Earth-centered principles and importance to leadership, application into organizations, importance of communion, and subjectivity. The panel of experts' mean value of 3.0 is higher than the study participants' mean of 2.4 for the importance of holon/holarchy. This difference is statistically significantly at a  $p$ -value  $< .05$ . It must be noted, however, that this statistically significant difference is primarily a result of the ceiling effect in that 100% of the panel of experts gave the importance of holon/holarchy a rating of 3.0, the top rating of "essential." The panel of expert's mean value of 2.7 was higher than the study participants' mean value of 2.0 for the importance of understanding of the evolution of Earth's story. This difference is statistically significant at a  $p$ -value of  $< .05$ . Some of the study participants commented that they feel the story is important and perhaps "essential" for them, and yet leaders could be effective in embracing Earth-centered principles without a detailed understanding of Earth's story of evolution.

*Ethnicity.* Ideally, the researcher hoped to have a greater number of study participants of ethnic diversity. Of particular interest to this study is the voice of Native Americans. The researcher was pleased that four Native Americans agreed to participate in the study, representing 7% of the study population, as the U.S. census indicates Native Americans represent only 1% of the U.S. population. However, in order to conduct meaningful inferential statistical analyses, a minimum sample of ten is required. In order to achieve this, the study sample was separated into nonwhite and white to conduct the statistical analyses. The nonwhite mean values were essentially the same to the mean values of whites for Earth-centered principles and importance to leadership, application into organizations, importance of communion, holon/holarchy, and understanding of Earth's story. The nonwhite mean of 2.4 was less than the white mean of 2.7 for the importance



of subjectivity (identity). This was not statistically significant. The nonwhite mean value of 2.4 was less than the white mean value of 2.8 for the importance of differentiation. This was statistically significant at a  $p$ -value  $< .05$ . This difference was primarily the result of a rating of 1.0 (somewhat important) by a Native American elder. He commented that the concept of differentiation (diversity) is so much misunderstood. He asked, "What is truly diverse?" Of note, in Round Two, when study participants were given the opportunity to review the group response and to concur or make revisions in their individual rating, this rating moved from 1.0 to 3.0 and the mean differences were no longer statistically significant.

*Age.* In conducting an ANOVA analysis of age and ratings of Earth-centered principles, the study participants were separated into the age categories of: 16-45, 46-55, 56-65, and 66+. A statistically significant difference in means ( $p$ -value  $< .05$ ) was found in the mean ratings of Earth-centered principles and importance to leadership, application into organizations, and importance of understanding Earth's story. In general, the mean ratings of the age group of 16-45 were lower than that of the older age groups. This can be best observed by examining the tables and graphic presentation of the ANOVA analyses listed in Appendix AA.

This concludes the statistical analysis of the data in Round One of the Delphi process. A graphical presentation of ANOVA bar plot of means is illustrated with histograms also in Appendix AA.

Round One of the Delphi process clearly evoked a rich variety of responses and much consensus from the study population in importance of Earth-centered principles to leadership. The sharing of stories, the length of the responses, and the thoughtful

reflections truly exceeded the expectations of what these very busy people would be willing to do. Round One revealed that this research topic is quite important to this group of study participants. This created a sense of momentum and even community for Round Two. The data that emerged in Round One was used to create the Round Two Response Form (Appendix Q) to present to the respondents for concurrence and ratings of importance on the leadership strategies that were identified.

### *Round Two*

The data from Round One was used to create the Round Two Response Form. The questions were reorganized for ease of completion. The Round Two Response Form was mailed to 55 study participants. As of May 28, 2005, 44 Round Two Response Forms have been returned for a response rate of 80%. A response from the questionnaire in Round One, which did not arrive in time for analysis in Round One, was included in Round Two. One study participant from Round One was not able to participate in Round Two because as a mountain climber, he literally had a mountain to climb.

In the first section of the response form, study participants were asked to review the group response, given their individual response, and asked if they agree with the previous rating or wish to revise to a different rating.

For the open-ended questions, the study respondents were provided with a summary of group results. The researcher prepared a summary statement based on the group response, and asked the study participants to concur or to suggest revisions to the summary statement. This is similar to the Delphi procedure as utilized by Jacobsen (1995). For the Earth-centered leadership strategies and practices that the study participants identified,

each respondent was asked to provide a rating based on a Likert rating scale. This section discusses the results of Round Two of the Delhi.

**Question 1: How important do you believe Earth-centered Principles are to leadership?**

Six respondents increased their previous ratings. No respondent lowered the previous ratings. Results are listed in Table 11.

Table 11

*Round Two: Earth-centered Principles and Importance to Leadership*

N=55						
	3 Essential	2 Important	1 Somewhat Important	0 Not at all Important	Group Mean	
	Number of Responses					
	% of Participants				Mean	SD
Rating of Importance of Earth-centered principles to leadership	42 76%	11 20%			2.7	.42
<i>From Round 1</i>	36 65%	16 30%			2.7	.47

As noted, in Round Two, 76% of respondents rated Earth-centered principles as “essential” as compared to 65% in Round One.

**Question 2: How do you see the potential application of Earth-centered principles into organizations?**

Two respondents increased their ratings. No respondents lowered ratings. Results are displayed in Table 12.

Table 12

*Round Two: Earth-centered Principles and Application into Organizations*

N=55

	5 always necessary	4 often necessary	3 occasionally necessary	2 seldom necessary	1 not necessary	Group Mean	
	Number of Responses					Mean	SD
	% of Participants						
Application of Earth-centered principles	31 56%	20 36%				4.6	.50
<i>From Round 1</i>	29 53%	21 38%				4.6	.49

As noted in Round Two, 56% of respondents see Earth-centered principles as “always necessary” within organizations, as compared to 53% in Round One.

**Question 3: How important do you believe the following Earth-centered principles are to leadership?**

Seventeen respondents increased ratings on select principles. No respondent lowered a rating. Results are described in Table 13.

Table 13

*Round Two: Questionnaire: Ratings and Ranking of Principles*

N=55

Principles in Rank Order	3 Essential	2 Important	1 Somewhat Important	0 Not at all Important	Group Mean Scores in Rank Order	
	Number of Responses % of Participants				Mean	SD
Communion ((Interconnectedness))	52 95%	2 4%				

<i>From Round 1</i>	51 93%	2 4%			3.0	.19
Differentiation (Diversity)	46 84%	8 14%	1		2.8	.44
<i>From Round 1</i>	43 78%	9 16%	2 3%		2.8	.50
Subjectivity (Identity)	37 67%	15 27%	1		2.7	.51
<i>From Round 1</i>	36 65%	12 22%	2 3%		2.7	.55
Holon/Holarchy	36 65%	13 24%	4 7%		2.6	.63
<i>From Round 1</i>	31 56%	15 27%	5 9%		2.5	.67
Understanding the story of Earth's evolution	24 44%	23 42%	7 13%		2.3	.76
<i>From Round 1</i>	21 38%	20 36%	11 20%	1 2%	2.2	.80

In observing the increases in ratings, the mean rating remained the same for communion, differentiation, and subjectivity. The most striking increases were the number of increases to a rating of 3 “essential” for holon/holarchy and an understanding of the story of Earth’s evolution. Both these resulted in an increase of the mean of 0.1. The other interesting observation is that the standard deviation for each mean rating of each principle decreased. This raises the question of the study participants coming closer together with “unity in diversity” as information and stories are shared.

**Question 4: At any time in your life, or in your work, have you ever had an experience in Nature, or working with Earth-centered principles that helped you in understanding leadership or have helped in your effectiveness as a leader?**

Based upon the group response from Round One, the study participants were asked to respond to this summary statement for Question 4:

***Earth-centered principles, as experienced in Nature or in the workplace, help in understanding leadership and leadership effectiveness.***

Eighty-eight percent of the respondents concurred with this statement as is. Four suggested revisions. These revisions are listed in Appendix BB. Two of the respondents suggested a stronger term than “understanding.”—*informing, transformative*. As the consensus of the group concurred with the statement as is, the statement was not revised. The comments are noted.

One study participant shared an additional story:

The week before my son died (six months ago), we had the most important discussion in his 28 years—about Earth-centered principles and connecting with the source of life (Mother Goddess?) by being one with all creation (rather than through institutions that choose not to evolve).

#### **Question 5: What is your definition or description of leadership?**

Based on the group response from Round One, the study participants were asked to respond to these summary statements:

*Earth-centered leadership honors differentiation (diversity), evokes subjectivity (the authentic self/identity), and enhances communion (interconnectedness).*

*By honoring differentiation, evoking subjectivity, and enhancing communion, Earth-centered leadership fosters creative evolution of the individual and the whole, including Earth (cosmogenesis).*

Of the 32 respondents, 94% concurred with statement one and 91% concurred with statement two as is. Two study participants suggested revisions to statement one, and three participants suggested revisions to statement two. Comments and suggestions for revisions are described in Appendix BB. With the percentage of concurrence to both statements, the statements were not revised. Comments were noted.

**Question 6: An Earth-centered leader values or embodies:**

The values are illustrated in Appendix X and listed in Table 9. Of the 32 respondents, 100% concurred with all values. Many commented that all these values are essential. One study participant noted that these values should be embodied by all leaders, not just Earth-centered leaders. Five study participants made suggestions for possibly combining 1-2 of the values. Two of the Native Americans asserted the importance of love as essential. As stated by one of the Native American elders in this study, "Love and care is a number 1 essential because if we cannot display love to our selves and other beings in our Universe, how can we relate and share all other based ideas to our communities?"

**Question 7: Please indicate your opinion by circling the number that best describes your answer to this question: "I believe this strategy/practice/behavior is always necessary, often necessary, occasionally necessary, or not necessary."**

The ratings of the specific Earth-centered strategies are listed in order of mean rating in Table 14. As noted previously, these leadership strategies are in the original and exact words of selected study participant responses that captured the essence of the summary themes.

Table 14

*Mean Rating of Earth-centered Leadership Strategies*

N=31					
The rating scale is:	always necessary 4	often necessary 3	occasionally necessary 2	not necessary 1	
Strategy/Practice/Behavior and Earth-centered leadership					Mean Rating
Fosters diversity by welcoming differences, moving away from homogenization in all forms, especially "Group Think." Invites the gift of					3.94

diversity to have an honored voice in every setting—listening to people coming from different perspectives and experiences	
Listening with an open heart—deep listening to self and to the other.	3.87
Pays attention to the process, not just the outcome of a decision and/or interaction.	3.84
Serving life; How are my actions, practices, and decisions serving life and allowing it to flourish? How do my practices support me as a leader and support others in being their best?	3.82
Engaging in dialogue, rather than argument or debate	3.81
Fosters an open flow of information throughout the organization.	3.81
Dedication to seeing reality—holding high ideals and seeing the complexities and ambiguities in self, others, and all situations.	3.80
Trusting in the gifts of each person.	3.77
Educating toward the use of discernment and self-referencing and self-awareness.	3.77
Ecological Justice:	
- Toward Earth, toward all the peoples of Earth, and toward all creation with respect.	
- Creating policies that are Earth-friendly and “green.”	
A closed-loop supply chain (cradle to cradle) is identified and managed with emphasis on reducing, re-using, and recycling all resources extracted from Earth.	3.77
Encourages and supports change being attentive to that which is trying to EMERGE rather than fostering and maintaining “the same.”	3.74
Leading from the long-term view (7 <sup>th</sup> generation) rather than short-term perspectives. Encouraging solutions to micro problems in terms of macro realities. How do our actions affect the people and the planet in the coming generations? How do we bring these voices in to inform our work?	3.71
Has a personal practice (spiritual or similar) that constantly renews the self in a grateful humility and fosters self-awareness.	3.68
Recognizing the potential seeds, good, & growth in chaos and ambiguity—able to navigate in the dark. Ability to hold paradox, balance dualities, & to dwell in ultimate mystery and unknowing while still acting.	3.66
“Enlightened communication” that encourages conversations to take place in the group from a place where each is challenged to speak from the authentic self as opposed to the EGO self.	3.65
Viewing organization and groups as “systems” and thus gaining perspective with systems thinking. Watching organizational life through the lens of living systems. How do we connect and energize fields and elements of the system to gather the wisdom?	3.63
Creating the safe space or “container” for growth and learning—fostering and nurturing the self and the culture—a sense of the workplace as sacred space for the honoring of integrity of all aspects of life and impact on body, mind, & spirit.	3.61
Appreciating the “life cycle” of ideas and initiatives—every project goes through a natural evolution—respects natural rhythms and cycles.	3.61
Learning organization: Self-organization is always happening and focusing on learning helps the system grow and adapt. What connections and learning is needed at this time? How to foster learning communities that unleash the collective intelligence and creativity of the group/organization?	3.61
In decision-making, the community needs to be the “total community of life” – not just humans	3.58
Dependable and strong to be true to what is needed in the face of others who	3.57



disagree after taking in all voices—supports mindfulness	
Grounding—spending time in Nature and growing in the understanding that we are Nature—developing an ecological imagination.	3.55
Integrated in feminine & masculine aspects of self.	3.55
Embraces the integrated person in body, mind, and spirit, including in the workplace.	3.53
Shared Leadership: - Structural circles rather than hierarchy within organizations. - Shared governance and self-directed teams.	3.52
Trusting people in their ability to seek their own health and healing—self-responsibility.	3.48
Cultivating a sense of kinship in leadership styles, especially with people different from ourselves. A new paradigm to govern in a corporate culture where there is mutuality of leadership for a better world.	3.48
A revolution in the thinking of humankind in the broad-based education, internalization, modeling, incorporation, and commitment of Earth-centered principles into practice with appropriate monitoring and feedback. Providing time and budget for conscious adoption of work practices which reflect Earth-centered principles.	3.47
Practice of play or having a hobby that releases personal creativity so that one sees with fresh eyes.	3.45
Ongoing commitment to create a coherent sense of identify for the organization.	3.43
Understanding that life relentlessly emerges following death. A commitment to change as adaptive to life—willingness to enter into the “disequilibrium” to choose life.	3.42
Practice of changing our sense of time—whether that be through meditation practice or taking public transport rather than driving—releasing the self from time-driven efficiency. Values the “slow movement” allowing a sense of organic flow in life rather than the constant frenzy.	3.42
Understanding, teaching, and applying the laws/principles of Nature.	3.39
Always consider a triple bottom line—all decisions must be assessed from perspective of people, planet, and profit ( <i>sustainability</i> ).	3.29
Aligned to the unfolding dynamics of our Universe—studies and understands the ongoing story of our Universe and grappling with contemporary local/global challenges threatening life of our planet.	3.27
Utilization of science knowledge and deep transcendental insights.	3.20
Ask the question often: “What does it mean to be human in this 21 <sup>st</sup> century?”	3.06
Use of metaphor and storytelling—are energized and nourished by story and shared dream experience.	3.03
<i>3.0 ~ there were no strategies with a mean rating below 3</i>	

A listing of these strategies is included in Appendix CC according to those rated as always necessary or often necessary. No strategy received a rating of less than 3, the rating for often necessary.

A significant result is the rating of 3.94 of a possible rating of 4.00 for honoring the voice of the authentic self (subjectivity) followed by “listening with an open heart” (3.87). The strategies and practices that emerged from this community of study participants are especially insightful in light of today’s leadership. Are these the strategies and practices we are witnessing?

This concludes the summary of Round Two of the Delphi. Again the response and responses from the study participants exceeded expectations.

### *Round Three*

Participants in the study were instructed to reply to Round Three only if they dissented from the summary results, as shared from Round Two. In the letter of introduction to Round Two, the study participants were informed that the Round Three “questionnaire” would be a summary of results and findings, as the response from Round One exceeded expectations on consensus in response to each question. The number of suggested revisions to summary statements in Round Two were minor and few. Therefore, the data results of Round Two form the basis of the study findings.

This concludes the analysis of data acquired in this Delphi study. Attention now turns to the discussion, findings, conclusions, and recommendations, which arise out of this data.

## CHAPTER 5

## Discussion, Conclusions, and Recommendations

*Introduction*

As Earth's story and our Universe story continue to unfold and evolve, so does our leadership story. In the beginning, the leadership story began in describing leaders as possessing certain traits. With new learning and understanding, effective leadership was described as situational, behavioral, and with many other leadership theories.

What is effective leadership for the Ecozoic Era? This is the question posed to me by Thomas Berry, a member of this research study's panel of experts. The term "Ecozoic" was coined by Berry and Swimme (1992). Ecozoic is derived from "eco," from the Greek root *oikos*, meaning "house, home," and "zoic" from Greek *zōion* "living being," ultimately from an Indo-European base meaning "to live" (Encarta World English Dictionary, 1999). Our home is Earth. Reframing Berry's question, "What is effective leadership for our *home to live*?"

Who is Earth as leader? How do we describe Earth-centered leadership? These questions framed the purpose of this dissertation research. As described in the review of the literature in Chapter 2 and as discovered through the voices of the study participants in Chapter 4, Earth-centered leadership is principle-centered. As described by one of the study participants, these principles are "foundational wisdom" and "forces of guidance" that have been operational for 13.7 billion years.

The principles are tried and true. They support life and ongoing evolution. As leadership takes on its "planetary dimension," these principles will be essential as differentiated subjectivities come together in communion to make decisions that affect the whole and the future.

As revealed from the voices of the study participants, an Earth-centered leader creates a “container” in the community—the ecosystem—for life and creativity to emerge, often out of chaos, by fostering the emergence of the authentic self.

Our indigenous ancestors understood intuitively Earth-centered leadership. They embraced shared, community-based leadership—leadership within a spiritual, sacred context. The grandmothers often selected the leaders for the tribe, based on the leader’s strengths in particular roles. If the leader failed to serve the community, the leader was removed. Women and men shared equally in leadership, based on respective strengths. Leadership was contextual with Earth as primary context; human secondary. Keen attention in decision-making always considered impact on seven-generations into the future.

In the classical civilizations, hierarchy emerged. Leadership still embraced a spiritual dimension, with the leader often the spiritual leader for the people. The sacredness of Nature and the Universe was appreciated, especially as revealed in the leadership of the Chinese dynasties.

A separation with the sacred Nature of Earth began, at least in the West, in the 15<sup>th</sup> century. Berry asserts this separation began as a result of the Black Death in Europe. As described by many, this separation—this disconnect of humans with Earth—widened during the Scientific and Industrial Revolutions. This radical disconnect of the human with Nature has contributed significantly to our present-day challenges (Henderson et al, 2000).

From the context of Earth as “machine” and Earth as “resources to be used,” our model for many of our present day institutions emerged. Humans rose to the top of the pyramid.

“Leadership” became “management” using industrial tools to control and dominate the resources and efficiency of the “machine.” Leadership in essence became “mastery of the machine” with the *dominant* hierarchy as the organizational structure.

As Earth’s historical story illustrates, many alternative paths may be operational at a particular moment. As humans are part of this evolutionary story, even amidst the field of the dominant machine model, alternative strategies based on universal principles have emerged in leadership, in organizational development.

#### *Principle-centered Leadership Models*

Of particular significance is the alternative, principle-centered, path of Jesuit leadership, described as “heroic leadership” by Lowney (2003). The Jesuit community, founded in 1540, based their leadership and organizational model on four core leadership pillars: self-awareness, ingenuity, love, and heroism. By incorporating these universal principles into their daily lives—living these principles, with self-reflective practices—the Jesuits have survived and thrived for more than 450 years. Lowney presents the leadership model of the Jesuits as a guide for leaders in the 21<sup>st</sup> century.

The Jesuit leadership has always valued science, education, spirituality, and continual learning. Of interest is the path that the Jesuits chose for entry into China, the path of astronomy—a bridge of connection between two very diverse communities. As Earth’s evolutionary history bears witness, the “fittest” survive and thrive—“fittest” as now understood to be most fit in cooperating in a healthy ecosystem. The Jesuit leadership model continues to thrive today. As the role of women in leadership continues to evolve, it will be interesting to see how the leadership role of women evolves in the Jesuit community.

Other principle-centered models continue to evolve and emerge. Covey (2004) now describes the 8<sup>th</sup> Habit of “finding your voice and inspiring others to find their voice”—subjectivity in action. Covey asks this question: What leadership is required for effectiveness and sustainability in this time of *Permanent Whitewater*? He responds: leadership based on universal, time-tested principles. Covey describes leadership as this: “communicating to people their worth and potential so clearly that they come to see it in themselves” (p. 98). He describes a leadership and organization model that integrates mind, body, heart, and spirit—with spirit at the core, based on universal principles. Covey emphasizes the importance of trust and suggests that 90 percent of all leadership failures are character failures.

Palmer (2004) describes the principles in creating a “circle of trust”—a sacred “container” and community that fosters wholeness, the journey toward an undivided life. He defines a “circle of trust” as a “space between us that honors the soul” and he describes how people can create a community that supports all on the journey toward living “divided no more.” In describing the importance of identity (subjectivity), Palmer states, “When we fail to take this first, critical step of fending off projections and reserving the right to name our own truth, we become lost in eternal smoke and mirrors and cannot even find the trail head of the path into our inner lives” (p. 103). As described by Palmer, “The soul is shy....A circle of trust is a group of people who know how to sit quietly in the woods with each other and wait for the shy soul to show up” (p. 59). He describes the principles important to creating a circle of trust, especially the principle of truth. Palmer asks:

What is truth? He responds, The soul wants truth....Truth is an eternal conversation about things that matter, conducted with passion and

discipline... We must find a way to live in the continuing conversation, with all its conflicts and complexities, while staying in close touch with our own inner teacher. (p. 126-7).

### *Earth-centered Leadership and Organizational Models*

Carroll (2004) provides examples of organizations today that are embracing the principles of environmental sustainability—Earth-centered principles. He focuses his discussion on a diverse collection of monasteries and convents. As he suggests, religious communities have always been interested in long-term survival. As described by Carroll, there are many sets of principles of sustainability. He gives special mention to Wendell Berry's seventeen principles (p. 170), the Sermon on the Mount, Helen and Scott Nearing's *Guiding Principles for a Good life*, and the work of Thomas Berry. As Carroll asserts, Berry's understanding of our Universe is described in three basic principles: differentiation, subjectivity, and communion (p. 45). These principles that are the focus of this dissertation research study. Carroll (p. 51) describes these principles in this way:

1. Everything carries its own uniqueness and individuality, and each reality is distinct (that is, differentiated).
2. Everything carries the whole numinous divine dimension of the Universe within itself (that is, subjectivity).
3. Everything is bonded to everything else (that is, communion).

Carroll also describes one of the foremost interpreters of Thomas Berry's to these Earth-based religious communities as Dominican Sister Miriam Therese MacGillis, founder of Genesis Farm in New Jersey. Sister MacGillis is a study participant in this research study. She supplied an article by James Berry, Thomas Berry's deceased brother, entitled "Will Earth Survive?" She also provided this study with an "organism"

model for Genesis Farm in the shape of an amoeba. This article and “organism” model are included in Appendix DD.

Carroll discusses outstanding models of sustainability, including the Brothers of Earth and the Sisters of Earth. Brothers of Earth was founded by Jim Conlon and Jesuit John Surette, S.J., both study participants in this research study. Conlon (1990, 1994, 2004) has written extensively on the issue of geo-justice, which he bases on the three Earth-centered principles of differentiation, subjectivity, and communion. Carroll closes by describing a roadside sign that reads “Green Mountain Monastery” in Greensboro, Vermont. Planned for this mountain pasture site is the world’s first “Ecozoic Monastery,” literally monastery for the “Ecozoic Age,” to use Thomas Berry’s terminology. Thomas Berry himself, is the incorporator of this monastery along with Sr. Gail Worcelo, who is also a study participant.

Other outstanding examples of models for Earth-centered leadership in which the study participants are involved or have founded include: Earth Ministry, WaterSpirit, The Whidbey Institute, Four Directions, The Berkana Institute, SpiritEarth, Pioneers of Change, New Horizons, PeerSpirit, and The Cosmic Particles.

In reference to universities, Berry makes this comment, “The first college to be grounded in the dynamics of Earth will have an extraordinary future.” In the opinion of the researcher, having explored Earth-centered principles and leadership and having journeyed at Seattle University in Seattle, Washington, Seattle University offers a model as described by Thomas Berry for education in the 21<sup>st</sup> century, based also on the Jesuit tradition of “heroic leadership.”



### *Findings*

Having analyzed the data in Chapter 4, it is now appropriate to consider study findings. The findings of this study will be examined in light of the research questions. The discussion of findings will be followed by recommendations for further study and some concluding reflections.

#### **1. What are Earth-centered principles?**

For the purposes of this research study, the primary Earth-centered principles are differentiation, subjectivity, and communion, as first articulated by Pierre Teilhard de Chardin and further articulated by Thomas Berry and other scholars. As described by the concept of cosmogenesis, we live in a Universe that is emergent and evolving.

As articulated by Sahtouris and others in the field of biology, the principles of living systems and mutual consistency—of wholes embedded within wholes, as described in the terms holon and holarchy—are also Earth-centered principles of interest in this research study.

And finally, in the wisdom of our indigenous peoples, especially Native Americans, the Earth-centered principles of interconnectedness, kinship with all relations, self in relationship to community, and the sacredness of Mother Earth are significant to the focus of this research. In essence, whether articulated from the lens of physics, cosmology, biology, or by indigenous people, the principles of differentiation, subjectivity, and communion are universal principles that have been operational since the beginning of time in the evolution of our Universe and Mother Earth.

#### **2. How important are these principles to leadership according to leaders today?**

a) How do leaders experience or relate to Earth-centered principles?

- b) What implications and potential new directions emerge from Earth-centered principles for future leadership?
- c) What alternative leadership strategies emerge based on leaders' understanding of Earth-centered principles?

The responses of this study population to the questions on importance of Earth-centered principles to leadership and to the potential application of these principles into organizations clearly indicate that these leaders experience and relate in a positive way to Earth-centered principles.

- 96% of respondents rated Earth-centered principles as "*important*" or "*essential to leadership*."

- 91% of respondents see the application of Earth-centered principles into organizations as "*often*" or "*always*" necessary.

In describing the implications and potential alternative directions that emerge from Earth-centered principles, this study population describe Earth-centered leadership and the characteristics and values of an Earth-centered leader quite differently than leadership that is witnessed today as described by Lipman-Blumen (2004) and Wheatley (2005) in many organizations, institutions, and in government. As suggested by Wheatley, "I'm sad to report that in the past few years, ever since uncertainty became our insistent twenty-first-century companion, leadership strategies have taken a *great leap backward* to the familiar territory of command and control" (p. 4). Further, she adds, "Today, we need many more of us storytellers. The need is urgent, because people are forgetting there is any alternative to the deadening leadership that daily increases in vehemence" (p. 4-5).

As discovered in this research study, Earth-centered leadership offers an alternative. In this research study, 56 storytellers, plus the researcher, came forward to offer the collective wisdom of many in describing an alternative leadership based on Earth-

centered principles. In response to Thomas Berry's question (personal email), "What is the leadership needed in the Ecozoic Age?" The participants in this research study offer some potential answers.

How did the study participants describe Earth-centered leadership? Earth-centered leadership is...

- influencing/inspiring, with *genuine presence and modeling*, the emergence of the *authentic self*
- understanding and *valuing the interconnectedness of the "whole"* for the individual and organization
- an evolutionary catalyst for *change with others*
- respecting diversity by *honoring all voices with an open, reflective, and listening heart*
- embodiment of "*values into action*"

What are these values embodied in an Earth-centered leader? An Earth-centered leader values:

- community and interrelatedness
- respect and diversity
- the authentic self with genuine presence
- humility
- attentive openness by listening with an open heart
- intellectual openness with continual learning of new knowledge
- love and care
- courage and risk-taking
- self-awareness
- ethics, morals, and truth-seeking

- trust

The Earth-centered leader has vision and yet an understanding of current reality.

In describing the values as embodied in Nature as gleaned from the writings of the Nature Writers, Hays (1997) discovered these same values. In describing the values of an ecological spirituality as articulated through the lens of the three cosmic principles, Kovats (1997) discovered these same values. This dissertation research in exploring Earth-centered principles in relationship to leadership discovered these same values—triangulation of the values if you will.

As described by Gardiner (1998), “The leaders of this global revolution will be people of *quiet presence*, the calm ones at the center of great corporate and global enterprise, the eyes of the storms” (pp. 117-118). Further he adds that the future of our planet depends on increasing the level of authentic relationship. The journey to wholeness begins with knowledge of being whole oneself—first. As Gandhi says, we must be the change we wish to see in the world. And as Leo says, in *Journey to the East*, we must be a joyful servant of all (cited in Gardiner, p. 121). Gardiner suggests this: that leadership of *being*, that quiet presence, is greatly needed in our global world today. In response to Berry’s question on leadership in the Ecozoic Era, Gardiner would respond, “By being fully present, being open in mind and body and heart, listening unconditionally....Authentic listening, focused attention, is at the heart of the essential transformation” (p. 124). The description of Earth-centered leadership and the values embodied by an Earth-centered leader echo this *quiet presence*.

Wheatley (2005, p. 238) asks, “Is anybody listening?” The 56 participants and the researcher of this study would answer, “Yes! We are.”

What are the leadership strategies and practices of Earth-centered leadership? Most importantly, the study participants nearly unanimously affirm the practice of fostering diversity by honoring the voices of the authentic self—in oneself and in others—by listening with an open heart. Deep listening. Paying attention to process. The Earth-centered leader, according to the findings of this study, serves life, reflecting on these questions:

1. How are my actions, practices, and decisions serving life and allowing it to flourish?
2. How do my practices support me as a leader and support others in being their best?

### *Conclusions*

From the findings, three conclusions emerge. A first conclusion is that many leaders do relate positively to Earth-centered principles. As one member of the panel of experts stated, “We need to recognize our interdependence with the rest of creation. As human species, we are the self-reflective consciousness of Earth, of our Universe.”

From a study participant in Africa...

As humans, we are not separate from the Universe, but are part of it. If we observe deeply and learn the evolution of Earth, we will see how we, as human beings are in a relationship to the rest of the natural world. Leaders who observe and follow the fundamentals of Earth, could unleash all the energies that are available in their organizations to achieve their objectives, often with little effort.

From another:

Part of the problem with leadership today is that it operates in a vacuum. We DO live on the planet. We cannot survive without it. And it is so nourishing. We are far better leaders for tapping into Earth’s wisdom.

A second conclusion is that Earth-centered principles do have application potential into the organizational setting. As described by a study participant who is a Native American elder, “It would benefit leaders and those being served to think in Earth-centered ways—broader, thoughtful, and with more imagination.” Many of the study participants are engaging as prophetic leaders in organizations today, and many are founders of organizations with mission and values based on Earth-centered principles.

From a study participant...

Leadership based on these principles will be able to take into consideration wisdom that exceeds the limits of just this moment in time and just the experiences of our human species. At the same time, these principles help to better “locate” ourselves as a species and help us to keep a helpful perspective on how best to balance human needs with the need for the entire planet to thrive. Such wisdom would greatly strengthen one’s leadership skills.

A third conclusion is that Earth-centered leadership, as embodying the values that emerged from this dissertation and as practicing the leadership strategies and practices that emerged from the study participants offers a model, an alternative way of leading in the 21<sup>st</sup> century. Earth-centered leadership is “ecozoic” leadership offering values, strategies, and practices for life to be sustained in our home—Mother Earth. From many of the voices of the participants in this study, an Earth-centered leader:

- Leads an organization that sees its purpose not as empowering people to exploit Earth, but as guiding them towards an intimate relationship with Earth.
- Realizes that human beings will truly flourish when they honor the other modes of earthly beings. That we need intimate relationships with the natural world in order to harness Earth’s forces to our support in order to succeed.
- Understands that as humans we need to honor the evolution of Earth that gives shape and meaning to life by relating the human venture to larger destinies of the Universe.

Furthermore, an Earth-centered leader understands that we as human beings need to take care of the natural world so that Nature can in turn take care of us. If the natural world ceases to function, humanity ceases to function.

#### *Recommendations for Further Study*

At least three recommendations for further study arise from this project. The first is to replicate the study in a specific institution. As Thomas Berry asserts all our major institutions need to be reinvented in light of our current understandings. He lists government, universities, corporations, and religious institutions. Replicating this study in one of these environments would be of interest.

A second exploration for further study is to replicate the study findings in a specific population. Berry also asserts we must bring in the voices of women and indigenous peoples. Replicating this study solely within the Native American community would be of interest. The sampling in this research study was “purposeful”—leaders were nominated based on some knowledge of Earth-centered principles. Replicating the study in a population unfamiliar with any of the concepts would be of interest.

A third recommendation for further study is to reconduct the study with a different methodology. A case study of one of the model organizations that embody Earth-centered principles would be of interest. Identifying individuals who embody Earth-centered principles and using interviews as the data collection technique would be of interest. The researcher of this study took a direct approach in asking study respondents to rate the specific Earth-centered principles of differentiation, subjectivity, and communion. An indirect approach would be of interest. Find leaders who are recognized as life-affirming leaders and interview them on leadership practices and strategies that they actively use.

*Final Reflections*

To me, the leadership I experienced in the forest represents a synthesis and embodiment of Earth-centered principles.

*What is the leadership of the forest?*

As I researched in spending time in the forests of Little Si, Big Si, Rattlesnake Ridge, and other universities of Nature, what did I learn about leadership in the forest? Each time I entered the forest, the leadership of the singing birds greeted me. As I traveled further, the playful and creative leadership of squirrels and chipmunks emerged. When the gentle winds shared their leadership breeze with the ferns, all the ferns danced in celebration of each other in our learning and accomplishments together. The fallen logs, which always led me to a different horizon, shared their leadership in “finding the path—taking the leap of faith—carrying on with courage.” I believe I experienced steadfast leadership, that “steadfast love that endures forever” as described in Psalms 136—this leadership of steadfast love, I experienced in the trees. Flexible yet strong. Grounded yet open. Connected to Earth and Heaven. A home for many in the forest. All the trees embodied this leadership—each tree unique and yet connected in common roots.

In spending time in the forest, I opened myself to listen to that still, small voice within—this voice that is not of human origin. A voice that is sacred and Divine. A voice that speaks in a universal language, which is open for all to hear, *if we have “ears to listen.”* I listened. I listen. This still, small voice sustained me in my journey of this story, my story, our dissertation. Let us all make a joyful noise in what we have learned and discovered together. It is time to tell our story, to share what has emerged from all the wondrous voices that came forward to help, to say “yes”—to speak. Our story is one of the Great stories. We share for all to “hear.” Thank you.



**Appendix A**

**Worldview and Cosmology**

**The Universe Story, as Described in the Span of One Year**

## Worldview and Cosmology

### *Medieval Worldview based on Ptolemaic astronomy*

- Nature was imagined as fixed order, without internal change; there was no directionality in human history.
- Nature was teleological (purposeful). Every creature expressed both the divine purposes and its own in-built goals.
- The cosmos was hierarchical, with each lower form serving the higher. Nature was a single coherent whole, a graded but unified order, with all parts working together for God's purposes, according to divine plan. The institutions of church and society were also held to be fixed and hierarchical, integrated into the total cosmic order. The scheme was basically anthropocentric in holding that all creatures on Earth were created for the benefit of humanity. Earth was the center of the cosmos, surrounded by celestial spheres and the eternal heavens.

### *Scientific Materialism Worldview*

- Nature is summarized in image of machine.
- Change is basically the rearrangement of unchanging components, the fundamental particles of Nature. These particles are thought to be fixed, with no novelty or historical development allowed.
- Nature is deterministic. Mechanical causes, not purposes, determine all natural events. Assuming a complete knowledge of current states or initial conditions, the future can be predicted.
- The basic reality of Nature consists in the separate fundamental atoms or particles. The theory of knowledge is classical realism: the object can be known as it is in itself apart from the observer. This atomism is paralleled by an individualistic view of society (economic competition and social contract theories of government).
- The approach to Nature is reductionistic and mechanistic. Physical laws determine all events.
- Newton accepted the Cartesian dualism of mind and body; God and human minds constituted the great exceptions in a mechanistic world. Even though Earth was no longer at the center of the cosmic system, human rationality was seen as the mark of our uniqueness. The leaders of the 18<sup>th</sup> century Enlightenment believed that humanity was also a part of the all-encompassing world machine, whose operation could be explained without reference to God. This materialistic world held no place for consciousness or inwardness except as subjective illusions. Since Nature is a machine, it is an object that can be exploited for human uses.

- Allied to this mechanistic worldview is the notion that the scientific method provides the only reliable source of knowledge.

*The New Cosmology*

- In place of immutable order, or change as rearrangement of the same, unchanging components; Nature is now understood to be evolutionary, dynamic, and emergent. Its basic forms have changed radically and new types of phenomena have appeared as successive levels in matter, life, mind, and culture.

- In place of determinism, there is a complex combination of law and chance, in fields as diverse as quantum physics, thermodynamics, cosmology, and biological evolution. Nature is characterized by both structure and openness. The future cannot be predicted in detail from the past, either in principle or in practice.

- Nature is understood to be relational, ecological, and interdependent. Reality is constituted by events and relationships rather than by separate substances or separate particles. In epistemology, classical realism—the idea that the object can be known as it is in itself apart from the observer—now appears untenable.

- Reduction continues to be fruitful in analysis of the separate components of systems, but attention is also given to systems and wholes themselves. Distinctive holistic concepts are used to explain the higher activities of systems, from organisms to ecosystems.

- There is a hierarchy of levels within every organism. (But not an extreme hierarchy of value among beings, as in the medieval view, which could be used to justify the exploitation of one group of being by another.) Mind/body dualism finds little support in science today. The contemporary outlook is less anthropocentric; human beings have capacities not found elsewhere in Nature; but they are the products of evolution and parts of an interdependent natural order. Other creatures are valuable in themselves. Humanity is an integral part of Nature.

- Nature is a community—a historical community of interdependent beings.

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Note. Adapted from *At Home in the Cosmos* by D. Toolan, 2001, p. 32, NY: Orbis Books.

### The Universe Story, as Described in the Span of One Year

January 1	Flaring Forth
May 1	Origin of the Milky Way Galaxy
September 9	Origin of the solar system
September 14	Formation of Earth
September 25	Origin of life on Earth
October 2	Formation of the oldest rocks on Earth
October 9	Date of oldest fossils (bacteria and blue-green algae)
November 1	Invention of sex (by microorganisms)
November 12	Oldest fossil photosynthetic plants
November 15	Eukaryotes (first nucleated cells) flourish
December 1	Oxygen atmosphere begins to develop on Earth
December 5	Extensive vulcanism and channel formation on Mars
December 16	First worms
December 17	Precambrian ends. Paleozoic Era and Cambrian Period begin. Invertebrates flourish.
December 18	First oceanic plankton. Trilobites flourish.
December 19	Ordovician Period. First fish and vertebrates.
December 20	Silurian Period begins. First insects. Animals begin colonizing land.
December 22	First amphibians. First winged insects.
December 23	Carboniferous Period. First trees. First reptiles.
December 24	Permian Period begins. First dinosaurs.
December 25	Paleozoic Era ends. Mesozoic Era begins.
December 26	Triassic Period. First mammals.
December 27	Jurassic Period. First birds.
December 28	Cretaceous Period. First flowers. Dinosaurs become extinct.
December 29	Mesozoic Era ends. Cenozoic Era begins. First cetaceans. First primates.
December 30	Early evolution of frontal lobes in brains of primates. First hominids. Giant mammals flourish.
December 31	End of the Pliocene Period. Pleistocene and Holocene Period. First humans.

Human beings emerge late in the last day of the year. All recorded history fits into the last ten seconds. It took about 3.9 billion years, some eight-tenths of Earth's history, to generate photosynthesizing bacteria. The entire development of plants and animals occurred in the last one-ninth of Earth's history. Our "control" or "dominion" over the creatures of Earth began only with the development of agriculture some 12,000 years ago, and it was probably pioneered by women not men. Twelve thousand years is roughly 2 percent of human history. For some 4,599,600,000 years, Earth got along quite well without us. The countdown on December 31:

1:30 P.M.	Origin of Proconsul and Ramapithecus, probable ancestors of apes and men
10:30 P.M.	First humans
11:00 P.M.	Widespread use of stone tools
11:46 P.M.	Domestication of fire by Peking man
11:56 P.M.	Beginning of most recent glacial period
11:58 P.M.	Seafarers settle Australia
11:59 P.M.	Extensive cave painting in Europe
11:59:20 P.M.	Invention of agriculture
11:59:35 P.M.	Neolithic civilization; first cities
11:59:50 P.M.	First dynasties in Sumer and Egypt; development of astronomy
11:59:51 P.M.	Invention of the alphabet; Akkadian Empire
11:59:52 P.M.	Legal codes in Babylon; Middle Kingdom in Egypt
11:59:53 P.M.	Bronze metallurgy; Mycenaean culture; Trojan War; compass
11:59:54 P.M.	Iron metallurgy; First Assyrian Empire; Kingdom of Israel
11:59:55 P.M.	Asokan India; Chin Dynasty China; Periclean Athens; Buddha
11:59:56 P.M.	Euclidian geometry; Archimedean physics, Ptolemaic astronomy; Roman Empire; birth of Christ
11:59:57 P.M.	Rome falls; Moslem conquests
11:59:58 P.M.	Mayan civilizations; Sung Dynasty China; Byzantine empire; Mongol invasion; Crusades
11:59:59 P.M.	Renaissance in Europe; voyages of discovery; Ming Dynasty China; experimental method in science
Now	Widespread development of science and technology; emergence of global culture; acquisition of the means of self-destruction of the human species; first steps in search for extraterrestrial intelligence

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Note. From *At Home in the Cosmos* by D. Toolan, 2001, pp. 139-143, NY: Orbis Books.

## Appendix B

### Teachings from the Scientific Disciplines on Evolution of Earth

## Teachings from the Scientific Disciplines on Evolution of Earth

### A Scientific Cosmology

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- that within the first minute of the Universe's origin and expansion, elementary particles known as quarks were formed and free floated and became confined in neutrons and protons with that same minute.
- that the first nuclei formed within the few minutes of the Universe's existence
- that the four fundamental ways in which all beings in the Universe interact, known as gravitational, strong nuclear, weak nuclear, and electromagnetic forces, emerged at the very beginning of the Universe's origin.
- that the first elemental particles coalesced into primordial hydrogen, the lightest of all elements, which formed the basis of everything that would ever become in the cosmos.
- that in expansion of time and space, ten to fourteen billion years ago, the Universe unfolded into galactic clouds and the primal stars appeared.
- that there are over one hundred billion galaxies each with about a hundred billion stars.
- that the development of the galactic systems was such that the atomic elements within the stars were becoming heavier and more and more complex.
- that the energy with which stars collapsed and reformed themselves was also creating heavier, and more complex atoms.
- that the energies of heat and gravitational pressure especially in larger stars produced larger atoms and heavier elements; such as carbon, oxygen, sulfur, and iron.
- that our sun is a supernova, that is, a second generation star, which ignited into being about four and a half billion years ago.
- that there were ten small bands of elemental stardust which revolved around the sun, which became the nine planets and the asteroid belt of our solar system.
- that the third planet from the sun, Earth, our home planet, is a water planet and provided the appropriate conditions for atoms to form advanced communities, called complex molecules, including amino acids.
- that Earth's molecular structures became more complex and amino acids joined together to form protein.

- that life emerged on Earth when simple bacteria appeared in the water three and a half to four billion years ago.
- that Earth expressed herself in multi-cellular life indicated by the first plants around 1.3 billion years ago.
- that life learned to reproduce sexually about one billion years ago.
- that eyes emerged and the first nervous systems appeared six hundred million years ago.
- that animals covered with shells appeared five hundred fifty million years ago.
- that about five hundred and ten million years ago vertebrate animals emerged and the first mammals appeared about two hundred and sixteen million years ago.
- that the Universe, expressed through Earth creatures, developed a brain and a nervous system so complex and highly organized that the first humans, known as *Homo habilis*, appeared about 2.6 million years ago.
- that the anatomical structure of the human species has evolved in the expansion of the cranial vault that encloses a larger brain size, to bipedal walking, and to an increased capacity of the hands for grasping.
- that the human species is the only known being in the Universe, at this time, in our awareness, who is self-reflective and self-conscious.
- that the unfolding self-consciousness of the human species takes place in five phases, evidenced in the primordial emergence of the human, in Neolithic settlements, in the classical civilizations, in the rise of nation-states, and in the emerging Ecozoic era.
- archaic *Homo sapiens*, our immediate ancestors, appeared about two hundred thousand years ago.

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Note. From *A Cosmic Dance: The Cosmic Principles of Differentiation, Autopoiesis, and Communion and Their Implication for an Ecological Spirituality* (pp. 49-52), by A. Kovats (1997), *Dissertation Abstracts International*, 58 (08), 3167. (UMI No. 9805108) Reprinted with permission of Alexandra Kovats.



**Appendix C**

**Features and Characteristics of an Ecological Spirituality**

## Features and Characteristics of an Ecological Spirituality

*Respect*: to be open to new dimensions of the other to reveal themselves

*Attentive openness*: a contemplative awareness to be fully present in diverse situations

*Wonder and amazement*: open to surprise and newness

*Reverence and gratitude*: receive, tend, and nurture the gifts of creation

*Creativity*: to honor and respect the uniqueness of self and the other by expressing the Universe's creative process

*Self-reflection*: to be in touch and to come to know self with a variety of self-reflective practices

*Trust*: trusting in the physical world and trusting one's experiences and perceptions

*Intellectual openness*: growth and openness in the search of truth by expanding knowledge and understanding

*Sensuality and sensitivity*: to experience authentic intimacy with Earth and the entire world of creation by reclaiming the integrity of the senses

*Compassion*: mutuality in suffering with or joying with another

*Justice*: right ordering of relationships with all that exists—self, others, Earth, and all creation

*Celebration*: in its human expression, the Universe and Earth celebrate themselves and the mystery of existence awakening the joy of being alive

*Humility*: to touch the earthiness of our existence and to let go of domination and control in all our relationships

*Simplicity*: to live in harmony with the ordered complexities of life treating everything with the greatest naturalness and clarity

*Community*: embracing all species and the natural world as a sacred community by sharing a common story, a common life, and common process interdependently

*Conversion*: to be open to the newness and continued development of the cosmos, to the unfolding process of becoming

*Adaptivity*: to observe and honor the rhythm of our lives and relationships, to go and grow with the changing rhythms of the Universe; to surrender and let go

*Note*. Adapted from *A Cosmic Dance: The Cosmic Principles of Differentiation, Autopoiesis, and Communion and Their Implication for an Ecological Spirituality*, by A. J. Kovats (1997). *Dissertation Abstracts International*, 58 (08), 3167. (UMI No. 9805108)

## Appendix D

### Earth-centered Principles from Physics and Cosmology

### Earth-centered Principles from Physics and Cosmology

1. That the Universe is a communion of subjects rather than a collection of objects is the central commitment.
2. Existence itself is derived from and sustained by this intimacy of each being with every other being.
3. We might suggest that Earth functions as an organism, provided we understand that we are using the term in reference to the similarities between the unity of Earth's functioning and the unity of functioning of any other living being of Earth.
4. Earth cannot survive in fragments.
5. The well-being of the planet is a condition for the well-being of any of the component members of the planetary community.
  - a. To preserve the economic viability must be the first law of economics.
  - b. To preserve the health of the planet must be the first law of medicine.
  - c. To preserve the natural world as the primary revelation of the divine must be the concern of religion.
  - d. Education is best defined as knowing the story of the Universe, of planet Earth, of life systems, and of consciousness, all as a single story, and recognizing the human role in the story.
  - e. In governance, a move from a limited democracy to a comprehensive biocracy is essential.
  - f. For language, a move from human-centered to Earth-centered language is essential.
  - g. In our institutions of higher education, the sciences and the humanities, business and religion, the arts and the sciences, education and spirituality; all these divisions must overcome isolation from each other.
  - h. All our professions and institutions need to be appreciated in the light of the single story that governs the basic functioning of Earth as well as the entire human process.
  - i. We need an interspecies economy, an inter-species well-being, an inter-species education, an inter-species governance, an inter-species religious mode, and inter-species ethical norms.
6. The natural world itself is the primary economic reality, the primary educator, the primary governance, the primary technologist, the primary healer, the primary presence of the sacred, and the primary ethicist.
7. The well-being of Earth is primary. Human well-being is derivative.

8. There must be a human communion with the life principles of the soil if there is to be any ultimate benefit for the soil or the human.
9. The Universe is an emergent sequence of irreversible transformations.
10. The human is related in an intimacy with everything that exists. The human is in a cousin relationship with every being in the Universe.
11. The human must awaken to a consciousness of the sacred dimension of Earth.
12. The comprehensive objective of the Ecozoic is to assist in establishing a mutually-enhancing human presence upon Earth.
13. Western civilization is in a state of denial with its current addiction to commercial-industrial progress as the basic referent for reality and value. This is spreading across the globe.
14. Concerning language, we have been limited to a human-centered language. We need an Earth-centered language. Words such as society, good, evil, freedom, justice, literacy, and progress must be redescribed.
  - a. Beyond any formal spoken or written human language are the languages of the multitude of beings, each of which has its own language given to it.
  - b. Humans are becoming more sensitive to the nonhuman languages of the surrounding world—mountain language, river language, tree language, bird and frog language, and the language of the stars.
15. The Industrial age, from its human influence, has so upset the ecological balance that Earth has gone into a burnout phase of her existence.
16. When the curvature of the Universe, the curvature of Earth, and the curvature of the human are once more in their proper relation, then Earth will have arrived at the celebratory experience that is the fulfillment of Earthly existence.
17. There is only one story—the story of the Universe. Every form of being is integral to this comprehensive story. Nothing is itself without everything else. Each member of the Earth community has its own proper role within the entire sequence of transformations that have given shape and identity to everything that exists.

## 12 Principles for Understanding the Universe and the Role of the Human in the Universe Process

Thomas Berry

1. The Universe, the solar system, and planet Earth in themselves and in their evolutionary emergence constitute for the human community the primary revelation of that ultimate mystery whence all things emerge into being.
2. The Universe is a unity, an interacting and genetically related community of beings bound together in an inseparable relationship of space and time. The unity of planet Earth is especially clear; each being of the planet is profoundly implicated in the existence and functioning of every other being.
3. From its beginning the Universe is a psychic as well as physical reality.
4. The three basic laws of the Universe at all levels of reality are differentiation, subjectivity, and communion.
5. The human is that being in whom the Universe attains reflexive consciousness of itself.
6. Earth, within the solar system, is a self-emergent, self-nourishing, self-educating, self-governing, self-healing, self-fulfilling community. All particular life systems in their being, their nourishment, their education, their governing, their healing, their fulfillment must integrate their functioning within this larger complex of mutually dependent Earth systems.
7. The genetic coding process is the process through which the world of the living evolves, educates, and rules itself. The great wonder is the creative interaction of the multiple codings among themselves.
8. At the human level genetic coding mandates a further trans-genetic cultural coding by which specifically human qualities find expression. Cultural coding is carried on by the educational processes.
9. The emergent process of the Universe is irreversible and non-repeatable in the existing world order. The movement from non-life to life on the planet Earth is a one-time event. So, too, the movement from life to the human form of consciousness. The movement from the simpler to the more complex cultural forms is also, most likely, irreversible on the larger time scale.
10. The historical sequence of cultural periods can be identified as the tribal-shamanic period, the classical civilizational period of the great religious cultures, the scientific-technological period, and the ecological period.

11. The main human task for the immediate future is to assist in activating the intercommunion of all the living and non-living components of the Earth community in what can be considered the emerging ecological period of Earth development.

12. Functionally the great art of achieving this historical goal is the art of intimacy and distance, the capacity of beings to be totally present to each other while further affirming and enhancing the differences and identities of each.

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*Note.* From Thomas Berry and the new cosmology by Lonergan, A. and Richard, C. (Eds). (1987) Mystic, CONN: Twenty-third Publications.

## Appendix E

### Earth-centered Principles from Biology



### Earth-centered Principles from Biology

1. All living systems self-organize and maintain themselves by the same biological principles, which we can identify and abstract.
2. Among the principles essential to the health of living systems are empowered participation of all parts and continual negotiation of self-interest at all levels of organization.
3. Humanity constitutes a living system within the larger living system of Earth.
4. Essential to the health of humanity is empowered participation of all humans and negotiated self-interest among individual, local, and global economies as well as Earth herself.
5. Globalization is a biological process happening to a natural living system—humanity.
6. Economics that violate the fundamental principles by which living systems are organized threaten the demise of the human.
7. The evolutionary process is an improvisational dance that weaves individual, communal, ecosystemic, and planetary interests into a harmonious whole.
8. The greatest catastrophes in Earth's life history have spawned the greatest creativity! Therein lies the hope for humanity.
9. The most important lesson learned in the course of evolution is that no level of holarchy may be sacrificed without killing the whole.

Note. Adapted from *EarthDance: Living Systems in Evolution* by E. Sahtouris, 2000, Lincoln, NE: iUniversity Press.

### Worldview, as Described from a Biologist Perspective

As described by Sahtouris (2000), the way we picture the world and our relationship to it—our worldview—has a significant impact on the choices we make in our lives. The ability to think about choice—to make images of our relationship to our world and imagine the consequences of the alternative choice we can make is a grace in the gift of the conscious mind in the human. As many have said, Earth reflects on herself in the reflective consciousness of the human.

Sahtouris asks, “How do other species view their world” (p. 195)? Every creature has a way of seeing the world, with or without eyes. Every creature has a way of getting information about itself and its surroundings. To live, the creature must know—have a way of knowing—about its environment. Even a microbe can tell what is helpful and harmful for its survival in its environment. This environmental map, or worldview, is necessary for the survival of any living creature. Different creatures possess different worldviews. Each creature is a system capable of interacting with its environment through its ability to take in information and act on it.

Furthermore, Sahtouris asks, “Have you ever had any experience outside your own consciousness” (p. 196)? She assertively states, “All experience of the world is through consciousness in the present moment” (p. 196). No creature sees what is *really* out there in the world. The creature sees its interpretation of what it sees. Based on what is seen, stories and images are created. These stories are embedded into the creature’s respective culture. Every culture has a tendency to believe its own story and no one else’s.

As an example, here is how scientists describe the worldview of a frog:

A frog lives mainly on insects it catches... Its eyes and brains and body are an automatic system that has evolved to see and catch bugs. Whenever

a tiny speck moves across the piece of world the frog's eyes are aimed at, it shoots out its... tongue. This system works well in the frog's natural environment.

We can fool a frog into trying to eat tiny shadows that we move past it, or into actually eating buckshot pellets that we roll past it. The frog does not learn that the buckshot is inedible, but will keep eating it until he is too heavy to move.... Its worldview is not subject to change in a way that permits the frog to learn which dark specks are edible and which are not. (Sahtouris, p. 198)

Evolution, is in essence, a story—a story of how things came to be, not some ultimate truth. As Sahtouris describes, human worldviews are created through the personal experience of living in the world. In examining history, we see that worldviews have evolved along with the patterns of culture. A powerful relationship exists between the worldviews of the people and the societies and institutions that are constructed.

Humans have created spiritual, religious, and scientific worldviews. In religious worldviews, a goddess or god creates the world and then continues to look out for it in some meaningful, purposeful way. In the Western scientific worldview, up to the present, the world happens accidentally and runs mechanically without purpose. These worldviews are now changing.

The alternative worldview that is emerging is that the world is a self-creative manifestation of an underlying source—source being consciousness, energy, God, or Radiant Mystery as reflective of one's particular belief system. One of the most profound worldviews, as shared with the researcher, is this: In the beginning, God's love flared forth, and has been expanding ever since (Dominican sister, personal communication).

For the past few centuries, the human has viewed self as separate from Nature, has viewed Nature as object—perceived the world as mechanism. As described by Sahtouris, this objective worldview was founded in Greece when philosophers divided into two

schools of thought about the world. One school believed Nature, including humans, was alive and self-creative, ever making order from disorder—philosophers such as Thales, Anaximander, and Heraclitus. These organic philosophers saw the cosmos as alive. The other school held the belief that the real world could only be known through reason, not direct experience. The world was God's geometric creation, mechanical and perfect behind the human's illusion of disorder. This mechanical/religious worldview superseded the previous worldview and has dominated Western culture up to the present.

The founding fathers for the mechanical worldview were philosophers, such as Pythagoras, Parmenides, and Plato. This worldview was translated into scientific and technological language during the Renaissance by Galileo, Descartes, and Newton. Societies and institutions were designed as machinery. A Cold War developed on who had the most perfect social design.

In the respective worldviews, the human task is to understand how the world is ordered—by what God-given or natural laws Earth works. As stated by Sahtouris, theories are no more, no less, than well thought out ideas or models of what seems to be and how things seem to work. Scientific theories are ordered worldviews that can be tested against predictions we make from them, though these theories change as we change and as new knowledge is gained.

All throughout history, people thought the way they saw the world was the way the world was—they saw their worldview as the true worldview and all others as mistaken or false. As suggested by Sahtouris, an important discovery of modern science is *that there can be no single true and complete worldview*. We still have only partial information about the mystery of the world. Our inventions and instruments of observation have

become more sophisticated. We, as a species, are actually changing the dynamics of evolution in the world. “We change the world even while we are looking at it, for we are never only observers—we are co-creative players in the play” (p. 208).

Many wars that have been fought and many lives burnt at the stake have been over differing worldviews. People are reluctant to change worldviews that hold everything together—they make sense of the world for them. Because of this, many worldviews have been changed, or attempted to be changed, using force—the ancient conquests of the Goddess-worshipping societies, the oppression of indigenous peoples by the colonizing powers, and even today, in the dominance of the First World’s economics, technologies, and politics over much of the Third World.

A few thousand years before the Christian era, humanity underwent two significant changes. One was a shift in worldview and culture from partnership to that of domination—from the worship of life to life-taking (Eisler, 1987). The other change was from a worldview of people and deities integrated with Nature to a worldview in which humanity and gods were outside and above Nature, in which men claimed the right to exploit women and the rest of the natural world (Sahtouris, 2000).

The early peoples were deeply rooted in Nature, embedded in the interrelatedness with Earth and all relations (Spretnak, 1991). The education that was provided for the community always provided reminders of the humans place in the cosmos. Leadership and governance were respectful of the impact of decisions and actions on “seven generations into the future”.

As described by Berry (1988), this interrelationship of humans with Nature became separated in the 14<sup>th</sup> Century at the time of the Black Death. With a lack of understanding

of germs, people viewed this as divine punishment. The world was wicked and evil. Redemption out of this world was desired, resulting in a separation of the human from Nature and Nature's sacred, spiritual essence. Further separation with Nature occurred in the 18<sup>th</sup> century, with the scientific revolution and the thinking of Bacon and Descartes. God was viewed as the Great Engineer, the world as machine. Humanity's aim was to control and dominate Nature. Impersonal institutions were created as the "wheel" and humans became the "cogs in the wheel." The world is to be *used* and not communed with. As emphasized by Sahtouris (2000), we must return to the worldview of Earth as a living system, drawing from Nature for our guidance.

**Appendix F**

**Ecological Principles Worldview and Ethics**

## Ecological Principles Worldview and Ethics

Earth does not belong to us; we belong to Earth (*principle of humility*).

Our role is to understand and work with the rest of Nature, not to conquer it (*principle of cooperation*).

Every living being has a right to live, or at least to struggle to live, simply because it exists; this right is not dependent on its actual or potential use to us (*respect-for-Nature principle*).

The best things in life aren't things (*principle of love, caring, and joy*).

Something is right when it tends to maintain the ecological integrity, sustainability, and diversity of Earth's life-support systems for us and other species and wrong when it tends otherwise; the bottom line is that Earth is the bottom line (*principle of sustainability and ecocentrism*).

It is wrong for humans to cause the premature extinction of any wild species and the elimination and degradation of their habitats (*preservation-of-wildlife-and biodiversity principle*).

When we alter Nature to meet what we consider to be basic needs or nonbasic wants, we should choose the method that does the least possible harm to other living things; in minimizing harm, it is in general worse to harm a species than an individual organism, and still worse to harm a community of living organisms (*principle of minimum wrong*).

When we alter Nature, we should make such changes at Nature's rates and in Nature's way (*principle of sustainable change*).

It is wrong to treat people and other living things primarily as factors of production, whose value is expressed only in economic terms (*economics-is-not-everything principle*).

We should leave Earth in as good condition as we found it, if not better (*rights-of-the-unborn principle*).

All people should be held responsible for their own pollution and environmental degradation; dumping our wastes in another area or country is the equivalent of using chemical warfare on the people or other species receiving our wastes (*responsibility-of-the-born principle*).

No individual, corporation, or nation has a right to an ever-increasing share of Earth's finite resources; don't let need slide into greed (*principle of enoughness*).



We should protect Earth's remaining wild ecosystems from our activities, rehabilitate or restore ecosystems we have degraded, use ecosystems only on a sustainable basis, and allow many of the ecosystems we have occupied and abused to return to a wild state (*principle of ecosystem protection and healing*).

In protecting and sustaining Nature, go farther than the law requires (*ethics-often-exceeds-legality principle*).

To prevent excessive deaths of people and other species, people must prevent excessive births (*birth-control-is-better-than-death-control principle*).

Don't do anything that depletes Earth's physical, chemical, and biological capital, which supports all life and human economic activities; Earth's deficit is the ultimate deficit (*balanced-Earth-budget principle*).

To love, cherish, and understand Earth and yourself, take time to experience and sense the air, water, soil, plants, animals, bacteria, and other parts of Earth (*direct-experience-is-the-best experience principle*).

Learn about, love, care for your local environment, and live gently within that place; walk lightly on Earth (*love-your-neighbor principle*).

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*Note. From Living in the Environment: An Introduction to Environmental Sciences, inside cover, by G.T. Miller, Jr. 1992, Belmont, CA: Wadsworth Publishing Company.*

**Appendix G**

**Earth-centered Principles from Indigenous Peoples**

### Earth-centered Principles from Indigenous Peoples

1. The Ways of the Land ~ All things are connected. Everything in the Universe is connected. – Chief Seattle
2. The Ways of Words and Silence ~ It does not require many words to speak the truth. – Chief Joseph
3. The Ways of Learning ~ Knowledge was inherent in all things. The world is a library. – Chief Luther Standing Bear
4. The Ways of Living ~ Our fathers gave us many laws, which they had learned from their fathers. These laws were good. –Chief Joseph
5. The Ways of Leading Others ~ No person among us desires any other reward for performing a brave and worthy action, but the consciousness of having served his nation. –Joseph Brant
6. The Ways of the Heart ~ My friends, how desperately do we need to be loved and to love. –Chief Dan George
7. The Ways of the Spirit ~ Is there not something worthy of perpetuation in our Indian spirit of democracy, where Earth, our mother, was free to all, and no one sought to impoverish or enslave his neighbor? –Ohiyesa
8. Keep what is worth keeping, and with a breath of kindness, blow the rest away. – Shoshone
9. From Wakan Tanka, the Great Spirit, there came a great unifying life force that flowed in and through all things—the flowers of the plains, blowing winds, rocks, trees, bird, animals—and was the same force that had been breathed into the first man. Thus all things were kindred, and were brought together by the same Great Mystery. –Chief Luther Standing Bear
10. Man's heart away from Nature becomes hard. –Chief Luther Standing Bear
11. Heed These Words ~ Continue to contaminate your own bed, and you will one night suffocate in your own waste. –Chief Seattle
12. Each man is good in the sight of the Great Spirit. It is not necessary for eagles to be crows. –Sitting Bull
13. Earth is alive and sacred—to be shared by all. Earth is a spiritual presence that must be honored, not mastered.
14. Through storytelling, people connect with the sacred manner of knowing.

15. Beliefs are manifested through ceremony and ritual. Ceremony and ritual are intimately tied to story, song, and dance. In the rituals and storytelling, the sacred circles are remembered.
16. The circle is embraced as a symbol of unity.
17. Animal totems represent the sharing of power between the people and the animal world. Birds, insects, and animals fill the world with knowledge that defy the comprehension of the human.
18. Creation happened and is still happening. Creation is circular, ever present, ever moving.
19. Creative spirit first created plants and animals, mountains and rivers, clouds and rain—all preparing Earth for the coming of human beings.
20. The Creator made the Native Universe in a variety of ways with forethought and knowledge.
21. The whole remains a great mystery. Each is a part of the whole.
22. Creative forces are set in motion with natural laws by which the living and non-living are guided—sometimes in harmony; sometimes conflict.
23. Spirits are alive in every cell, every atom and being of the universe.
24. The Universe is a large and ever-expanding Universe.
25. The buffalo are our relatives—kinship with all creation. Great respect, appreciation, and compassion toward plants and animals for which they pray and perform rituals.
26. Creation stories explain the rules of Nature that govern the world and the Indian people.
27. Native American stories describe the importance and active role of both male and female.
28. The creation for the Mayas was ecocentric, not anthropocentric.
29. The gift of the pipe represents continuance and renewal of the human spirit to the spirit of all creation.
30. The healing power of Earth appears in traditional stories among many peoples.

### Earth-centered Principles from Indigenous Peoples

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13. Earth is alive and sacred—to be shared by all. Earth is a spiritual presence that must be honored, not mastered.
14. Through storytelling, people connect with the sacred manner of knowing.

**Appendix H**

**Timetable of the Universe**

**From Classical Civilizations to Now**

## Timetable of the Universe

### Classical Civilizations: 3,500 B.C.E.-1600 C.E.

3,500 B.C.E.	Sumerian civilization in Mesopotamia: the wheel
3,300 B.C.E.	Chronic warfare
3,000 B.C.E.	The Nile in Egypt; advances in technology
1,700 B.C.E.	Origins of the alphabet in Palestinian region
	Aryan-Vedic peoples with Sanskrit enter India
1,525 B.C.E.	Shang Dynasty in North China
1,200 B.C.E.	Greek settlements. Exodus of Israel from Egypt
	<i>monotheism</i>
700 B.C.E.	Homer
600 B.C.E.	Beginning of Greek philosophy
560 B.C.E.	Confucius in China; Buddha in India
550 B.C.E.	Persian Empire
509 B.C.E.	Founding of Roman Republic
450 B.C.E.	Socrates, Plato, Aristotle
327 B.C.E.	Alexander's invasion of the Indus Valley
31 B.C.E.	Roman Empire under Augustus Caesar
4 B.C.E.	Jesus
64 C.E.	Buddhism in China
100 C.E.	World population is 300 million
300 C.E.	Classical Mayan civilization
410 C.E.	Fall of Rome
650 C.E.	Muslim Empire
732 C.E.	Muslim advance in Europe
800 C.E.	Beginning of medieval civilization
900 C.E.	Toltec empire
925 C.E.	Arabic numerals
1000 C.E.	Islamic science
1095 C.E.	Crusades
1115 C.E.	Compass invented
1200 C.E.	Inca empire and beginning of Mongolian empire
1271 C.E.	Marco Polo travels
1320 C.E.	Aztec empire
1347 C.E.	Black Death, European population declines
1453 C.E.	Constantinople falls to Turks
1492 C.E.	Columbus sails to America
1500 C.E.	World population is 400-500 million people
1543 C.E.	Copernican revolution

**The Rise of Nations: 1600 C.E. – 1990 C.E.**

1600 C.E.	British East India Company chartered
1607 C.E.	English settlement of North America at Jamestown
1609 C.E.	Johannes Kepler discovers elliptical movement of planets around the sun; Galileo establishes empirical mode of observation by effectively using precise measurements in his observations of natural phenomena
1620 C.E.	Francis Bacon promotes scientific method of modern science
1623 C.E.	Japanese policy of isolation
1637 C.E.	René Descartes establishes mathematical mode of dealing with the natural world and divides the physical world and mind into two entirely different realms
1687 C.E.	Isaac Newton explains the modern view of the universe
1749 C.E.	Georges-Louis Buffon rethinks the Age of the Earth
1750 C.E.	Carolus Linnaeus provides the modern system of taxonomic classification of life
1755 C.E.	Immanuel Kant proposes a theory of the formation of celestial bodies and the solar system
1757 C.E.	British control of India
1763 C.E.	European powers divide the colonial world
1776 C.E.	American Revolution
1789 C.E.	French Revolution
1795 C.E.	James Hutton discovers that the geological formation of the Earth and of life can be traced back in time
1809 C.E.	Jean-Baptiste Lamarck traces the evolutionary sequence from lower forms to higher forms of life
1827 C.E.	Baron George Cuvier sets the basis for the classification of animals
1830 C.E.	Sir Charles Lyell describes the structure of the Earth
1838 C.E.	Trail of Tears. Cherokee removal to Indian Territory
1840 C.E.	British mathematician William Whewell coins the word “scientist”
1841 C.E.	The Opium War settled with China: five trading ports
1841 C.E.	<i>Great-Man Theory of Leadership</i> . Carlyle essay on heroes: a leader is endowed with unique qualities
1854 C.E.	Perry forces Japan open to western trade
1859 C.E.	Charles Darwin publishes his theory of natural selection and alters our understanding of the development of life
1866 C.E.	German biologist Ernst Haeckel coined the term “ecology”
1869 C.E.	<i>Great-Man Theory of Leadership</i> . Galton’s study of the hereditary background of great men
1884 C.E.	European powers divide Africa into European colonies
1900 C.E.	Max Planck suggests that light comes in packets or quanta
1905 C.E.	Albert Einstein alters our basic understanding of time, space, motion, matter, and energy



- 1913 C.E. *Great-Man Theory of Leadership*. Woods concludes that man makes the nation and shapes it according to his abilities
- 1914 C.E. World War I
- 1916 C.E. Einstein publishes Theory of General Relativity
- 1917 C.E. Communism takes control in Russia
- 1919 C.E. League of Nations
- 1920 C.E. *Trait Theory of Leadership*. Kohs & Irle (1920), L.L. Bernard (1926), Bingham (1927)
- 1922 C.E. *Psychoanalytic Theory of Leadership*. For Freud, the father of the family defined the leader's psychological world.
- 1927 C.E. Werner Heisenberg changes our perception of knowledge at the atomic level – *uncertainty principle*  
Theory of quantum mechanics formulated by Werner Heisenberg, Erwin Schrödinger, and Paul Dirac
- 1929 C.E. Edwin Hubble provides evidence that we live in an expanding universe
- 1929 C.E. *Trait Theory of Leadership*. Tead (1929) explained leadership in terms of traits and personality and character
- 1929 C.E. *Situational Theory of Leadership*. Spiller concluded that great leaders appear at a critically important advancement of a societally valued cause
- 1931 C.E. *Great-Man Theory of Leadership*. Wiggam proposes that aristocratic class differs from lower classes
- 1931 C.E. *Personal-Situational Theory of Leadership*. Westburgh suggests that leadership must include both the traits of the individual as well as the condition. Case (1933)
- 1933 C.E. *Trait Theory of Leadership*. Smith and Krueger (1933), Page (1935), Kilbourne (1935)
- 1937 C.E. *Situational Theory of Leadership*. J. Schneider noted that the number of great military leaders are proportional to the number of conflicts in which a nation is engaged
- 1939 C.E. World War II
- 1939 C.E. *Psychoanalytic Theory of Leadership* (Frank)
- 1940 C.E. *Trait Theory of Leadership*. Bird (1940) compiled a list of 79 traits of leadership
- 1941 C.E. *Situational Theory of Leadership*. A.J. Murphy (1941) described leadership as a function of the occasion.
- 1941 C.E. *Psychoanalytic Theory of Leadership* (Fromm)
- 1945 C.E. First atomic bomb over Hiroshima; UN Charter
- 1947 C.E. *Trait Theory of Leadership*. W. O. Jenkins examines leadership traits for military leaders
- 1948 C.E. *Situational Theory of Leadership*. Stogdill concluded that both person and situation had to be considered in the emergence of leadership
- 1950 C.E. Han Albrecht Bethe describes how stars evolve

- 1957 C.E. *Humanistic Theory of Leadership*. The function of leadership is to modify the organization to provide freedom for individuals to realize their motivational potential for fulfillment of needs and to contribute to organizational goals. Argyris (1957) proposed his maturity-immaturity theory. McGregor (1960) postulated two types of organizational leadership—Theory X and Theory Y. Likert (1961) suggested that leadership is a relative process where leaders take into account expectations, values, and interpersonal skills of followers.
- 1962 C.E. Rachel Carson exposes the effects of modern pesticides on the natural world
- 1964 C.E. *Psychoanalytic Theory of Leadership* (Erikson)
- 1964 C.E. *Humanistic Theory of Leadership*. Blake and Mouton (1964) conceptualize leadership in a managerial grid concerning people on one axis and production on the other. Maslow (1965) stressed importance of leaders to develop subordinates' self-esteem and psychological health.
- 1965 C.E. Robert Wilson and Arno Penzias find evidence of the origin of the Universe in identifying background radiation
- 1967 C.E. *Contingency Theory of Leadership* (Fiedler)
- 1969 C.E. Man lands on the moon
- 1970 C.E. Chaos Theory by Mitchell Feigenbaum and others
- 1969 C.E. *Humanistic Theory of Leadership* (Hersey and Blanchard) life cycle theory of leadership based on subordinates' maturity development
- 1970 C.E. *Psychoanalytic Theory of Leadership* (Levinson)
- 1971 C.E. *Path-Goal Theory of Leadership* (House) The leader shows a follower the paths (behavior) through which rewards are obtained
- 1971 C.E. *Multiple-Linkage Model of Leadership* (Yukl)
- 1974 C.E. The term "ecofeminism" is coined by Françoise d'Eaubonne
- 1976 C.E. *Vertical-Dyad Linkage* (Graen)
- 1977 C.E. Ilya Prigogine awarded Nobel Prize for developing "nonequilibrium thermodynamics"
- 1977 C.E. *Attribution Theory of Leadership* (Pfeffer)
- 1977 C.E. *Servant Leadership* (Greenleaf)
- 1978 C.E. *Transformational Leadership* (Burns)
- 1982 C.E. World Charter for Nature
- 1984 C.E. *Vertical-Dyad Linkage* (Vecchio & Gobdel)
- 1985 C.E. *Transformational Leadership* (Bass)
- 1991 C.E. Dissolution of Soviet Union
- 1992 C.E. UN Conference on Environment and Development
- 1995 C.E. Kouzes & Posner fundamental practices of exemplary leadership in *The Leadership Challenge*
- 1996 C.E. *Connective Leadership Model* by Jean Lipman-Blumen
- 1998 C.E. *Emotional Intelligence* by Daniel Goleman
- 2004 C.E. *The Allure of Toxic Leaders* by Jean Lipman-Blumen
-

2005 C.E.

*Leadership for an Uncertain Time* by Margaret Wheatley

---

Adapted from "Timeline," by B. Swimme and T. Berry, 1992, *The Universe Story*, pp. 269-278; and from *A Walk Through Time: From Stardust to Us* by S. Liebe, E. Sahtouris, and B. Swimme, 1998, NY: John Wiley & Sons, Inc.

**Appendix I**

**Beliefs About People and Organizations**

## Beliefs about People and Organizations

We live in a world in which life wants to happen.

Organizations are living systems, or at least the people in them are living systems.

We live in a universe that is alive, creative, and experimenting all the time to discover what's possible,

It is the natural tendency of life to organize—to seek greater levels of complexity and diversity.

Life uses messes to get to well-ordered solutions.

Life is intent on finding what works, not what's right.

Life creates more possibilities as it engages with opportunities.

Life organizes around identity.

Living systems learn constantly.

Living systems are self-organizing.

Life is systems seeking.

Life is attracted to order, but it uses messes to get there.

Because we are living systems, most people are intelligent, creative, adaptive, and self-organizing.

Wheatley, M.J. (1996). Learning from nature's emergent creativity: The unplanned organization. *Noetic Sciences Review*. Spring, pp. 18-23)

**Appendix J**

**Nature Writers' Values**

## Nature Writers' Values

### Curiosity

Zest for knowing the truth of how the Universe operates and of what the natural world is made; excitement in learning something new

### Wonder

Appreciation for, even delight in, the beauty, diversity, and complexity of Nature; the joy of discovery

### Respect

A sense of the intrinsic value of the natural world in all its variety and forms, human and nonhuman, aside from its utility and despite its wildness and mystery

### Reverence

Awe or adoration of the natural world that transcends respect for biogeochemical interconnections and acknowledges deep spiritual connection

### Receptivity

Openness in listening and responding, allowing answers to emerge, to reveal themselves in nature, patience with the process

### Humility

Study of the natural world that acknowledges human limitations; does not draw conclusions based on partial knowledge

### Love

Intense attraction or devotion to the natural world; a passion for Nature; a feeling for the organism

### Relatedness

Awareness of intimate, personal involvement with the natural world; a feeling of kinship, attachment, or rapport with the constituents of Nature

### Interdependence

Knowledge of the interconnectedness of organisms and their environments; a sense of the web of life, the ecological balance of Nature

### Unity

Holistic view of Nature; a sense of the oneness, wholeness, and harmony of the natural world, including humans; not limited by dual or compartmental thinking

### Care

Concern for well-being and flourishing of all beings; close attentiveness to the things of Nature; pleasure and patience in getting to know them

### Cooperation

Attitude and behaviors of collaboration, flexibility, and sharing; sees harmony as a fundamental force in survival and adaptation of Nature

### Responsibility

Concern about the likely consequences of behaviors that affect the natural world; consideration of future generations; commitment to make the world a better place

### Imagination

Conceptual powers of imagery, even fantasy, to help envision, create, predict, and guide behaviors, progress, and possibilities

### Intuition

Ability to sense and follow hunches or leads that seem promising, that resonate with available information; trust that a relaxed, playful mind fosters new insights

Hays, I. (1997). Toward an essential ethic for teaching science in the new millennium. Dissertation Abstracts International, 59 (07), 2430. (UMI No. 9842069)

**Appendix K**

**Evolution of Earth-centered Leadership**



### The Evolution of Earth-centered Leadership

In the beginning...

**Flaring Forth**

Spiral galaxies



Humanity

**indigenous**

In the West

**animus**



anima

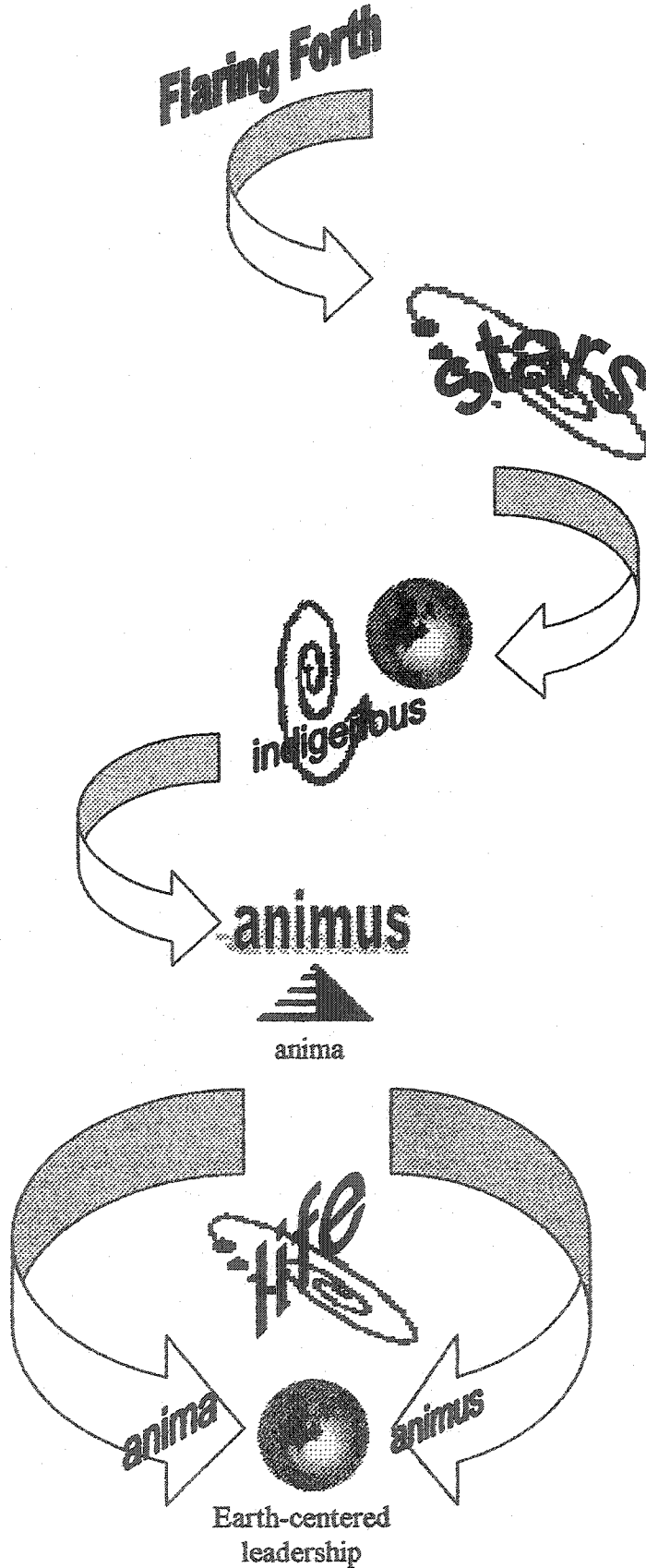
Earth

**life**

**anima**

**animus**

Earth-centered leadership



**Appendix L**

**Letter to Panel of Experts**

February 22, 2005

Dear

I am asking for your help in a research study that is the basis for my doctoral dissertation in Educational Leadership at Seattle University. The title of my dissertation is "Alternative Leadership Strategies Based on Earth-centered Principles".

This research study has been inspired by your writings and work in leadership based on the new story and worldview that is emerging on the evolution of Earth and the role of the human within that story. This research is the researcher's way of responding to the invitation as offered by you for all who are willing to help and share in this story to come forward and help "tell the story". I come forward and seek your assistance in a manner that I hope will take very little of your time.

What I am asking of you is this:

1. *to nominate 3-7 persons you consider as authentic leaders who:*
  - a. will be able to reflect on Earth-centered principles and relevance and application to leadership
  - b. offer diversity in gender, age, ethnicity, and role in leadership

If possible, I would be most grateful if you would also consider the following:

2. to review and offer feedback on the enclosed questionnaire
3. I would love for you to consider completing the questionnaire to add your wisdom to our community dialogue—for you to respond to as many or as few of the questions as your precious time allows.
4. If at all feasible, I would love the opportunity for a short interview with you to capture your wisdom and insights on Earth's leadership.

I am interested in seeking the insights and wisdom of educational leaders, youth leaders, leaders in science, political leaders, Native American leaders, and international or national leaders who influence public opinion.

I will send each nominee a letter noting who suggested their name and asking them to participate in this study. If they consent, they will complete the enclosed, simple questionnaire. I will summarize the responses and send a copy of the summary to all participants. Each person will have a chance to modify or elaborate upon his/her earlier responses. A summary of these responses will be distributed for final comments.

The findings of the study will be sent to all who participate, including you. In this way, a community will be able to share conversation and reflections on an area of interest, which is important to all.

I have enclosed the nomination form for you to return in the pre-addressed envelope and a copy of the questionnaire. *Your comments on any of the material are welcome and appreciated.*

Returning your response by March 8 is greatly appreciated, so our research study can begin.

I thank you for your inspiration and for your support in helping me.

Sincerely,

Janet Brakebill  
4626 244<sup>th</sup> Pl. S.E.  
Issaquah, WA 98029  
Cell phone: (425) 891-6657  
Email: [janetb@u.washington.edu](mailto:janetb@u.washington.edu)

John Jacob Gardiner, Ph. D.  
Doctoral Dissertation Advisor  
Seattle University  
Educational Leadership/School of Education  
Loyola 413  
900 Broadway  
Seattle, WA 98122-2443  
Work Phone: (206) 296-6171  
Email: [gardiner@seattleu.edu](mailto:gardiner@seattleu.edu)

**Appendix M**  
**Nomination Form**

Alternative Leadership Strategies Based on Earth-centered Principles  
Nomination Form

Person Nominating: \_\_\_\_\_

Please list 3-7 persons in leadership who you believe are life-enhancing, authentic and effective in leadership based on Earth-centered principles. Please return this form in the enclosed envelope.

1. Name:

Position/Organization:

Contact Information/Mailing Address/email address

2. Name:

Position/Organization:

Contact Information/Mailing Address/email address

3. Name:

Position/Organization:

Contact Information/Mailing Address/email address

4. Name:

Position/Organization:

Contact Information/Mailing Address/email address

5. Name:

Position/Organization:

Contact Information/Mailing Address/email address

6. Name:

Position/Organization:

Contact Information/Mailing Address/email address

7. Name:

Position/Organization:

Contact Information/Mailing Address/email address

Signature of Person Nominating: \_\_\_\_\_ Date: \_\_\_\_\_

**Appendix N**

**Study Participant Letter of Invitation**

March 16, 2005

Dear

recommended I write you. I am inviting you to participate in a conversation with a group of peers on the topic of alternative leadership strategies based on Earth-centered principles. This conversation will form the basis of my doctoral dissertation in Educational Leadership at Seattle University, "Alternative Leadership Strategies Based on Earth-centered Principles". You have a voice I would like to hear as I conduct a Delphi study on an alternative way to lead.

This project began with a request to a select group of persons to act as a "Panel of Experts." This panel has named persons who they believe are life-enhancing, authentic and effective leaders and will be able to reflect on Earth-centered principles and relevance and application to leadership.

identified you as an authentic leader who meets these criteria.

Here is what I am asking:

1. Complete the enclosed questionnaire *as fully or briefly as your time allows* and return it to me in the pre-addressed, stamped envelope by March 26th.
2. I will summarize the responses from this first questionnaire and send a copy of the summary to all participants.
3. You will have the opportunity to review peer responses and to modify or elaborate upon any of your earlier remarks.
4. A summary from this second response will be sent to you for final comments. A summary of final results will be sent to all who participate.

In the test pilot, it took only 20 to 45 minutes to complete the enclosed questionnaire. It should take no more than 20 minutes for the first summary, and 10 minutes for the final summary. *In other words, you can help create and participate in a provocative and significant conversation with an international group of fellow leaders on an important emerging issue with a total time investment of approximately 60 minutes over two months.*

Enclosed is the questionnaire, an envelope, and a summary describing this research project. I thank you humbly for your willingness to help. If you would like to nominate other leaders for participation in this study, a nomination form is included.

Sincerely,

Janet Brakebill  
4626 244<sup>th</sup> Pl. S.E.  
Issaquah, WA 98029  
Cell phone: (425)-891-6657  
Home phone: (425) 557-9070  
Email: [janetb@u.washington.edu](mailto:janetb@u.washington.edu)

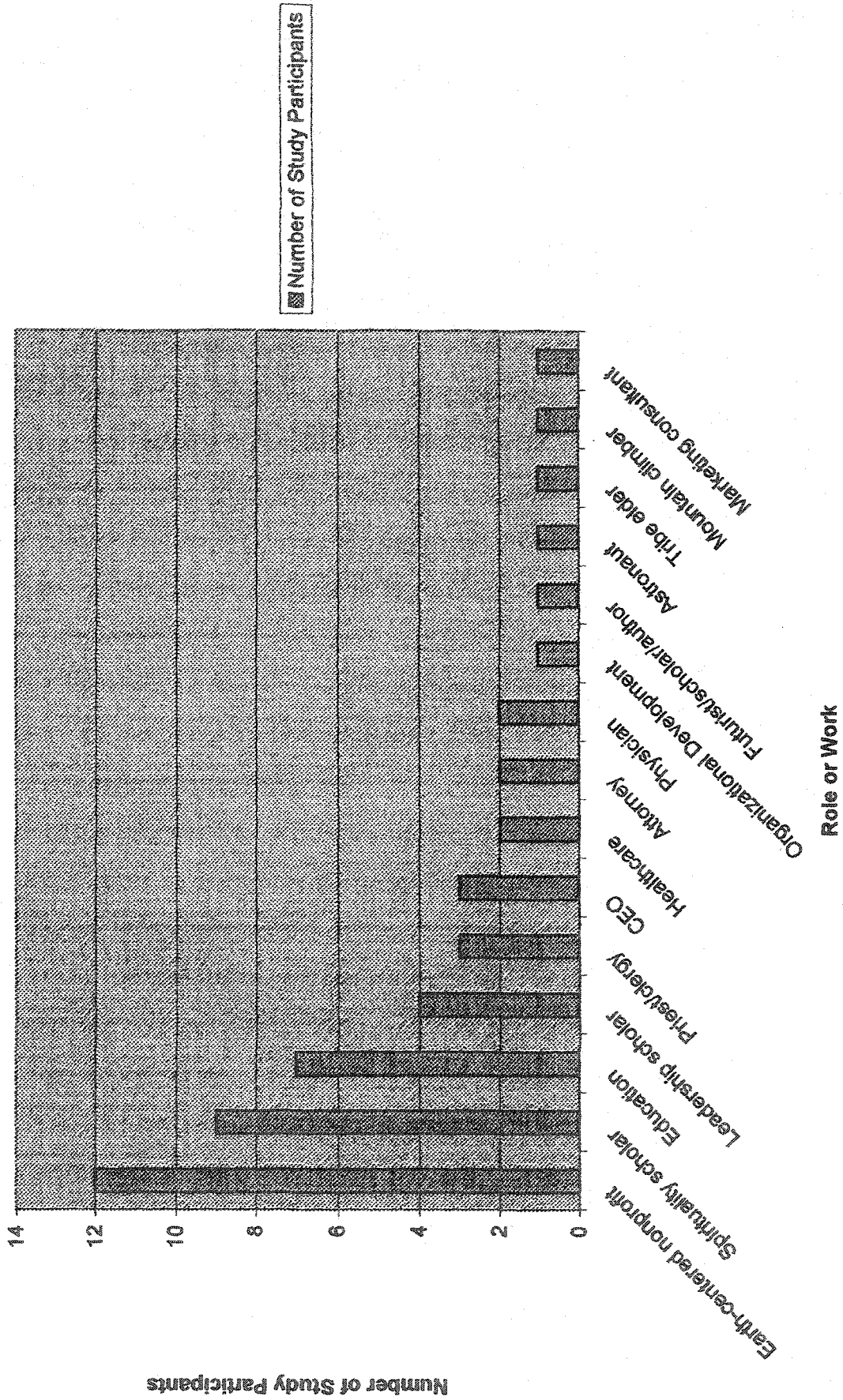
John Jacob Gardiner, Ph. D.  
Doctoral Dissertation Advisor/ Seattle University  
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## **Appendix O**

### **Role of Work of Study Participants**

Role or Work



Role or Work

Number of Study Participants

Number of Study Participants

**Appendix P**  
**Questionnaire One**

## Questionnaire

*Alternative Leadership Strategies Based on Earth-centered Principles*

Code: \_\_\_\_\_

Please respond to the following questions *as briefly or fully as time allows*. You may use the back of the page of the questionnaire or additional sheets if necessary.

For the purposes of this research study Earth-centered principles are described as:

*the natural laws in the evolution of our Universe and Earth. These are the foundational principles engaged by Nature in the evolution and creation of Earth. They are the principles that have been operational throughout the history of Earth's evolution. Earth-centered principles are the self-governing processes of the Universe—the principles in the self-emergent processes of the universe.*

1. How important do you believe these principles are to leadership? Please circle one of the following and provide a comment or explanation to support your response, or a brief example from your own experience.

- 3. Essential – a must for leadership
- 2. Important
- 1. Somewhat important
- 0. Not at all important

2. At any time in your life, or in your work, have you ever had an experience in Nature, or working with Earth-centered principles that helped you in understanding leadership or have helped you in your effectiveness as a leader? Please briefly describe this experience, or share a story of this experience.

3. Please consider Earth-centered principles in relationship to leadership. Then identify five leadership strategies or practices needed for Earth-centered or life-enhancing leadership.

a)

b)

c)

d)

e)

4. How do you see the potential application of Earth-centered principles into organizations?

not  
necessary  
1

seldom  
necessary  
2

occasionally  
necessary  
3

often  
necessary  
4

always  
necessary  
5

5. What is your definition or description of leadership?

6. Please describe the characteristics of a leader who embodies Earth-centered leadership. In other words, please describe a leader who embodies life-affirming or life-enhancing leadership.

7. How important do you believe the following principles are to leadership? For each of the principles listed on the left-hand column, please indicate in the space provided the number of your response. Use the rating scale below. (Note: You are not being asked to rank order the principles.)

3. Essential – a must for leadership
2. Important – should be
1. Somewhat important – would be nice, but not necessary
0. Not at all important – no need in leadership

In the right hand column, please provide a comment or justification to support your conclusion, or a brief example from your own experience, of how you have applied this principle as an effective leader.

No.	Principle	Comment/Example
_____	<p><i>Differentiation:</i> Every thing is uniquely different from everything else—<i>diversity</i></p>	
_____	<p><i>Subjectivity:</i> The self-organizing dynamic of “within;” interiority—<i>identity</i></p>	
_____	<p><i>Communion:</i> Every thing is related to everything else—<i>interconnectedness</i></p>	
_____	<p><i>Holon/holarchy:</i> the embeddedness of living entities within each other—<i>wholes within wholes</i></p>	
_____	<p>Understanding of the story of our Universe’s and Earth’s evolution</p>	

On the following page is a request for some demographical information for the purposes of data analysis. I want to assure you of the protection of your confidentiality. Your name will never appear on any survey or research instruments. These will be coded to protect confidentiality. No identity will be made in the data analysis, without your approval. All written materials will be stored in a locked file in the researcher’s office. Your response(s) will appear only in statistical data summaries. The researcher does intend to publish and present study results. Your name will never be revealed without your consent, review, and approval of any information shared in reference to your specific responses. Thank you.

Your name \_\_\_\_\_

Position/job/work \_\_\_\_\_

Gender:	<input type="checkbox"/> M	<input type="checkbox"/> F				
Age:	<input type="checkbox"/> 16-25	<input type="checkbox"/> 26-35	<input type="checkbox"/> 36-45	<input type="checkbox"/> 46-55	<input type="checkbox"/> 56-65	<input type="checkbox"/> 66+
Ethnic Origin:	<input type="checkbox"/> African-American/Black	<input type="checkbox"/> Latino/Hispanic	<input type="checkbox"/> Filipino			
	<input type="checkbox"/> American Indian/Native American	_____ (please include tribe)				
	<input type="checkbox"/> Caucasian/White	<input type="checkbox"/> Asian (Chinese/Japanese/Korean)	<input type="checkbox"/> East Indian			
	<input type="checkbox"/> Samoan/Pacific Islander	<input type="checkbox"/> Other	_____			

**Appendix Q**

**Round Two Response Form**



**Round Two Response Form: Part 1**

The tables below show the ratings of Earth-centered principles and leadership. The numbers in the boxes below the ratings show the number of people who chose that rating. Your individual rating is also shown.

Please ask yourself again, the questions as presented. Then please confirm or change your rating. Enclosed in the packet are the comments from each question from our community of learners, for your review, if that helps you decide how to respond.

**1. How important do you believe Earth-centered principles are to leadership?**

- 3. Essential – a must for leadership
- 2. Important
- 1. Somewhat important
- 0. Not at all important

	3	2	1	0	Not rated	Your previous rating is below:	I agree with my previous rating:	I change my previous rating. Circle below
Earth-centered Principles and Leadership	36	16			3		___yes ___no	3 2 1 0

n=55

**2. How do you see the potential application of Earth-centered principles into organizations?**

- always necessary 5
- often necessary 4
- occasionally necessary 3
- seldom necessary 2
- not necessary 1

	5	4	3	2	1	Not rated	Your previous rating is below:	I agree with my previous rating:	I change my previous rating. Circle below
Application of Earth-centered principles	29	21	1			4		___ yes ___ no	5 4 3 2 1

n=55

**3. How important do you believe the following principles are to leadership?**

- Differentiation (Diversity)
- Subjectivity (Interiority, Identity)
- Communion (Interconnectedness)
- Holon/Holarchy
- Earth's Story

3. Essential – a must for leadership
2. Important – should be
1. Somewhat important – would be nice, but not necessary
0. Not at all important – no need in leadership

*(Note: In the table, I listed differentiation, subjectivity, and communion in order of frequency of responses.)*

<i>Principles</i>	3	2	1	0	Not rated	Your previous rating is below:	I agree with my previous rating:	I change my rating. Circle below.
Communion	51	2			2		<input type="checkbox"/> yes <input type="checkbox"/> no	3 2 1 0
Differentiation	43	9	2		2		<input type="checkbox"/> yes <input type="checkbox"/> no	3 2 1 0
Subjectivity	36	12	2		5		<input type="checkbox"/> yes <input type="checkbox"/> no	3 2 1 0
Holon/Holarchy	31	15	5		4		<input type="checkbox"/> yes <input type="checkbox"/> no	3 2 1 0
Earth's Story	21	20	11	1	2		<input type="checkbox"/> yes <input type="checkbox"/> no	3 2 1 0

n=55

**Round Two Response Form: Part 2**

Please read over the description of responses and the “blue summary” statement for each question. If you concur with the “blue” summary statement—if it reflects your beliefs and experience—please check the blank marked “Concur.” If you feel the statement does not adequately reflect your beliefs or experience, check the blank marked, “Revision Suggested” and note your suggestion for revision. Please remember that the purpose is not to create a consensus where consensus does not exist, but rather to have each person consider and respond to what our particular community of learners is saying. Thank you.

**4. At any time in your life, or in your work, have you ever had an experience in Nature, or working with Earth-centered principles that helped you in understanding leadership or have helped you in your effectiveness as a leader?**

*Fifty-one of fifty-five responses said “yes” and described stories of this experience.*

*Summary of Stories:* Twenty-seven responses described experiences in Nature, twenty-two responses described experiences at work, and two responses described “dream/light experiences.” Twenty-nine responses described the “felt sense” of inner peace and understanding as a result of experiencing Earth-centered principles in Nature and/or at work. Twenty-three described a transformation in life or in life’s work as a result of an experience in Nature and Earth-centered principles—this resulted in eight individuals choosing to become “teachers” of Earth-centered principles. Twenty-two responses described a deep feeling of interconnectedness and interrelatedness—“we are one”—as a result of an experience in Nature or experiencing Earth-centered principles in the workplace.

*“Earth-centered principles, as experienced in Nature or in the workplace, help in understanding leadership and leadership effectiveness.”*

\_\_\_ Concur

\_\_\_ Revision Suggested

*(The stories each of you shared are truly awe-inspiring. They fill me with wonder and with hope for our future. With your permission, I will provide a copy of your story to share with our community of learners in the final summary of Study Findings. These stories will be coded to protect confidentiality. Michael Schut agreed that I could share his inspiring story with you now.)*

I agree to have my story shared with the Study Participants \_\_\_\_\_

Signature and Date

Note: The stories are coded with a code name to protect confidentiality.

**5. What is your definition or description of leadership?**

*Responses for this question were particularly diverse. Common themes are described below with numbers of responses in parentheses.*

**Leadership is...**

influencing/inspiring/facilitating, with genuine presence and modeling, the emergence of the authentic self, in self and in others—*subjectivity/identity* (31 responses); understanding and valuing the interconnectedness of the “whole” in goal achievement for the individual and the organization—*communion, holon/holarchy* (30 responses); holding a vision and evoking dreams with a future-focus while understanding the present reality—including knowledge of current conditions and future trends on Planet Earth (19); embodiment/modeling of “values into action” with trust, honor, love, and integrity (18); transformational as a catalyst for creating change *with* others—action (17); respecting diversity by honoring all voices with an open, listening, and reflective heart—*differentiation* (13); serving others in helping to achieve recognized needs—*servant leadership* (13); creating a safe “container”/space for community and emergence of self (12); being alive with passion, reverence, and appreciation for beauty—with celebration (7); the art of evoking creativity—a creative process (6); contextual, with Earth recognized as a primary context in decision-making (6); embracing risk & fostering experimentation (4); courageous in “standing unshaken for beliefs” (4); humble—a learning process (4); hiring the right people (4). Other responses include: effective communicating via stories (2); building hope (2); honoring humor (2); spiritual (2); compassionate with understanding of grief and loss (2).

***“Earth-centered leadership honors differentiation (diversity), evokes subjectivity (the authentic self/identity), and enhances communion (interconnectedness).”***

\_\_\_\_\_ Concur

\_\_\_\_\_ Revision Suggested

***“By honoring differentiation, evoking subjectivity, and enhancing communion, Earth-centered leadership fosters creative evolution of the individual and the whole, including Earth (cosmogenesis).”***

\_\_\_\_\_ Concur

\_\_\_\_\_ Revision Suggested

**6. Please describe a leader who embodies Earth-centered, or life-enhancing leadership; the characteristics of a leader who embodies Earth-centered leadership.**

Please review the values/characteristics for an Earth-centered leader as described in your responses. If you concur with these values, please mark "Concur." If you do not agree with any of these values/characteristics, please mark "Revision suggested" and note your recommendations for revision.

<i>An Earth-centered leaders values or embodies:</i>	Number of Responses*	Revision suggested – Optional
Community/Interrelatedness	41	
Respect/Diversity	32	
Evokes authentic self/subjectivity	28	
Humility	27	
Mutually-enhancing human-Earth relations	24	
Authenticity	24	
Attentive openness/listening	24	
Intellectual openness/knowledge	22	
Love/Care	20	
Courage/Embraces risk/Experimentation	19	
Self-awareness	17	
Ethics/Morals/Truth/Reconciliation	16	
Vision	16	
Flexibility	15	
Change catalyst/Evolutionary agent	14	
Creative and imagination	12	
Spirituality/A sense of the sacred	11	
Teaching/learning	11	
Reverence and gratitude/Celebration	11	
Compassion	11	
Responsibility/Responsible	10	
Trust/Trustworthiness	10	
Self-reflection	9	
Seeks wisdom/Discernment	9	
Sense of humor	9	
Wonder & amazement/Values beauty	8	
Collaborative	8	
Genuine presence/Mindfulness/"Now"	8	
Able to let go/Surrender	5	
<i>Thank you! ☺</i>		

\*n=55

\_\_\_\_\_ I concur with these values/characteristics

\_\_\_\_\_ Revision(s) suggested, as noted

Round Two Response Form: Part 3

7. Identify five leadership strategies or practices needed for Earth-centered leadership, or life-enhancing leadership.

Instructions:

1. Please indicate your opinion by circling the number that best describes your answer to this question: "I believe this strategy/practice/behavior is "always necessary, often necessary, occasionally necessary, or not necessary" for Earth-centered leadership.
2. A limited space is provided if you wish to comment on your rating. This is optional.
3. Thank you... Your Great Work in sharing your voice is nearly complete in helping me in my Great Work—"our dissertation." *The words below are your awesome and wondrous voices.*

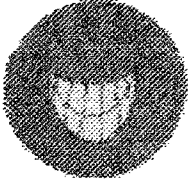
The rating scale is:      always                      often                      occasionally                      not  
    necessary                      necessary                      necessary                      necessary  
    4                                      3                                      2                                      1

Rating	Strategy/Practice/Behavior and Earth-centered leadership	Comment
4 3 2 1	In decision-making, the community needs to be the "total community of life" – not just humans	
4 3 2 1	Fosters diversity by welcoming differences, moving away from homogenization in all forms, especially "Group Think." Invites the gift of diversity to have an honored voice in every setting—listening to people coming from different perspectives and experiences.	
4 3 2 1	Listening with an open heart—deep listening to self and to the other.	
4 3 2 1	Encourages and supports change being attentive to that which is trying to EMERGE rather than fostering and maintaining "the same."	
4 3 2 1	Trusting in the gifts of each person and educating toward the use of discernment and self-referencing and self-awareness.	
4 3 2 1	Creating the safe space or "container" for growth and learning—fostering and nurturing the self and the culture—a sense of the workplace as sacred space for the honoring of integrity of all aspects of life and impact on body, mind, & spirit.	
4 3 2 1	"Enlightened communication" that encourages conversations to take place in the group from a place where each is challenged to speak from the authentic self as opposed to the EGO self.	
4 3 2 1	Pays attention to the process, not just the outcome of a decision and/or interaction.	
4 3 2 1	Has a personal practice (spiritual or similar) that constantly renews the self in a grateful humility.	
4 3 2 1	Engaging in dialogue, rather than argument or debate.	

4	3	2	1	<p>Ecological Justice:</p> <ul style="list-style-type: none"> <li>- Toward Earth, toward all the peoples of Earth, and toward all creation with respect.</li> <li>- Creating policies that are Earth-friendly and "green."</li> <li>- A closed-loop supply chain (cradle to cradle) is identified and managed with emphasis on reducing, re-using, and recycling all resources extracted from Earth.</li> </ul>
4	3	2	1	<p>Viewing organization and groups as "systems" and thus gaining perspective with systems thinking. Watching organizational life through the lens of living systems. How do we connect and energize fields and elements of the system to gather the wisdom?</p>
4	3	2	1	<p>Recognizing the potential seeds, good, &amp; growth in chaos and ambiguity—able to navigate in the dark. Ability to hold paradox, balance dualities, &amp; to dwell in ultimate mystery and unknowing while still acting.</p>
4	3	2	1	<p>Grounding—spending time in Nature and growing in the understanding that we are Nature—developing an ecological imagination.</p>
4	3	2	1	<p>Learning organization: Self-organization is always happening and focusing on learning helps the system grow and adapt. What connections and learning is needed at this time? How to foster learning communities that unleash the collective intelligence and creativity of the group/organization?</p>
4	3	2	1	<p>Understanding, teaching, and applying the laws/principles of Nature.</p>
4	3	2	1	<p>Practice of play or having a hobby that releases personal creativity so that one sees with fresh eyes.</p>
4	3	2	1	<p>Practice of changing our sense of time—whether that be through meditation practice or taking public transport rather than driving—releasing the self from time-driven efficiency. Values the "slow movement" allowing a sense of organic flow in life rather than the constant frenzy.</p>
4	3	2	1	<p>Understanding that life relentlessly emerges following death. A commitment to change as adaptive to life—willingness to enter into the "disequilibrium" to choose life.</p>
4	3	2	1	<p>Appreciating the "life cycle" of ideas and initiatives—every project goes through a natural evolution—respects natural rhythms and cycles.</p>
4	3	2	1	<p>Leading from the long-term view (7<sup>th</sup> generation) rather than short-term perspectives. Encouraging solutions to micro problems in terms of macro realities. How do our actions affect the people and the planet in the coming generations? How do we bring these voices in to inform our work?</p>

4	3	2	1	Ask the question often: "What does it mean to be human in this 21 <sup>st</sup> century?"
4	3	2	1	Always consider a triple bottom line—all decisions must be assessed from perspective of people, planet, and profit.
4	3	2	1	Use of metaphor and storytelling—are energized and nourished by story and shared dream experience.
4	3	2	1	Trusting people in their ability to seek their own health and healing—self-responsibility.
4	3	2	1	Utilization of science knowledge and deep transcendental insights.
4	3	2	1	Serving life; How are my actions, practices, and decisions serving life and allowing it to flourish? How do my practices support me as a leader and support others in being their best?
4	3	2	1	Aligned to the unfolding dynamics of our Universe—studies and understands the ongoing story of our Universe and grappling with contemporary local/global challenges threatening life of our planet.
4	3	2	1	Shared Leadership: - Structural circles rather than hierarchy within organizations. - Shared governance and self-directed teams.
4	3	2	1	Cultivating a sense of kinship in leadership styles, especially with people different from ourselves. A new paradigm to govern in a corporate culture where there is mutuality of leadership for a better world.
4	3	2	1	Dependable and strong to be true to what is needed in the face of others who disagree after taking in all voices—supports mindfulness.
4	3	2	1	Dedication to seeing reality—holding high ideals and seeing the complexities and ambiguities in self, others, and all situations.
4	3	2	1	Integrated in feminine & masculine aspects of self.
4	3	2	1	Embraces the integrated person in body, mind, and spirit, including in the workplace.
4	3	2	1	Ongoing commitment to create a coherent sense of identity for the organization.
4	3	2	1	Consensus on mission with context of Earth/of our Universe story.
4	3	2	1	Fosters an open flow of information throughout the organization.
4	3	2	1	Adopt programs, policies, and education toward reintegration of human knowledge.
4	3	2	1	Encourage massive public and private education on all mass media concerning our species' situation on Planet Earth.
4	3	2	1	Create policies that promote decentralized, diverse approaches to problems.



4	3	2	1	Uphold human rights for all and standards for human responsibilities: Adopt the Earth Charter. <a href="http://www.earthcharter.org">www.earthcharter.org</a>	
4	3	2	1	Re-balance policies and culture which over-reward competition and balance these with rewarding cooperation and sharing. Overhaul the profession of economics and bring all disciplines back into policy analysis.	
4	3	2	1	Compassion for the learning processes and developmental stages of the human species, with understanding of the various human experiments at collective organization.	
4	3	2	1	Understand the integration of communion, subjectivity, and differentiation. Seek to honor the authenticity of each individual. Seek diversity in the group, and help all to know each other well, cooperating together. Build communion with the group reflecting together in problem-solving, mutual support, and teamwork.	
4	3	2	1	Understand cosmogenesis—that a healthy organization is always evolving. Encourage new ideas and critique, even when not pleasant to hear.	
4	3	2	1	Affirmation and appreciation of each person's contribution in a commitment our Great Work of making Earth succeed.	
4	3	2	1	A revolution in the thinking of humankind in the broad-based education, internalization, modeling, incorporation, and commitment of Earth-centered principles into practice with appropriate monitoring and feedback. Providing time and budget for conscious adoption of work practices which reflect Earth-centered principles.	

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Signature

**Thank you!**

**Appendix R**  
**Study Participant Letter Round 3**

**SEATTLE UNIVERSITY****Alternative Leadership Strategies Based on Earth-Centered Principles  
Round Three**

Date \_\_\_\_\_

Dear \_\_\_\_\_

We now enter the final round of our conversation. Your task for Round Three will be quite easy.

The responses from Round Two have been summarized. [A description here of the suggestions and changes made]

For Round Three of our conversation, please review this final draft of statements and take one of two actions:

1. If you feel the statements do reflect your beliefs, you do not need to respond. I will assume you are satisfied with what is being said.
2. If you feel that any statement does not reflect your beliefs, please note this on the sheet and return it in the enclosed envelope or fax by \_\_\_\_\_.

This is the final summary. This summary attempts to convey what we have accomplished in our conversation. I am grateful and humbled by your willingness to help and to participate.

Sincerely,

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**Appendix S**

**Study Participants' Comments Question 1**

## DATA FINDINGS

### Questionnaire 1

#### *Question 1 comments*

*How important do you believe these principles are to leadership? Please circle one of the following and provide a comment or justification to support your response, or a brief example, possibly from your own experience.*

#### **Test Pilots**

*Begonia (2):* For me, it is important, and for others conscious, aware, educated, perhaps for the majority of the Earth's peoples, the self-governance of the Universe is known from the ways of the seasons and harvest, etc. This can be/is subsumed by the political governing processes.

*Baby's Breath (3):* The role of maintaining balance between the forces of identity, diversity, and community is essential to the health and welfare of the enterprise to continue as an emergent reality. If the leader permits any one force, such as identity, to surpass the perceived value of another the entity will fail to realize its true potential.

*Buttercup (3):* You must have diversity to see things from different angles so that you see the whole. It's also essential to feel connected, part of the whole. It gives one identity and confidence. To recognize diversity and interconnectedness as powerful tools in leadership would be ideal.

*Cactus (3):* A must for leadership. Leadership, if it is true leadership, must recognize life, love, responsibility, morality and be able to motivate.

#### **Panel of Experts**

*Evergreen (3):* Our species needs to learn to be better aligned with Earth's sustainability...and those of other species inhabiting Earth.

*Apple (3):* We need to recognize our interdependence with the rest of creation. As human species, we are the self-reflective consciousness of Earth, of our Universe.

*Ash (3):* Leadership has a lot to do with influencing others about change. Differentiation in a leader is the ability to see others as different from yourself, to respect that difference, and to promote the well-being and thriving of that other person. It is only because we are different that we exist at all. Recognizing and honoring our own difference is foundational to recognizing and honoring the difference of others.

Interiority, subjectivity, autopoiesis—this is the core out of which we come. If we have little self-knowledge, work to win approval of others rather than to create conditions for others to thrive, lack authenticity, we will fail as a leader.

Communion is the beginning of existence. Subjects always move toward communion—by nature we seek, need, must have communion. But as soon as communion occurs, something new is created. A leader without communion can only dictate or promulgate, not lead. Communion is the test of difference and interiority—unless these lead to communion they are suspect.

*Beech* (3): If leadership can be understood as creating, among those who would follow, the conditions that through harmony, balance, and peace make it possible for beauty to shine forth, then they are essential.

*Aspen* (3): A lot depends on one's background, family. The importance of Earth-centered principles depends on the person but given the way I was raised, it is very important, essential. But I understand that not everyone thinks this way.

*Elm* (3): For example, the dynamic interdependence of all of life is a critical feature of the consciousness that a viable practice of leadership for today's world must take into account.

*Hawthorne* (3): If humans must be resonant with natural processes to find happiness and success certainly leadership must typify this knowledge or the process fails.

### **Study Participants**

*Lilac Beaver* (3): We have become exceedingly arrogant in our "control" of our environment, social and physical. I think there are people who really believe they can control every aspect of their lives. 9/11 changed that to a degree. Now we're looking for someone to protect us and fear has become a way to control.

*Palm cat* (2): Human activity must not exceed the "carrying capacity" of the planet. Locally, where this does occur, civilizations fail. (See Jared Diamond's new book—*Collapse*.)

*Honeysuckle Bear* (3): As Earth goes, so goes the children of Earth.

*Orange Bull* (2): I believe in the interconnectedness of the elements of the Earth—water to land for example. I also relate to mutual consistency and a cosmogenetic principle. The chart of "as articulated by indigenous people" in your introductory letter are certainly part of my leadership beliefs and practices.

*Daisy antelope* (3): Leadership in the true sense cannot exist in anyone who ignores Earth-centered principles or lacks awareness of them.

*Walnut Dog* (2): Whether conscious or not, possibly just intuited, the laws of evolution are the laws of each person's development, each organization's development. It's how we move toward wholeness at every level. The leader is someone who is ahead of the rest of us perhaps in this movement and helps us more closer.

*Holly Bat* (3): Since the 17<sup>th</sup> Century, the common understanding of an organization was a machine. A leader was thought of as an engineer, creating efficient solutions through control and various tools and techniques. But this model does not help organizations be what they need to be: adaptive, self-renewing, resilient, learning, intelligent as Margaret Wheatley has pointed out. The old model does not work.

*Sycamore Deer* (3): There have been many leaders who have not been aware of Earth-centered principles. I would hope future leaders would be, but it will come gradually. It's essential for my preferred kind of leadership to be aware of these principles. There are other kinds of leaders. We are in evolution in leadership as everywhere else.

*Heather Badger (3)*: An understanding of these principles is essential for the conscious evolution of the Universe. A “conscious” leader must incorporate these principles if their leadership is to have authenticity today in the unfolding story of the Universe.

*Clover Elephant (2)*: In principle, they are a must for understanding how change happens—out in practice, lots of leaders have been effective neither knowing nor following these principles. I do believe they offer a rich metaphor for a further understanding and hence, possibly more effective action.

*Daffodil Elk (2)*: We use the celestial Universe to guide us in our movements, i.e. navigation on the oceans, lands.

*Cypress (3)*: *I am Right, You are Wrong*. Title of a great book by Dr. Bono. He talks about self-organizing systems. The description of Earth-centered principles is pure stoicism, and I couldn't agree with you more. Epictetus, Marcus Aurelius, and Seneca are nodding their heads in agreement. “According to Nature” is their mantra. I believe that the current moves toward “sustainable development” and communitarianism fit into this category of Earth-centered principles.

*Willow Dolphin (2)*: Earth Ministry has for years been led in a nonhierarchical, almost family-like way. The professional staff even served on the board as voting members. That worked when our founder was Executive Director. It's a long story, but basically once he resigned we have eventually found it necessary to move toward more hierarchy, standardization, separation between board and staff, and so on. The former method seems more ecological in some ways, although ecological systems certain have “players” with certain distinct roles.

*Spruce Coyote*: Short Term: less than a lifetime in outlook—not important. Reason—The usual rules of consequences of ignoring Earth-centered principles take longer to affect life quality. Long Term: outlook of more than our lifetimes—Essential. The laws of consequences are for real and are ignored at considerable peril to the oceans and to collateral life. My point isn't that it is ever safe to ignore Earth-centered principles. Rather, that leaders can succeed in leading, for a while, without a thought to Earth-centered principles. Most historically known leaders have done so ~ Alexander the Great, Moses, Mohammed, the Medici, and in modern times, Roosevelt, Stalin, Churchill, and more recently, President George Bush.

*Dahlia Fox (3)*: These are the laws by which everything that exists has evolved into such beauty and fluorescence and we (leaders, organizations, etc) are part of this totality; therefore, these same evolutionary principles apply to us.

*Geranium Goat (?)*: Well, I have two ways to answer this one. First – I think understanding the scientific principles that govern the universe is extremely important to leaders involved in any work having to do with natural “resources,” materials, economics, sustainability, science education, etc. They must understand natural constraints on human activity in the world. For leaders involved in work that does not deal directly with earth systems (for example, most branches of theology, psychology, organizational development, software, many businesses and industries, many parts of government, etc.), I don't think understanding these principles is very important. Finally, I think it's important to understand that scientists' understanding, of what those “self-governing processes” of the universe are, changes over time – since our understanding of these principles is not immutable, it could be risky to design leadership principles based on that understanding. Science history demonstrates that over and over, humans have unintentionally superposed human-centered principles on natural systems, inescapably (as we all are) influenced

by the thinking of their times. I think it's more respectful of Earth and Universe systems to not try to push them into governing human interactions (which are on very different scales and subsystems), but to let them apply only to the large-scale systems for which they were developed.

*Gladiola Groundhog (3)*: We live in a time when not only leadership but our very lives must be grounded in life-giving/life-restoring models. Earth-centered principles is one, the Gospel is another, moral philosophy still another.

*Habiscus Horse (3)*: Mother Earth has existed for tens of millions of years and what keeps it in existence, let alone the Universe we are in? There are certain laws which are met and must be met for our perpetual existence. To break any one of them will be met with consequences. These are the natural laws. They are Absolute laws. It is an absolute must to learn them, to feel them, to live them. In this respect, one must pave the way so that others can follow that example. This is what all Avatars have done for us—their leadership is essential for us to do the same.

*Hyacinth Leopard (3)*: A leader must have a goal, a place to lead to. Our world and our position in it as a country and as an individual requires an understanding of life-affirming principles.

*Iris Lion (3)*: If we are moving toward transformative leadership I believe these principles are essential. *Leaders must deepen interiority, protect diversity, and foster communion.*

*Marigold Lynx (3)*: For genuine, lasting organizational shifts, these principles are essential. Example: My congregation was facing a multi-pronged developmental project, including sale of land, development of low cost housing, building a new sanctuary, and the environmental restoration of an adjacent creek. Rather than concentrate decision-making in a few “at the top,” we opened up the process of discernment to all stakeholders, i.e. recognizing that “subjectivity” and diversity were the basis for a new, trusting reality we were seeking. By respecting all voices, including the Earth, contractors, neighbors, county planners, etc., we were able to not only complete all aspects of the project, but do so in a way that created intimacy and trust among all participants.

*Lily Otter (3)*: I think the principles are essential because they are “foundational wisdom” and “forces of guidance” that have been operational for 13.7 billion years. The principles are tried and true; they support life and ongoing evolution. As leadership takes on “planetary dimensions” these principles will be essential as differentiated subjectivities come together in communion to make decisions that affect the whole and the future.

*Rosemary Bluebird (2)*: I would say “essential,” but for me the language “earth-centered” limits inclusion. I would say every truly inspired leader operates in accord with the way of the Universe, but they may not articulate it as “earth-centered.”

*Snapdragon Bluejay (2)*: I think that they are important because nature informs us a lot about creating systems that affirm life, that promote and encourage balance and that are sustainable. I think that humanity has many dynamics that may not be found in what we call nature—free will, greed, power dynamics, race, gender differentiation, etc. Those things affect how the focus of ‘nature’ play out in the human realm. Nature is thus important, and learning from it is important, but we cannot take everything from nature at whole sale.

*Violet Cardinal (2)*: As humans, we are not separate from the Universe, but are part of it. If we observe deeply and learn the evolution of the earth, we will see how we, as human beings are in a relationship to the rest of the natural world. Leaders who observe and follow the fundamentals of



the Earth, could unleash all the energies in that are available in their organizations to achieve their objectives, often with little effort. One of the critical characteristics of a successful leader, is the ability to see and understand that the Universe can provide real, meaningful and lasting change that will naturally lead to the control of many problems that humans are facing. The understanding that, it is the planet itself that brings humans into being and sustains them in life, is very critical for a leader. This understanding will enable a leader to influence businesses that will enable organizations to establish a more viable way into the future.

*Sunflower Canary (2):* Earth centered principles are growingly important, though I can imagine a time in the near future where they will be essential. The way we are organizing human endeavors is in a period of change. The complexity of business and leadership is rapidly outstripping individual's capacity to comprehend what is happening and what the future will bring. This is inviting a "letting go" of old mechanistic models of leadership and replacing them with "living systems" models. I don't think it is broadly understood though it is clearly a quickly growing edge.

*Douglas Fir (2):* These principles must be tempered with anthropocentrism and regard for the local experiments of life on Planet Earth and compassion for the developmental processes underway of *homo sapiens*.

*Frog Dove (3):* We are part of the evolutionary process. To lead in a manner that ignores these laws and principles is to contradict the very process in which we are embedded and dooms the best goals of leadership to failure.

*Butterfly Eagle (3):* For authentic and empowering leadership, these principles are essential. However, not all working situations value or uphold them. While I believe they are also intuitive and instructive in people, other internal forces within people can also cloud a leader's capacities to express them effectively.

*Finch Panther (3):* Whether it is recognized or not, these principles move in us and move us—we are of the Universe, of creation. So...it is not a question of their importance but rather our awareness and working with them. The greater our awareness, the better we can lead.

*Owl Dolphin (3):* I believe these principles are essential because they are clearly observable and have profound implications for how open, dynamic organizations and systems can continue to evolve in response to changing needs and times.

*Sequoia Flicker (3):* Gandhi demonstrated Earth-centered leadership when he called upon Indians to conserve, save, treat nature kindly and give back to Earth what human beings take out.

*Sage Grouse (3):* Brings order to everything.

**Appendix T**  
**Study Participants' Stories**

DATA FINDINGS  
Questionnaire 1

*Question 2 Story of Experience with Earth-centered Principles*

*At any time in your life, or in your work, have you ever had an experience in Nature, or working with Earth-centered principles that helped you in understanding leadership or have helped you in your effectiveness as a leader? Please briefly describe this experience, or share a story of this experience.*

**Test Pilots**

*Begonia:* I am not in charge—the stuff of life is bigger than me, but it is me. I learn through my body, and my body in nature. I/we can “control” some things in nature—the rocks in my front yard—the tangible stuff I can grasp. I cannot control the amount of rainfall we have or don’t have to nourish the plants, or tsunamis, or floods, etc.

Being quiet in nature invites careful listening to the nuances of living things in relation to space and time. That has become a gift—listening to the nuances that I use in my work, in life.

*Baby’s Breath:* One of my greatest experiences in leadership development occurred because of nature’s influence. I was sixteen years old when hired as one of about twenty counselors to work the summer at a Boy Scout camp. The first week of our job was to set up camp for the attendees. This involved pitching about 80 tents, placing floorboards under the tents, and placing cots inside the tents. We needed to set up activity centers such as a nature center, craft center, and waterfront area, as well as other preparations before the camp could open. The first morning the staff arrived at camp it began to rain. We pitched our own tents in the rain. Hurricane Agnes, the first storm of the year, hit our area. I never experienced such a continuous down pour of rain.

That evening our group of twenty met in the dining hall to discuss a plan of action. If we delayed our work, the camp would not open as scheduled. That decision would affect more than 100 boys scheduled to arrive the following week. It was unanimous; we agreed to work through the storm.

We pitched tents, moved platforms and sleeping cots, and set up activity centers in torrents of rain. Small dells between hills turned into riverbeds, fields turned into muddy swamps. We walked supplies through these areas indifferent to the conditions. Nothing was dry. Our boots, legs, and hands were covered in mud. Our faces, too, were muddy from wiping water from our brows. The canvass of our shelter was so wet we were able to build a fire underneath without fear of catching fire. We warmed ourselves and dried what clothing we could.

Before the week’s end, we pitched every tent, placed every cot, and put out the welcome mat for our arriving guests. Then the sun came out to shine.

Within that week this group of twenty individuals from various areas of the state, who had just met, established a special community that lasted well beyond the weeks of summer. All the elements of leadership were there. We had a common vision. We engaged the resources and knowledge of each person. At any given moment the expertise of one individual was needed, then that of another. We depended on, and cared for, one another. We learned the importance of interdependence, support, loyalty, and honor for one another. This provided me an invaluable lesson on what leadership meant and what great achievements can occur with the application of such leadership.

*Buttercup:* In the area of diversity, I had an experience at church being a co-leader. We were asked to do something or ask something of others in a short amount of time that I thought would be impossible or too imposing. My co-leader didn’t even blink an eye but went right to the task of

asking for people's help. Two hours later people had accomplished more than I ever thought possible. My co-leader, with more experiences under her belt, looked at the situation differently than I and thank goodness she did because the outcome was phenomenal.

*Cactus:* There was a point in my life when I worked for a man who believed that effective leading was through controlling a person and through using his power to induce fear. This was one of the most debilitating experiences of my life. The fear he induced in me was with me all the time – not just at work. It affected my entire life in an extremely adverse manner. And, it controlled me and kept me from moving out of that environment. I truly felt I was worthless and no other person would hire me. It was only with the love, support, encouragement and coaching of my best friend that I was able to move to another position. My new supervisor encouraged, motivated, energized and believed in me. And, because of this my life became fun and worth living again! Although the new supervisor was not perfect she instilled in me a sense of loyalty and love that I have never lost. Her belief, positive motivation and trust made a huge difference in my life.

*Basil:* As I was beginning my learning in leadership journey, I went to Peru to work with Incan Shaman—who didn't speak English. However, through the course of two weeks of working and being with them a Shaman gave me two rocks in a cloth bag, and they looked like a heart and a hand and he gave that to me with a blessing and I knew that I was on the right path to use my heart and hands to help others achieve their goals, or to work together to achieve goals together while supporting each other. This one experience really touched me at a key moment in my life.

### **Panel of Experts**

*Evergreen:* Three "light experiences," the first at age six in Palestine, the most recent in 1991 in Oklahoma, brought me to the deep knowledge that I was one with all my surroundings. There was a deep peace made evident to me in that knowledge. I believe leadership must emerge from that quiet presence if we are to live by Earth-centered principles.

*Apple:* The three cosmic principles of differentiation, autopoiesis, and communion have become the foundation of my learning facilitation of any group. I express them by honoring the differences in the classroom, inviting participants to trust their own perceptions and unique unfolding while celebrating our interconnectedness.

*Ash:* One of my early bosses was a man with incredible ability to invite the best out of everyone who worked in his department. Each of us felt free to work creatively out of our strengths. We were not afraid to make mistakes, but we felt responsible for the well-being of the organization and few mistakes were made. The organization grew as did each of us working in it. All the characteristics of Earth's evolutionary processes governed the organization and the bosses' relationships with each of the employees.

*Birch:* I once had a waking dream of the interconnectedness of all of us throughout the world—a network of light. It profoundly moved me and gave me perspective. Peter Russell's *Global Brain* also was strongly impacting!

*Beech:* When I wrote my first book on geo-justice, I proposed that there were 3 components—global, local, and psycho-social. These components were arrived at indirectly and were based on my experience and understanding of the need for a Trinitarian dimension. As the manuscript was nearing completion it became evident that these cultural components could be named as global/communion, local/differentiation, and psycho-social/interiority.

*Aspen:* In the White Mountains of Arizona, I camped along the Black River in the forest. This is Apache Country and the place helped me to see that I needed to focus my work to benefit the study of Indian people.

*Cedar:* I was working in an organization, whose operating principle/bottom line was fear. I had taken a stand and the chief executive wanted to quietly dismiss the situation. I felt that it was not just—in a sense, your Earth-centered principles of communion and holon. A critical meeting of the whole organization was to take place in the next week. My dilemma was to reveal/not reveal the action. I spent many hours sitting by the river watching its flow and seeing how water moved obstacles around. Watching the river offered something to my imagination as to the way to reveal the situation and call upon the whole body to know the hidden agenda and injustice.

*Elm:* Yes, my observations of “swamp” help me to understand the nature of swamp issues—both their complexity and underlying intelligence.

*Hawthorne:* Yes, a transcendent epiphany in space flight that raised these very questions.

### Study Participants

*Lilac Beaver:* My experience working with young adolescents and their parents has had a great influence in my leadership. Every parent/child relationship is unique. In addition to ensuring a safe climate where teachers can teach and students can learn. My job is to empower teachers and parents (as needed) to develop respectful relationships with their students/children. There are children who are angry about a divorce or a death and take that anger out on the parent or at school. No parent wants to think they are inadequate parents. The skill is to help parents get their child/family the help it needs without feeling guilty. We ignore the natural steps of development (be it adolescence, working through grief, growing up) at our peril.

*Palm cat:* The seminal experience which was the catalyst for the founding of an organization (an organization I co-founded) was the experience of cleaning oiled birds at a community center following an oil spill. The experience awoke my compassion for all things living and my passion for linking my and others' love of God to care for and advocacy for the Earth.

*Honeysuckle Bear:* In working with groups, I often invite them to remember some experience of the natural world from their youth, an experience that, looking back, has affected the unfolding of their lives. I personally had several such experiences as a teenager.

*Orange Bull:* Sorry, can't think of one.

*Daisy Antelope:* Visits to numerous farms operated by a farmer with true ecological instincts and an ecologically based agrarian value system.

*Hazel Armadillo:* Many times. For example, climbing from the base of the Grand Teton to Hidden Falls. During the climb, each family or couple seemed to be an independent entity. When the group reached Hidden Falls, as each couple began to be affected, not only by the beauty and power, but by a sense of being drawn into it and then drawn as it were into one another. It happened in an instant. People were no longer strangers. They were talking cheerfully, in a friendly way, asking if others would like them to take photos for them, etc. Mother Nature had gathered her children. Touched by her love and inspiration they were ready. I believe to join together for the good of the Earth and the human family.

There was no exploitation. There were no adversaries. Everyone was gentle, cooperative, relational, interdependent. The Earth seemed to be saying to all of us, "I have befriended you. Now, befriend me and one another. We are one." No one was excluded. For that moment we experienced the "Basileia", the community. Everyone belonged.

*Walnut Dog:* Diversity. I was working with a student who came from a strong military background and from the Chinese culture. He was extremely reticent to speak his opinions or voice his thoughts, because I was his "superior". He had wonderful gifts to offer to our department and to his patients. Only when I was finally able to recognize his reticence and find a way to get him to trust and talk to me, did I learn his gifts. As I let him teach me how to interact with him, he literally blossomed and became one of our best and most creative students ever.

*Holly Bat:* About 20 years ago, I had my first experience as Executive Director of a non-profit, faith-based organization. At first, I thought my role as a leader was to provide the vision for the staff and the people we served. All that served to do was to create an organization where all major tasks fell on me. I soon realized that my role as a leader was to create the space and support for creativity within our staff, board, and volunteers. To "own" the organization's mission, they all needed to participate in shaping that vision. I tried to spread the value that change and experimentation were keys to our evolution; not something to be feared. As a result, I had to be okay with "mistakes," though these were often the key to a new insight or way of doing things that ended up serving the organization very well.

*Pine Cougar:* I teach these principles in every course. I'm convinced that we navigate life in a series of understandings of our difference, our interiority, and our interconnectedness. I remember as a young adult meditating on water and how a single drop falls into a river and flows to the ocean and raises up into the air and falls again—and the multiple forms that process takes—and as I would meditate on it, I would find myself alternately identifying the drop and losing it in many others and imagining its transformation in its collective activity, a river, an ocean, cloud, rain, or snow.

*Sycamore Deer:* I have not been thinking of leadership. I may be a natural leader, but not a professional one. With my group of "Cosmic Particles", I present material or one of them does and we discuss it as much as we like. I have had many experiences in Nature, but I have not been thinking of leadership. I am very aware and ecstatic about evolution as I garden or take care of newborns.

*Heather Badger:* Yes, I did an internship through Global Education Associates in New York City with United Nations personnel that were based on these principles as the foundation for effective leadership in promoting transformational, systemic change (2001). This radically shaped my life and since that time, I've tried to live more fully out of these principles both professionally and personally. My ministry is very focused on teaching these principles today through workshops and retreats.

*Clover Elephant:* Sailing—you don't ask why the wind is blowing East when you want to go West. You trim sails and work with the reality. Most of my work as an educator/leader has been informed by knowledge of the principles of growth—i.e. development/evolution on an individual and social level. Piaget based his whole theory on grounding as a biologist. Kegan, Wilbur, Beck, are all informed by Piaget. Understanding interdependence and systems is essential to effectiveness, especially in complex systems.

*Daffodil Elk:* As a child growing up, I was involved in scouting. I took a group of scouts on an evening quest in search of an abandoned cabin in the nearby hills approximately 3 or 4 miles. Using my knowledge of the landscape and celestial stars, I navigated my group safely to our destination.

*Cypress:* I think the leader who best demonstrates Earth-centered principles was a man I know who worked with homeless men in Seattle. He leads many groups around to talk to the homeless, and he shows how to work with them as they were. He didn't try to shoe-horn them into a situation against their will. He talked to them, addressing them by name, hand on their shoulder, and looking directly into their eyes.

*Willow Dolphin:* Yes. See story in Earth letter. These experiences taught me about ecological grief and awe/connectedness. I have found it important, in my teaching and speaking, to acknowledge ecological grief as well as our connections to all life—doing so opens up greater possibilities of healing and a greater likelihood that personal and political change will be based on healed/healing/restored relationships, rather than duty and guilt.

*Maple Buffalo:* I am working on my Ph.D. in leadership and change at Antioch on environmentally sustainable business practices. From my perspective, effective leaders must consider the environmental impact of their decisions. To fail to do this will severely impact future generations.

*Spruce Coyote:* It's the other way around. I think I am a better leader after being introduced to Earth-centered principles. They require and provide a larger, more real and complete base from which to operate as leader, or as follower.

Examples: 1. I was a founding member of both the Stanford Environmental Law Society and the National ELS. I knew academically the importance of what we were about, but it wasn't until I read Chief Sealth's speech to the Treaty Conference in 1855 that the truth of total interconnectedness began to sink in. It has taken over a decade for this to become a real guiding principle.

2. I became involved with the Lower Hood Canal Watershed Implementation Committee in 2002. In 2003, I suggested LHCWIC consider the Center for Water and Ethics regarding what LHCWIC should really be about. It worked—i.e. the 4 environmental norms have been discussed with LHCWIC and are reflected more and more in LHCWIC work and communications. Further, there are appearing in the discourse of other environmentally concerned organizations in the area, one being the WRIAIS discussions, a huge leap!!

*Dahlia Fox:* Coming to understand (somewhat!) these Earth-centered principles has made all the difference in the world to me. Learning about them, learning about the evolution of the Universe, and learning about the world (reality) as we are coming to understand it through the sciences have been aha moments of insight for me. It is like I finally "get it"—I'm more able to "make the connections." I feel like I have more clarity and understanding as to what is going on both in me and in the world around me.

This is the real role of leadership it seems to me—helping others to understand what is going on, helping them see and make the connections, and helping to paint the way forward.

*Gardenia Giraffe:* My journey with indigenous peoples reaffirms very dramatically the principle of interconnectedness or interrelationships. What affects one affects all. What benefits one benefits all.

My experiences have been both in relationship to Earth, winged and in relationship with human dynamics.

Basically, adhering to these principles and living in its reality brings all things into harmony. The Universe reacts to the totality of everything. I have found this to be true daily in my life. In the world scene, animals and birds are strong indicators of changes in Earth surfaces, etc. as recently shown with earthquakes at sea.

*Geranium Goat:* Yes, I would say that my education as a geologist helped me understand two important aspects of leadership. First is the importance of taking the long view: Earth is very old, humans have arrived on the scene very recently, and the Earth is likely to continue without us long after we've evolved into something else. It gives me a sense of humility about the importance of my own work in the really long term. The second aspect focuses on evolution. It's important to understand that what "works" at a particular stage of an individual's or an organization's life may stop working at another time, and a process that seemed limited/outdated/counterproductive at one stage can become extremely valuable later on. These two things, I think, have given rise to a sense of flexibility in leadership that I might not otherwise have had.

Additionally, I guess I should say that my ongoing personal experiences exploring the natural world, with all its beauty and complexity, give me a sense of inner peace and refreshment that allow me to continue my work more gracefully simply as a human being, which of course similarly affects my particular work in leadership.

*Gladiola Groundhog:* I used to teach environmental science and was fond of relating environmental principles to life. My favorite truth is about lichens. Lichen is a very hardy life form, so much so that it is a pioneer species (often one of the first forms of life in a biome) and can live at the extremes of heat, cold, shade, etc. The secret of lichen's "success" is that it is a community not an individual species. The lichen is made up of an algae that provides food through photosynthesis and a fungus that provides roots.

*Hibiscus Horse:* Yes. In the Boy Scouts, I spent several days or even weeks in the outdoors where I truly felt in tune with Nature and with God. It was not so much the power I felt from Nature but the sweetness, the gentleness of the soft wind, the song of the birds, or the smell of the wild flowers. And yes, I've also been witness to the ferocity of thunderstorms, the unmerciful tornados, or the days of unrelenting late April blizzards. Whatever experience, I am in awe because it gives me an appreciation for the Yin/Yang aspect of Nature—one must be soft and welcoming but also to balance, firm and unshakable! I incorporate this in my life and live it. As one Saint stated, "To have words as soft as a feather, but principles as strong as thunder." I hold this high in my thoughts as I live my life and help others. I'm gentle in nature, but only when provoked, I have that righteous wrath.

*Hyacinth Leopard:* Yes, this understanding is essential as a physician daily.

*Iris Lion:* I'm 85 years old and not in a leadership role at this time. One experience that touched me deeply was: I had read that the Earth had healing properties. I had been suffering from sciatica—very painful. I spent an hour on the Earth (grass) and the pain left—has not returned. I was in awe of our caring Earth.

*Lily Otter:* Yes, currently I am working with Earth-centered Principles in the articulation of the new monastery and community I am co-founding with Fr. Thomas Berry. I have written a booklet that will form the basis of our vision/mission and be the guiding articulation for the community and those who join with us. Our entire focus, in the founding of what we are calling a new "Cosmological Monasticism" is based on the deep, inherent evolutionary ethics of the Universe. The title of the booklet is *A Binding Back to Origin* which is a translation of the Latin re-ligare or



religion. *The Binding Back to Origin* refers to both a return to the Divine and understanding our role in the vast cosmological context. The document itself holds a vision for leadership and community.

*Rose Blackbird*: My family and I are avid scuba divers. One of the places in which I feel most at peace is 50 feet under the water. I love the wonder of a completely different ecosystem and the grandeur and color of the environment.

*Rosemary Bluebird*: It is hard for me to find one experience. I was raised in a way where being in nature was a continual touching in. In an ongoing process, being in nature and working with the elements (weather, fire, soil) helps me to experience my own goodness and wholeness and connectedness. Being in nature is as often chaotic and challenging as is peaceful and enchanting. My experience of putting up a tent in the rain or being hungry trying to build a fire with wet wood have also taught me to hold my center in the midst of chaos. These are all invaluable lessons for organizational life. I remember in my first job in a fast paced environmental consulting firm. I would stand in the hallway on my way to an intense team meeting and imagine myself back at a Buddhist-inspired summer camp I used to attend and then lead (<http://www.shambhala.org/suncamp/>). I would connect with the vastness of the imagined sky and my own inherent resourcefulness that I knew I had when I was there. It always brought me to a space which added something indescribable but incredibly helpful to the working dynamics.

*Snapdragon Bluejay*: I always tell people that one of the most amazing experience for me, is being on safari. When you are out in the wild, with only an open truck to keep you feeling 'safe,' in those moments when you know that you are exposed to giant elephants or poisonous snakes, I always feel most 'alive' and most honest. There is no trickery. The most important part of the experience is respect. Respect for nature and all things living in that moment. You understand human limitations and vulnerability and I think this brings out an honesty in us. I reflect a lot in my journey of leadership in thinking about what about that experience applies in everyday life. That feeling of being most alive, most respectful and most aware of vulnerabilities I find, pushes/enables me to be myself and be honest with those around me.

*Violet Cardinal*: One of the most important lessons that I learned lately in my life is that there is profound relationship of us as human beings with our spaces, and with the entire world. I learned that our future destiny rests on our capacity for intimacy in our human-Earth relations. We, the modern society, we mostly and often go through our lives concerned with day-to-day issues of survival and hanging on our particular lifestyle, and really care less about observing the patterns of what is going on in the natural world. If we did observe these earthly patterns, we could do much more for ourselves and the world that we live in.

*Sunflower Canary*: Recently at a leadership retreat the group of 35 leaders spent thirty minutes out in nature reflecting on what Nature teaches us about leading. The session turned into a profound sharing that was as diverse as the community that gathered. We spoke beneath a 150 year old tree about the source of our leadership and what sustains us, nourishes us. We talked of the salmon stream nearby and all that is essential for supporting the life of the salmon the ecosystem and the interdependent nature of all parts of the ecosystem. We thought of our own work of leadership and how to be in the flow of wisdom and insight that is beyond what is "apparent" on the surface. We looked at the Alder trees and how they are connected in the roots below the Marsh – symbolic of our own deep interconnection. We spoke of time and how different it looks from the perspective of the Valley formed by glaciers, and this old tree that has been their longer than when we each have been. And much much more.

*Douglas Fir:* Lying in the meadows of tall grasses and wildflowers in Somerset, England, as a 12 year old—asking what my purpose was in this glorious, magical, natural world. Trying to enter the universal mind and incorporate the whole of creation into my self.

I have learned to balance my yearning for universal wisdom and the happiness of this escape from the daily travails of my species on Planet Earth—with the realities of my choice to incarnate in my present lifetime. This implies compassion for my species' learning processes and love for all life on Planet Earth. No escape into "objectivity!"

*Crocodile Crow:* It was suggested that my staff and I take the Meyer-Briggs Personality Inventory. To me, as the leader, the results were extraordinary. Behavior of staff members which previously had baffled me began to make sense. I also became aware of how great the differences between persons can be.

*Frog Dove:* In my WaterSpirit ministry, I connect with a variety of environmental organizations. The differences and tensions that often exist among these groups as each person presses for their particular concern can be frustrating and discouraging. I'm helped in accepting their differences (differentiation) not only in issues, but also in human needs, strengths, and frailties (mine as well!) by remembering that such diversity has the potential for great richness in the human endeavor, just as it does in the broader process of Earth itself. This helps me "hang in" despite the discouragement and frustration and, perhaps, even be a little plank in bridging the differences in order to realize the richness.

*Butterfly Eagle:* For a number of years, our staff has worked with an organism model of leadership. This model, which looks like a kind of amoeba with organs and appendages had no head and represents the people (staff) and lands (all the creatures and elements) of Genesis Farm. It functions as one being, activated by our mission.

When this model really works with us, we flow... Each staff person is the organism and together we function as a whole with all the parts in concert. It is our ideal model.

*Finch Panther:* Moving to the N.W. (Seattle area) in 1990 gave me the opportunity to HIKE! To be outside and come to learn of trees and sky and dirt—through gardening. This grounds me and opens me. I can't say as I realized it as it was happening but in retrospect the connection I was able to make with "nature" influenced how I behaved and understood. Being able to understand a project's end results while maintaining touch with the details, the now, the progress—it's a whole and it's parts.

*Owl Dolphin:* I can think of numerous examples in Nature that are relevant to the work of leaders in almost any field. For example, I think of bees and how they take initiative in finding sources of nectar then return to the hive to communicate through complicated dances the location of their find to their fellow bees. My Board of New Horizons for Learning often called me the "honey bee" because at that time I was traveling throughout the country and the world in search of effective ways of learning, and bringing that information back to our "hive." We then communicated this information through our conferences, newsletters, and more recently our website that now receives over 5 million hits a month. That is a different kind of dance.

I also think of the migration of geese, and how the head goose leads for a while then moves back to let another goose lead. This is also a useful practice in human shared leadership. I think as well of how the ants do their work collaboratively, becoming capable of surmounting or moving great obstacles out of the way.

As another example, early in our organization (now 25 years old) my colleague and I were walking in the woods in an exercise of Jean Houston's. We were drawn to a shaft of light that highlighted a spherical spider web that was pulsing in a soft breeze. Inside were two tiny spiders.

At that time, we had no idea that New Horizons for Learning would become a world-wide network, but in retrospect that was indeed a metaphor that eventually took form.

*Sequoia Flicker:* Yes, since we were taught the importance of conserving natural resources, I have grown up to use as little as possible. I am always conscious of Gandhi's words: "The world can provide enough for everyone's needs, but not for everyone's greed!"

*Sage Grouse:* Every culture I have dealt with has unique ways of looking at leadership and its importance. Recognizing these differences helps you see how things are the same—just on different levels.

**Appendix U**

**Earth-centered Leadership Strategies**

## Earth-centered Leadership Strategies

### Strategy/Practice/Behavior and Earth-centered leadership

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In decision-making, the community needs to be the “total community of life” – not just humans

Fosters diversity by welcoming differences, moving away from homogenization in all forms, especially “Group Think.” Invites the gift of diversity to have an honored voice in every setting—listening to people coming from different perspectives and experiences.

Listening with an open heart—deep listening to self and to the other.

Encourages and supports change being attentive to that which is trying to EMERGE rather than fostering and maintaining “the same.”

Trusting in the gifts of each person and educating toward the use of discernment and self-referencing and self-awareness.

Creating the safe space or “container” for growth and learning—fostering and nurturing the self and the culture—a sense of the workplace as sacred space for the honoring of integrity of all aspects of life and impact on body, mind, & spirit.

“Enlightened communication” that encourages conversations to take place in the group from a place where each is challenged to speak from the authentic self as opposed to the EGO self.

Pays attention to the process, not just the outcome of a decision and/or interaction.

Has a personal practice (spiritual or similar) that constantly renews the self in a grateful humility.

Engaging in dialogue, rather than argument or debate.

Ecological Justice:

- Toward Earth, toward all the peoples of Earth, and toward all creation with respect.
- Creating policies that are Earth-friendly and “green.”
- A closed-loop supply chain (cradle to cradle) is identified and managed with emphasis on reducing, re-using, and recycling all resources extracted from Earth.

Viewing organization and groups as “systems” and thus gaining perspective with systems thinking.

Watching organizational life through the lens of living systems. How do we connect and energize fields and elements of the system to gather the wisdom?

Recognizing the potential seeds, good, & growth in chaos and ambiguity—able to navigate in the dark. Ability to hold paradox, balance dualities, & to dwell in ultimate mystery and unknowing while still acting.

Grounding—spending time in Nature and growing in the understanding that we are Nature—developing an ecological imagination.

Learning organization: Self-organization is always happening and focusing on learning helps the system grow and adapt. What connections and learning is needed at this time? How to foster learning communities that unleash the collective intelligence and creativity of the group/organization?

Understanding, teaching, and applying the laws/principles of Nature.

Practice of play or having a hobby that releases personal creativity so that one sees with fresh eyes.

Practice of changing our sense of time—whether that be through meditation practice or taking public transport rather than driving—releasing the self from time-driven efficiency. Values the “slow movement” allowing a sense of organic flow in life rather than the constant frenzy.

Understanding that life relentlessly emerges following death. A commitment to change as adaptive to life—willingness to enter into the “disequilibrium” to choose life.

Appreciating the “life cycle” of ideas and initiatives—every project goes through a natural evolution—respects natural rhythms and cycles.

Leading from the long-term view (7<sup>th</sup> generation) rather than short-term perspectives. Encouraging solutions to micro problems in terms of macro realities. How do our actions affect the people and the

planet in the coming generations? How do we bring these voices in to inform our work?

Ask the question often: "What does it mean to be human in this 21<sup>st</sup> century?"

Always consider a triple bottom line—all decisions must be assessed from perspective of people, planet, and profit.

Use of metaphor and storytelling—are energized and nourished by story and shared dream experience.

Trusting people in their ability to seek their own health and healing—self-responsibility.

Utilization of science knowledge and deep transcendental insights.

Serving life; How are my actions, practices, and decisions serving life and allowing it to flourish? How do my practices support me as a leader and support others in being their best?

Aligned to the unfolding dynamics of our Universe—studies and understands the ongoing story of our Universe and grappling with contemporary local/global challenges threatening life of our planet.

Shared Leadership:

- Structural circles rather than hierarchy within organizations.
- Shared governance and self-directed teams.

Cultivating a sense of kinship in leadership styles, especially with people different from ourselves. A new paradigm to govern in a corporate culture where there is mutuality of leadership for a better world.

Dependable and strong to be true to what is needed in the face of others who disagree after taking in all voices—supports mindfulness.

Dedication to seeing reality—holding high ideals and seeing the complexities and ambiguities in self, others, and all situations.

Integrated in feminine & masculine aspects of self.

Embraces the integrated person in body, mind, and spirit, including in the workplace.

Ongoing commitment to create a coherent sense of identity for the organization.

Consensus on mission with context of Earth/of our Universe story.

Fosters an open flow of information throughout the organization.

Adopt programs, policies, and education toward reintegration of human knowledge.

Encourage massive public and private education on all mass media concerning our species' situation on Planet Earth.

Create policies that promote decentralized, diverse approaches to problems.

Uphold human rights for all and standards for human responsibilities: Adopt the Earth Charter.

[www.earthcharter.org](http://www.earthcharter.org)

Re-balance policies and culture which over-reward competition and balance these with rewarding cooperation and sharing. Overhaul the profession of economics and bring all disciplines back into policy analysis.

Compassion for the learning processes and developmental stages of the human species, with understanding of the various human experiments at collective organization.

Understand the integration of communion, subjectivity, and differentiation. Seek to honor the authenticity of each individual. Seek diversity in the group, and help all to know each other well, cooperating together.

Build communion with the group reflecting together in problem-solving, mutual support, and teamwork.

Understand cosmogenesis—that a healthy organization is always evolving. Encourage new ideas and critique, even when not pleasant to hear.

Affirmation and appreciation of each person's contribution in a commitment our Great Work of making Earth succeed.

A revolution in the thinking of humankind in the broad-based education, internalization, modeling, incorporation, and commitment of Earth-centered principles into practice with appropriate monitoring and feedback. Providing time and budget for conscious adoption of work practices which reflect Earth-centered principles.

**Appendix V**

**Data Findings Question 4 Comments**

DATA FINDINGS  
Questionnaire 1

*Question 4 comments for Study Participants*

*How do you see the potential application and integration of Earth-centered principles into secular organizations?*

*Begonia:* But not always understood or appreciated. "Diversity" in regards to all creation gets a lot of lip service within organizations—quite the buzz words, but I notice great difficulty in communicating this to non-believers.

*Basil:* However, it may need some time for it to make big strides in Corporate America. I think small pockets of this wisdom in companies can work miracles.

*Aspen:* It would benefit leaders and those being served to think in Earth-centered ways—broader, thoughtful, and more imagination.

*Spruce Coyote:* I think government needs to incorporate and apply ECPs. They are long-term organizations that are charged with the long term welfare of their communities. Commercial organizations function of shorter term and have less reason to commit to the "real" welfare of their customers.

*Oak Bobcat:* but seldom done fully (see how few I listed!!)

*Geranium Goat:* Most organizations work does not directly or even much indirectly affect the natural world.

*Gladiola Groundhog:* Always is a powerful word but in this case I think it applies.

*Habiscus Horse:* I see Earth-centered principles as universal principles as God's principles.

*Sunflower Canary:* We still are short-sighted in our organizational life, looking toward bottom line of profit rather than taking a longer term view that embraces a triple bottom line.

*Frog Dove:* I find this question an awkward one. Organizations are often not functioning within the context of these principles. A good leader, who is functioning would be adept at seeing when and how these principles can be applied so as to move the organization in the direction of an Earth-conscious context.

*Butterfly Eagle:* The key word is "potential". For an "Ecozoic" model of human organization, these principles will be critical. Conscious organizations are already working towards that.



## Appendix W

### Data Findings Question 5: Descriptions of Leadership

## DATA FINDINGS

### Questionnaire 1

#### *Question 5: Descriptions of Leadership*

#### ***What is your definition or description of leadership?***

##### **Test Pilots**

*Begonia:* The one who leads best for me is a gentle presence who listens well, responsive to the needs of constituents, is humble, reflective, and allows followers to lead themselves.

*Baby's Breath:* A person of spirit with a vision, who can effectively communicate this vision to others in such a way as to inspire and influence others to provide knowledge and tools necessary to accomplish the vision. A person who helps people do a better job by coaching, facilitating, and creating an environment in support of the vision, who earns the support, loyalty, and honor of others.

*Buttercup:* Leadership is the process of being led hopefully by a leader who values wholeness of the individuals and the organization. Leadership takes an organization from one stage to the next, into unknown territory, progressing along the same path, branching out. A leader has vision for the organization. A leader empowers those they lead. A good leader surrounds themselves with good people, offers them vision, empowers them with confidence and lets them go.

*Cactus:* A leader has people follow because they want to – not because they have no other option. A leader recognizes the needs of those they lead and they meet those needs. They also recognize the needs of the community in which they live and strive to meet those needs as well as recognize and minimize any negative impact on the environment. Happy people inspire others so an effective leader will not only be a happy person but will have happy followers who have a vision, goals to meet the vision and the willingness to work together to achieve them.

*Basil:* The art and practice of working and collaborating with others to achieve a common goal using heart and hands.

##### **Panel of Experts**

*Evergreen:* in the moment, inspiring others to live to their highest potentials

*Apple:* For me, leadership refers to the capacity and ability of a person to influence others formally (in a leadership role/position) or informally (by presence and example), which is grounded in their authentic selves.

*Ash:* Leaders influence others to translate values into actions that help others to thrive.

*Birch:* A leader empowers others to live with vision, values, a deep sense of vocation and the ability to have a voice and give voice to the marginalized!

*Beech:* A leader is anyone who has a following and who through the practice of a listening heart makes it possible for beauty to shine through in the practice and experience of compassion, creativity, and depth.

*Aspen:* A leader serves others, not out of their own ego but for the benefit of others.

*Cedar:* At the most profound level, leadership is about providing the space and opportunity for the “World’s Soul” to emerge through the individuals who are part of the group. Leadership assists those to recognize the whole of which they are already a part. Leadership builds trust and hope through example and care. Leadership is about reverencing the manifested life that is and evoking creativity.

*Elm:* Assisting in (helping) a group to make progress on tough problems—specifically adaptive challenges that require learning and innovation and usually involve grief and loss.

*Everest:* Ability to see/envision beyond self. To renew the spirit of others/to inspire. Desire/dreams. Conviction/principle/belief/passion.

*Hawthorne:* Good leadership is encouraging and facilitating others to accomplish the group’s goals and purposes for the betterment of all.

### **Study Participants**

*Lilac Beaver:* The ability to bring a diverse group of people together to work—collaboratively towards a common goal and to support those people as they learn and practice new skills; to promote a safe place to work.

*Palm Cat:* The capacity to encourage and sustain individuals and organizations to discover their God-given talents for Kingdom work in the world.

*Honeysuckle Bear:* Leadership is being sensitive to emergence to the future that is pressing in on the present moment, a future carried by people’s dreams, visions, allurements, hopes, etc.

*Orange Bull:* A challenging and very fulfilling learning process that has essential elements within it and within its leader. A leader has a followership and demonstrates personal integrity, hard work, and is in touch/connected to what/who he/she leads and represents.

*Daisy Antelope:* A leader is a person who models what she or he claims to believe.

*Hazel Armadillo:* Leadership is being a catalyst for connecting of people who, then are free to share their wisdom so that the corporation or the group can participate as co-evolvers with Mother Earth and all creatures.

*Walnut Dog:* The ability to facilitate a group of people moving toward a common goal. Involves management of specifics but most importantly the ability to hold the ideal, keeping the goal in mind/sight despite the complexities of day to day operations. This requires respect for people at all levels of organization, recognition of each player's value, and a knowledge/skill in bringing out the best in each member.

*Holly Bat:* Leadership is the ability to envision and animate an organization as a living system. A leader fosters the organization's ability to self-organize and thus, capable of responding continuously to change. A leader fosters identity creation, participation, creativity, and experimentation throughout the organization.

*Pine Cougar:* An interaction that calls forth transformation of persons and institutions (organizations) toward the common (cosmic) good.

*Sycamore Deer:* My description of leadership—not being in a doctorate program—would be someone who can see the bigger picture and help others see it and act accordingly.

*Heather Badger:* Leadership is the act of being alive and of calling others into soulful living.

*Clover Elephant:* Conscious co-participation with clear sense of purpose in service of well-being of the whole.

*Daffodil Elk:* same as question 3

*Cypress*

- has goal(s) of organization always in focus
- understands what is needed to reach goals
- knows what kind of people can achieve the goals
- gets these people
- motivates people with view to goals (not just \$ motivation)
- stays involved (optimal amount of involvement)
- rewards those who perform well, primarily through words and notes of appreciation; secondarily through monetary rewards
- follows up to make sure projects continue to function properly

*Willow Dolphin:* I think great leaders are servants, listeners, as well as people of integrity and strength, willing to stand for that which he or she believes in.

*Maple Buffalo:* Ability to facilitate others in the accomplishment of mutually beneficial goals.

*Spruce Coyote*: I went to the U.S. Naval Academy and have adopted its definition. It is very general, and needs to be. Leadership—the ability to achieve a desired end through people.

*Dahlia Fox*: That ability to both “see the bigger picture” (that all is one) and to see how everything fits together. That ability of “making the connections” and helping others do the same; the ability to influence, motivate, inspire, and show the way to others through this compelling vision of oneness.

*Oak Bobcat*: The ability to help others to “see their way,” i.e. to work as separate organisms whose goal and purposes are the same while their roles differ

*Gardenia Giraffe*: Leadership is the quality of moving with, not in isolation, toward a goal with patience and courage, including all of our relations (taking in all of life’s messages) with humor and with communication affirming everyone in the process.

*Geranium Goat*: Being able to help a group or individual effectively use their energy to reach goals that are important to them. Often, of course, these goals will coincide with or at least support those of the leader personally, but this is not a requirement to me of leadership.

*Gladiola Groundhog*: Speak the truth in love to power and point towards hope and create environments where others are likely to do the same.

*Hibiscus Horse*: To be the ideal example to others so that others can follow. To stand unshaken where others will fall. To have the humbleness to do the smallest things so that one can do the biggest things with that same humility.

*Lavendar*: Earth-centered leadership is transformational leadership. Transformational leadership is the capacity to actively engage (unite) others in and communicate a common vision and purpose. The heart of leadership has to do with what a person believes, values, and is committed to. Values include the ethic of care, authenticity, service, empowerment (trust) and importance of relationships. These leaders are risk-takers, good listeners, and they model the way for others. They value diversity, honor humor and celebrations and use stories to carry shared meanings throughout the organization. Effective leaders build a strong community through their impassioned commitment to others by knowing the heart and spirit of leadership through genuine love.

*Iris Lion*: I believe a leader is a resource and a catalyst using all the gifts of the participants to create a viable institution in an Earth-sustaining and enchancing way.

*Marigold Lynx*: Leadership is the ability to align people for common purposes and for the Good.

*Lily Otter: Leadership*

- a love of the whole, the capacity to bring humanity forward to its next stage in the evolutionary trajectory! This can happen on both a small or large scale.
- the capacity to bring the evolutionary process forward

*Rose Blackbird:* There are many, many definitions of leadership out there and none comes to mind as the perfect fit for the exercise. The best leaders I have ever encountered create a team of people dedicated to common goals who surprise themselves by what they are able to accomplish together.

*Rosemary Bluebird:* I very much like Meg Wheatley's description "a leader is anyone who wants to help." Mine would be: Leadership: the discipline of leading one's own life to the fullest potential in a spirit of service.

*Snapdragon Bluejay:* I believe that leadership is about being at the service of a group, or an individual in navigating a journey from one place to another. Leaders facilitate that transformation and/or journey.

*Violet Cardinal:* Leadership is the ability to get things done by getting the right people with skills and passion. The ability to get an idea of where people could be more useful in the organization and placing them right there in order to get their maximum contribution in the organization. Get passionate people to do what they like doing because they will give it their best without too much supervision or intervention.

*Sunflower Canary:* I have two definitions. One of an organizational leader and then a shifting model to the one that is needed NOW and in the years to come. The Organizational Leader is the one (or ones) who by virtue of position, role, or reputation is able to help mobilize people in service to a shared purpose or goal. My growing definition of the leadership that is needed is "A leader is anyone who wants to help at this time"—a populist view of leadership which asks each of us to claim our sense of purpose and take action on behalf of life. Look to the collective to mobilize and manifest the change we are seeking in the world.

*Douglas Fir:* Servant leadership without ego, power, and money motivations. Knowledge of current conditions and future trends on Planet Earth. Awareness of the developmental stages of humans and their various experiments at collective organization.

*Crocodile Crow:* Leadership has to do with assembling competent people, helping them develop their abilities, and cooperate with one another in developing vision and achieving it.

*Frog Dove:* A good leader is one who facilitates the internalization of a vision-mission or goal, and encourages and frees people to make their unique contribution to the achievement of the mission.

*Butterfly Eagle:* Leadership is a service. A leader offers personal gifts to empower others to bring forth their gifts and work in good relationship with others to realize their purpose for existing as a group. A good leader “makes it easy” for others to see their personal goodness and gifts and put them to the greater good.

*Finch Panther:* Enabling others to succeed. Whether it is my vision or another’s vision, the key is the relationship to others—motivating, supporting, standing in honesty with them. Implicit is both rock-solid vision and rock solid ethics/morality. Note: You have to have SELF for this to work.

*Owl Dolphin:* Leadership is the ability to inspire others and collaboratively move forward in response to changing needs and times to do the work determined by the group.

*Sequoia Flicker:* The best leadership is that which leads through example.

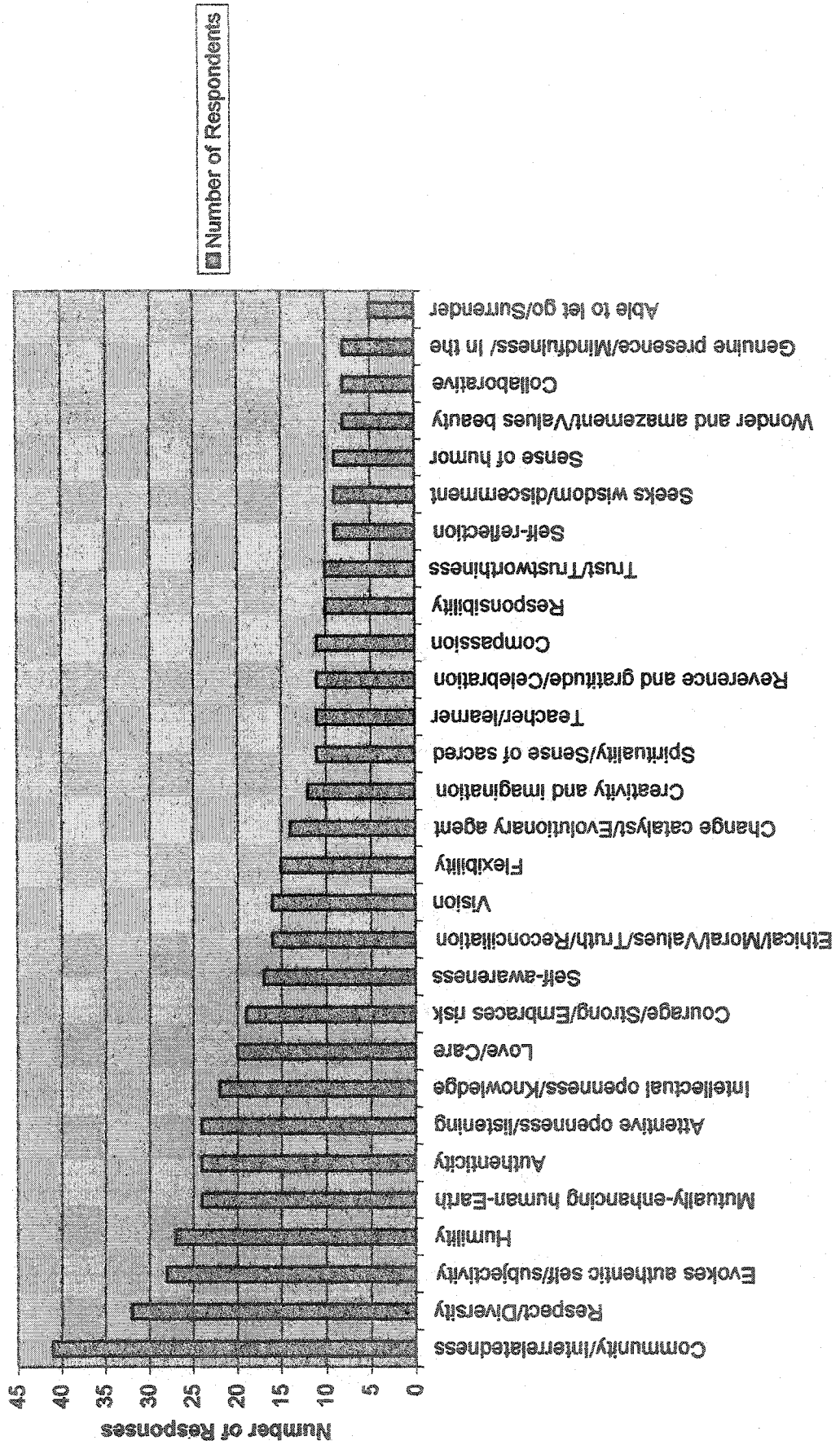
*Sage Grouse:* Strengths you seek in others that you do not possess yourself.

Appendix X

Earth-centered Leadership Values



Earth-centered Leadership Values



Values

Number of Respondents

Number of Responses

Appendix Y

Data Findings Question 7 Comments

Earth-centered Principles' Rating

DATA FINDINGS  
Questionnaire 1

*Question 7 Comments*

*How important do you believe the following principles are to leadership?*

*Differentiation (D), Subjectivity (S), Communion (C), Holon/Holarchy (H), Earth's Story (E)*

**Test Pilots**

*Begonia*

D – “no two are alike”

S – I always believed the self is the organization

C – I believe wholly in these top 3. I struggle with the bigger picture—globally—in seeing the disconnect of people's due to war, race hatred, economics, arrogance, etc. among the political/large organizational leadership (e.g. WalMart)

E – If a leader has this quality, likely a better leader

*Baby's Breath*

D – Broad, diverse perspectives lead to better understanding of cause and effect within affected systems. This increases overall support and knowledge, enabling decisions based on knowledge rather than power.

S – Each identity has a unique and valuable perspective. Insist on participation from all individuals to discover their potential and contribution to the whole. People support what they create and assume responsibility for their work when they connect with a purposeful vision.

C – The health of the community or system, depend on the crucial reflection of what has occurred, what is necessary, and the responsible balance of various, often times competing, subjects. Through broad involvement of all affected parties, we achieve better understanding, support, and decisions to carry out the vision.

H – Recognizing the inherent unique purpose of a very diverse community of interconnected subjects (Holons), the health and well being of each subject, as well as the community at large, is in the overall interest of each other subject. By protecting the interests of others, we in effect protect our self-interests and ultimately sustain a healthier, emergent Holarchy.

E – Reflecting on our history is critical to understanding and to further our learning. This enables us to recognize old patterns and behaviors that no longer serve us and to come up with new, innovative, creative solutions to our problems. We may use our intelligence to influence rather than our power to control.

*Buttercup*

D – Bringing people together with very different life experiences will help look at problems from different angles so nothing is missed.

C – You change one thing and it affects others. You don't follow through and it affects the group. What you do and don't do affects others. “No man is an island.”

H – Gives one identity—roots. Roots or a sense of belonging are very important and key to the whole individual.

E – It would be very beneficial but I'm not sure it's crucial.

*Cactus*

D – In my small department I had a gay, male of Asian descent; a black male heterosexual, a black married woman who separated from her husband, a single Caucasian woman with children who had just moved in with a man with children; a Caucasian heterosexual male with severe epilepsy—diversity!

S – We are all individuals and want to be treated as such—with respect. In the above example, each person had to be treated in a different way in order to understand their needs and motivate them. They were all of different ages and all had separate identities.

C – We are connected to everything and everything is connected to us. We have a huge impact on our Earth and without other people in our lives we would soon die.

H – Did not respond because I was not sure of the definition.

E – Each person's understanding may vary but I think it is extremely important they believe their interpretation. Mine is that God created heaven, earth, and man in his image and through His grace we continue to learn and evolve and change our environment.

*Basil*

D – Each person, thing has a purpose and a unique set of gifts for giving to the world.

S – Knowledge or concept of self is so important to know one's stance in the world and how one relates to others.

C – Relationships and connection to each other is everything and how God works through us.

H – Important – to know we are whole and part of whole – I think identity, relationships, and diversity are more important.

E – I think it is important, but to the masses, it may be just that they understand diversity, relationship, and identity.

#### **Panel of Experts**

*Evergreen*

D and C – these two have a life-enhancing interplay

*Birch*

D—lobbying for and putting in the curriculum courses that highlight and foster diversity.

S—as I live and teach spiritual discernment—this is the heart of it.

C—all of the interdisciplinary teaching I have done and programs I have directed affirm this value.

H—opening up others to the gifts of the “mystics” gives a window into this phenomenon.

E—it is the basis of who we are in the new paradigm.

*Beech*

D—differentiation – without this principle there will be no justice, no creativity, and no authentic leadership.

S—subjectivity – attention to interiority authenticates leadership; it also validates and makes possible a dynamic integration of the depth's of one's experience and one's action in the world.

C—communion – life is three-dimensional, without relationship and interdependence, leadership may become isolated and unrelated to the greater good.

H—holon/holarchy – an awareness of this reality makes it possible to understand and activate the potential and possibility that resides in the recesses of each experience of the community of life.

E—to understand our origin, the events that took place that lead up to this time, is a precondition for the understanding of our place and the role of leadership at this time.

*Cedar*

D—reality/truth is multifaceted. Unless one listens to as many voices as possible one only has a partial view of a situation.

S—This is a fundamental principle of any meaning-making activity. To know oneself and to be able to move from this interior knowing in any choice one makes is essential to right action.

C—This principle makes itself known more and more each day as we live in a complex, global society. What I/U.S.A. does effects the entire world. What foods I eat, the car I drive, etc. We are always impacting the world by actions, thoughts, and omissions.

H—This principle builds on communion—and provides hope. If I can effect some good in my local area, I indeed affect the whole.

E—Unless one has a sense of history, one cannot fully be in the world today. This story reframes our limited perspective of day to day events with larger cycles of understanding.

*Elm*

D—inclusion is key value

S—This is not clear—all of these are important values... What are you after?

C—It is very difficult to either contain or control a field of action.

H—Seeing a situation as a fractal of a larger or smaller field of action.

E—This orients faith and ethics—but the key here is “worthy story”

*Hawthorne*—These are all aspects of a wholistic cosmology that are each equally important aspects of reality. I don't know how to rank them, they are all important.

### **Study Participants**

*Lilac Beaver*—I'm not sure what subjectivity is.

*Palm Cat*

D—Native peoples simply do not look at the world in the same way that Anglo/Westerners do; their perspectives are valuable, especially in this time.

S—The challenge here is how to lead organizations with this in mind.

C—I try to let my sense of wonder and awe (which come from my sense of communion) inform all my work, how I lead, how I parent.

H—Great things happen in community when people understand how much they need each other. We're not separate “units”.

E—Human beings are relative latecomers to planet Earth. I like to encourage folk in my preaching and teaching to let this fact inform how we see our place in the Universe and the choices we have to make.

*Honeysuckle Bear*

D—differences are the truth. Understand and celebrate them.

S—always act with reverence for everyone and everything

C—be obedient to the community

H—distinguish but do not separate the micro and the macro

E—never stop telling the story—long or short forms—at every gathering of people

*Orange Bull*

D—must be aware and honor diversity, especially when working with people in one global society

C—Physical attributes to emotional needs—yes!

H—We can be an organization within a system and part of a larger entity

*Daisy Antelope*

Since each of these represents reality, how could anyone of them not be viewed as “Essential”? (even though we don’t live as if we believe that). We live in an implicate order.

*Hazel Armadillo*

D—Especially important for racial justice and openness to people not of one’s own religion. When I wrote and implemented adult education programs in New Hampshire where few African Americans live but prejudices abound, I invited twenty-six African Americans from a nearby Air Force base to lead a series of meetings in 26 locations in the state on this subject.

S—When I am in the Tetons, the mountains are as alive as the bears and moose we see. They are as beautiful and they are always communicating loudly in their silence. They are fully alive as one of us.

C—If you don’t get “this”, you don’t “get it” and you don’t recognize that you lead by allowing everyone to lead with their insights and generosity. This is true mutuality of leadership.

H—We in the Catholic Church used to refer to the mystical Body. We were a large, united community. This is inadequate today. We are not only a single, human family (every person), but all creation is alive and we are all one family. To see this clearly is to be prepared with the necessary vision. “Our intellectual and spiritual insularism itself feeds the culture of division and violence.” (O’Murchu)

E—The clearer the understanding, the surer I feel about my convictions (in contrast to my former doubts), the more joy I have and clearer in my mind is to share these convictions whenever appropriate. I have my best sense of direction now.

*Walnut Dog*

D—Every patient/every staff person is unique and responds differently to treatment, etc. Our staff is very effective because in allowing diversity, we can respond to so many different types of people, illnesses, problems, family. All gifts are called on as needed. Without diversity, the whole experience is flat and dimensional—unable to respond to needs.

S—When a person recognized their identity in an organization, it increases their ownership. Helping an employee recognize their gifts/their niche in our department often opens the way for creativity and involvement at a deeper level.

C—When interconnectedness is recognized, it opens doors for communication, e.g. by bringing together patients with similar disabilities, it can open the door to emotional/social healing as well as physical healing for both parties.

H—In our case, the PT department within the Medical Center—how do we fit as a department/service within the bigger picture. Recognizing this increases our effectiveness in the larger community, e.g. community outreach performed by our therapists as representatives of the hospital.

E—There are great leaders who embody all the above principles without being able to verbalize them or without knowing anything about the Universe's and Earth's evolution.

#### *Holly Bat*

D—If individual self-expression or creativity is stifled, the group loses more possibilities for moving the organization forward. The leader spends most of their energy fostering conformity.

S—My experience is that identity is most important if you want your organization to evolve and move forward. A leader needs to foster participation in identity-creation.

C—I believe we are all connected, and that individuals within an organization desire connection—while also wanting to exercise freedom.

H—Organizations are living systems. Larger organizations benefit from having smaller creative entities operating at the same time.

E—In terms of an organization, it would be helpful to know this story, but I think you could still operate according to Earth-centered principles without people knowing the “new story” at any depth. My preference would be to introduce it at some level.

#### *Pine Cougar*

D—diversity makes our life “interesting,” varied, beautiful, beyond our imagining

S—I think this principle as a “centering” principle.” It provides depth and wholeness.

C—I believe this is ultimately the principle least implemented today, but my water drop most exemplifies this.

#### *Sycamore Deer*

They are all essential to leadership, we are hopefully moving towards. I have no specific comment on each one of them. It seems redundant for me to give comments or examples.

#### *Heather Badger*

D—Essential—in order to be open to all possibilities and all gifts of those you lead.

S—The leader must know and be conscious of their own identity in order to be effective. Recognition of subjectivity automatically should lead to reverence/respect for diversity.

C—All are one!!

H—Every action, personal and corporate, effects the whole. This must be taken into consideration when making decisions especially in large corporate structures.

E—You can come to an understanding and knowledge of these principles without knowing the New Story of the Universe.

*Clover Elephant*

Differentiation and communion must work in tandem.

For story of Universe and Earth evolution, it depends at what level of understanding.

*Daffodil Elk*

D—This is always a misunderstanding—what is supposed to be diverse.

S—We were born of identity.

C—Understanding why the Mother Earth provides what she does. How Father Sky provides the elements for growth.

H—How humans, animals, and plantlife provide the resources for survival.

E—It is if we rely on it. It's matter of fact.

*Cypress*

C—This is a vital concept, and one that radical individualism (such as in the U.S.) simply doesn't understand. It may have worked in the "Wild West" but radical individualism is the source of many ills today.

H—same as above.

E—This is essential. Without this understanding, one's whole view of reality is distorted.

*Maple Buffalo*

D—It is especially important to understand not only that diversity exists, but that it is of value. Nothing is the same, nor should it be. Each of us is enriched by diversity.

S—I need to learn more about this.

C—Systems theory is essential in identifying the impact of any behavior on all aspects of an entire system.

H—I need to learn more about the meaning of this principle. However, in that it appears related to systems theory, it seems critical.

E—If we understand how the Earth has evolved, we will be aware of the fragility of the Earth, the fact that it is a closed system and how easy it would be to destroy a delicate eco-balance.

*Spruce Coyote*

This question is too basic. Leadership to accomplish what? In what amount of time? In what social/political culture? I assume long range to accomplish an important end in somewhat the current social/political context.



D—People are not identical. Even in the military, where differences are minimized, you need to treat people /relate to people individually. The same with physical situations; no two are alike—even if only separated by time.

S—This refers to the inner integration of each entity involved in the effort being led. Again, the military as example—The basic organization rules apply to all, but no two regiments are the same. Thus the 101<sup>st</sup> differs in how it works from the 82<sup>nd</sup>, though they are organized identically.

C—I am convinced all other things rest on this principle. Hood Canal—to change in bathroom habits in one residence has had a huge affect on the lower Hood Canal in nitrates and fecal contamination stopped. Nitrate levels decrease leads to less algae growth with leads to less algae leads to less depletion of O2.

H—Leaders benefit from knowing they have holarchies. They benefit even more from knowing how the holons relate to work. This describes to me the cliques in every organization, which the leaders has to deal with.

E—In Mason County, you'd get an argument if you teach evolution. Yes, it's still going on all around us—today—in Mason County. To me its basic and my version doesn't threaten that I am Christian. I can conscribe to "intelligent design". What I can't buy is the requirement to accept the Schofield construct of creation at the end of time.

#### *Dahlia Fox*

We are part of a vast, evolving Universe—an interconnected, interdependent and living system—that has emerged and continues to emerge according to these principles.

Human beings and the structures, systems, and institutions we create and are part of are embedded within this dynamic, emerging system.

Therefore, in order to be faithful to this continuing "emergence into being"; we must be aware of and consciously faithful to these same dynamics. Effective leaders must be able to help others understand and live appropriately within the whole community of life.

To understand who we are and what our "role" or "vocation" is (both as individuals and as a species), it is imperative that we know our story.

#### *Gardenia Giraffe*

D—In using circle process in resolving conflicts, I have observed this principle active.

S—I use metaphors in the circles with individuals and find these bring people to a level of identity, which frees them in articulating and envisioning goals and live directions.

C—This I have experienced so often when I journey with others in resolving issues. Seeing all the parts and signs are essential and freeing as well as directive.

H—Just embedded in processes that affirm all of life rather than the pyramid type of leadership.

#### *Geranium Goat*

All the ones I've put as "3" or "2" are critical basic people-management skills that should be part of a leader's repertoire regardless of whether s/he considers her/himself to be Earth-centered.

D—With this principle, the leader recognizes that each person has unique gifts that should be honored and invited to contribute to the greater goal. Not recognizing this principle means that some of the "lead-ees" will feel unappreciated and frustrated in their attempts to contribute.

S— Here the leader recognizes that each person understands the world and her/his experience within it in a different way that can be influenced but not controlled by others and their own world-experiences. Not recognizing this principle means that the leader seems to disrespect the experience of others, and they will probably feel manipulated or used.

C— A leader uses this principle to explicitly push to discover the direct and indirect implications of her/his actions, and those of the people led, on each other and on the various communities (human and nonhuman) around them.

H— I think it's possible a leader could effectively use this principle of systems analysis to understand how complex the interactions are of people with each other and with their environments. I believe most of the effects of this principle are similar to that of "Communion" above – the layers of complexity in distinguishing a "holarchy" I would guess usually go beyond what shows up in human organizational systems.

E— For leaders directly involved with human-nature interactions, the time and evolutionary perspectives offered by the Universe Story (described above under Questions 1 and 2) could be important; for others, I think rarely so.

*Gladiola Groundhog*

D—This is essential, but less important. E pluribus unum. Out of many one. Our oneness is more important. We need diversity in service to communion.

S— Among those ranked with a 2 this is the highest. Because we must honor that we are "subjects" not "objects" within the Divine Story of communion.

C— I place communion in the highest level, but I believe communion is the core operating principle of which all else is subsidiary. This includes human-human, human-all life, human-Divine

H— I believe this embeddedness is a living example of communion.

E— Yes we must understand and tell the story. At its heart I believe it is a story of relationship, community, and our oneness. It is the story of communion.

*Habiscus Horse*

D— I see this in terms of "Matter" versus "Energy." In this view, we need diversity to have some drama as well as growth in our mind-body-spirit. However, people often become too separated from each other, from creation, the Creator—this ignorance is what has caused falls in civilizations and stunted our evolution.

S— As one Saint stated, "Know thyself." To know thyself, one comes to know God. In this evolved state, one will be unruffled by the opinions of others and lead based more on wisdom than on emotion.

C— "The basic entity is one and continuous; it is the source of heterogeneous manifestation of the Universe. The one gives rise to many... the formless gives rise to pluralities of forms." —(1991) *Maya in Physics*, Dr. N.C. Panda, Ph.D.—This shows in this Universe, we all come from the same source. We are all connected to each other.

H— In the book, "*Many Lives Many Saints*," the Saints tell us we are all gods. Within us is the little self and the big Self, which is the god within us. We cannot claim to be God, but we do carry the living entity of God. By knowing this, it helps us to be complete.

E— If this is ever possible, for the mysteries of the evolution of our Universe and Earth is known only by Spirit and the most highly advanced Avatars. The understanding we do have will help us to realize our oneness with each other for there truly is unity in diversity.

*Hyacinth Leopard*

E—If this were “life-oriented” not cosmos oriented...essential for leadership.

*Iris Lion*

D—The greater the diversity, the stronger the organization can be.

S—Everything and everyone is sacred.

C—Everyone and everything is interconnected—this must be recognized and promoted.

E—Our understanding of the story of our Universe is reflected in our decisions and attitudes.

*Marigold Lynx*

D—This is the “objective” reality of people and life

S—Parker Palmer has said that leadership is “having the power to project one’s darkness or light on others”—I must know myself if I am to lead others with integrity.

C—To not recognize this is a form of blindness.

H—This induces reverence and permanent “beginner’s mind”

E—While helpful, it may not be as critical as the other qualities.

*Lily Otter*

D—The greater the diversity, the healthier the system!

S—The Earth is a communion of subjects not a collection of objects. For example, I like to ask, “How were the animals that land on our dinner plates treated?”

C—Mutual presence is a beautiful phrase that come to mind and the fact that things influence one another even at a distance!

H—There is no such thing as a human in isolation—or a human community that is not part of the greater community of life.

E—Yes!! This is essential. Not only understanding in the head, but in the body and through direct experience with the natural world.

*Snapdragon Bluejay*

D—Understanding that not all things are the same and that one must reconcile those differences to move forward towards a common destiny.

S—The journey within, is as important as the outward journey.

C—Leadership does not exist in isolation. It is about connecting!

H—I don’t really understand what this one is about.

E—Being aware that we are not the whole story, but rather, part of the story frees us to be leaders within a broader context, and not stuck to making short term efforts.

*Sunflower Canary*

D—Understanding your own voice/truth and being. Open to be informed and transformed by others. Recognizing the unique beauty of all and being able to be informed by diverse voices.

S—Identity is an essential organizing principle first for the leader as they come to know their purpose and for the organization as they gather around that purpose or identity/essence.

C—The mechanistic cause/effect mindset is insufficient for the ability to understand the complex nature of living systems and their simple beauty is essential/

H—Good to understand; harder to know how to practice.

E—If we are to really service life, then knowing the story of life is extremely helpful, informative. Also essential to understanding living systems.

*Douglas Fir*

D—I would emphasize “life-form” rather than “thing.” Must be balanced with commonality, e.g. all humans, whatever their skin color or ethnicity share the same DNA. “Sameness” identification is equally important!

S—This self-organizing dynamic must be in constant dialogue with emerging collective experience and evolving codifying of new experience and re-coding of collective history and herstory.

C—This is the foundational understanding.

H—and how this is different from and does not imply hierarchy.

E—Even this story is always subject to interpretation and selective emphasis!

#### *Crocodile Crow*

D—Seek diversity in groups; economic, ethnic, etc. to gather strength of each.

S—A strong group will be made up people who contribute their own thinking to the goal rather than simply following orders.

C—A group whose individuals bond enjoys greater cooperation and mutual support.

H—Unless there is a culture in which mutual self-interest is honored and harmony achieved, the group will be dysfunctional.

E—I think the above principles can easily be known without knowing this story—but it certainly would help.

#### *Frog Dove*

D—This is obvious to those who really see.

S—Especially important in our society, this principle, which requires a certain attentive/contemplative stance, is surely lacking. Few of us know who we really are, in Earth's and the Universe's process.

C—Crucial. Reality is relationship.

H—If communion were truly understood, this would be understood as well.

E—Depends on the meaning of “understanding.” Some know the important principles through observation and reflection on experience though they may not know much of the science/history of evolution.

#### *Butterfly Eagle*

D—Each member in the situation is values for the different gift or perspective needed by the whole. However, it is critical for the leader and group to be able to carry the stress that goes with diversity. Everyone will need good listening skills.

S—This takes time to develop with care given to allow members to study, understand, and buy in to mission and values—time to develop, explore, evolve.

C—The core mission is the greater sum of all the parts and has to be the constant reference for decisions, objectives, etc.

H—The Universe Story and the sense of deep time is the basic validation of each person's life and meaning and is a core perspective for their role in the mission of the organization. Essential for the stability and endurance of the work.

E—If the mission is understood in this context, all the members should be recruited and included within the context. Everyone needs to hold this context.

#### *Finch Panther*

D—Gifts differing. If you can see the gift or see the challenge as expressed within—then you can work with it. If you impose, you fail.

C—This underlies so much of what we fail to understand. And if seen then supports success.

E—We live. May not need to study it.

#### *Owl Dolphin*

D—In my work in education, a key principle is recognizing the growing diversity of students and that they learn in many different ways.

S—We all need to become knowledgeable of who we are, including recognizing our strengths and weaknesses.

C—An excellent example is the “No Child Left Behind” disaster, where regulations have caused unexpected consequences—unless there was a clear purpose to destroy public education.

H—In my field, it is clear that human life evolves from intra-uterine learning to learning and developing throughout life—We see practical examples of this process as neural networks complexify—then human networks do so—then electronic networks do so—all connected.

E—It is essential to understand the science as well as the spirit of life on Earth. The current attacks of the Right on science teachers working with the theory of evolution are the opposite of what needs to happen!

Appendix Z  
Statistical Analyses

Statistical Analysis by Gender  
Female, Male

N=35,20

Earth-centered Principles	Mean Difference	<i>t</i> -value	<i>p</i> -value
Importance to leadership	.013	.094	.9254
Application into organizations	-.179	-1.198	.2366
Importance of communion	-.059	-1.069	.2901
Importance of Differentiation	.303	2.169	.0348
Importance of Subjectivity	.248	1.567	.1238
Importance of Holon/holarchy	.015	.076	.9398
Importance of Earth's Story	-.324	-1.395	.1691

Comparison of Means  
Female, Male

Earth-centered Principles	<u>Mean Rating*</u>		<u>Standard Deviation</u>	
	Female	Male	Female	Male
Importance to leadership	2.7	2.7	.47	.48
Application in Organizations**	4.5	4.7	.53	.46
Importance of communion	2.9	3.0	.24	.00
Importance of Differentiation	2.9	2.6	.32	.69
Importance of Subjectivity	2.7	2.5	.50	.61
Importance of Holon/holarchy	2.5	2.5	.71	.62
Importance of Earth's Story	2.0	2.4	.87	.68

\*Rating scale: 3. Essential 2. Important 1. Somewhat important 0. Not at all important

\*\*Rating scale: 5. Always necessary 4. Often necessary 3. Occasionally necessary 2. Seldom necessary 1. Not necessary

Statistical Analysis by Code  
Panel of Experts, Study Participants

N=10,45

Earth-centered Principles	Mean Difference	<i>t</i> -value	<i>p</i> -value
Importance to leadership	.257	1.591	.1178
Application into organizations	.213	1.186	.2413
Importance of communion	.047	.685	.4964
Importance of Differentiation	.156	.876	.3851
Importance of Subjectivity	-.016	-.079	.9371
Importance of Holon/holarchy	.610	2.723	.0089
Importance of Earth's Story	.603	2.172	.0345



Comparison of Means  
Panel of Experts, Study Participants

Earth-centered Principles	<u>Mean Rating*</u>		<u>Standard Deviation</u>	
	Expert Panel	Study Participant	Expert Panel	Study Participant
Importance to leadership	2.9	2.6	.32	.48
Application in Organizations**	4.8	4.5	.42	.52
Importance of communion	3.0	2.9	.00	.21
Importance of Differentiation	2.9	2.7	.32	.54
Importance of Subjectivity	2.7	2.7	.71	.52
Importance of Holon/holarchy	3.0	2.4	.00	.70
Importance of Earth's Story	2.7	2.0	.47	.84

\*Rating scale: 3. Essential 2. Important 1. Somewhat important 0. Not at all important

\*\*Rating scale: 5. Always necessary 4. Often necessary 3. Occasionally necessary 2. Seldom necessary 1. Not necessary

Statistical Analysis by Ethnicity  
Nonwhite, white

N=9,46

Earth-centered Principles	Mean Difference	<i>t</i> -value	<i>p</i> -value
Importance to leadership	-.165	-.967	.3380
Application into organizations	-.095	-.482	.6323
Importance of communion	-.088	-1.263	.2123
Importance of Differentiation	-.396	-2.224	.0306
Importance of Subjectivity	-.292	-1.311	.1960
Importance of Holon/holarchy	-.308	-1.192	.2392
Importance of Earth's Story	-.193	-.641	.5244

Comparison of Means  
Nonwhite, white

Earth-centered Principles	<u>Mean Rating*</u>		<u>Standard Deviation</u>	
	nonwhite	white	nonwhite	white
Importance to leadership	2.6	2.7	.53	.45
Application in Organizations**	4.5	4.6	.54	.51
Importance of communion	2.9	3.0	.33	.15
Importance of Differentiation	2.4	2.8	.73	.43
Importance of Subjectivity	2.4	2.7	.54	.55
Importance of Holon/holarchy	2.3	2.6	.71	.67
Importance of Earth's Story	2.0	2.2	.71	.84

\*Rating scale: 3. Essential 2. Important 1. Somewhat important 0. Not at all important

\*\*Rating scale: 5. Always necessary 4. Often necessary 3. Occasionally necessary 2. Seldom necessary 1. Not necessary

**Appendix AA**  
**ANOVA Statistical Analyses**

Mean Difference for Age  
16-45, 46-55, 56-55, 66+

Earth-centered Principles	Mean Difference						p-value					
	16-45 46-55	16-45 56-65	16-45 66+	46-55 56-65	46-55 66+	56-65 66+	16-45 46-55	16-45 56-65	16-45 66+	46-55 56-65	46-55 66+	56-65 66+
Q1*	-.236	-.525	-.406	-.289	-.169	.120	.2184	.0027	.0269	.0978	.3583	.4522
Q5**	-.205	-.368	-.667	-.163	-.462	-.299	.3214	.0543	.0017	.3715	.0220	.0961
Comm	-.008	-.091	-.091	-.083	-.083	.000	.9256	.2243	.2647	.2523	.2955	*
Diff	.061	-.217	.061	-.278	.000	.278	.7746	.2659	.7746	.1458	*	.1458
Subj	-.182	-.205	-.121	-.023	.061	.083	.4526	.3584	.6084	.9183	.7976	.7001
H/H	-.073	-.487	-.560	-.394	-.477	-.083	.7999	.0763	.0550	.1216	.0864	.7335
Estory	.068	-.543	-.765	-.611	-.833	-.222	.8319	.0698	.0205	.0372	.0103	.4397

\*Q1: Importance to leadership

\*\*Q5: Application in organizations

Comparison of Means for Age  
16-45, 46-55, 56-55, 66+

Earth-centered Principles	Mean Rating				Standard Deviation			
	16-45	46-55	56-65	66+	16-45	46-55	56-65	66+
Importance to leadership	2.4	2.6	2.9	2.8	.50	.52	.32	.44
Application in organizations	4.3	4.5	4.6	4.9	.54	.52	.48	.29
Importance of communion	2.9	2.9	3.0	3.0	.30	.29	.00	.00
Importance of Differentiation	2.7	2.7	2.9	2.7	.47	.65	.24	.65
Importance of Subjectivity	2.5	2.7	2.7	2.7	.69	.47	.44	.65
Importance of Holon/holarchy	2.2	2.3	2.7	2.8	.63	.79	.69	.45
Importance of Earth's Story	1.8	1.8	2.4	2.6	.75	1.0	.68	.67

\*Rating scale: 3. Essential 2. Important 1. Somewhat important 0. Not at all important

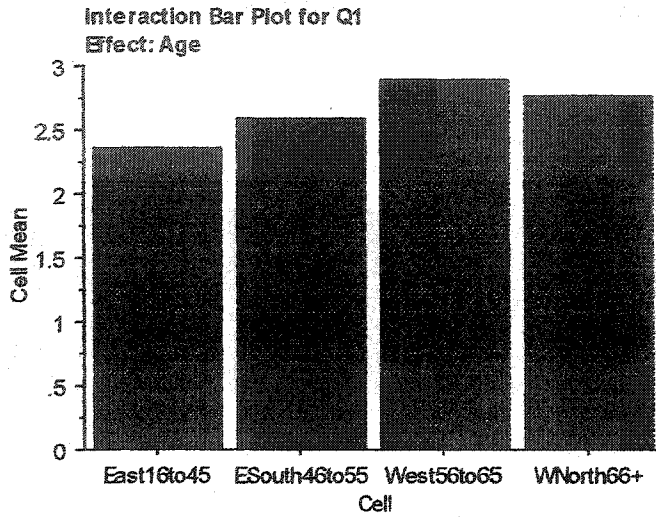
\*\*Rating scale: 5. Always necessary 4. Often necessary 3. Occasionally necessary 2. Seldom necessary 1. Not necessary

Analysis of Variance for Age  
16-45, 46-55, 56-65, 66+

N=11, 12, 19, 13

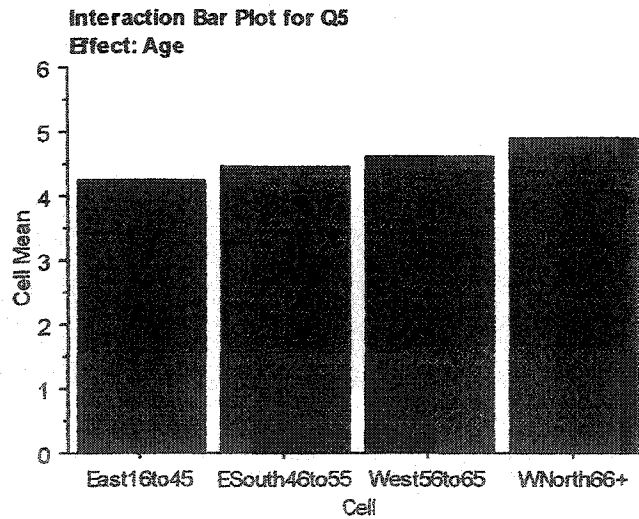
Earth-centered Principles	<i>df</i>	<i>F</i>	$\eta$	<i>p</i>
Importance to leadership	3	3.625	10.875	.0194
Application in organizations	3	4.044	12.132	.0124
Importance of communion	3	.884	2.651	.4562
Importance of Differentiation	3	1.079	3.238	.3665
Importance of Subjectivity	3	.320	.960	.8108
Importance of Holon/holarchy	3	2.122	6.366	.1100
Importance of Earth's Story	3	3.517	10.551	.0218

Analysis of Variance: Bar Plot of Means  
 Effect: Age [N=55]  
 n=11 (16-45), 12 (46-55), 19 (56-65), 13 (66+)



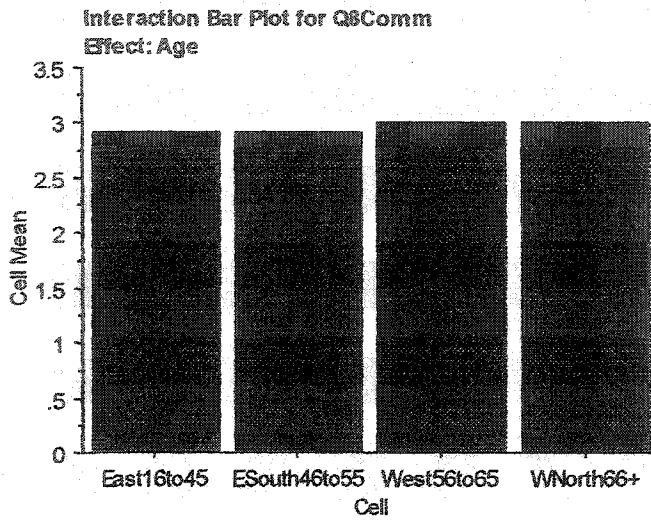
How important do you believe Earth-centered principles are to leadership?

- 3. Essential
- 2. Important
- 1. Somewhat important
- 0. Not at all important



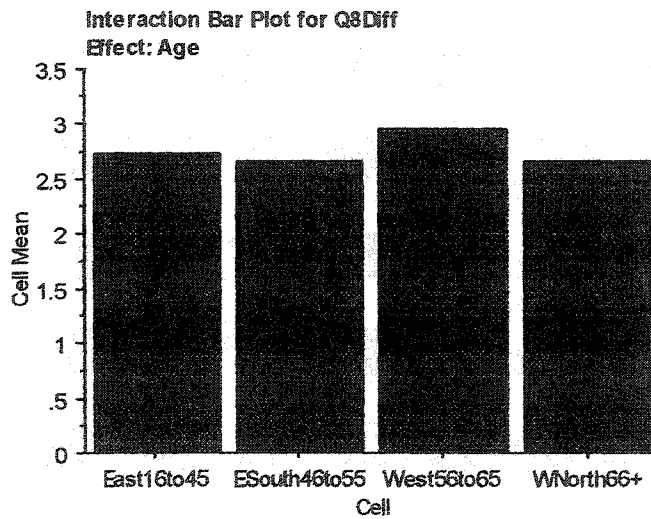
How do you see the potential application of Earth-centered principles into organizations?

- 5. Always necessary
- 4. Often necessary
- 3. Occasionally necessary
- 2. Seldom necessary
- 1. Not necessary



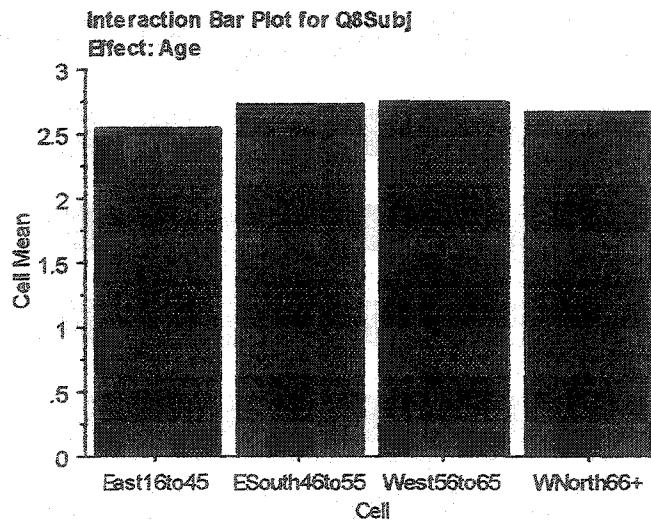
How important do you believe *communion* is to leadership?

- 3. Essential
- 2. Important
- 1. Somewhat important
- 0. Not at all important



How important do you believe *differentiation* is to leadership?

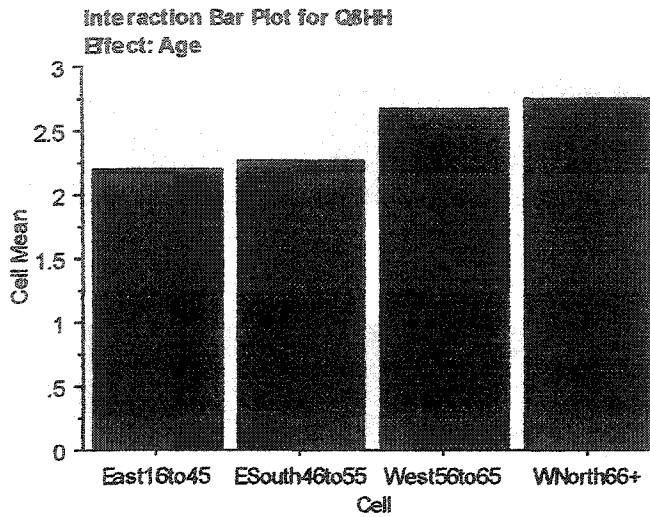
- 3. Essential
- 2. Important
- 1. Somewhat important
- 0. Not at all important



How important do you believe *subjectivity* is to leadership?

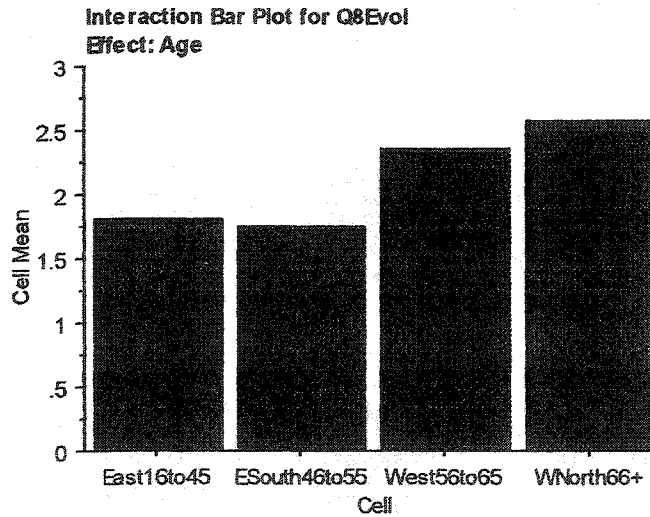
- 3. Essential
- 2. Important
- 1. Somewhat important
- 0. Not at all important





How important do you believe *holon/holarchy* is to leadership?

3. Essential
2. Important
1. Somewhat important
0. Not at all important



How important do you believe an *understanding of our Universe and Earth's evolution* is to leadership?

3. Essential
2. Important
1. Somewhat important
0. Not at all important

**Appendix BB**  
**Revision Comments**

## Revision Comments

♥ **“Earth-centered principles, as experience in Nature or in the workplace, help in understanding leadership and leadership effectiveness.”**

- “Understanding- how to recognize more than just leadership qualities in each of us in our desire to take part in making this world a better place to live.”
- I think it’d be more accurate to say something like “Most [or ‘almost all’, if that’s the case] of participants felt that...” For instance, as I remember my own response, it was more along the lines that being in Nature brings me a sense of inner peace (correctly summarized in your “black type” summary above”, and therefore *to be a better a leader* because I’m a more peaceful person—but not that it helped me to *understand leadership* or leadership effectiveness, which I picture as a more analytical process. And it is physically being in nature, not analytically understanding Earth-centered principles, that brings me inner peace...perhaps a subtle difference but I think an important one.
- The week before my son died (six months ago), we had the most important discussion in his 28 years—about Earth-centered principles and connecting with the source of life (Mother Goddess?) by being one with all creation (rather than through institutions that choose not to evolve.
- Not just “understanding,” but “informing leadership and leadership effectiveness.”
- “Are often transformative and can help significantly”

♥ **Earth-centered leadership honors differentiation (diversity), evokes subjectivity (authentic self/identity), and enhances communion (interconnectedness).**

♥ **By honoring differentiation, evoking subjectivity, and enhancing communion, Earth-centered leadership fosters creative evolution of the individual and the whole, including Earth (cosmogenesis).**

- Take out, including Earth.
- add...”in meeting the objectives of the team/community/workforce. And, to utilize these traits in efficiently resolving conflicts that will inevitably arise at the individual and cosmic level.”
- Change “and” to because Earth-centered leadership enhances communion. 2<sup>nd</sup> description ~ change “and” to “through.”

- “By honoring differentiation, evoking subjectivity, and enhancing communion, Earth-centered leadership fosters creative evolution of the individual and the whole community, including Earth (cosmogogenesis).”
- I confess, I find the (2<sup>nd</sup>) sentence confusing. I get the gist of it, and I agree with it, but perhaps it could be re-phrased for the “layman.” For example, does the “evolution” of the individual just have to do with his or her work in this world or does it include life beyond this world. As we draw close to Christ in new ways, in “resurrected” bodies? This sentence as is raises a lot of questions, which is fine, but I’m not sure that is your intention.
- The 2<sup>nd</sup> statement is a result of Earth-centered leadership.

#### ♥ *Earth-centered leadership values*

- “Love and care is a number 1 essential because if we cannot display love to our selves and other beings in our Universe, how can we relate and share all other based ideas to our communities?”
- “Many could be subsumed by such generic terms as ‘authenticity’. None are totally unnecessary.”
- Experimentation ~ substitute experimentation with one who has vision. Change agent ~ good to some extent, but stability is even more important. Yes, change is good, but only when done for our highest good. Surrender ~ Yes, this is important. I would reword this – to discern when to let go and when to hold on tough!”
- Many of the items listed with number 10 and below I see as articulating what “subjectivity” is about.”
- I am surprised that courage/risk is so high. I think sense of humor should be higher ☺.
- “Let go” is vague, could be under “trust”
- \*\*I think all leaders, including Earth-centered ones, should embody all these values. \*\*

#### ♥ *Leadership Strategies*

- “I don’t know what could be used in place of “system” – I don’t view myself as a system.”
- “Politics are local.” “A listening heart is necessary for fostering diversity and honoring all voices.”

- In decision-making ~ At times, decisions (only in rare cases—especially the tough cases), need to be chosen by the select few lest no decision will be made by the masses. Fostering diversity ~ unity in diversity. Change to emerge ~ I agree with this for the most part. Yes, change is always constant, but as long as there is some degree of homeostasis. “Enlightened communication ~ Do you know how difficult this is going to be? Krishna talks about 5 faults people have. The ego he stated is the hardest of all to beat/overcome. Practice of play ~ Absolute must. So often ignored. I am working on this. Life following death, entering into disequilibrium ~ only when needed. Triple bottom line ~ Yes, all are connected, but not always equally to each other. Structural circles ~ vs. linear relationship—wonderful concept. Feminine and masculine; integrated person ~ wholeness.
- In decision-making ~ I think this is true (4) but in practice, many decisions are sadly expedient. Applying principles of Nature ~ Art of recognizing the organic quality to living. Habit of play ~ I think this is critical, but in practice “time” issue. Triple bottom line ~ I hesitate with “profit”—perhaps beneficial to life.
- In decision-making ~ “but how?” Safe container ~ sometimes confrontation is important and may not appear safe. Pay attention to process ~ except in an emergency. Dialogue ~ dialogue is not necessary every time. Grounding in Nature ~ Can urban work be grounded? Apply principles of Nature ~ often not necessary.
- In decision-making ~ People impacted by a decision need to be part of the process. Organization as “system” ~ very important!
- “Systems” ~ this is a recognized term but I believe needs more clarity in terms of the word chosen for what it means—perhaps another word. Learning organization ~ This verbal thinking seems to put me in a box—thinking of the now rather than freeing my thinking to embrace it. Triple bottom line ~ doesn’t match my perspective. Identity for the organization ~ “for the organization” as the only reason.
- In decision-making ~ !. Safe container ~ “Key.” Ecological justice ~ more focus needed here. Grounding ~ !. Applying principles of Nature ~ !. Human in the 21<sup>st</sup> century ~ !!. Triple bottom line ~ in time “and profit” in long term design. Shared leadership ~!.
- Trusting ~ One also must work, at times, with very wounded and stress destructive individuals. They, too, have a “gift” but it may not serve your work or endeavor best. Dialogue ~ I come from a ½ Jewish background; debate is often helpful, even if it gets “prickly” at times. “Systems” ~ Yes, but there are times one just also thinks and acts with speed. Too much process can be “heavy” for an organization’s nimbleness to move (at times). Applying principles of

Nature ~ Many of us non-scientists need some training here. Triple bottom line ~ Which people? Whose profit? Grandchildren? Metaphor and story ~ Bearing in mind differences in people with different learning styles. Trusting ~ Again—there is often a range of health in one's stuff. Shared leadership ~ One must also bear in mind the history of the organization one has inherited, much of the time change can rarely be instantaneous. Information flow ~ Respecting confidentiality where it has been promised.

- "Disequilibrium" ~ Death?? Enter into "death" so another life continues?
- Marketing assumes that our primary purpose in life is to be consumers.
- "Culture" ~ I am not sure what culture is referred to here. Our dominant culture does not function from an Earth-centered position. "Enlightened communication" ~ Sometimes conversations can be replaced by common action. Personal practice (spiritual) ~ and fosters self-awareness. Good in ambiguity ~ this needs a lot of practice—both on a personal and communal level. Applying principles ~ Applying—always; teaching, understanding—often. Triple bottom line ~ Profit is not necessarily a bottom line for an organization—sustainability is! Dependable and strong ~ this one confuses me, so I can't rate it. Revolution in thinking ~ for me, these statements, particularly the first one, doesn't fit the rating scale.
- Trusting in the gifts... use of discernment ~ These are two different things, as I see them. Ecological justice ~ Depends on the leadership context and organizational purpose. Viewing organizations as "systems" ~ Two significantly different effort here. It's possible to do the first without the second—note different ratings for each. Recognizing the potential seeds—Ditto. Utilization of science knowledge and transcendental insights ~ two different things... Integrated feminine and masculine ~ One of the values of working in community is that the community can provide this integrated masculine and feminine even when the individual doesn't. Massive public education ~ Diversity in leadership means that not all leaders will or should have this priority.

♥ *Importance of Earth-centered principles to leadership*

- e.g. with UN and Congress
- "Blame" Brian Swimme and Darmuid O'Murchu for my love for and adherence to these principles ☺).

Appendix CC

Earth-centered Leadership Strategies

## Earth-centered Leadership Strategies

4. always necessary 3. often necessary 2. occasionally necessary 1. not necessary

Always	Often
<b>3.96 Fosters diversity by welcoming differences, moving away from homogenization in all forms, especially "Group Think." Invites the gift of diversity to have an honored voice in every setting—listening to people coming from different perspectives and experiences</b>	Grounding—spending time in Nature and growing in the understanding that we are Nature—developing an ecological imagination.
Listening with an open heart—deep listening to self and to the other.	Integrated in feminine & masculine aspects of self.
Pays attention to the process, not just the outcome of a decision and/or interaction.	Embraces the integrated person in body, mind, and spirit, including in the workplace.
Serving life; How are my actions, practices, and decisions serving life and allowing it to flourish? How do my practices support me as a leader and support others in being their best?	Shared Leadership: - Structural circles rather than hierarchy within organizations. - Shared governance and self-directed teams.
Engaging in dialogue, rather than argument or debate	Trusting people in their ability to seek their own health and healing—self-responsibility.
Fosters an open flow of information throughout the organization.	Cultivating a sense of kinship in leadership styles, especially with people different from ourselves. A new paradigm to govern in a corporate culture where there is mutuality of leadership for a better world.
Dedication to seeing reality—holding high ideals and seeing the complexities and ambiguities in self, others, and all situations.	A revolution in the thinking of humankind in the broad-based education, internalization, modeling, incorporation, and commitment of Earth-centered principles into practice with appropriate monitoring and feedback. Providing time and budget for conscious adoption of work practices which reflect Earth-centered principles.
Trusting in the gifts of each person.	Practice of play or having a hobby that releases personal creativity so that one sees with fresh eyes.
Educating toward the use of discernment and self-referencing and self-awareness.	Ongoing commitment to create a coherent sense of identity for the organization.
Ecological Justice: - Toward Earth, toward all the peoples of Earth, and toward all creation with respect. - Creating policies that are Earth-friendly and "green." A closed-loop supply chain (cradle to cradle) is identified and managed with emphasis on reducing, re-using, and recycling all resources extracted from Earth.	Understanding that life relentlessly emerges following death. A commitment to change as adaptive to life—willingness to enter into the "disequilibrium" to choose life.
Encourages and supports change being attentive to that which is trying to EMERGE	Practice of changing our sense of time—whether that be through meditation practice or



rather than fostering and maintaining “the same.”	taking public transport rather than driving—releasing the self from time-driven efficiency. Values the “slow movement” allowing a sense of organic flow in life rather than the constant frenzy.
Leading from the long-term view (7 <sup>th</sup> generation) rather than short-term perspectives. Encouraging solutions to micro problems in terms of macro realities. How do our actions affect the people and the planet in the coming generations? How do we bring these voices in to inform our work?	Understanding, teaching, and applying the laws/principles of Nature.
Has a personal practice (spiritual or similar) that constantly renews the self in a grateful humility and fosters self-awareness.	Always consider a triple bottom line—all decisions must be assessed from perspective of people, planet, and profit ( <i>sustainability</i> ).
Recognizing the potential seeds, good, & growth in chaos and ambiguity—able to navigate in the dark. Ability to hold paradox, balance dualities, & to dwell in ultimate mystery and unknowing while still acting.	Aligned to the unfolding dynamics of our Universe—studies and understands the ongoing story of our Universe and grappling with contemporary local/global challenges threatening life of our planet.
“Enlightened communication” that encourages conversations to take place in the group from a place where each is challenged to speak from the authentic self as opposed to the EGO self.	Utilization of science knowledge and deep transcendental insights.
Viewing organization and groups as “systems” and thus gaining perspective with systems thinking. Watching organizational life through the lens of living systems. How do we connect and energize fields and elements of the system to gather the wisdom?	Ask the question often: “What does it mean to be human in this 21 <sup>st</sup> century?”
Creating the safe space or “container” for growth and learning—fostering and nurturing the self and the culture—a sense of the workplace as sacred space for the honoring of integrity of all aspects of life and impact on body, mind, & spirit.	Use of metaphor and storytelling—are energized and nourished by story and shared dream experience.
Appreciating the “life cycle” of ideas and initiatives—every project goes through a natural evolution—respects natural rhythms and cycles.	
Learning organization: Self-organization is always happening and focusing on learning helps the system grow and adapt. What connections and learning is needed at this time? How to foster learning communities that unleash the collective intelligence and creativity of the group/organization?	3.0 ~ there were no strategies with a mean rating below 3
In decision-making, the community needs to be the “total community of life” – not just humans	
Dependable and strong to be true to what is	

needed in the face of others who disagree after taking in all voices—supports mindfulness	

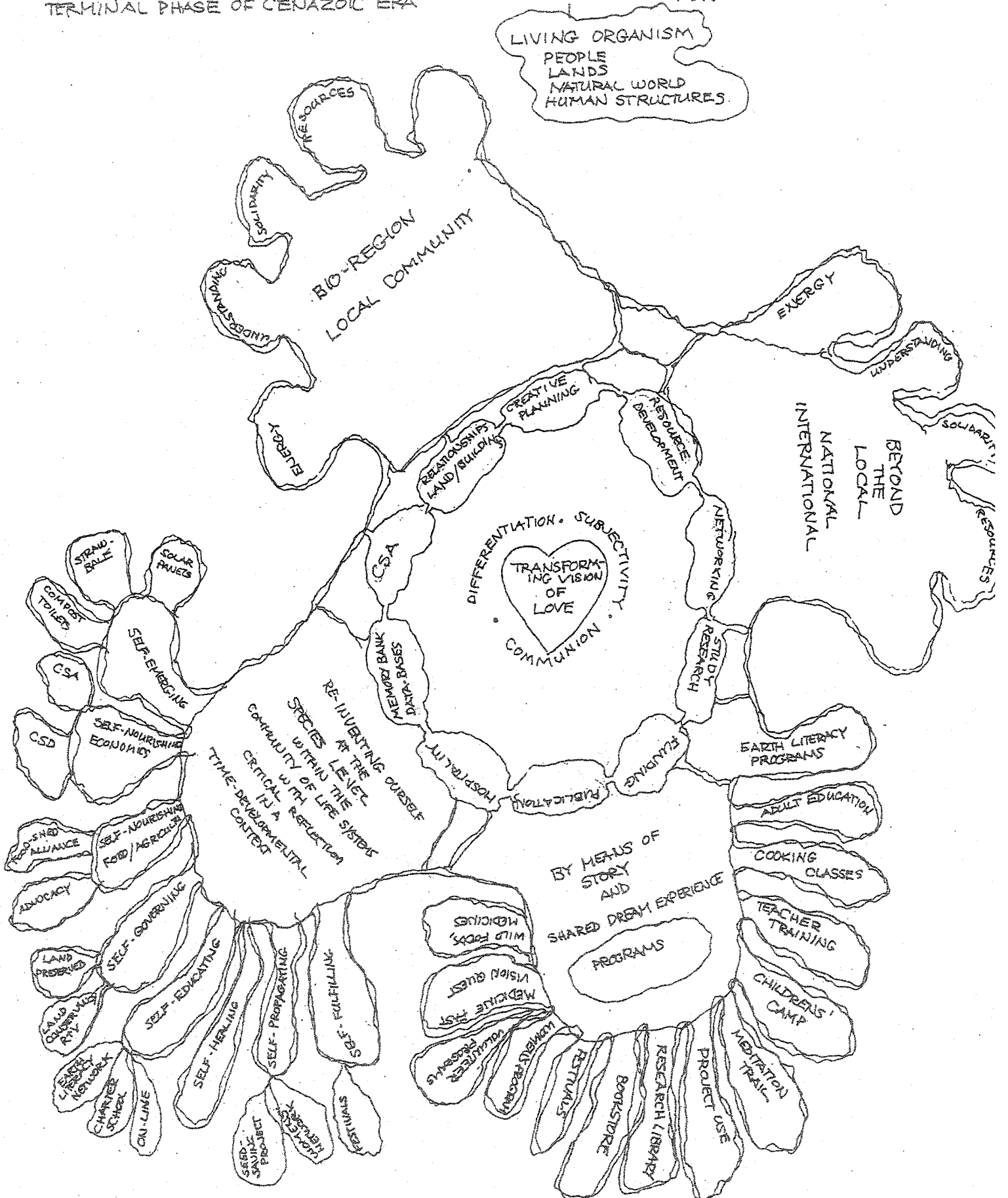
Appendix DD

Genesis Farm "Organism Model"

"Will Earth Survive?"

CRITICAL REFLECTION ON  
TERMINAL PHASE OF CENAZOIC ERA

ANNOUNCING POSSIBILITIES  
FOR AN EMERGING ECOZOIC EI



# Will the Earth Survive?

By James F. Berry

Work...nothing can be more important to human existence. I include in that term the reflective ability, the learning ability, and knowledge-energizing ability because work must be planned. Work is the ability to change things, the ability to make things different, to make unfavorable situations favorable, to make wrong things right, to fix things, to make things and to make them work, to impress mind on matter. If we didn't have that ability we would be nothing at all.

It is work that makes us who we are, that legitimizes us as real persons, distinct, different, loving and lovable; giving and able to give; able to take. Work makes humans consequential, enormously consequential. We matter and we matter a whole lot and for that reason we have to be careful and we have not been careful. Considering how we are doing so much work that ought not to be done, it may have been better had humans never shown up within Earth's community of life.

Somehow back there we were taught that work is a curse, a punishment for an act of disobedience. But how could work be a curse? It's not a curse; it's something so wonderful there is no way to tell how wonderful it is. It provides what is needed to find a way to belong, a way to contribute, and a way to find self-respect. It provides the base for joy and fun. It calls for dance and music and celebration of all kinds. Without it no one could praise God, or follow the paths of love. Life would be meaningless, totally empty without work.

The problem is: Work can do things that ought to be done and it can do things that ought not to be done. How do you tell which is which?

---

James F. Berry is a deceased brother of Thomas Berry. For many years he directed "The Center for Reflection on the Second Law" in Raleigh, NC, USA. This edited article is taken from Circular #174, a publication of the Center in 1996. His challenging words continue to be such today.

You can tell by referring to your story, your myth, your account of how things came to be and how humans fit into the world. Work that fosters life and beauty, enhances integrity and stability, ought to be done. Work that does harm to life ought not to be done.

When, a century and three quarters ago, empirical science (Charles Darwin being the central figure) began telling a story of how things came to be, religion could not accept this story as its own and society began losing confidence in its ancient story from Genesis. Religion and science no longer validated each other. Religion rejected the stunning revelation that humans belong in the life system, the earth system, are cousin to the ape, emerged into human form from an earlier version of primate. So it came about that religion lost, some say abandoned, much of its role as repository for the story, and authoritative teller of the story explaining how things came to be and how humans fit into the world.

Science has learned that the universe moves and has moved through its transformations from one stage to another over billions of years through a process called evolution. But, science, unfortunately, is not a competent teller of the full story because science does not speak to the world of the spirit. In fact it looks on the subject of spirit with suspicion.

Religion and its partner theology ought to instruct us as to where humans fit into the life community, but sometime in the past they abnegated that responsibility. No longer accustomed to telling a complete and satisfying story they are not in practice. They must now reclaim that role if they are going to survive meaningfully—which they cannot do until they have integrated the science of today into their own understanding of how things came to be the way they are. The coherence of society itself depends on a shared story around which the culture is integrated. Our shared story has crumbled; our culture falls apart in

a desert where nothing is sacred because of the absence of an effective shared sacred story. We will not have the possibility of such a story until religion and science talk from the same page.

Without a commonly accepted accounting of how people came to be there can be no commonly accepted understanding of what people ought to be about. Once we have a commonly accepted understanding of what people ought to be about, an individual can decide what her/his work ought to accomplish.

Work is good or bad according to what it accomplishes: good things or bad things. How do we know the difference? A thing is good if it forwards the interests of the community and bad if it harms the interests of the community. What is the community? In the large it is the structure and sum-total of the interacting and interdependent living thing and their encompassing context: land, water, air, soil, sunshine, stars, the cosmos...every thing. That totality is the context in which we fit, where we have a role to fulfill and work to do.

There are four major divisions in our society: government, church, university and the corporations. The corporations, what we frequently refer to as "business", have achieved such great power that the other three seem unable to make good sense prevail. The drive for greater and greater consumption now reaching global proportions will strip Earth of its capacity to provide for minimum needs in short order. Humans are not meant to live lives of empty-headed pleasure and useless luxury, of self-indulgence and wastefulness. The huge capacity Earth has is being devastated, especially in the developed world, for short-term junk glitter and gadgets. Humans have serious work to do. What work? Make Earth succeed. If Earth fails everything fails including the human enterprise. Right now it looks like it is going to fail. ☐

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