

Water Ways: Exploring Water Through Metaphoric Imagery, Discussion and Action

by

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Abstract

This case study was unique in its focus on an environmental education curriculum for older adults. It followed from previous studies in exploring the instructional and research potential of metaphor and environmental orientation. Environmental orientations towards water were examined among a group of retirees before, during and after a workshop which incorporated instructional metaphor as a teaching strategy.

The study demonstrated that, at least for some participants, the use of metaphor from a variety of orientations has the potential to increase participants' appreciation of alternative ways of relating to the environment. Overall, the use of metaphor appears to have contributed positively to most participants' understanding of water issues. As an educational tool instructional metaphor was useful in group discussion as a catalyst for conversation about how participants view, understand and relate to water. As a research technique metaphoric interviewing was useful to help draw out the accumulated knowledge and experiences of older adults.

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Chapter 1 – Introduction

Background to the Study

Over the past two hundred years humans have developed what can be characterized as a largely destructive relationship with the environment. Sylvia Earle (1995) made this point rather eloquently:

In the rush to ‘develop’ and use the legacy 4.6 billion years in the making, we have struck the earth like a slow-motion comet, wielding powerful new forces of change, rivalling and compounding the impact of natural stores, volcanoes, earthquakes, disease, fires—even, it now seems, nudging the grand and gradual processes that cause ice ages to come and go. (p. xv)

This study is part of my own effort to understand how modern society relates to the environment, and to explore the implications of our individual and collective roles in this fundamental relationship. It is hoped that it will make a contribution to the efforts of others who are also concerned with the need to consider the ways we relate to the environment.

As a student in the Environmental Education graduate program at the University of Victoria I had the privilege of meeting and learning from several Kwakwaka'wakw Elders during a semester at Alert Bay, BC: Wata (Christine) Joseph, Chief Bill Cramner, Chief Edwin Newman, and Vera Newman. I have also had the pleasure of meeting Cowichan elder Simon Charlie during the Traditional Indigenous Perspectives on Water workshop at the Simon Charlie Society in Duncan, BC. The knowledge, commitment, and passion of these elders was deeply inspiring. Their personal examples and teaching

spoke to the need for simpler ways of living so that we have time to share with friends, family and visitors; time to cultivate a sense of place and an intent to live in the world as if we plan to stay for eternity. At the U'mista Cultural Centre in Alert Bay, B.C. there is a plaque that reads “We are not like the flash of a firefly but like the eternal waters surrounding our land.”

There is much accumulated wisdom in the hearts and minds of older adults, not only among First Nations Elders, but also among the great diversity of seniors in general. In the book *Light at the Edge of the World* ethnobotanist and author Wade Davis (2001) provided a particularly insightful reflection on the role of elders,

...I have always been drawn to elders, enchanted by the radiance of men and women who have lived through times I can only imagine: an old school master who scrambled out of the trenches on the first day of the Somme; a family doctor who treated the wounded along the partition line between India and Pakistan, when rivers of blood divided the Raj; Waorani shaman who knew the Amazonian forests before the arrival of missions. I am enticed by their memories, and, in a culture notably bereft of formal modes of initiation, I find comfort in their advice.
(p. 30)

Many seniors across cultural backgrounds and lived experience have rich narratives to share regarding our relationship to the environment. Seabrook (2003) provided a wonderful example of this. He quoted John Relph, a man in his late 70s from New Jersey,

We were raised to regard thrift, saving, frugality as essential to our future well-being. We were taught never to throw food away, to turn out the light when you

left a room. We were careful with using the telephone and our house was always slightly underheated. It is amazing to see how indifferent people have become - it's almost as if they take delight in waste, in showing how little it matters that you use up things. I guess that reflects changes in society, but to us, the indifference of people never ceases to surprise, and in a disagreeable way. It is very irritating. You want to blame them, but of course it isn't their fault. They have been taught that generosity - what we could call squandering things - is more important than conserving them. People used to treasure the objects that belonged to their family, and expected to pass them on to a new generation. Now nothing lasts. Things perish and it is the people who go on and on. (p. 122)

Seniors can be 'wise to the ways of the world' and yet still be open to new learning and reflection. Of course, many older adults are already engaged in addressing social and environmental issues. We need to look to them, follow their lead and encourage others, of all ages, to join discussions about our collective future.

I have a specific research interest to work with adult learners. I am intrigued by the fact that the so-called 'baby boomer' generation is reaching retirement age. This segment of the population possesses vast life experience, social networks and resources. Upon retirement they also typically have an increase of discretionary time for hobbies, education and volunteering.

Environmental education programs focused on local projects may be effective in rekindling an often latent environmental interest among the diverse members of the 'boomer' generation. In my volunteer experience I have often found myself working with retired people. At the Royal BC Museum Native Plant Garden as a tour guide and

schedule coordinator, I met many volunteers who were retired. They came from all walks of life and many developed an interest in native plants later in life. Their appetite for learning and sharing knowledge was strong and inspiring. As Co-Chair of the Native Plant Study Group of the Victoria Horticulture Society I met members who had retired from many backgrounds including the armed forces, the arts, education and business. Often an interest in gardening had led them to an interest in native plants, then to an extended interest in native plant gardening and landscape restoration, and finally to a larger interest in environmental issues.

Cohen (1982) stated that the global human population is undergoing a dramatic shift in structure, "While world birth rates will be cut by half between 1950 and 2025, average life expectancy is predicted to rise from 47 to 70 years" (p. 80). With fewer babies being born and people enjoying longer lives, the population pyramid (a graph displaying the age and sex of a population) is turning upside down. By 2025 grandparents will outnumber babies by two to one. Significantly, this will cause an associated shift in the power structure of society. Decisions regarding all aspects of society and the environment will increasingly be influenced by adults over 60. Cohen related the implications of this rather succinctly: "As the aged cease to be a small minority, so they will grow into a political force. By 2025 one in three voters in industrialized countries will be over 60" (p. 82). Clearly if we want education to improve society's relationship to the environment, it is not enough to bring environmental education to our youth; we need to actively engage older generations as well.

My interest in environmental orientations stems from a lecture by University of Victoria professor Dr. Philip Dearden that I attended as an undergraduate student. The

lecture introduced me to the concept that environmental problems are primarily social rather than physical in origin. How we perceive the environment has direct implications for how we relate to and interact with it. This struck a strong chord with me and has fostered my interest in the environmental orientations that people use to relate to the world.

The use of *stem* and *chord* in the previous paragraph was not deliberate but on reflection provides an example of the pervasiveness of metaphor in our thinking and expression about the world. Often we relate to the environment through metaphor. The Random House Dictionary of the English Language defined *stem* as, “the main body of that portion of a tree, shrub, or other plant which is above ground” (Stein, 1969 p. 1392). *Stem* is also defined in its metaphoric sense which suggests that one thing “arises or originates from” something else, as a stem arises from a root. *Chord* is another term with a metaphoric meaning. Chord is defined alternately as a “feeling or emotion” or “a combination of two or more different tones sounded simultaneously” (Stein, 1969 p. 261). The emotional sense plays on a common musical metaphor that involves pulling heart strings to create harmonious or disharmonious feelings. The strength of this metaphor is its comparison of sound and feeling: with music we know when something sounds right and with our emotions we often have a similar intuitive sense when something feels right.

During my graduate studies I was introduced to the power of metaphor in conceptual learning, and as a result I have become increasingly aware of the use of metaphor in my own learning, understanding and language. I also have a growing awareness that metaphor, often in the form of stories and parables, has been and still is used widely

across cultures as a means of communicating basic principles and behaviours for relating to the world.

My studies also provided an opportunity to examine environmental issues relating to water. Water issues are among the most critical environmental problems facing society today (e.g., Brown, 2003; Union of Concerned Scientists, 1992). Modern society has increasingly distanced itself from the natural world, yet water remains a fundamental element of our lives. We are in contact with it and continue to rely on it throughout each day. There is no life without it. My intuition is that people may be able to grasp water issues more readily than other environmental issues, as water remains so central to our existence.

Our relationship within nature is intimately tied to our stewardship of water. Throughout history water has been honoured, celebrated, sought after, and feared (de Villiers, 1999, pp. 67 - 87). It has been studied extensively and has been the inspiration for art, literature and prose. Our ancestors planted their first seeds in the rich soils of river valleys and civilizations flourished. Water has connected us geographically, it has brought us together socially, and its management and use has been among our primary civic concerns. Eventually humans harnessed the power of water in mills and the industrial revolution was born. Today scientists acknowledge that by virtue of our numbers and our technical capabilities, humans have joined water as a major force of geological change (Basu, 1997).

In *Landscape and Memory* Simon Schama (1995) provided an eloquent account of the union between human existence and water,

Were they not figured as *bodies* of water because, since antiquity, their flow was likened to the blood circulating through the body? Plato had believed the circle to be the perfect form, and imagined that nature and our bodies were constructed according to the same mysterious universal law of circulation that governed all forms of vitality. Barlow knew that to see a river was to be swept up in a great current of myths and memories that was strong enough to carry us back to the first watery element of our existence in the womb. And along that stream were borne some of the most intense of our social and animal passions: the mysterious transmutations of blood and water; the vitality and mortality of heroes, empires, nations and gods. (p. 247)

Accessible and engaging, water is a rich topic for discussion. Fundamentally, it is our connection to one-another and to all living beings.

This study and its context in an environmental education workshop regarding water has allowed me to join together my undergraduate and graduate interests in environmental education for retirees, environmental orientation, metaphor, and water issues. It is hoped that these topics have also provided a creative and engaging basis for a group of retirees to explore their relationship with the natural world.

Rationale

...the sound principle that the objectives of learning are in the future and its immediate materials are in present experience can be carried into effect only in the degree that present experience is stretched, as it were, backward. It can expand into the future only as it is also enlarged to take in the past ... discussion of the political and economic issues which the present generation will be

compelled to face in the future would render this general statement definite and concrete. The nature of the issues cannot be understood save as we know how they came about. The institutions and customs that exist in the present and that give rise to present social ills and dislocations did not arise overnight. They have a long history behind them. Attempting to deal with them simply on the basis of what is obvious in the present is bound to result in adoption of superficial measures which in the end will only render existing problems more acute and more difficult to solve. (Dewey, 1938/1997, p. 77)

Building on Dewey, we can only understand our present circumstances to the extent that we are able to take-in and absorb the past. We can only prepare for the future to the extent that we understand the roots of present circumstances. Indeed, Dewey warned that our tendency to honour the new over the old often results in superficial measures that exacerbate existing problems.

Seniors have a unique role in society as they have precipitated and witnessed many of the changes that have given rise to our present social and environmental ills. This study seeks to determine if metaphor can be used as an effective tool in educational practice with seniors, to access their unique perspective and knowledge regarding the history of our environmental problems. This study will demonstrate that metaphor can be used to generate discussions that move beyond 'what is obvious in the present' to deeper conceptualizations of our social and environmental relations. Perhaps metaphor can be used as a catalyst for rich conversations about how we understand and relate to the environment?

Terminology

Metaphor:

The definition and use of the term metaphor is subject to academic debate in linguistics and other fields. Draaisma (2000) commented on some of the questions surrounding metaphor:

That metaphors take words out of their usual context and transfer their meaning to a new context is about the only thing on which there is a consensus in literary studies. Precisely what the relationship is between two contexts, how metaphors are related to reality or whether all metaphors can be exchanged for literal descriptions, even whether literal descriptions exist at all - there is a fundamental lack of consensus on all these matters. The fact that Freud's Mystic Writing-Pad is sometimes called a metaphor and sometimes an analogy or a model, reflects the conceptual conflicts in this part of the linguistic world. (p. 10)

The U-Vic Writer's Guide provided the following definition of metaphor: "In a metaphor, a word is identified with something different from what the word literally denotes. A metaphor is distinguished from a *simile* in that it equates different things without using connecting terms such as *like* or *as*" (University of Victoria, 1995). Fraser (1979) described metaphor as an implicit comparison, whereas he called simile an explicit comparison. Metaphor is a form of *analogy* which means the "partial similarity between like features of two things, on which a comparison may be based" (Stein, 1969, p. 53).

Draaisma (2000) provided a fascinating account of Aristotle's writing on metaphor:

Aristotle's definition contains two terms which are still considered quintessential to metaphorical usage: the use of a 'strange name' and 'the transfer of meaning'. The first refers to the deviation from the usual context which can be pointed to in every metaphor. To give Aristotle's own example: the word 'evening' normally indicates a part of the day; therefore in the metaphor 'evening of one's life' the term evening has become a 'strange name'. The concept of 'transfer' indicates that the connotations of the word in its usual context are transferred to the new, 'strange' context. That a river flows in one direction is an example of a connotation which in the metaphor 'time is a river' is transferred to a new context. This quality of metaphor is recorded in its etymology: the Greek verb 'metapherein' means to 'transport', or 'transfer'." (p. 9)

This study adopts a general definition of metaphor which includes implicit and explicit comparisons: "an analogous relationship between two objects, events or relationships" (Draaisma, 2000, p. 9).

Schon (1979) broadened the definition of metaphor by giving it an epistemic dimension:

There is a very different tradition associated with the notion of metaphor, however - one which treats metaphor as central to the task of accounting for our perspectives on the world: how we think about things, make sense of reality, and set the problems we later try to solve. In this second sense, 'metaphor' refers to both a certain kind of product - a perspective or frame, a way of looking at things - and to a certain kind of process - a process by which new perspectives on the world come into existence. (p. 254)

Andersson's (1993) work at Lund University followed from this by exploring views of nature through metaphoric discourse. Andersson explained that the use of metaphor is dependant on the existence of underlying orientations and that they are also indicative of such orientations:

Due to experience and learning, 'nature' is put into new contexts and thereby, new perspectives arise. To treat nature on the whole as a resource is no natural or analytic necessity, but rather a matter of learning to use things in our environment in certain ways to the exclusion of conflicting ways. Therefore, both explicit and indirect metaphors depend on perspectives and also indicate the presence of them.
(p. 3)

This study adopts the approach to metaphor which views it as a way of expressing an orientation, of making a point or of illustrating something.

Orientation:

Schon and Andersson's use of the term *perspective* was consistent with the use of *orientation* in this study and in the preceding work of Dr. Gloria Snively (1987, p. 434; 1990, p. 44), who defined an orientation as "a tendency for an individual to understand and experience the world through an interpretive framework, embodying a coherent set of beliefs and values". Following Snively (1986, 1987) six general orientations are examined in this study: spiritual, scientific, aesthetic, recreational, utilitarian, and political.

Gebhardt and Lindsey (1995) provided an overview of the use of 'environmental orientation' in other literature:

Constantini and Hanf (1972) first defined environmental orientation more than 20 years ago as the way in which people "approach the natural world" (p. 222). Now environmental orientations frequently are classified "within the notion of a bipolar world view" (i.e., a dominant world view versus an ecological world view) (Blaikie, 1992, p. 163) or on continua ranging from "technocentric" to "ecocentric," "nature as object" to "nature as spirit" (Killingsworth & Palmer, 1992, p. 8), "egoistic" to "biospheric" (Stem et al., 1993, p. 322), or more generally, from a development ethic to a preservation ethic. (para. 5)

Terms that are often used synonymously with *orientation* are worldview, paradigm, outlook and conceptualization. Each of these terms may embody connotations that are not necessarily interchangeable with the definition of orientation used here. For instance, this study is looking at *individual* understanding and experience in an environmental context, not at a *collective* understanding or experience as the terms paradigm and worldview can infer.

Worldview:

Taylor (1992) referred to a definition used by Fritjof Capra in which, the terms worldview and paradigm were used interchangeably as "a constellation of concepts, values, perceptions and practices shared by a community, which forms a particular vision of reality that is the basis of the way the community organizes itself" (p. 33). In this study worldview refers to a constellation of *orientations* of an *individual*, which forms a particular vision of reality that is the basis of the way that individual organizes him or herself.

In the context of this study an individual's worldview was composed of the multiple orientations that he or she holds. See Figure 1 (p. 13) for an illustration of how this might be depicted.



Figure 1. An individual's worldview comprised of multiple orientations

Statement of Purpose

This study had a dual purpose:

1. To examine the use of instructional metaphor in educational practice.
2. To examine environmental orientations towards water, and the interplay between contrasting orientations, among a group of retirees before, during and after an eight-day discussion-based environmental education workshop.

Research Questions

1. What are the participants' orientations towards water prior to and after instruction?
2. Instructional metaphor:

- i. Does the use of environmental metaphors in the workshop curriculum contribute to enhancing the range and depth of environmental orientations held by participants?
 - ii. Does the use of environmental metaphors in the workshop curriculum contribute to participants' understanding of water issues?
 - iii. Do environmental metaphors act as catalysts for conversation about how participants view, understand and relate to water?
 - iv. Are environmental metaphors useful in group discussion to help draw out the accumulated knowledge and prior experiences of participants?
3. Metaphor interviews as a research method:
- i. Are metaphor interviews useful to help draw out the environmental orientations, accumulated knowledge, and experiences of older adults?

The thesis involved the design and implementation of a pilot environmental education workshop for retirees. The workshop incorporated the discussion of environmental metaphors relating to water. Metaphors were selected to exemplify differing orientations that are held regarding the environment. Specific water issues were discussed in reference to these orientations. For instance, a spiritual water metaphor led into a discussion of religious traditions with respect to water. Participants discussed reverence for water in many traditions, such as the spiritual significance of the accelerated melting of the Gomukh Glacier which feeds the Ganges River in India.

Comments of participants during group discussion, entries in a group 'water journal', and participant responses in pre and post workshop interviews were used to evaluate the extent of metaphor's contribution to enhancing the range and depth of environmental

orientations among the participants. This involved reviewing the data to determine whether participants related to water differently after participating in the workshop, and if so, analyzing the role that the use of metaphor played in the changes.

Context

The context of this study was an eight-day discussion-based environmental education workshop which was designed for a group of eight retirees and focused on water issues. The workshop was unique in its combined focus on environmental education for retirees, environmental orientations toward water, and the use of metaphor in educational practice.

The workshop was intended to be a forum for participants to discuss the environment, to draw knowledge from, and share that knowledge with the community. Each participant was challenged to evaluate water issues and to generate new meanings, broaden existing views or move beyond previously held notions (Bergmann, 1999). Such growth was facilitated by engaging older adults in exploring water issues, encouraging them to discuss orientations toward water issues, and then supporting them in the development of a small action project.

During the workshop various environmental metaphors (Appendix B) were explored to study the different ways that people comprehend environmental issues associated with water. Following Snively (1986, 1987) the metaphors were selected to represent six general orientations that influence our relationship to water: spiritual, scientific, aesthetic, utilitarian, recreational and political. For instance, a utilitarian orientation to water can be exemplified by equating water to a conveyance:

In a work of 1813 he [Robert Fulton] asserted that everywhere in the United States 'cheap and regional transport will draw forth the ponderous riches of the earth, and circulate our mineral for the benefit of the whole community. It will float the products of the forests of the western states to the sea coast, returning the necessaries and luxuries from foreign nations to our interior. It will encourage manufactures by a cheap conveyance of raw materials; promote and refine agriculture, increase population, and advance civilization throughout the whole range of our country' (Stilgoe, 1982, p. 116).

A scientific orientation to water can be exemplified by exploring a metaphor that compares water to 'flickering clusters' and to fish;

This second, most recent and most widely accepted account of water's 'structure' involves what is called a 'Flickering Cluster.' Poetically dubbed doodads, 'flickering clusters' are said to be 'open clusters of H₂O molecules' untied by hydrogen bonds and 'swimming in a sea of relatively 'free' water molecules,' like fish. These clusters come in an infinity of shapes and sizes, and each cluster is constantly disintegrating, metamorphosing, forming new alliances, falling to pieces – hence 'flickering clustering.' (Duncan, 1983, p. 80).

The objective of each session was to gain new perspectives on water and to make connections in participants' thinking about water with other aspects of their experience.

The morning sessions included discussions of water metaphors and the afternoon discussions explored articles outlining specific water related issues or perspectives. Participants were encouraged to identify their preferred orientations and to engage in discussion about alternate points of view regarding water issues. They were asked to

reflect on their relationship to water and to determine which water metaphors were consistent with their past views and actions regarding the environment. They were also encouraged to identify metaphors that held the most meaning for them in present and future contexts.

Content for the workshop was selected to touch upon local, national and global water issues, to incorporate local knowledge and references, to be suitable to adult learners and to focus on exploring different cultural metaphors relating to water. The course pack contained general goals with curriculum options, and allowed room for the participants to contribute to the sessions through facilitation, group discussion, presentations and a small action project.

The workshop design was informed by co-appreciative inquiry (Barrett & Cooperrider, 2001) to the extent that it did not seek to identify or address deficiencies in participants' orientations toward water. Nor did it focus exclusively on the investigation of environmental problems related to water. Rather it focused on guiding participants in a process of inquiry that explored metaphors representing alternate orientations toward water. The intent was to offer participants an expanded range of possibilities for relating to water and to provide subtle encouragement to examine personal orientations toward water and water issues.

An important component of the workshop was the action project. It was hoped that participants would begin to relate to water in new ways and that they would express these new relationships in terms of action. Barrett and Cooperrider maintained that metaphor has a generative potential that can open up new possibilities for action:

Generative metaphor, we argue, enables groups to overcome defenses and liberate energy. In part, such liberation is achieved by cutting through constrictions of habit and cultural automaticity in perception. Generative metaphor is, therefore, poetic in nature. It is an instrument for seeing the world in new ways and in new combinations. It opens our lines to an expanded range of possible worlds. The poet's function, argued Aristotle, is to describe not the thing that has happened, but the kinds of things that might happen (i.e., what is possible). The poetic process helps us appreciate the fact that many futures are possible and that human realities are both discovered and created. As Bruner (1986) has elaborated, the function of the poetic is to open us to the hypothetical, to the range of meanings that are possible. He uses the term 'to subjunctivize' to describe the linguistic process that renders the world less fixed, less banal, and therefore more susceptible to re-creation. (2001, pp. 13 - 14)

Participants were to develop and carry out a small local environmental action project of their choice. It was hoped that participants would create a project that expressed new perception and appreciation of water. The project would be an activity such as reading water related stories to elementary school students, mentoring high school students, landowner contact, streamside plantings, ocean plantings, or developing interpretive signage or art. Suggestions, contact information and references were integrated into the course content. In addition, participants were encouraged to identify and discuss action ideas of their own.

Study Site

Participants in this study discussed water issues on the Saanich Peninsula, as well as regional, national and global water issues. Participation came from residents of the Saanich Peninsula and the Water Ways workshop series was based there. 'Saanich' is a Coast Salish word meaning to emerge - *as from water* (Saanich Peninsula Smart Communities Committee, 2003). The Saanich Peninsula has a population of approximately 37500 people in the municipalities of Central Saanich, North Saanich and Sidney and the lands of the Pauquachin, Tsartlip, Tsawout and Tseycum First Nations. (Saanich Peninsula Smart Communities Committee, 2003). 58% of the population is over the age of 45 (BC STATS, 2001, p.1).

Participants

Clover (1999) referenced the writings of physicist Fritjof Capra in pointing out that a primary way of nurturing change within a community is to facilitate and sustain a network of conversations. She continued on this theme stating:

New partnerships and alliances of cooperation, although not unproblematic spaces, can be forces of creative change. They can be a fundamental component to building momentum within communities to protect and restore the natural environment and create more healthy and sustainable communities. Sustained momentum around action depends in part on continuing to broaden the base of support through the integration of new players, resources, and perspectives. (p. 237)

Retirees are a segment of the population that we do not usually reach out to in environmental education. In this study participants were recruited in cooperation with

the University of Victoria Continuing Studies Department, through newspaper notices and articles, and by posting information at a variety of locations on the Saanich Peninsula frequented by seniors. There was no fee for workshop participation.

Eight seniors registered for Water Ways. They represented a wide range of backgrounds and experience which contributed to dynamic conversations about water. Only two of the participants had previously been actively involved with environmental issues. They were quite similar in age with ages ranging from their mid-sixties to early seventies. In this study participants are referred to by their first names as each declined to be represented by a pseudonym. They are each described briefly below.

Klaus identifies strongly with the ocean and seashore and is very interested in philosophical questions concerning life and healing. He is a retired interior designer and project manager. Originally from Germany, he traveled to Canada in his early 20's and settled in Edmonton, Alberta. Klaus and his wife retired to Vancouver Island and now reside near Sidney, BC. Klaus enjoys beachcombing along the tide pools at Warrior Point near his home.

Rosemary has lived near water for most of her life and she considers its close proximity to be an essential component of her well-being. Rosemary is originally from the U.K. but has spent most of her life on Vancouver Island. She is a registered nurse, a realtor, a photographer, and a poet.

John is actively involved in local conservation, natural history, and social issues. Prior to his retirement he had a 36-year career in the Canadian Forces in command and staff positions. He was born in Manitoba and has lived in various locations across

Canada and abroad. The home he shares with his wife Linda overlooks a local conservation area that they have been active in protecting.

Linda is also very involved in conservation, natural history, and social issues. She has worked as a lab technician, as a volunteer coordinator, and enjoyed a brief career as an opera singer. She has lived in cities across Canada, as well as in the U.S. In addition to their busy volunteer schedule John and Linda are also caregivers to her mother.

Ruth grew up in Ontario and she shares a great affinity for the Great Lakes and the Georgian Bay area with her husband Eric. They lived on Georgian Bay for many years and plied the 30,000 islands in their cabin cruiser. Ruth has a wonderful sense of humour, she writes cheeky poetry and is a water colour artist.

Eric was raised in Ontario where he recalls enjoying swimming holes along the Don River. Over time he witnessed these being replaced with the expressways, business parks and hospitals of Greater Toronto. He is a retired accountant and enjoys furniture making, home renovations, and decorative decoy carving. Eric and Ruth's home in North Saanich is next to a beautiful stream and pond.

Pauline came to Canada from Yorkshire when she was in her early twenties. She lived in Greater Vancouver for over 30 years before moving recently to Victoria with her husband. Before retiring she was a school teacher and then for 25 years worked in adult education teaching English as a Second Language. Pauline is a caregiver to her husband and grandson. She is very creative; during Water Ways not only did she make contributions to the group water journal she created a personal journal about water.

Bob was raised in Western Australia and moved to Nelson, BC in the late 1960's where he taught English literature and was a school Principal. He and his wife moved to

Sidney, BC several years ago. Near their home is a bird sanctuary that Bob enjoys regular strolls to. On one visit he was delighted to find 12 Great Blue Herons standing in the still waters before him.

Chapter 2 – Review of the Literature

Introduction

The focus of this research study is on the use of metaphor in environmental education for older adults. The literature review is broad in nature as the topics of interest are widely dispersed in the literature of education, as well as among the literature of other disciplines such as gerontology, linguistics and anthropology, and at this point for the most part they are scarcely developed. The intent of this review is to establish a context for the research and to elaborate on why it is needed. The review is also intended to provide a basis for the research by informing the development of an environmental education workshop for older adults.

The literature review is organized into five general topic areas which inform the study: education for older adults, environmental education for older adults, engaging older adults in environmental education, and metaphor and environmental orientations.

Effort has been made to review older references, as well as more recent ones. This has partly been a practical consideration in that there is limited literature available regarding education for older adults, much less environmental adult education for older adults. However, it is also an attempt to honour older sources of knowledge, which are too often overlooked in the dubious assumption that newer sources are better. I was pleased to find relevant literature that connects the topics of this study to the past, informs the topics in the present and provides guidance to future environmental education practice for older adults.

Education for Older Adults

McLeod (1985) pointed out that education in Canada, as in most countries, has traditionally been the privilege of the young. He contended that as late as the 1960s a main aim of education was to prepare young people to enter the labour force. Little attention was given to the educational needs of other age groups such as older adults and seniors. He stated that they have been perceived to be more in need of care, and less in need of education.

Fortunately, society's attitudes about learning can evolve with the times. At one time it was questioned whether there is learning after the age of 25:

...one of the most vivid personalities the world of psychology has seen, [was] William James. In 1890 he wrote that outside of their own business the ideas gained by men [sic] before they are 25 are practically the only ideas they will have in their lives, and that they cannot get anything new. (Pear, 1938, p. 38)

Few people today would make such a claim. We know that there is learning after 65, although there remain persistent stereotypes suggesting otherwise.

Seniors are often characterized as being quite conservative in their attitudes. Lorge (1955) stated that seniors are perhaps better characterized as having undergone a crystallization of the values learned in the early years. He pointed out that the values and concepts that were considered radical in one's youth may be conservative for the following generation. Lorge concluded that aging brings not so much resistance to change as stabilization of values, interests, and concepts.

In 1955, Clark Tibbitts and Merrill Rogers stated that, despite the fact that nearly half of the adult population at the time was middle-aged or older, society was oriented toward

youth. Almost 50 years later their words remain quite true despite a population that is continually growing older.

Population patterns are changing. Demographic trends show that the population of persons 60 and older is increasing in all world regions. Surveys make obvious that older persons are excluded from the informal economy, volunteering, learning, family and community life. They are often marginalized and considered a social and economic burden to society. (UNESCO Institute for Education, 1995, p. 44)

The United Nations has estimated that between 1990 and the year 2030 the number of people aged 60 and over will triple worldwide. Persons aged 65 or older will increase from 155 to 325 million in developing countries, and from 131 to 188 million in the developed countries (UNESCO Institute for Education, 1999, p. 4). Seabrook (2003) echoed these statistics reporting that,

In today's world, every month 1 million people turn 60. In 2001, one in ten of the world's population was 60 or over. By 2050, this will be one in five, by 2150, possibly one in three. (p. 38)

Statistics Canada (2001) predicted a parallel demographic change. In Canada, "senior citizens will account for 21% of the population by 2026, compared with 13% in 2000. By mid-century, they will represent virtually one-quarter of the population" (para. 9).

The UNESCO Institute for Education (1995) reported that, "Compared to the younger generation, and in spite of having more free time available, older citizens, in all regions of the world, show a lower rate of participation in various adult learning activities" (p. 44). However, circumstances may be changing. By 2016, Canada will have far more

seniors than children aged 14 and under, a phenomenon never before recorded (Statistics Canada, 2001). Sullivan (2002) related that the increase in elderly citizens will occur just as the percentage of families with children reaches a new historic low. He reported that we will soon be entering an era when there will be many older citizens and fewer families with children in school. Sullivan also related that senior citizens possess what everybody else in society so desperately lacks: time. MacKeracher (1989) predicted that by the year 2031, one in four Canadians will be a “senior learner” (p. 259). Older citizens have much to contribute to the development of society. It is important that they have the opportunity to learn on equal terms and in appropriate ways. Their skills and abilities should be recognized, valued and made use of.

Program design and implementation need to incorporate new notions of active and successful ageing and a positive view of older people and their contributions to society:

It is necessary to recognize the creative potential of older citizens, their capacity to learn and to engage in new activities, their enthusiasm and their willingness to contribute to improving their quality of life. They are a positive force in the community. (UNESCO Institute for Education, 1999, p. 9)

Public attitudes about seniors are changing. Susan McClelland related in a Maclean’s magazine article (McClelland, 2003) that “a lot of people are challenging the myths in our society that after the age of 65 you become useless and lose all meaning.” She continued to point out that people are living longer and healthier lives: “Canadians as a whole can expect to live until about 80, with poor health only in the last few years” (p. 35).

Already, older adults are involved in community service in impressive and record numbers. Lewis (2002) related several studies showing that although older volunteers are fewer in numbers compared to younger adults and youth, they invest more hours in the volunteer work they provide. Surveys conducted by the American Association of Retired Persons (AARP) revealed that more than 90% of adults over age 50 want to continue learning to keep pace with the world and to develop themselves (Lewis, 2002).

Donahue (1955) shared a story that is as relevant today as it was in 1955. He described a teacher who retired one summer with an accumulation of things to do such as garden work, housecleaning, friends to entertain, and large amounts of postponed reading. He related that for a while she was thrilled to have time to do these things, but soon began to realize that forty years of teaching had set up habits that could not be broken easily. She was used to the daily interactions that are essential to being a teacher and missed them very much.

The loss of paid work affects not only habit and daily routine but also personal identity and feelings of self-worth. Frank (1955) offered a powerful perspective on this:

When, however, they cannot work because of their age or lack of jobs, or because they have arbitrarily been retired at a fixed age, then they may lose their one and only way of relating themselves to society. Their sole sense of self-justification and reassurance of their own worth will be gone. For it is notable in a culture which proclaims its belief in the worth of the individual personality that so many feel they are significant only because of what they can do, what they can earn, or what powers they possess or exercise. (p. 8)

To counter changes in routine and role Frank advocated that learning and relearning be considered as lifelong tasks that require continuing education through all the years. This is especially important, he said, for the added years of later maturity when individuals must make considerable, sometimes acutely difficult, alterations in almost every aspect of their living habits.

Frank stated that education for later maturity may be viewed as an occasion for continued self-discovery and new learning leading to new interests and activities and creative endeavour. He believed that this becomes particularly appropriate and possible in later maturity, since, often for the first time since childhood, the older person has freedom from pressing responsibilities and leisure to reflect, explore, and create in various fields of endeavour. Aldridge (1955) added,

Were more programs oriented to the needs and interests of older persons, it is conceivable that, because of such factors as available leisure time, older people could become the major 'consumers' of adult education. (p. 301)

Mary Ann Fenimore (1994) wrote a fascinating thesis on the learning experiences of eighteen people aged between 100 and 106. Her study was important in that it highlighted the learning needs of people late in their lives. She stated that in her readings and observations, much attention had been given to the physical needs of older citizens and some attention had been given to their emotional needs. However, she maintained that only a scant amount of attention had been directed toward their intellectual needs. Lewis (2002) stated that despite theory and observation demonstrating that older adults desire to remain engaged in learning and service, programs providing them with structured opportunities are rare.

In 1955, Tibbitts & Rogers noted that a new concept of the aging process had emerged through advances in medical and social research. The authors concluded that far from being a process of deterioration or regression (the commonly accepted belief still) the later years can be instead characterized by mental development and growth. They maintained that, with the normal aging process, the ordinary biological and physiological changes are for the most part exceedingly gradual and that mental capacities, provided they are consistently exercised, remain virtually intact. Their words remain applicable today.

Seabrook (2003) cautioned not to generalize about the physical and mental condition of seniors, nor to overlook their abilities and contributions:

There is a great difference between the energies and powers of the young elderly in Western society (say 55 to 70) and the very old - those over 80. In between, there is certainly a second group, whose physical and mental condition varies greatly, some remaining highly active and integrated into society, while others are frail, sick or withdrawn. This variation in the capacities of the elderly makes generalizations difficult; but one thing can be stated with certainty. There is an enormous reservoir of energy and knowledge, of astuteness and discernment, which societies suffering of a shortage of labour and dwindling numbers of young people neglect to their own detriment and loss. (p. 54)

The United Nations (UNESCO Institute for Education, 1999) reported that studies on learning capacity have shown no major decline in learning capacity before the age of 75 (p.9). The same UN report conceded that illness may sometimes be an obstacle to learning, but that this is not always the case. Today most older people in Canada are

relatively healthy and difficulties, such as sight problems for older learners, can be overcome quite easily. The report also stated that where older adults are involved in education programs, the experience has been positive, “Older people possess a range of learning skills from prior experience, and they are no less active and motivated learners than younger people” (p. 9).

Anderson (1955) maintained that although progressive changes with aging result in some loss in efficiency and some difficulties of adjustment, older persons retain their capacity to learn and can acquire new skills and habits. Fenimore (1994) discussed many of the physical and emotional issues that must be dealt with as we age. Factors affecting creativity and learning include hearing and vision loss, changes in diet and climate, pain and fatigue, depression, and a learner's doubts in their own ability to learn (p. 45). The findings of her literature review were often surprising and encouraging. For instance, she related that while memory loss is a major issue with many aging adults research suggests that actual changes are often minimal.

There are, however, unique considerations to working with older adults as they advance toward the later years. While they need and want to be considered very much like other adults (Aldridge, 1955), facilitators have to recognize that participants may be experiencing different aspects of the aging process. Allowances need to be made for the social and physiological changes that occur among older adults. Anderson (1955) commented on some of the social factors involved:

Some find that because their friends have moved into other activities, they are left somewhat isolated within an earlier interest pattern. Then, too, the pattern and organization of the group change with time. Leadership shifts to younger persons

and major activities devolve upon younger persons. In time the older person feels out of place and even a bit resentful of the new patterns and activities that have developed and he [sic] may even find that the younger persons will no longer listen to him; and each developmental level tends to get wrapped up in its own problems. (p. 83)

In response to these social changes Anderson (1955) advocated that groups be organized about the interests of older persons with membership limited to them. He noted that, while this breaks contacts with the younger generation, it gives the older person a direct feeling of belonging and of making their own contribution. Tibbitts and Rogers (1955) commented on some of the other benefits available to older adults through participation in adult learning:

... the mature person can bring the experience, judgment, balance, and responsibility which he [sic] has acquired during his adult years. For many persons it will give a wholly new focus to their interests - a new centre of gravity to their lives - which also will help effectively to bridge the transition into old age. (p. 28)

Programs for older adults also need to take into account physiological aspects of aging. MacKeracher (1989) stated that learning for older adults should never be equated with memory or speed of response. The learning environment and activities need to be adjusted to compensate for such age-related changes as declines in visual and auditory acuity and such chronic conditions as loss of mobility and agility. She stated, that for example, "...seniors with even minor declines in auditory acuity are rapidly demotivated in poor acoustic environments. Excessive noise, white 'noise' (for example, from

electrical appliances), and poor seating arrangements all exacerbate hearing problems" (p. 271).

Anderson (1955) counselled that material presented visually should be clear, vivid, and particularly well-lighted so that it can be seen and understood by older persons with more limited vision. Classroom facilities should be reached easily without the need for stairs in order to minimize any physical inconvenience associated with arthritis or other mobility impairments.

Tuckman (1955) advised to allow for program individualization as much as possible:

Find out individual interests, cater to these, create new interests, sponsor unusual and unique activities, and in this way keep the interest at a high peak. Study individual capacities, not physical and mental limitations, and understand backgrounds. (p. 193)

Fenimore (1994) related that when older adults become more involved in intentional learning they begin to regain elements of a sense of control that is often lost as their bodies undergo natural degenerating processes. A sense of control in life remains crucial to their well-being and their ability to meet life's challenges:

Often people report that they feel happier and healthier when they experience a sense of renewal through refreshing insights and learning. Vigorous minds often maintain self-sufficiency at a higher level. Within this phenomenon lies the potential for heightened perceptions of self-satisfaction. (p. 14)

Learning is important to us throughout life: in our youth, in mid-life and also in the leisure of retirement. Mihaly Csikszentmihalyi, formerly a professor of psychology and education at the University of Chicago related, "...the Greek term for leisure, *scholea*, is

the root from which our word "school" comes from, since the idea was that the best use for leisure was to study" (1997, p. 12).

Environmental Education for Older Adults

Environmental education programs tend to focus on children. We seem content to rest our environmental problems on their innocent shoulders. Is it fair or desirable that they are the primary focus of our environmental education efforts? Mark Burch has stated that: "We adults seem more inclined to prepare our children to make heroic sacrifices for the planet than to do them ourselves" (quoted in Clover, 1999, p. 1). Moses Coady went further by questioning the ability of children to lead change: "Children do not control the world! Children do not change it..." (quoted in Welton, 1993, p. 40).

Most children's days are occupied largely in focused learning, social and sports activities that occupy much of their time and energy for twelve or more years. Environmental education is only a very small part of the growth and development that they are engaged in. Only a few will focus their studies and extracurricular time on environmental issues.

A UNESCO Institute for Education (1995) report argued that "...there is no way we can deal with global risks, be they ecological risks, health hazards, economic crises, or cultural dangers like racism, without active and informed citizenship." It called on citizens to acquire new skills to enhance their capacity to take initiative for change. The report stated, "...we cannot wait until the children of today become adults. It would take 30 years. That is far too long" (p. 5).

However, most adults are occupied in careers and with supporting their families. They only have small amounts time available for other pursuits. Only a small percentage

focus their lives and careers on finding solutions to our environmental problems.

Schubert (1979) stated:

Those who have work, often a full-time preoccupation with the mundane, are usually too tired to strive for personal growth and liberation. A vast majority of human beings do not experience the quality of life that enables meaningful liberating endeavors without having to work at a mundane job. (p. 179)

This is a striking statement that must lead us to reflect on the quality of our working lives, as well as, where we focus environmental education. Today environmental education is largely aimed at youth who are busy preparing for the preoccupations of the 'working world':

For children and young people in elementary school, high school, and college, the main portion of the day is devoted to education. In maturity this portion of the day is devoted to a vocation. Hence, in adult life, activities that are primarily educational tend to be centered in leisure or odd hours. With retirement the major portion of the day again becomes available and could be spent in learning activities. (Anderson, 1955, p. 81)

Seniors are at a stage in their lives where they are largely free of job and family obligations. Environmental education needs to be increasingly directed at retired adults because they are typically beyond the routines and diversions of paid work. Older adults tend to have more available time, and more control over their time than their younger counterparts. They have discretionary time for pursuits of personal interest. A person retiring at age 60 has 10, possibly 20 or more years ahead of them for personal growth and community involvement.

We must ask whether seniors owe a unique debt of gratitude to the planet and whether they have a responsibility to safeguard it for future generations. In *A world growing old*, Seabrook (2003) noted an interesting paradox that as individuals are living longer, healthier lives, the collective health of our planet is increasingly imperilled:

I use the phrase 'a world growing old' to suggest something more than a question of demography. It hints, too, at the exhaustion of the planet, a world abused, mistreated and exploited. The very processes that have lengthened life expectancy have also contributed to a using up of the resources of earth - the fossil fuels, the fertility of the soil, the purity of the waters. The long-term effects of the 30,000 or so chemicals in daily use are far from known; carcinogens may already have damaged the gene pool of humanity; while global warming itself threatens the fabric of the planet. It is possible that the regenerative capacity of the world itself has been impaired by the achievement of a 'standard of living', which is the greatest achievement of more than two centuries of an intensive industrialism. Here is another epic paradox: more and more people live on, even while the life-support system - the biosphere - which sustains all social and economic systems may itself be fundamentally impaired. (p. 173)

Tonn, Waidley, and Petrich (2001) examined relationships between environmental problems and the health issues that are typical of older adults and possible ramifications of an aging population on environmental policy. The authors identified air pollution and global warming as posing particular health threats to older persons. They suggested that chemicals added to the environment have been implicated in numerous diseases that seniors are particularly prone to:

The two leading current causes of death among the elderly are heart disease and cancer. Other leading causes of death include stroke, chronic obstructive pulmonary diseases (which include bronchitis, emphysema, asthma and other allied conditions) and pneumonia and influenza ... Deaths due to kidney disease and neurological diseases are also increasing. Evidence suggests that chemicals in the environment are a major factor with respect to these diseases... (p. 858)

They predicted that environmental issues that are directly related to the health of seniors will become political priorities.

Fostering change in communities necessitates broadening the base of support through the integration of new participants, resources and perspectives. Darlene Clover (1999) suggested that partnerships and alliances of cooperation are fundamental components of building momentum within communities to protect and restore the natural environment and create more healthy and sustainable communities. She advocated that environmental adult educators look at issues of inclusion and exclusion. Community visions and work can be strengthened "...by identifying sectors of society or people and elements of the rest of nature that are often missing or marginalized in processes of creating a healthy sustainable community" (p. 240). Retirees are one segment of the population that are generally overlooked when it comes to environmental education.

Yet older adults possess vast life experience, social networks and resources that could generate substantial social and environmental benefits. Significantly, this segment of our population is a growing social resource. Sullivan (2002) related that older citizens may well be our *only* increasing natural resource. We need to include older adults in

environmental education because *they* have the time, skills, self-interest and resources needed to reflect on and address our environmental problems.

Clover (1998) stated that a variety of naturalist societies, clubs and organizations emerged in the 1920's through to the 1940's. Many of these have maintained a sole emphasis on educating their adult members about the flora and fauna of a region. Some incorporate an analysis of contemporary environmental issues such as land and waterfront development and pollution, deforestation, the abolition of green space and the link to human well-being, links between pollution and poverty and a push for political action. It is important to note that while environmental education opportunities for adults and even seniors may be scarce they are not new. We need to expand the base of current programs and develop new ones that focus on the unique needs and interests of older adults.

Seniors today expect to be healthier and more active than in the past. Jeremy Seabrook (2003) reported on the changing attitudes of seniors and the changing social attitudes toward them:

We are now seeing *a different kind of elderly*. Efforts to maintain health, both physical and mental, to attend carefully to diet and exercise, and to remain engaged participants in the life of society are changing the sensibility and psyche of the older person. Society may be slow to appreciate the transformation of attitudes and outlook of the elderly, but they have undergone a metamorphosis no less profound than that which changed young people into the previously unheard-of category of teenagers in the 1950s. (p. 10)

Tonn, Waidley, and Petrich (2001) addressed the potential implications of increasingly affluent retirement lifestyles on environmental quality. They stated that “On balance, the current older generations and future generations of elderly Americans will probably have more time and money at their disposal than did preceding generations” (p. 860). Significantly, they predicted an unprecedented wave of retirement migration:

According to the US Home Corporation, the most sought after amenities in active adult communities are: proximity to town; maintenance-free homes, single-family detached homes, walking trails or paths; gated entry; a fitness centre; good transportation; exclusivity; a library; and an outdoor swimming pool (Wall Street Journal, 1999b). Not only have primary residences got larger, but the number of second homes is also increasing in the USA, typically in environmentally attractive areas. For example, over 70% of the housing in Vail, Colorado, is made up of second homes (Best, 1998). According to a study by Battelle Seattle, coastal areas will also feel the brunt of this phenomenon as older persons establish second homes in these areas (Orians & Skumanich, 1997). (p. 860)

The authors predicted that this migration will place increasing development pressure on sensitive coastal and wetland areas, place increasing demands on limited water resources in arid areas, and contribute to water pollution in others. They also stated that,

...older persons who are healthy and active may spend more of their time getting exercise, hiking, visiting parks, playing golf and otherwise engaging in outdoor recreational activities. Thus it can be expected that older persons may support programmes to improve natural amenities but that, at the same time, their numbers may put pressure on these types of amenities.

They related that seniors, as disproportionately avid travelers, contribute to harmful fuel emissions, "Travelers 50 years old and older account for 70% of all cruise passengers, not to mention 72% of recreational vehicle trips." The authors suggested that seniors are responsible for the growing popularity of recreational vehicles which are typically less fuel efficient and are more polluting.

New retirement communities are being developed across North America that cater to these so called 'active retirees'. Many retirees aspire to a lifestyle that incorporates urban amenities in rural and wilderness settings. For instance, marketing for the *Bear Mountain Golf and Country Club* on the outskirts of Victoria, British Columbia showed photos of seniors hiking in and enjoying natural surroundings, it incorporated slogans such as "From a state of nature to a state of mind" and text reads, "True West Coasters almost worship the out of doors. And why not? The climate is moderate to downright balmy. The scenery is breathtaking. And the number and variety of outdoor activities are almost endless" (Bear Mountain Master Partnership, 2004). The promotional literature for a competing retirement community called *Silver Spray* went further:

Join the lucky few who will call it home, enjoying the most spectacular surf and sunset views, a gentle climate, an abundance of wildlife, and total wilderness seclusion.

Surrounded by the Pacific Ocean and the largest waterfront park in the Capital Regional District of 'Super-Natural' British Columbia, Silver Spray's backyard playground includes 30 miles of nature trails and 6 miles of permanently protected virgin coastline.

With 80 to 300 year old character trees, mystic air plants like 'old man's beard,' and a rugged tidal coast flooded by the crystal clear waters of the Strait of Juan de Fuca, this is a storybook environment for naturalists, fishermen, birdwatchers, hikers, boaters, divers, photographers, recreational enthusiasts and sea kayaking adventurers. (Home Equity Development Inc., 2004)

Increasingly retirement communities are associated with urban sprawl in proximity to parks, forests, wilderness and recreational areas (Wright, Caserta, & Lund, 2003). Large tracts of retirement housing and associated amenities such as marinas and golf courses are increasingly encroaching on sensitive natural areas. A host of environmental issues often arise such as increased demand on local aquifers, pesticide use, and the draining or flooding of wetlands.

The success of these communities suggests a degree of environmental appreciation among older adults, yet a corresponding lack of awareness concerning the negative environmental impacts inherent in many of the lifestyle choices we all face. Environmental education for older adults may assist them in making lifestyle choices that reflect not only environmental appreciation but also increased awareness of their personal connections to and impacts on the environment.

Walter Leal Filho (1997) related the benefits of adult environmental education. He stated that it provides a basis for understanding the interrelatedness of education and environmental issues and how these affect an individual's life. Secondly, he claimed that it clarifies the impact individuals have on the environment and the repercussions of their behaviours. He claimed that it builds an enhanced sense of environmental awareness that makes people conscious of the complex economic, social and political developments in

their lives and on the environment where they live. He proposed that the environment, as a theme, can provide an umbrella to integrate other issues with environmental roots, such as, health [and social equity]. Finally, he suggested that it may contribute to local awareness of environmental issues.

Bruce Byers (1996) stated that in some people's view environmental education's primary role is to convey information and improve knowledge. In his opinion, this view of environmental education was not sufficient and he questioned the assumption that knowledge is the key factor in determining behaviour. He maintained that giving people new information does not necessarily change their behaviour. Hungerford (1996, p. 3) agreed, reporting that the research in environmental behaviour does not bear out the validity of the linear models for changing behaviour.

Byers (1996) offered that modern environmental education is based on the premise that environmental behaviours are influenced by values, options, skills, and many other motivating factors, in addition to knowledge. He offered a definition of the North American Association for Environmental Education that identified environmental education as, "a process that enables people to acquire knowledge, skills, and positive environmental experiences in order to analyze issues, assess benefits and risks, make informed decisions, and take responsible actions to achieve and sustain environmental quality" (p. V).

Uta Papen (1997) stated that approaches that focus on the transfer of knowledge have proven to be of little success. She related that action and solution-oriented strategies are more interesting for learners. "Knowledge alone does not lead to behavior change, whereas getting involved in a shared activity is more likely to achieve a long-term

motivating effect. New forms of environmental education follow this trend and, ...involve learners in jointly developing concrete activities" (p. 180).

Clover (2002) challenged traditional environmental educational approaches in much the same way. Programs focused solely on awareness-raising to foster individual behaviour change, were said to be disempowering because they discount participants' personal experience and ascribe different levels of status to knowledge (i.e., professionals vs. housewives). She also challenged these approaches by stating that they ignore the structures and policies that are at the heart of environmental destruction:

Awareness-raising, is a process of what Paulo Freire (1970) referred to as 'banking education' whereby the practitioner, who knows all, makes a deposit of knowledge into the head of the learner, who seems to know little or nothing. (p. 316)

A 1990 study by Harold Hungerford and Trudi Volk was quoted by Byers (1996), which synthesized research on environmental behaviour and outlined three main kinds of factors that contribute to behaviour change. The first of these was termed "entry-level" factors and included environmental sensitivity, awareness, and knowledge of ecology. The second was termed "ownership" factors and is said to include in-depth personal knowledge of, and personal "investment" in, environmental issues. Finally, "empowerment" factors, were said to give people the sense that they have the power and skill to act in ways that will resolve environmental issues (p. VI).

Byers (1996) related that entry-level factors may be prerequisites for making sound environmental choices. Knowledge-based environmental education on its own cannot promote the development of environmental values. Instead, he maintained that contact

with, and positive experiences in, natural environments over long periods of time are needed to develop environmental sensitivity. He quoted Hungerford and Volk as noting that knowledge of ecology, while apparently a prerequisite for sound environmental decisions, “does not, in itself, produce [sound] environmental behavior” (p. VI).

According to Byers (1996), ownership factors relate to personal relevance, understanding of, and identification with, environmental issues. Hungerford (1996) stated, "We have found that, if we want to get students to accept responsibility for the environment and be willing to work on an issue at the community level on their own, they must: (1) psychologically own the issues that they are working on in class, and (2) feel empowered to do something about those issues in a citizenship capacity" (p. 5).

Empowerment factors are said to include perceived skill in using environmental action strategies. Byers (1996) maintained that empowerment is crucial in influencing environmental behaviour, “A person’s belief that he or she will experience success in carrying out a certain action is related to empowerment. Of course, such a belief is reinforced by the actual experience of success” (p. VI). Finally, he outlined “situational factors” which were described as the many other factors that can potentially act as behavioural benefits and barriers. These factors were said to interact with the entry-level, ownership, and empowerment factors to determine environmental behaviours.

Byers (1996) quoted Hungerford and Volk again when he stated, “Too few environmental education programs, either formal or nonformal, ‘incorporate serious attempts to develop ownership and empowerment in learners’” (p. VI). He continued to caution that most environmental education programs lack awareness of social factors such as intrinsic motivations and community structure. Often, he related, programs

attempt to reach such a diverse audience that it is difficult to evaluate the participant's needs and motivations.

Clover (2002, p. 316) discussed a comprehensive analysis of theoretical frameworks that attempted to explain why people act (or not) pro-environmentally. A barrier or obstacle to pro-environmental behaviour identified was the enduring influence of 'old habits'. Another barrier which was examined looked at the difficulty people have of acknowledging environmental problems that threaten basic assumptions of quality of life. Clover pointed to fear and apathy as perhaps the most important obstacles. In reference to the work of Paulo Freire she suggested that people can be helped to adopt more pro-environmental habits through a process based in "concientizacion". This process was said to involve the collective discovery of knowledge, "political identity and social role", and a commitment to encourage and strengthen political action as its "ultimate aim."

Concientizacion, was described as a process that helps people to discover and nurture their latent ecological knowledge (Clover, 2002). Clover maintained that two elements are involved in fostering a critical consciousness or 'concientizacion'. The first requirement is a critical understanding of the society and culture within which people live. Concientizacion was said to help people explore the social constructions that either reinforce or weaken active citizenship and to examine the economic and political factors that result in environmental destruction. Second, there needs to be a realization of people's capacity to change the situation. This is the empowerment component of concientizacion.

The Hamburg Declaration on Adult Learning (CONFINTEA V, Fifth International Conference on Adult Education, 1997) embodied this outlook. It stated in item 17:

Education for environmental sustainability should be a lifelong learning process which recognizes that ecological problems exist within a socio-economic, political and cultural context. A sustainable future cannot be achieved without addressing the relationship between environmental problems and current development paradigms. Adult environmental education can play an important role in sensitizing and mobilizing communities and decision makers towards sustained environmental action.

Clover (1999) related that while there is a generous and growing amount of literature and lesson plans for environmental education for youth in schools and camps, there are far fewer resource materials to work with adults. Resources for youth are generally not appropriate for adults and,

...there is still insufficient attention being paid to the challenge of developing critically focused and action-oriented educational practices and methodologies for adults in informal settings. Much still needs to be done to ensure that adults as citizens, consumers, employers, workers and parents are able to develop theoretical and political skills, and acquire the knowledge and awareness which they need to combat the environmental crisis. (Hall & Clover, 1997, p. 737)

While resources for environmental adult education are scarce, there are even fewer available for the environmental education of older adults. The Environmental Alliance for Senior Involvement (EASI) is an exception to this and provides an excellent example of older adults engaging in sustained environmental action. EASI's mission is to promote in senior Americans an environmental ethic that results in expanding their knowledge, commitment, and active involvement in protecting and caring for our environment for

present and future generations (Ekstrom, Ingman, & Benjamin, 1999). EASI projects include:

- EASI Pennsylvania includes ten Senior Environmental Corps programs throughout the state, which trained 500 volunteers to monitor water quality in watersheds. They are active by collecting data on factors such as water temperature and chemical composition. Ekstrom et al (1999) conclude that, "This project demonstrates that older volunteers can be trained for a sustained, complex technical effort to protect the environment" (p. 617).
- The Delaware EASI project is based in Wilmington Delaware, home to several large corporations and with a large pool of technical and professional employees, and many of them remain in Wilmington in retirement due to its moderate climate and high quality of life. In this community, a specialized and highly professionally oriented Senior Environmental Corps (SEC) emerged. Seniors come together to continue their professional involvement in environmental issues and their learning and serving roles. The original projects that they were involved in centred on wellhead protection and ground water sampling; later they expanded their efforts to other areas, including the Small Business Pollution Prevention program, where they serve as pollution abatement consultants to small businesses. These volunteers also act to facilitate communications among governmental bodies to identify brownfields and barriers to redevelopment. Brownfield is a term used to identify any land parcel that is suspected of being contaminated by previous use. Participants consult with the Local Emergency Planning Committee (LEPC) to update the

reporting of extremely hazardous substances as specified in federal regulations.

- Texas EASI has developed an intergenerational model of senior engagement. The Elm Fork Education Center located at the University of Northern Texas is a unique collaboration between the University of Northern Texas, the local school districts of Denton and Lewisville, the Fort Worth Museum of Science and History, the U.S. Environmental Protection Agency, and other governmental agencies. Its mission is to develop and implement environmental education programs by using 'investigative encounters' that engage students of all ages in field activities and discovery experiences. More than 50 seniors volunteer, along with university students, to provide the bulk of instruction, facilitation & support. Ekstrom et al (1999) report that this intergenerational activity involves older adults with local public school and university students to facilitate environmental education.

The senior population is an important resource for the creation and maintenance of sustainable communities. An essential component of this effort is the formation of projects designed to stimulate community and individual involvement that lead to increased educational opportunities and empowerment:

...education should be geared towards substituting feelings of apathy and 'powerlessness' with the feeling that one, be it as an individual or in a group, indeed can make a difference. (Wals & de Jong, 1997, p. 127)

Ekstrom et al. (1999) documented the growing involvement of older adults in applied environmental concerns. The authors pointed out that as people live longer, more active

lives, their participation in a variety of activities, including community service, is expected to increase. They predicted a growing involvement by older adults in a variety of issues of environmental concern. Senior involvement in issues of the environment was traced to the role of elders in tribal societies who are said to have passed on their respect for the earth and for nature. The authors challenged contemporary notions that seniors are not capable of contributing to societal issues and that they are a drain on societal resources. They promoted a view of seniors that sees them as a valuable resource for society, while seniors themselves need to move from seeing themselves as a 'special interest' to recognizing their role as stewards or trustees for future generations.

Tonn, Waidley, and Petrich (2001) also predicted that seniors will play a significant role in pushing for better environmental policy. They stated that a greater percentage of seniors vote than their younger counterparts, citing the American Association of Retired Persons (AARP) as having reported that more seniors are voting with environmental concerns in mind. They also suggested that because older persons have a greater amount of leisure time and money than previous generations there will be a growing role for seniors in environmental volunteering and philanthropy:

Roszak (1998) believes that much of this time will be devoted to compassionate volunteerism. He discusses how retired individuals use their own finances to fund their involvement as volunteers with organizations such as the Earthwatch Institute, the National Audubon Society, the US Forest Service and the US Fish and Wildlife Service. (p. 867)

The authors suggested that billions of dollars of intergenerational wealth will be transferred to foundations that support environmental programmes.

Society is facing unprecedented environmental challenges. These have been well documented by scientists (e.g., Union of Concerned Scientists, 1992), environmentalists (e.g., Brown, 2003) and the media. Clearly, there is much to be done. The magnitude of the environmental challenges facing us today requires no less than the “counterculture” incited by the youth of the 1960’s (*now reaching retirement*). Historian Roderick Nash (1967) described that period of social change as:

...the most intense and widespread questioning of established American values and institutions in the nation’s history. The new mood emanated from young people, and in the mid-1960s half of the total population of the United States was under twenty-five. These Americans did not venerate success and security with the intensity of their depression and war-scarred parents’ generation. Neither did they celebrate technology, power, profit, and growth... (p. 251)

This time, however, the change required needs not only to be energized by the passions of youth, but also to be informed by the wisdom of our elders. A youth service organization called City Year (www.cityyear.org) uses the motto, *Young enough to want to change the world, old enough to do it*. Perhaps this motto is also appropriate to some of today’s active retirees?

In Canada and in countries around the world, a swell of ‘baby boomers’ (people born between 1944 and 1955) will soon be reaching retirement age. Of particular interest for environmental educators is that a significant component of the population is being freed from the routines of paid work. This segment of the population has experienced the rise of environmentalism through the 1960’s, 70’s and early 80’s and has witnessed the growing consciousness of our environmental troubles. They are a generation which has

experienced and initiated great environmental change. For instance, they have experienced a build-up of synthetic chemicals in our soils, aquifers, our foods, and our bodies; many seniors (often unknowingly) participated in the harmful release of chlorofluorocarbons (CFCs) to the atmosphere by using aerosol and other CFC laden products; they have lived through debate on the effects Carbon Dioxide (CO₂) and consequently may now be anticipating significant changes to global weather patterns and events. The challenge for environmental educators is to develop environmental education programs that engage and connect with this important demographic population.

Engaging Older Adults in Environmental Education

Formerly the rare individual, man or woman, who lived beyond his short-lived contemporaries was likely to have a place of honor and importance. He was admired and respected because he could offer something of the wisdom of the past and speak from a long experience. But these once singular persons are now so numerous that they no longer enjoy a unique place in their community. (Frank, 1955, p. 1)

Perhaps we need to reinvigorate the role of elders as stewards who reflect on the past, provide counsel to youth and advocate for future generations? Perhaps environmental education should increasingly focus on older adults because *they* have the time, skills and resources to reflect on our environmental problems and to address them? Let us engage more of our elders in community, learning and leadership. This is a role that is still emphasized in many cultures:

Elders are those persons in a First Nations community who are recognized for their wisdom, knowledge, and experience as it relates to the community. They are

people who are expected to share their teachings. Older persons are respected in First Nations cultures generally; traditionally they represent an accumulation of experience, a valuable attribute in cultures that carried their libraries in the memories of the people, using oral communication and live demonstration to transmit information. The process that identifies the Elders who are called on is subtle: to a large degree it is a manifestation of the custom that requires every person to pass along what he or she has learned. Also, it is customary for older people to act like Elders and to be treated as such, and the effective modeling of one generation inspires the future conduct of the next. (Cooke-Dallin, Rosborough, & Underwood, 2000, p. 84)

How do we engage seniors in environmental learning and action? In an article titled "Constructivism: a paradigm for older learners" Dorscine Spinger-Littles and Chalon Anderson (1999) discussed principles of working with older adults that they identified over their careers. The authors maintained that older students tend to do well when allowed to have some control over their learning environment, when they are actively encouraged and invited to participate, and when they are in a collaborative learning environment. The authors advocated that instructors and students share equal responsibility in the learning process where both provide and share information. They concluded that for older students, "...learning is most effectively achieved when knowledge is constructed, not transmitted" (p. 206).

Anderson (1955) summarized basic principles of instruction for older adults and suggests that they are like those which hold all ages:

They concern adapting content to make it intrinsically interesting, encouraging participation, stressing visible and tangible products, using material that is complex enough to hold the group, building group participation and a facilitating group atmosphere, using a variety of sensory avenues, building a continuously stimulating environment in order to use what is learned, and preparing with care and thoroughness for the period of instruction. (p. 92)

This section of the literature review elaborates on these ideas under four general headings: Participant involvement in directing the learning process, The importance of personal context and reflection, The incorporation of group learning and discussion, and The provision of opportunities for active participation.

Participant involvement in directing the learning process:

Many writers (e.g., Anderson, 1955; Cassidy, 2001; Cleugh, 1962; Dewey, 1938/1997; Frank, 1955; Gastil, 1997; Guevara, unpublished; McKenzie, 1991; Papan, 1997; Remnet, 1989; Spigner-Littles & Anderson, 1999; Wals & de Jong, 1997) have advocated for some form of participant involvement in directing the learning process.

John Dewey (1938/1997) proposed a "philosophy of experience" for education that underlies much of the philosophy of adult education today. Dewey emphasized the importance of learner participation in forming the purposes that direct the learning process. Keith King (quoted in Clover, 1999) reflected on the learners role in this:

The purpose of learning is to gain something new and to put the new skill or information to the test of usefulness. In order to learn, one must be willing to risk exposing oneself to new things, willing to test the validity of the old things in relation to the new, and be willing to form new conclusions. (p. 5)

Dewey (1938/1997) stated that if students are to share in the formation of purposes that activate them they must use careful observation, a wide range of information, and personal judgment. This involves observation of surrounding conditions and learning what has happened in similar situations in the past. Dewey stated that this knowledge is obtained partly by recollection and partly from the information, advice, and warning of those who have had a wider experience. Finally, he said that the formation of purposes also involves judgment that puts together what is observed and what is recalled to see what they signify.

Significantly, Dewey (1938/1997) reflected that it is possible for an instructor to ‘abuse the office’, and to force student’s activities into channels that express the teacher’s purpose rather than the students. He cautioned that the solution is not for the instructor to withdraw entirely, but advised that the teacher must be aware of the students’ capacities. Secondly, the teacher must engage the students and allow their suggestions to develop and be organized by the group into a plan and project. He stressed that the plan is not a dictation from the teacher but is rather a co-operative activity,

The teacher's suggestion is not a mold for a cast-iron result but is a starting point to be developed into a plan through contributions from the experience of all engaged in the learning process. The development occurs through reciprocal give-and-take, the teacher taking but not being afraid also to give. The essential point is that the purpose grow and take shape through the process of social intelligence. (Dewey, 1938/1997, p. 72)

Cleugh (1962) added that, the attitude of older people to their work is more serious than that of younger students because they have more at stake. He advised that, “Polite

tolerance of boredom is less likely: if they do not like what they are given, they may protest or cease to come, but they will not stay and waste their time" (p. 37). Anderson (1955) concurred:

Older persons are not a captive but a free audience. Children must attend school and high school, and college students who look ahead to vocations accept what is required of them without question. In general, they are in the places in which they are supposed to be at the times designated by authorities. But because older persons have been making their own decisions for most of their adult life, the types of guidance, supervision, and direction given to children and youth are not as readily accepted. Older persons do not like to be told what to do, especially by a person much younger than themselves. Hence, skill and subtlety in leaders are necessary to hold them for long. (p. 81)

More complex material is preferable to simpler. Anderson stated that the trick in teaching is to keep the apparent level of complexity just above the student's attainment so there is continuous stimulation, but not so challenging so as to cause discouragement.

Cleugh (1962) stressed the need for humility on the part of facilitators of programs for older adults. He advised that facilitators remember that they are not repositories of infallible wisdom, and that 'changes of attitude' may be desirable in themselves no less than in the students. The facilitator is not the sole educator in the room but rather is one among equals. McKenzie (1991) eloquently made a similar point:

The adult educator *qua* educator ... must refrain from invading the minds of adults and depositing therein any particular ideology. The adult educator, in the

area of helping adults develop interpretive understandings, is first and foremost a facilitator. (p. 132)

Gastil (1997) advocated what he termed 'democratic leadership' through a distribution of responsibility. He related that the democratic leader seeks to evoke maximum involvement and the participation of every member in the group activities and in the determination of objectives. Frank (1955) maintained that it is essential for groups of older persons to develop their own programs of education, "...selecting what to them seems important and worth while, as contrasted with the usual fixed curriculum and formal content of academic courses." Moreover, he concluded, "...it is important that seniors feel free to diverge or digress when, and as, they find their interests flowing into unplanned and unexpected areas" (p. 15).

The importance of personal context and reflection:

Personal context and reflection have been significant themes throughout adult education (e.g., Cassidy, 2001; Clover, 1999; Dewey, 1938/1997; Frank, 1955; Peavey, 1997; Schugurensky, 2001; Scott, 1998). Dewey's (1938/1997) writing has been seminal in this regard. He stressed learning within experience and he advocated that instruction start with the experiences that learners already have. Their knowledge, he said, is the necessary starting point for learning. Secondly, he stated that the orderly development toward expansion and organization of subject matter occurs through growth of experience. The educator's role then, according to Dewey, is to select those things within the range of existing experience that have the potential to challenge students and stimulate new ways of observation and judgment.

Personal context is important, especially among older learners, as a means of understanding the past. Dewey stated that the achievements of the past provide the only means available for understanding the present. He counselled that, "...the issues and problems of the present social life are in such intimate and direct connection with the past that students cannot be prepared to understand either these problems or the best way of dealing with them without delving into their roots in the past" (p. 77).

Dewey (1938/1997) eloquently stated that the institutions and customs that give rise to present social ills and dislocations did not rise overnight. They can only be understood as we know how they came about. "Attempting to deal with them simply on the basis of what is obvious in the present is bound to result in adoption of superficial measures which in the end will only render existing problems more acute and more difficult to solve" (p. 77). By sharing their experiences and reflections older learners may be able to help foster a deeper understanding of environmental problems and an appreciation of the necessity for substantive action.

Uta Papen (1997) stated that environmental education needs to relate to the very specific problems of people's lives in order to motivate and empower them to change existing conditions. The starting point for environmental education must be derived from the local context followed by global and long-term perspectives. She maintained that environmental questions have to be discussed in connection to people's immediate context. "The degradation of the environment, be it dwindling fishing resources, soil erosion or acid rain, always results from people interacting with their environment (p. 178)."

Frank (1955) advised that programs for older learners should include a common sharing of knowledge and life experience. Cleugh (1962) concurred stating, "It seems ... that the needs of older students demand above all an approach based on their first-hand experience - which uses it, sifts it, relates it to a corpus of knowledge, and in so doing enriches it" (p. 38). MacKeracher (1989) pointed out that relevant content is more easily connected to and integrated with existing knowledge. She emphasized 'relationship' which refers to both the need to use past experience as a resource for current learning and the need to learn in relationships with others. MacKeracher noted that connecting past experience to current learning takes longer for senior learners than for younger learners because they have more experience to examine reflectively and their knowledge tends to be more integrated.

Wals & de Jong (1997) believed that what an environmental issue is depends on the perceptions and experiences of the learner as well as on the context in which education takes place. They described community-based environmental education as a learning process that:

...seeks to enable participants to construct, transform, critique, and emancipate their world in an existential way. Construct in the sense of building upon the prior knowledge, experiences and ideas of the learner. Transform in the sense of changing, shaping, influencing the world around them, regardless of scope or scale. Critique in the sense of investigating underlying values, assumptions, world views, morals, etc., as they are a part of the world around the learner and as they are a part of the learner him/herself. Emancipate in the sense of detecting,

exposing and, where possible, altering power distortions that impede communication and change. (p. 125)

Frank (1955) agreed but emphasized that the focus for the older learner must often start with a questioning of their own preconceptions and assumptions:

... it is evident that, with increasing years, the process of education must be concerned primarily with relearning, or what may be called unlearning. In other words, the individual over the years has built up his own private frame of reference, with his personal beliefs, assumptions, and convictions that often have become obsolete and usually block further learning. Thus the process for later maturity must undertake to help people to become aware of their preconceptions and assumptions, to be able to look at these critically, and to self-consciously revise or replace them in the light of more recent knowledge, understanding, and insights. (p. 9)

Kathy Cassidy (2001) quoted John Dewey, "...amid all uncertainties there is one permanent frame of reference: namely the organic connection between education and personal experience (p. 22)." She explored the relationship between narrative theory and experiential learning and proposes that the narrative perspective can be used to enhance group learning. She stated that narrative connects our experiences to an ongoing and meaningful life story. Narrative assists in interpreting the world and provides meaning that helps the storing and retrieval of experiences. Cassidy maintained that the sharing of stories is a means of promoting inclusion and involvement which expands the narrative into a shared story, adding to the fullness of context and emotion.

Clover (1997) examined the limitations and meaning of storytelling and memory work activities, as they were manifest in three workshops that she conducted in Trenton, Ontario, Calgary, Alberta and Darwin, Australia. She stated that "...engaging in a process of sharing memories is not about recording facts which have often been re-constructed over time and space, but about feelings, emotions and actions that result from these memories" (p. 154).

The two Canadian workshops were composed with only a small percentage of participants in an older age range (up to 65 years). The Darwin workshop was composed exclusively with participants 70 years of age and older. The stories of nature told by the Canadian (and younger) participants were primarily positive associations. The older Australian participants had predominantly negative associations with nature. The Canadian participants tended to associate nature with themes such as, "how nature was both big and powerful yet intimate, peaceful and tranquil" and Clover reported that it appeared that the "younger adults felt closer and/or had a more sensual or spiritual relationship to the rest of nature"(1997, p. 156). The older Australian's tended to focus on natural disasters such as a cyclone, a tidal wave, and storms.

While the Australian group started off with a negative outlook, Clover reported that they developed a more positive outlook through discussion in the session. Both the Canadian and Australian groups responded that nature should be protected. Clover (1997) concluded that "... participants themselves saw this as an important educational tool and one from which people could better learn about their own feelings and attitudes about the rest of nature" (p. 162).

Cassidy (2001) recommended an approach where facilitators lead participants through a graduated set of questions that focus on facts, feelings, and implications. Strategic questioning (Peavey, 1997) is a method of discourse similar to what Cassidy advocated, having the potential to lead program participants through a process of critical thinking and reflection. Strategic questioning appears to be related to the Socratic method, which is a process of discussion to challenge and elevate the reasoning of learners based on the assumption that knowledge is within the learner and that proper questioning and commentary can help this knowledge to surface (Dundis, 2001).

Strategic questioning also appears to be related to the Freirean approach to adult literacy education that bases the content of language lessons on learners' cultural and personal experiences. This approach is named for Brazilian educator Paulo Freire and has also been referred to as the problem-approach and the participatory approach among many other names (Spener, 1990). It draws discussion themes from the life experiences of learners and engages them in a process of inquiry into the nature of problems facing the community. Clover (1999; 2002) related that in the Freirian method of problem solving, the acts of critical thinking, reflection, struggle and resistance provoke the ability to question the condition of their environment and find answers to its puzzles. Clover (1999) conveyed that when people begin to question, they begin to change within themselves and can work towards challenging and changing external processes that impact on them. "Questioning and thinking in new ways are in themselves 'actions'" (p. 225).

Peavey (1997) outlined many insightful principles for strategic questioning. She suggested that it is useful to encourage participants to set new goals and to 'create

motion', and provides an example of a question used in her work on the Ganges: "What would you like to do to help clean up the river?" (p. 5). This type of questioning was said to help move people beyond grief, guilt, and powerlessness to the active creation of their own solutions. Peavey stated that such questioning is empowering because the questions express a confidence in the person being questioned by assuming that they have a part in the solution.

Strategic questioning was said to create options by moving beyond simplistic answers. They avoid "why" and "yes or no" questions. Peavey (1997) stated that such "dead-end" questions lead to defensiveness and a rationalization of the status quo. Peavey also advised that strategic questioning must lead to asking 'unquestionable' or taboo questions to force people to examine their values and beliefs.

Peavey (1997, pp. 9 - 12) identified eleven types of strategic questions. The first type are called 'focus questions' which aim at understanding the participant's perspective on an issue at hand. An example, of a focus question would be, "what do you think about the destruction of eel grass habitat?" The second type are termed 'observation questions'. An example of an observation question would be, "What have you heard or read about the loss of eel grass habitat?" 'Analysis questions' are the third type of strategic question identified by Peavey. These questions focus on the meaning that people place on events, such as, "What do you think are the reasons for eel grass destruction?" The fourth type of strategic question are 'feeling questions' concerned with sensations, emotions and health. An example is, "How does this situation affect you?"

The fifth type of strategic questions are called 'visioning questions'. This is part of a second level of questioning, "questions that dig deeper" (p. 11). These questions are

concerned with identifying participant's ideals, dreams, and values. An example of a visioning question is, "How would you like eel grass habitat in Tod Inlet to be?" Peavey follows these with 'change questions' that are concerned with moving from the present situation towards a more ideal one. A change question might say, "How could the situation be changed for it to be as you desire?"

The next set of questions identified by Peavey (p. 12) are aimed at fostering a solution and commitment to act. The seventh of her types of questions are called "consider all the alternatives'. She suggested that this line of questioning would include, "How could you reach that goal?" and "What are other ways?" The next line of questions are called 'consider the consequences' and examine the proposed solutions. Then participants are asked to 'consider the obstacles', "What prevents you from getting involved?" 'Personal inventory and support questions' follow, such as, "What do you like to do that might be useful in bringing about these changes?" Finally, the last type of questioning focuses on action with 'personal action questions', such as, "How can you get others together to work on this?"

The incorporation of group learning and discussion:

Group learning and discussion are elements of adult education that have been advocated by many author's (e.g.: Aldridge, 1955; Anderson, 1955; Cleugh, 1962; Fenimore, 1994; Francis, 1985; Frank, 1955; Guevara, unpublished; MacKeracher, 1989; Schugurensky, 2001; Spigner-Littles & Anderson, 1999).

Frank (1955) stated that the greatest threat to older persons is the loss of capacity to invest people and events with significance, and to respond with a generous giving and receiving of affection. He maintained that through generosity we grow strong, find

increased self-confidence and security in the act of helping others and in the giving of our time, energy, and concern. By learning and acting in the community retired adults can safeguard, or re-establish, productive and honoured roles as an essential element both for their well-being and that of society (Francis, 1985).

Studies reported by Fenimore (1994, p.48) indicated that the learning processes of older adults are often benefited by group participation. Classes provide social interaction and stimulation from other learners. Anderson (1955) related that a number of people working together with common interests learn more rapidly than would the same persons working alone. He stated that in a group there is likely to be more cross fertilization, competition, and motivation.

Guevara (unpublished) stated that discussion facilitates a process whereby the participants are given the space and the time to share freely their experiences. The challenge for the educator, he said, is to actively listen and ensure that the discussion is not moving too far away and to synthesize the discussion as it proceeds. He has found that often the participants take on the tasks of keeping the discussion on the right track and summarizing the discussions themselves. Processing, listing down and synthesis are said to make the difference in preparing the learners for the different modes of learning and providing them with the opportunity to discover the value of each activity.

Cleugh (1962) advised that the discussion leader need not always be the tutor. He stated that he has experimented with leaders from the group and has found that it worked well. He continued to say, "As the members take over, the leader can and should stay more in the background, and leave it to them as far as possible. His [sic] part, however, is still important, though it need not be obtrusive" (p. 58).

Frank (1955) suggested creating shared experiences through reading the same novel or play, or seeing the same documentary. He suggested that this may offer fruitful opportunities in which each member of the group can discuss their own personal-life concerns while talking about the characters and context with which all members of the group are familiar. He advised that novels, short stories, and plays provide effective instruments for the communication of insights and the deepening of understanding of human relations.

Roy (2001) expressed one of the most important aspects of working with seniors – fun! She used the example of the Shibokusha, elderly Japanese peasant women who have been resisting the encroachment of the military for over their lands since the end of World War II. Under difficult circumstances they disrupt military exercises using song and dance. Roy reported that their resolve has been sustained by nurturing an atmosphere of fun in their activities. Schugurensky (2001) would concur and add that people learn faster and happier when they are not alone, when they are part of a social movement, and especially if the movement has an ethical stand, a utopia to chase, and some successes to celebrate.

Schugurensky (2001) advocated that the process of adult education involve participation in constructive discourse in which participants deliberate about the reasons for their actions and get insights from the meaning, experiences, and opinions expressed by others. Schugurensky considered *transformative learning* to be a main goal of adult education. It seeks to foster the development of autonomous thinkers who can justify their choices or reasons. He maintained that transformative learning can only take place in relation to others, which makes it a collective, relational process.

Transformative learning, thus, requires the presence of different viewpoints (especially those that challenge prevailing norms) and must allow (even encourage) the expression of dissent. These types of situations are expected to promote the development of socially responsible citizens who can participate effectively in decision making processes. (Schugurensky, 2001, p. 64)

Schugurensky noted that discourse does not need to be confrontation. Ideally, he said, it is a conscious collective effort to find agreement, to search for common ground, to resolve differences, and to build a new understanding. He stated that, "To do so implies an effort to be open, to set aside bias and prejudice, and to listen to our own purposes, feelings, values, and meanings in the context of those expressed by others" (p. 64).

Schugurensky described *reflective discourse* as a process in which we actively dialogue with others to better understand the meaning of an experience. He stated that it involves assessing the reasons and the evidence advanced to support an argument. He concluded that, "This in turn promotes a better understanding of issues by tapping into collective experience and knowledge and allows all participants to find their own voice in light of alternative perspectives" (p. 65).

Scott (1998) identified criteria to decide if an experience is transformative. She stated that to be called transformation there must be structural change, either social structural transformation or personal structural transformation or both (p. 178). The aim of transformative learning is to catalyze a fundamental shift in people's beliefs and values. She advised that it must include a social vision about the future. This vision is to be put forth as statements or 'actions' in an attempt to influence and change structures,

institutions and policies. She maintained that for transformation to occur, "...there must be something that unsettles us, shakes us up" (p. 178).

However, Schugurensky (2001) maintained that *assimilative learning*, rather than an unsettling event, can have a powerful role in the transformations of individuals. He stated that, research on this topic suggests that transformative learning can be propelled by an 'integrating circumstance.' He stated that, "An 'integrating circumstance' is usually the culmination of a relatively long process (conscious and/or unconscious) of searching and exploring for something that is missing in one's life" (p. 69). Such existential questioning is often characterized as a condition of late adulthood. Frank (1955) stated that discussion groups can be an important part of this process:

We live primarily by our memories and expectations. The older person, whose expectations are progressively curtailed, turns on his reveries and reflections increasingly to his past. He [sic] lives over again his triumphs and defeats, preoccupied with the effort to understand himself and how he became what he is. The programs of discussion groups for the older person may serve primarily to provide new and more fruitful leads for the individual's reflections... (p. 14)

The provision of opportunities for active participation:

Active participation has been stressed by several authors as an important component of adult education (e.g., Anderson, 1955; Dewey, 1938/1997; Guevara, unpublished; Schugurensky, 2001; Spigner-Littles & Anderson, 1999).

...learning is more rapid and efficient when the learner is a participant rather than a spectator. Doing is always better than passively accepting. Even more than at younger age levels the instructor of the older adult should call for active student

participation to counteract the tendency of the older person to move away from the learning attitudes. (Anderson, 1955, p. 75)

Remnet (1989) related that active rather than passive participation in learning brings about more permanent and meaningful learning. However, she maintained that for adults the activities must be of sufficient quality to capture their interest and motivate them to engage in it. She stated that this involves creativity because people become accustomed to routine stimuli (e.g., lectures).

Guevara (unpublished) described participatory methodology as a key characteristic of environmental adult education. Interactive activities that actively involve learners in the learning process were said to be participatory by their nature. However, he added that while many creative activities are documented in environmental education publications for children and young adults, there are far fewer publications in the area of environmental adult and community education. While the numbers are scant, they are growing.

Successful activities, Guevara wrote, involve three factors: they are highly interactive, use a combination of thinking, feeling and doing, and include direct experience in nature through outdoor activities. Guevara also referred to learning and environmental action or 'action learning'. He related that both kinds of participation, the use of participatory learning approaches and participating in environmental action, are symbiotic elements of effective environmental adult education.

Schugurensky (2001) maintained, "...that people can learn and do learn (and, some may argue, learn best) through real and meaningful projects" (p. 69). He related that significant learning happens through engagement in action projects. Social action was

said to be both a goal and a means of learning in preparation for further action. He continued, "...social action, especially when it leads to transformations, promotes not only a new learning experience but considerable personal change."

Metaphor and Environmental Orientation

In the forward to her book *Wisdom & Metaphor* Jan Zwicky (2003) stated,

...the shape of metaphorical thought is also the shape of wisdom: what a human mind must do in order to comprehend a metaphor is a version of what it must do in order to be wise. But of course we are not wise in a vacuum; we are wise about things, situations, people, the world. Thus, ... those who think metaphorically are enabled to think truly because the shape of their thinking echoes the shape of the world.

With metaphor we compare the image of something that we know with the image of something else that we are seeking to understand. Where the images match we transfer our understanding of one to the other. The differences between the images are equally important as we may also change the image of what we know to fit that which we are seeking to understand. As we try to match the shape of one image to the other our conception of each may change. This process not only helps us to understand something new it helps to refine and adapt what we already know. We grow wise to the degree that the shape of our thinking fits the world before us.

Metaphoric thinking is a creative process that can open up our options for relating to the world differently. If we change the metaphors by which we see the world, we can quite literally, change the way we relate to and effect change in the world. For instance, people can be expected to relate to the world quite differently depending on whether they

understand it to be a divine object subject to the impetuous whims and rivalries of Zeus and the other Greek gods; or to be a waiting area to sustain ourselves in until we reach an ultimate destination in either heaven or hell; or to operate predictably like a clock where each mechanism can be understood in isolation; or to be like the body of an animal where complex systems are interrelated and dependant on one another.

Personal orientation to the environment:

Lakoff and Johnson (1980) reported that metaphor is often viewed merely as an embellishment to language. They argued that it is much more and state that "...metaphor is pervasive in everyday life, not just in language but in thought and action" (p. 3). They maintained that by examining language, and specifically metaphor, researchers can gain insight into a person's underlying conceptual systems,

...our conceptual system is not something we are normally aware of. In most of the little things we do every day, we simply think and act more or less automatically along certain lines. Just what these lines are is by no means obvious. One way to find out is by looking at language. Since communication is based on the same conceptual system that we use in thinking and acting, language is an important source of evidence for what that system is like. (p. 3)

Metaphor, as a conceptual device, compares the image of something known with the image of something else that is not yet well understood. Metaphors systematically structure key concepts in language and thus affect how we experience and act in the world (Lakoff & Johnson, 1980). Metaphoric thinking is a creative process that can open up options for relating to the world differently (Barrett & Cooperrider, 2001). Caine and Caine (1991) provided a quote from Willis Harman (*Global Mind Change*, 1988, p. 144)

which exemplifies how metaphor can help us to relate to the world in new and meaningful ways:

Two stonecutters...were engaged in similar activity. Asked what they were doing, one answered, 'I'm squaring up this block of stone.' The other replied, 'I'm building a cathedral.' This first may have been underemployed; the second was not. Clearly what counts is not so much what work a person does, but what he perceives he is doing it for. (p. 91)

Kimiko Bechta (1998) advocated that we need to develop a thorough understanding not only of environmental issues but also of the conceptual patterns that build the foundations upon which they exist. Metaphors often illustrate the patterns that we use to understand the world around us. DeJong (2004) described how metaphors are complex expressions of human experience:

However broadly the use of metaphor may be applied, within every individual lies a complex network of symbols and symbolic experience that is unique. Metaphor engages both cognition and affect, and 'allows a vivid transfer of ideas that may not have a counterpart in the objective world' (Beck and Murphy, 1993, p. 6). In essence, a metaphor may derive from feelings and emotions, both positive and negative, which stem from the complex array of our own human experiences. (p. 4)

Bechta maintained that language is linked to thought, not only as a representation of our thoughts, but also as the construction of our thinking. She quoted Gregory Cajete:

The way we talk about a place or another entity reflects how we feel, how we see, how we understand, and most importantly, how we think about it. Language is a

reflection of how we organize and perceive the world. In language there are key words, phrases, and metaphors that act as sign posts to the way we think about the world and ourselves. (As quoted in, Bechta, 1998, p. 7)

King claimed that our background beliefs (our orientations to the environment) structure our narrative expectations. He elaborated that these background beliefs have a conceptual structure of their own that is frequently informed by metaphors. Metaphors help to set the narrative context within which people act. He referred to the work of Lakoff and Johnson who argued that metaphors systematically structure key concepts in our language and thus affect how we experience and act in the world. Bechta (1998) also referred to Lakoff and Johnson and to their claim that most of our ordinary conceptual system is metaphoric in nature,

In their book they argue that metaphors are not merely a characteristic of language, as traditional views would suggest, but that metaphors are fundamental to our conceptual system. Metaphors are linked to our thoughts and actions, and therefore, are a pervasive part of our understanding of the world around us. This would suggest, then, that the metaphors used in environmental education actually play a part in the way that we conceptualize and act on the natural environment.

(p. 9)

Lakoff and Johnson (1980) described how we use metaphor to conceptualize the world and how our conceptualizations depend partly on the physical environments around us:

...the human aspects of reality are most of what matters to us, and these vary from culture to culture, since different cultures have different conceptual systems.

Cultures also exist within physical environments, some of them radically different—jungles, deserts, islands, tundra, mountains, cities, etc. In each case there is a physical environment that we interact with, more or less successfully. The conceptual systems of various cultures partly depend on the physical environments they have developed in. (p. 146)

Lakoff and Johnson continued to state that the social reality defined by a culture affects its conception of physical reality. So, “What is real for an individual as a member of a culture is a product of both of his social reality and of the way in which that shapes his experience of the physical world” (p. 146). They concluded that “...since much of our social reality is understood in metaphorical terms, and since our conception of the physical world is partly metaphorical, metaphor plays a very significant role in determining what is real for us” (p. 146). By examining the preferred metaphors that people use we can gain insight into the general orientations they have toward the environment.

Various writers (e.g., Bowers, 2001; Ivie, 2001; Lakoff & Johnson, 1980; Pepper, 1966; Schon, 1979) have suggested that humans use basic ‘root’ or ‘deep’ metaphors around which we construct our understanding of the world. We relate our experiences to these metaphors as we seek to make sense of the world. Thus, according to Lakoff and Johnson, our beliefs, attitudes and even our actions can be said to relate to the core beliefs or ‘root metaphors’ that we hold. The introduction of new metaphors has the potential to change the way we relate to the world:

New metaphors have the power to create a new reality. This can happen when we start to comprehend our experience in terms of a metaphor, and it becomes a

deeper reality when we begin to act in terms of it. If a new metaphor enters the conceptual system that we base our actions on, it will alter that conceptual system and the perceptions and actions that the system gives rise to. Much of cultural change arises from the introduction of new metaphorical concepts and the loss of old ones. (Lakoff & Johnson, 1980, p. 145)

Instructional metaphor:

The use of metaphor in educational practice is not new, nor is it restricted to traditions of the past. Metaphor is used in traditional societies to share ecological knowledge and to establish cultural values for relating to the environment:

...traditional ecological knowledge invariably focuses on community priorities within the local context. It is both remembered sensory information built upon repeated observation, and formal understandings that are usually transmitted orally in story form with abstract principles and important information encapsulated in metaphor. (Corsiglia & Snively, 1997, p. 22)

Kimiko Behta (1998) described how aboriginal societies tend to view nature as an extension of family. She explained that in those societies the concept of connectedness and relation runs parallel through both experience of family and relationship with nature, “Nature is family”:

The belief that nature and people are one and are connected is a concept that still continues to prevail in aboriginal culture. It is this concept of direct connection that allows aboriginals to view their relationship with nature as a family. They see and understand their relationship with nature as a relationship that needs to be

nurtured in order to survive and this corresponds to the similar experiences that they have with their own family relationships. (p. 56)

She elaborated that,

Our experiences of family, mother, father, brothers, sisters, grandparents etc., embody the concepts of care and nurturance. Our family takes care of us. A mother gives life and nurturance; a father provides stability and is a guardian; brothers and sisters provide support and friendship; grandparents provide wisdom. Comparatively, nature in aboriginal culture is also seen to provide the qualities of a family. The earth and nature as a whole, who gave us life and sustains it, is a mother. The sky, who provides stability through its atmosphere, is a father who also stands above and watches over us. The plants and animals of the earth provide support and friendship like brothers and sisters. The spirit and mystery of nature are like grandparents because they hold the wisdom of time. Nature is a family because it supports life like a family. (p. 57)

Elisabet Sahtouris (London, 1996), a geobiologist and author, pointed out that metaphor is integral to our understanding of Western science:

...all science is metaphor. When you say that nature is an array of mechanisms, that's absolutely as metaphorical as saying it's a living entity. There is no way of talking about anything new without invoking metaphors. All of science is based on metaphor. If you talk about an atom as a little solar system with planets around it, or as whirlpools of energy, in the more recent descriptions, these are all metaphors. Metaphor simply means that you take something that is familiar to

you and use it as a pictograph or an image of what you are trying to describe that you don't yet understand well. (p. 3)

Larson (2004) added that because metaphors allow us to understand complex phenomena in terms of everyday experiences...

...they allow scientists to conceptualize problems in simpler terms (their heuristic or constitutive function), and they provide a means of explaining complex concepts to the public (their communicative or rhetorical function). Since they are rooted in our shared experiences and they act as 'nomads' between different discourses, metaphors thereby create complex links between science and society. (p. 2)

Sticht (1979) described metaphor as a special linguistic device that helps to bring information into active memory,

The fact that speech is a fleeting, temporally linear means of communicating, coupled with the fact that, as human beings, we are limited in how much information we can maintain and process at any one time in active memory, means that as speakers we can always benefit from tools for efficiently bringing information into active memory, encoding it for communication, and recoding it, as listeners, in some memorable fashion. Metaphors appear to serve as one of a variety of special linguistic devices facilitating these activities. (p. 475)

Metaphor is very important as an educational tool to assist students in grasping complex concepts, to relate information to existing knowledge, and to help encode information into memory. Draaisma (2000) commented on the widespread use of metaphor in education,

Through their combination of image and language, of graphic and abstract, metaphors are ideally suited to explaining and teaching theories. It would be appropriate to call this the 'Comenius function' of metaphors, after the seventeenth-century Bohemian philosopher and pedagogue Johannes Amos Comenius who in 1657 in his *Didactica Magna* was the first to argue at length in favour of graphic education. First of all one can observe that metaphors are indeed used widely for that purpose, in both specialist and non-specialist publications. Curtis and Reigeluth checked a series of text books in the field of the sciences for the use of metaphors and analogies. Their findings were sufficiently numerous to base a taxonomy on.

Snively (1986) stated that, "the use of metaphor for increasing comprehension and retention of any set of concepts of interest holds promise. Furthermore, the range of educational applications of metaphors is largely unexplored and ought to be the focus of continued inquiry" (p. 325).

Lilian Hill and Julie Johnston (2003) advocated the use of metaphor in adult environmental education, "As educators, we have responsibilities for forging a broad educational belief system that involves the cultivation of awe and wonder of the earth, assisting students in their process of meaning making, creation of metaphors and worldviews that nourish our capacity to live with and in the world..." (p. 23).

Barret and Cooperrider (2001) described metaphor as an invitation to see the world in a new light:

Metaphor presents a way of seeing something as if it were something else.

Metaphor transfers meaning from one domain into another and thereby enriches

and enhances both domains. Metaphor acts as a way of organizing perceptions and provides a framework for selecting and naming characteristics of an object or experience by asserting similarity with a different, seemingly unrelated object or experience. The subsidiary subject of the metaphor organizes perceptions of selecting and emphasizing certain details and suggesting implications that may not have been seen. (p. 4)

They maintained that metaphor is transformative because with an “almost unconscious flash of insight” it can instantaneously fuse two separate realms of experience (Barrett & Cooperrider, 2001, p. 4). It is this potential, they claimed, that makes metaphor so appealing to artists, poets, leaders and scientists alike. Metaphor can serve to shape the categories that a society uses to interpret the world and thus direct societal actions and perceptions.

DeJong (2004) added that if our conceptual system is “fundamentally metaphoric” it would follow that metaphor might not only have an impact on how people negotiate life, but also on how we understand our relationships. He reviewed the work of various authors and related that in a metaphoric conversation the new meaning construction which is shared among participants may foster a closeness or intimacy between them. DeJong concluded, “Thus, metaphor...is not simply a literary device, but a complex array of comparisons based on experiences within families, social settings, and cultural landscapes” (p. 5).

This is consistent with the conclusions of Snively (1986):

To negotiate meaning with others, students with different orientations have to become aware of differences in meaning in their own backgrounds and when

these differences are important. Metaphorical imagery can be useful in creating rapport and in attempting to communicate the nature of experiences which the students have not shared. This strategy consists, in large measure, of the ability to bend your own view and adjust the way you categorize your experiences. When conflicts occur during instruction, or when the teacher or person of authority transmits a fixed proposition by means of 'force,' meaning is almost never communicated. Students need to slowly figure out what they have in common, what is safe to talk about and question, and how they can communicate personal experiences to create a shared vision. With enough flexibility, some mutual understanding might be achieved. Through metaphor, it may be possible to teach each group that certain kinds of behaviour, previously annoying, can be interpreted as 'reasonable,' given a different set of orientations. (p. 328)

Barrett and Cooperrider (2001) asserted that, “Good metaphors provoke new thought, excite us with novel perspectives, vibrate with multivocal meanings, and enable people to see the world with fresh perceptions not possible in any other way” (p. 5). They used the term “generative metaphor” and explained that,

Metaphor is generative to the extent to which it serves to break the hammerlock of the status quo, serves to reorganize perceptual processes and ingrained schemas, helps provide positive and compelling new images of possibility, and serves as a bridge for nondefensive learning among contexts. (p. 20)

They also related that for groups the generative potential of metaphor is dependant not only on its content, but also on the processes of inquiry and interaction that are engendered (Barrett & Cooperrider, 2001). They advocated a process of “co-appreciative

inquiry” whereby the attention of group members is focused on positive attributes of a new metaphor for their situation rather than on deficiencies that may exist in their current frame of reference.

Appreciation is a poetic process that fosters a fresh perception of ordinary life.

Unlike the evaluating stance of problem solving, which is based on the assumption of deficiency, appreciation refers to an affirmative valuing of experience based on belief, trust, and conviction. (Barrett & Cooperrider, 2001, p. 20)

The use of metaphor not only helps us to understand something new, it helps to refine and adapt what we already know. Metaphoric thinking is a creative process that can open up our options for relating to the world differently. If we change the metaphors by which we see the world, we can quite literally, change the way we relate to and effect change in the world. Elisabet Sahtouris has used a very prescient metaphor in her teaching,

I use the Hopi story a lot in teaching in which the great spirit father and the earth mother give two different assignments to their children – the red brother and the white brother. They tell the white brother to go abroad and write things and make inventions. They tell the red brother to stay at home and keep the land in sacred trust through ceremony. Then one day when the white brother comes back, they say he should share his inventions with the red brother listening to the wisdom that the red brother has accumulated. If they do that, then together they can create a better world. But if the white brother's ego grows so great in the course of making his inventions that he can no longer hear the wisdom of the red brother,

then all is lost and this world will end as we know it. (As quoted in, London, 1996, p. 6)

Social orientation to the environment:

Metaphor plays a very important role in our social understanding of the environment. There are many possible ways of relating to nature, those that dominate determine how we as a society act toward it. In his article on the role of narrative and metaphor in the articulation of environmental ethical theories Roger King (1999) stated that human relations to the environment are partly constituted by metaphoric understandings of what nature is. He referred to the 'nature as resource' metaphor which dominates our culture's understanding of the nonhuman world. Relating to nature through this metaphor we see it as constituted by objects to be used, places to be developed, energies to be harnessed and exploited. He continued,

If nature is a resource then it makes sense to use it profitably, to inventory it, to invest in its development and productivity, and to cash it in when times are tough. The 'nature as resource' metaphor justifies thinking of nature quantitatively and in cost-benefit terms. It also justifies skepticism in the face of arguments that personify it, attribute intrinsic value to it, or measure its interests on par with humans. (p. 32)

This can be contrasted with a more organic orientation to nature which views it as part of an extended family:

Many aboriginal cultures understand their relationship with nature as an extended family. Within this realm of understanding there are many new ideas and thoughts that are instilled in the way one thinks about and acts upon nature.

Wholeness, respect, the presence of "the Other", empathy, personal experience and personal story are all aspects that embody the familial understanding of nature. (K. Bechta, 1998, p. 11)

Societies can be characterized by the predominant metaphors that they use. For instance, until recently the dominant metaphor in industrialized societies was a mechanistic one. Barrett and Cooperrider (2001) related that in the 17th century the universe was often characterized as a machine. Elisabet Sahtouris summarized the attitude of the time:

It goes back to the Cartesian worldview, I think, in which Descartes proposed that God was a great engineer and his creations were mechanisms. That meant that all nature was an array of mechanisms created by God, the engineer, who then put a piece of his God-mind into his favorite robot – man – so that he, too, could create machinery. (As quoted in, London, 1996, p. 4)

Bechta (1998) described how this orientation has impacted our relationship to nature:

Overall, the new science viewed nature like a machine. If you could understand the parts and put them together, like a clock, you would understand the machine. For example, the notion that "stars and planets moved like clockwork according to universal design" (Botkin, 1990, p. 103) arose out of the new mechanistic science. (p. 35)

This attitude toward nature continued through to the 20th century and is well exemplified in a quote from Alfred North Whitehead's 1925 collection of lectures titled *Science and the modern world*,

...nature gets credit which should in truth be reserved for ourselves: the rose for its scent: the nightingale for his song: and the sun for his radiance. The poets are entirely mistaken. They should address their lyrics to themselves, and should turn them into odes of self-congratulation on the excellency of the human mind. Nature is a dull affair, soundless, scentless, colorless; merely the hurrying of material, endlessly, meaninglessly. (As quoted in, Martin, 1981, p. 5)

A recent cover image for *Scientific American* shows that the earth is still popularly depicted as a machine. The July 2005 special edition titled “Our Ever Changing Earth” featured a cover image depicting rotary cogs underneath the earth’s continents.

The mechanistic metaphor has effected not only the activities of physical science, but it has also influenced the development of other fields such as philosophy, psychology, and economics. Bechta (1998) described its impact on our conceptualizations of nature in the context of economics:

The application of mechanistic science to economics brought the final end to nature having any sort of intrinsic value. It was here through economics that the metaphor of resource was developed. Now the world became a place of things to produce, use, buy and sell. Money became definitive of wealth and this concept was reflected onto nature. Nature became a source that could be produced, used, bought and sold to create wealth for humans. (p. 39)

The relationship between how we see the world and how we act in regard to it is also exemplified in the words of Theodor Schewnk (1976). In the foreword to his book *Sensitive Chaos: The Creation of Flowing Forms in Water and Air* he reflected on how

industrial society's relationship to water has changed from being based in a spiritual orientation to a dominantly utilitarian one:

The more man [sic] learned to know the physical nature of water and to use it technically, the more his knowledge of the soul and spirit of this element faded. This was a basic change of attitude, for man now looked no longer at the *being* of water but merely at its physical value. Man gradually learnt to subject water to the needs of his great technical achievements. Today he is able to subdue its might, to accumulate vast quantities of water artificially behind gigantic dams, and to send it down through enormous pipes as flowing energy into the turbines of the power stations. He knows how to utilize its physical force with astonishing effectiveness. The rising technical and commercial way of thinking, directed only towards utility, took firm hold of all spheres of life, valuing them accordingly.

Industrialization has changed society's orientation toward water and the metaphors that we use to understand it. Water has gone from being a metaphysical substance, alive and giving of life, to being a lifeless commodity for production and recreation. Our orientations toward water closely parallel how we relate to other aspects of the environment. The metaphors that we use in relation to water exemplify the orientations that we have toward the environment in general.

Tom Andersson's (1993) writing on social attitudes to nature echoed Schewnk's writing about water and also the ideas of the anthropologist Claude Levi-Strauss,

Man [sic] has dissociated himself from nature to replace it with a technological and planned environment. Consequently, nature has no feelings, thoughts or creativity whatsoever. Animism is not accepted as a serious perspective in the

Western cultures. Ascriptions of social and spiritual qualities to nature are judged as superstition. I want to stress that this reaction is truly ideological, and that it expresses an ignorance of perspectives. When we talk of superstition, we are really stereotyping views on nature that are immensely complex. People in cultures that live by and in nature do not have the same concern for a planned future as we do. To live in nature is as much to feel it as to observe it. People living in cultures with high technology feel rather a planned and a technical environment, not a varied biological one. I believe that arable land and urban life must have changed man's sight in nature. We have been accustomed to viewing nature as one thing or another, but lost sight of its biological potential. (p. 9)

There are other metaphors for relating to the environment. It is interesting to note that the development of modern environmentalism is associated with the use of a powerful metaphor. Michael Mayerfeld Bell (1998) described a dramatic shift in social attitudes from what he calls the “technological utopianism of the postwar period” to a growing “ideology of environmental concern” (p. 173). He stated,

Of course we cannot assign an absolute beginning to any historical trend; history always has precursors. But so dramatic were the subsequent shifts in public opinion that it has become conventional, with some justice, to date the start of the modern environmental movement from the publication of *Silent Spring*.

In *Silent Spring*, Rachael Carson described the harmful effects of the indiscriminate use of chemical pesticides:

Because of chemical poisoning, argued Carson, it was a very real possibility—and indeed it was already true in some areas—that a time could come when spring

arrives 'unheralded by the return of the birds, and the early mornings are strangely silent where once they were filled with the beauty of bird song'. (Mayerfeld Bell, 1998, p. 173)

Brigitte Nerlich (2003) chronicled the use of silent spring as a metaphor in debate about the environment:

The phrase silent spring is a counterfactual blend and auditory metaphor that represents the anticlimax following failed expectations and dashed hopes and cancels the tacit assumption that spring should be full of life, hope and joyful sounds. The network of meanings surrounding this blend feeds on a variety of connotations, synonyms, antonyms and figurative extensions. It also draws on knowledge of literary traditions and political events so as to achieve its main rhetorical effect: to signal a deep threat to the environment. In association with spring the word silent evokes death, the end of nature, the unnatural and artificial, emptiness and sterility, whereas spring is usually associated in western culture with birds singing, new beginnings, life, unspoiled nature, and wilderness. (p. 118)

She continued to state that,

Over four decades the book *Silent Spring* has thus permeated public consciousness and the image of a silent spring has been used repeatedly as a rhetorical resource and a mine for metaphors and images in debates about the impact of science on society and on the environment. (p. 121)

A metaphor that has been gaining prominence over several decades is that of the earth as a living organism. James Lovelock (1986), the scientist (biologist, chemist, and medical doctor) who proposed the Gaia hypothesis in 1972 stated,

The idea that the Earth is alive may be as old as humankind. The ancient Greeks gave her the powerful name Gaia and looked on her as a goddess. Before the nineteenth century even scientists were comfortable with the notion of a living earth. According to the historian D.B. McIntyre (1963), James Hutton, often known as the father of geology, said in a lecture before the Royal Society of Edinburgh in the 1790s that he thought of the Earth as a superorganism and that its proper study would be physiology. Hutton went on to make the analogy between the circulation of the blood, discovered by Harvey, and the circulation of the nutrient elements of the Earth and of the way that sunlight distils water from the oceans so that it may later fall as rain and so refresh the earth. (p. 486)

Elisabet Sahtouris described a more recent characterization which also has its roots in Greek tradition and depicts the earth as a living system:

I use the definition of life which was proposed by two biologists from South America, Maturana and Varela, which goes by the name of autopoiesis. Autopoiesis is a Greek word, of course, meaning literally "self-creation." The definition goes: A living entity is any entity that constantly creates itself. This really distinguishes it from a mechanism, because a machine is not constantly creating itself. In fact, if it changes itself at all it's probably broken and you would rather it didn't do that; while a living thing is always changing, or it's dead. (As quoted in, London, 1996, p. 3)

How this metaphor shapes social action is yet to be known but its implications are profound. James Lovelock (1986) has encouraged us to consider them:

Gaia philosophy is not humanist. But being a grandfather with eight grandchildren I need to be optimistic. I see the world as a living organism of which we are a part; not the owner, nor the tenant, not even a passenger. To exploit such a world on the scale we do is as foolish as it would be to consider our brains supreme and the cells of other organs expendable. Would we mine our livers for nutrients for some short-term benefit? (p. 489)

Chapter 3 – Research Methodology

A qualitative approach was chosen for this study as it seemed the most suitable methodology to investigate the nature of relationships between metaphor and orientations toward the environment. The focus of this study was not on quantitative measures such as the number of relationships between metaphor and orientations toward the environment but rather on qualitative measures that explore the nature of such relationships. The researcher concluded that participants' orientations, as reflected by their understanding and experience of the environment combined with their underlying beliefs and values with regard to it, could most effectively be encapsulated by qualitative data expressed in a narrative case study format.

Multiple methods of data collection were used including both traditional and metaphoric interviewing, self-reporting through a participant journal, as well as, participant observation. Analysis involved evaluation of both metaphoric and literal responses.

Two strategies identified by Merriam (2001, p. 203) to enhance internal validity were used in this study. The first involved triangulation using multiple sources of data and multiple methods to confirm emergent findings. Three sources of data were used in the study. The workshop participants were the primary source of data, and the researcher (myself) provided data from his (my) observations. In addition, Nikki Wright from Sea Change Marine Conservation Society sat in on several sessions and provided feedback on the preliminary conclusions.

The second strategy advocated by Merriam to promote internal validity was member checks. This involved taking data and tentative interpretations back to the participants and asking them if the results are plausible. A member check was held to confirm tentative conclusions prior to finalization of the thesis. Rich, thick description was used to help readers determine how closely their situations correspond with this study and whether its findings can be usefully transferred to their practice of environmental education.

The pre- and post-workshop interviews used in this study incorporated both literal and metaphoric questioning. Techniques for metaphoric interviewing and analysis were adapted from the work of Snively (1986, 2002). In these works metaphor interviews were used to identify the general orientations of students. Snively's methodology involved the collection and analysis, by metaphoric and literal interviews, of students' orientations and beliefs before and after instruction (1987, p. 435).

Snively (1987, p. 436) developed a unique set of metaphor questions to analyze student orientations. Three parameters helped shape the questions. First, the questions would be used to explore students' orientations towards the seashore. Secondly, they would be used to identify students' beliefs about specific seashore relationships. Thirdly, they needed to be appropriate to the language development of young children. In this study the objectives were similar. The questions were used to explore participants' orientations toward water and to identify any changes in orientations during and after the course of the program. The questions needed to be appropriate to the varied language skills, experiences, and cognitive abilities of older adults and the varied backgrounds of the participants.

Three of Snively's (1987 p. 438) metaphoric interview formats (Appendix A) were used to evaluate participants' preferred environmental orientations towards water before and after participation in the workshop. This data was compared to determine if it indicated changes in their conceptualizations about water issues.

The first format asked, "If you could be any of the following in relation to water which would you be?" Eleven options were provided to choose from such as: cloud, trustee, boat, and ripple. Participants were then asked to elaborate on why they selected the particular option. Snively (1987 p. 437) points out that *why* is an 'essential component' of the metaphoric interview technique as the participant's reasoning for their choice provides the most insightful data.

The second format involved the selection of a preferred water metaphor to elaborate on (Snively, 1987, p. 437). The question used in this study reads, "If water was one or more of the following, which one would it be?:" The participant was then asked to choose from a list of 20 possible metaphors such as: sanctuary, symphony, home, fuel, or community. Once a metaphor was selected the participant was asked to elaborate on why the chosen metaphor was meaningful to them.

The third metaphoric interview format incorporated diads (Snively, 1987 p. 438). This format was used to more closely examine the participant's relationship to the construct in question – in this case "water." The diad had two parts. First, the participant was asked to select a metaphor that he or she believed most closely paralleled their own relationship to water. In this study the question read, "I am to water, as a" and the participant was asked to select from a list of possible metaphors such as: "mosaic", "faith", or "store". Then, the participant was asked to identify his or her relationship in

the chosen metaphor and to elaborate by answering the “why?” question. For instance, if they selected “store”: are they “the shopkeeper to the store”; “the customer to the store”; “merchandise to the store”; or perhaps water is the merchandise and they are the store? If they selected “merchandise to a store” the diad read: “I am to water, as merchandise is to a store”. The participant was then asked to elaborate on why they believe this metaphor best expressed their relationship to water.

The data from all participants was then analyzed to identify patterns and to classify participants according to common orientations. Snively (1987, p. 435) identified six general orientations (scientific, aesthetic, utilitarian, spiritual, recreational, and health and safety) among the students in her study. Snively concluded in later work that an orientation should have a basis in underlying personal values. Accordingly, she determined that ‘health and safety’ is not a deep set orientation. She also found that participants in metaphoric interviews often demonstrate a political orientation that hadn’t been identified in earlier work (Snively, pers. Comm. June 3rd, 2004). Thus, on more recent interview work, Snively incorporated metaphors that highlight a political orientation.

Snively (1986, p. 57) defined five of the general orientations to the environment that are examined in this study:

Utilitarian: Humans are the benefactors, directors, producers, developers, controllers. They harness nature for their own practical and necessary use.

Aesthetic: Humans are the admirers, reflectors, imitators, lovers, protectors. Humans are aware of the beauty or ugliness in nature. Pertaining to, an artistic interpretation of nature: art, music, poetry, drama, dance, etc.

Scientific: Humans are the observers, identifiers, quantifiers, predictors, theoreticians, experimenter, controllers. Humans and nature are interconnected and dependent on one another for survival.

Spiritual: Humans are aware of the sacred, or moral, or spiritual, or supernatural aspects of nature. Humans are part of nature, but nature runs itself. Humans may help and protect nature, and the plants, animals, objects and events in nature many even help humans. Of, or pertaining to, an organized religion, or an ability to 'indwell' or 'become' part of another living, or non-living entity.

Recreational: Humans are aware of nature as a source of refreshment for their own body and mind; for exercise, relaxation, entertainment, exploration, enjoyment.

The political orientation is defined as follows,

Political: Humans are aware of nature as a source of human conflict between people and cultures. Political and economic processes are often related which might advance a city or state. Because nature has economic, spiritual, scientific, aesthetic or recreational value, humans may engage in debate, or diplomacy or even war to gain or maintain control over nature. (Snively, Pers. Comm., October 25th, 2005)

Table 1 (based on Snively, 1986, p. 57) provides typical responses classified by orientation.

Table 1. Sample student responses within each of the six orientations

Utilitarian: Water is a treasure due to its necessity and value. I can channel it, I can

Scientific: Water is a community. It certainly is the basic element of life. A community in

consume it, I can use it for decoration.

the sense of life – ecological community.

Aesthetic: Symphony as water. I like the way the instruments in the orchestra convey the feeling of water.

Spiritual: In relation to water I would be a devotee in the water. Not separate from the object of study. To be completely involved.

Recreational: I am a swimmer in relation to water. You can swim in water leisurely, recreationally, competitively.

Political: I am a piece of a puzzle where all the issues relating to water are the broader picture.

Additional data was derived from the literal interview questions (Appendix A), entries in a group journal, and notes from participant discussions and activities. This data was also evaluated to explore the integration of metaphor and environmental orientation in educational practice. The research questions were addressed by determining if patterns in the data provide positive or negative results. For instance, patterns in the data were reviewed to determine if metaphoric language helped participants to gain a greater understanding of their own relationship to the environment and a broader understanding of alternate environmental orientations.

Preliminary conclusions were drawn and shared with the participants to gain their feedback and validate the data.

Procedure

The study was undertaken in six phases.

Phase I: course pack creation and obtaining organizational support.

The first phase entailed creating a course pack for a program of environmental education for retired persons. Metaphoric learning, discussion-based participatory education and an action project were strategies incorporated into the course. The course pack outlined an eight-day workshop focused on water issues. Support for the workshop was sought from the SeaChange Marine Conservation Society, the Marine Ecology Centre and the University of Victoria Continuing Studies Program.

Phase II: recruiting participants and informal survey.

The second phase included recruiting participants and finalizing program details such as location and funding. An informal survey of local organizations and individuals with experience relevant to the topics of the course was conducted with an aim to incorporate local knowledge into the program.

Phase III: pre-instructional interview.

The third phase involved conducting pre-instructional interviews (Appendix A) of participants to determine their environmental orientations and understanding of water issues prior to the workshop. The pre-workshop interviews were audio recorded with the permission of the participants and transcribed for analysis.

Phase IV: the workshop.

Implementation of the workshop was the fourth phase. The workshop coursepack was funded by the University of Victoria Division of Continuing Studies, which also handled registration. Nikki Wright of SeaChange Marine Conservation Society provided

valuable assistance and facilitation for several sessions, and I provided the meeting space. Workshop sessions two to eight were audio recorded with the permission of participants and selectively transcribed for the analysis.

Phase V: post-workshop interview.

Phase five involved post-workshop interviews (Appendix A) of participants to determine if there was a change in participants' environmental orientations and an increase in their understanding of water issues following participation. The post-workshop interviews were audio recorded with the permission of participants and transcribed for analysis.

Phase VI: analysis of the data, participant feedback on preliminary conclusions, and writing the report.

The sixth and final phase was the qualitative data analysis. The pre- and post-workshop interviews of participants were compared and used to demonstrate any changes that occurred. The participants' own reflections were central to the analysis. Transcripts of group discussions were reviewed and incorporated into the final report. Over the course of the workshop series participants were asked to keep a group 'water journal' for reflections on their learning and thinking. The journal entries were reviewed and incorporated into the report. Preliminary conclusions were drawn and shared with the participants to gain their feedback and validate the data.

Chapter 4 – Pre-Workshop Orientations

Pre-instructional interviews (Appendix A) were used to determine participants' environmental orientations and understanding of water issues prior to the workshop. The interviews were audio recorded with each participant's approval and transcribed for analysis. Below is a summary of the preferred and lesser orientations toward water that were identified for each participant.

Pauline:

Pauline's responses to the metaphoric interview questions during the first interview indicated that she viewed water largely from an aesthetic orientation. She also expressed a recreational orientation and to a lesser extent a spiritual orientation.

In many responses Pauline described water by referring to its aesthetic qualities. For instance, she chose *snowflake* in one response because of a snowflake's "beauty and individuality." She also expressed an interest in photography and commented on the artistic quality of *reflections* by eliciting images of trees and buildings reflected on water. A strong connection to the musical aspect of water was exemplified in the following response,

The musical aspect of *symphony* interests me. A lot of music has been made with water as a theme. I like listening to symphony music and I like the way the instruments in the orchestra convey the feeling of water. In fact, I wrote a little poem one time for an English class I was taking and I was listening to some music at a symphony concert and I just closed my eyes and felt like I was falling into

water and sinking, and sinking, and then gradually coming up again. It really surprised me what came out and the instructor liked it too.

Pauline's responses also referred to the recreational aspects of water. She stated that to her a *boat* offers images of relaxation on the water and of exploring exotic destinations. She also referred to the impact of water on recreational pursuits, such as a baseball game being flooded out. Pauline reflected that water is the source of some fear to her and accordingly she has chosen not to be a swimmer.

To a lesser extent Pauline chose responses to the metaphor questions that suggested spiritual and utilitarian orientations toward water. A spiritual orientation is inferred because she mentioned that a *ripple* intrigued her because it offers a sense of continuation, "The feeling of continuation is interesting with a ripple." A utilitarian orientation is inferred in her reference to water as a *treasure* due to its "great necessity and value" and as a *fuel* because it "fuels the body."

Klaus:

Klaus' responses to the metaphoric interview questions during the first interview indicated that he viewed water from a scientific orientation. For instance, Klaus chose *snowflake* as a response and elaborated on its being an embodiment of crystallized energy that, "...expresses itself differently depending on how consciousness seems to be acting with it." In choosing *medicine* he stated that it, "...is more precisely geared to alleviate something that is unhealthy to return it to health." Referring to the medicinal properties of water he stated that it has a role in balancing and returning systems to normal. In selecting, *I am to water as a flower is to a seed* Klaus explained that, "It is the energy

between the seed and what turns into water. The flower wouldn't be possible without the seed and certainly without water."

Rosemary:

Rosemary's responses to the metaphoric interview questions during the first interview indicated that she viewed water from spiritual and aesthetic orientations. She selected *ripple* as one response and stated that she'd want to be a ripple because it is "alive and real" and "part of water." She continued to express that she saw a ripple as being "a part of the direction things are going – a part of the future." The desire to be one with water and to be part of the continuity of life suggests a spiritual orientation to water. In comparing water to a *sanctuary* Rosemary commented that "water is a retreat, like a church." Comparing water to *medicine* she reflected on "water as healing", cleansing, and on the use of holy water in religious ritual. Rosemary expressed a strong personal connection to water that seems spiritual in nature, "I live by the ocean now and I am prepared to give up a whole lot of things to be by the ocean. That is my home."

An aesthetic orientation was also evident in her references to photography. Rosemary spoke of the joy of water comparing it to a free-form *dance*, "a release of energy and movement."

Bob:

Bob's responses to the metaphoric interview questions during the first interview indicated that he viewed water largely from a utilitarian orientation. He also expressed a recreational orientation and to a lesser extent an aesthetic orientation. In many of Bob's responses he referred to water by describing utilitarian aspects of it. For instance, he referred to water as a *gift*,

...because it truly is a gift, I guess it is as hackneyed as anything, but it is the gift of life, if you don't have it you don't live. Like a gift it can be given but it can also be taken away. It can be altered, lost, it can be enhanced, wrapped as all the marketers know, all these pictures of glaciers and all that jazz.

He also referred to water as a means of transportation, as an *electrical current*, and as a *fuel*. He stated that "it helps fuel our world, makes for much of what we do and enjoy, and also in this country the electrical current is a product of water." Bob went on to discuss electrical conservation and generation.

Bob also expressed a recreational orientation when he selected *swimmer* as a response,

...you can go under the water, there is a whole new world there. Or you can go on top of the water in a boat or with skis. You can swim in the water leisurely, recreationally, competitively.

He referenced an aesthetic orientation in his comments regarding water as *symphony*. He noted that various classical pieces have been written about water and he mentioned several of the sounds of water.

Eric:

Eric's responses to the metaphoric interview questions during the first interview indicated that he viewed water largely from a utilitarian orientation. He also expressed a recreational orientation and to a lesser extent an aesthetic orientation.

Responding to the first metaphoric question Eric stated that his preference would be *boat* in order to "carry people" and "take them fishing to help provide food." His later responses can also be characterized as largely utilitarian. He described water as *medicine*

because he said it is a requirement to keep us healthy. Eric selected *I am to water as an electrical current is to a generator* and he stated that water was like a generator in its ability to “create and do things” and perform functions.

Eric also suggested a recreational orientation in some of his reasons for selecting *boat*. He mentioned a boat’s ability to travel and he commented on the social aspects of boating. An aesthetic orientation is suggested by his comparison of water to a *symphony* where water can “be stirring and calming like a symphony can.”

Ruth:

Ruth’s responses to the metaphoric interview questions during the first interview indicated that she viewed water from an aesthetic orientation. She selected *cloud* in one response because clouds are wonderful to paint, “...the sunrises, sunsets, reflections on the water.” She described water as a *symphony* referring to the sound of waves coming in and putting her to sleep as a child. In what might also be regarded as having recreational aspects she described sitting and “watching the white caps.”

John:

John’s responses to the metaphoric interview questions during the first interview indicated that he viewed water from a spiritual orientation. In his first response John was very clear about this,

I tend to be a generalist rather than very specific in my interests. For both *trustee* and *devotee* there has to be an element of spirituality although we seldom recognize it. I think if any of us have any enthusiasms about any particular subject, object, item or whatever there’s an element of spirituality in our enthusiasm.

He continued in the same vein in responding to the second metaphor question,

Once again I would go to the equivalent of *breath*. Something like *fuel* is totally inadequate in that sense. That is a mechanistic view of water. Something that might be closer is a *symphony* or a *dance*, or a *prayer* because they are more holistic. They all have a spiritual orientation none-the-less they are more expressive of water.

In his response to the third metaphor question John selected *I am to water as thought is to meditation*. Again, his explanation suggested a strong spiritual orientation. “We can only have a brief moment of thought about anything, particularly something as profound as water, I view myself as a thought in relationship to water as the meditation.” He pointed out that water has been around for billions of years and that we are a very small part of its history, we are like a fleeting thought in an immense meditation that is the expanding universe.

Linda:

Linda’s interviews were interesting because she found that many of the possible choices appealed to her strongly. Her responses in the first interview suggest that she had a largely aesthetic orientation but that utilitarian, political, scientific, and spiritual orientations toward water are also significant.

Linda indicated aesthetic and spiritual orientations in describing her selection of *hymn* where she made reference to having a professional background in music. She described music as a way of honouring water and said that she would like to be “a hymn to water”. Later she referred to water as a *symphony* for the “...way it is drawn together, the way it works.” She described water as being like a *mosaic* because of its complexity

and herself as an artist where she is “...exploring or interpreting the complexity, or contributing to it.”

A spiritual orientation to water might also be inferred by her selection of *devotee*. She stated that to be a devotee involves passion which in terms of our relationship with water we need more of. A utilitarian orientation was suggested in the context of medical problems where water acts as therapy for her. She also said that from a practical view point water could be seen as *roads* or pathways. A scientific orientation to water was indicated by her comments about water as a *community* for,

What it contains within it and what is made up of it. What is found within it and what it brings. It is life giving and it functions as a community.

A political orientation was suggested in her explanation of the selection *I am to water as a puzzle is to a picture*. She described herself as a piece to the puzzle in a context where all the issues relating to water are the broader picture.

Summary:

The pre-instructional interviews provided an opportunity for the researcher to gain insight into the orientations of each participant prior to the first workshop session:

1. It was interesting to see that each orientation toward water was represented by the participants: three participants had a preferred aesthetic orientation to water, two had a preferred utilitarian orientation to water, two had a preferred spiritual orientation to water, and one had a preferred scientific orientation to water. The recreational and political orientations were not preferred orientations for any of the participants but they did show up as lesser orientations for several of them.

2. The diversity of orientations was encouraging as it suggested that each participant would be able to identify with at least one of the workshop sessions and that the discussions might be enriched by the diversity of orientations toward water held by the group.
3. A few participants questioned their ability to respond to the metaphoric interview questions. However, each participant answered the questions without too much difficulty. The third metaphoric question was the most complex, it typically required more explanation than the others, and it was the most challenging for each participant.
4. Participants commented that the interviews were enjoyable and thought-provoking.

Chapter 5 – Water Ways Workshop Sessions

Water Ways was a discussion-based workshop series that aimed to foster a sense of wonder about water and the ways that individuals relate to it. During discussions and activities participants were invited to share their experiences with water and to explore new ideas and perspectives about it. Each session examined water from a different orientation: spiritual, scientific, aesthetic, utilitarian, recreational, and political. The sessions were conducted one per week over an eight-week period.

The workshop series was designed for a group of eight retirees living on the Saanich Peninsula. The format was flexible and interactive to incorporate the varied interests, knowledge, and abilities of the participants. They participated in the design of the sessions by choosing from speakers, activities, short metaphoric passages, and articles outlined in a course book.

Participants also worked together to facilitate some of the sessions, to create a group Water Journal, and to develop a small water related activity of their choosing. The activity was intended to connect participants with water, to benefit the community, and to engage the knowledge and abilities of the participants. It occurred as a concluding activity on the afternoon of the final session. Suggestions, local resource people and assistance was provided.

Session One: Introductory Session

The first session was primarily an opportunity for participants to get to know one another, to introduce the format of the workshop, and to explain each participant's participation in the research (as set out in the Application for Ethical Review). This session opened with an evocative reflection by John of an experience he had when he was working in the Middle East. He came across a deep well in the middle of the desert and watched young children being lowered down to pass water up to the top. He related that the sound of a tin cup scraping across the bottom of the well is still with him to this day.

The session included an icebreaker where participants had a common metaphoric expression pertaining to water (such as *rocking the boat* and *don't throw the baby out with the bath water*) written on a note card and placed on their backs. With the help of other participants (who could read the card and give them hints) they were asked to figure out what the metaphor was. There was considerable laughter as participants provided hints and tried to figure out the clues.

The format of the workshop series was discussed and then during lunch participants completed crosswords where the clues were partially completed metaphoric expressions (i.e. #7 across: "There are too many facts here for me to digest them all"). After lunch a segment of the CBC program *The Current* was listened to regarding water being one of 2004's underreported environmental issues.

Prior to the start of the workshop series several of the participants had expressed interest about the role of metaphor in the research so a discussion about what metaphor is and how we use it to understand the world around us was incorporated into the first session. The use of metaphor in science was discussed in reference to the transcript of an interview (S. London, 1996) with Elisabet Sahtouris titled "From Mechanics to Organics" where she stated that all science is metaphor. In the transcript, which participants had been asked to read in advance, Sahtouris explained "Metaphor simply means that you take something that is familiar to you and use it as a pictograph or an image of what you are trying to describe that you don't yet understand well."

Discussion of a passage from the book *Riverwalking* by Kathleen Moore (1995, pp. 32-37) was used to help set the tone of the workshop. The passage discussed the value of "poking around." Moore described poking around as "more capricious than studying, but

more intense than strolling.” She stated that all learning comes from making connections between observations and ideas and she maintains that poking around is a guaranteed way to learn. It is about exploration and wonder, about developing sense impressions, observing details, and finally about making connections between what we are learning and what we already know. Moore summarized this process of making connections quite succinctly when she stated that “Insight is born of analogy.”

Moore (1995) further described poking around as being about who we are and who we choose to become, “poking around is recreation, re-creation in the most literal sense” (p. 36). She stated that we create another piece of who we are every time we notice something, or every time something strikes us as important enough to store away in our mind. She continued,

But I don’t want to make too much of the instrumental value of poking around. The whole point is that poking around is good in itself, like music, or moonrise. So I poke around at the frozen edges of Winter Creek in the late afternoon when the sun comes in low over the oak knoll and throws a long, rippling shadow from each dried cattail across the creek and up the farther bank. As Thoreau observed in *Walking*, the sun shall ‘perchance shine into our minds and hearts, and light up our whole lives with a great awakening light, as warm and serene and golden as on a bankside in autumn.’ (p. 36)

Session Two: Scientific Ways

Session two was facilitated by Nikki Wright from SeaChange Marine Conservation Society and the last hour and a half of the session was with Bill Austin at the Marine Ecology Centre. Ruth provided the opening reflection with a wonderful poem titled

Water to Nowhere (Figure 4, p. 141), which she had written following the first session. Nikki then described how community groups take science and translate it into language and practice that's meaningful for the community at large. She showed slides of volunteers at work in several SeaChange projects and she talked about how science is a metaphor in itself. Nikki followed this with a slideshow using images and music selected to highlight passages of the poem *Enigmas* by Pablo Neruda (Bly, 1993, p. 131). Below is part of Nikki's introduction of the slides,

So I'd like to talk about a few things and then put some images before you that were inspired by this poem. And the images that we read about in this metaphor are things like 'wicked tusk of the Narwhal', 'the sea unicorn', 'the crystal architecture of the sea anemone', 'the jellyfish full of light', 'its musical threads fall from a horn of plenty made of infinite mother-of-pearl', 'kingfisher's feathers which tremble in the pure springs of the southern tides', 'like an endless star' amongst 'jewel boxes.'

The metaphor discussion centred around *Enigmas*, which uses vivid metaphorical imagery: to describe various marine organisms (e.g., "the crystal architecture of the sea anemone"), to draw attention to some of the relationships between these organisms (e.g., "...whom the *Macrocystis* alga hugs in its arms?"), and to comment on our relationship to the marine world (e.g., "the empty net which has gone on ahead of human eyes"). The discussion also centred on an excerpt from Aldo Leopold's *A Sand County Almanac* (As quoted in, Oates, 1989, p. 131) which compared the human body with the land and incorporates a medical analogy to advocate that the earth be treated as a living organism. In the passage Leopold stated that abnormal floods and shortages in water systems are an

indication that the land is sick and he lists flood control dams and fish hatcheries as examples of superficial treatments.

Table 2 lists the topics raised by participants in response to these two metaphor passages.

Table 2. Topics raised during the scientific session metaphor discussion

1. the beauty of the ocean	2. the “Song of the Carpenter”
3. feelings of connectedness to water	4. water being spiritual
5. force of water	6. awe, fear, & respect of water
7. feeling in the moment while on or looking out at water	8. the immensity of the ocean and the potential of life
9. feelings of superiority over the environment through the use of technology	10. how we remove ourselves from the environment through the use of technology

Before lunch, the water project was introduced and options for it were discussed. The afternoon discussion was regarding a chapter titled “Exploring the Sea” from Sylvia Earle’s book *Sea Change* (1995, pp.14 - 34). In the reading, Earle wrote about her passion for the ocean, conservation of marine species, and the protection of marine areas. Nikki talked about how Sylvia Earle is an inspiration in her own work in marine education and conservation. This led into a wide ranging discussion that included the topics listed in Table 3.

Table 3. Topics raised during the scientific session article discussion

- | | |
|----------------------------------|---|
| 1. environmental restoration | 2. the loss of swimming holes |
| 3. over fishing in Kootenay Lake | 4. regenerating fish populations through conservation |
| 5. litter on the beach | 6. fish farms |
| 7. developing a sense of place | 8. commitment to where you live |
-

After the article discussion everyone made their way down to the Marine Ecology Centre in Sidney where Dr. Bill Austin and an assistant gave a tour and answered questions.

Session Three: Political Ways

This session was facilitated by Bob and Klaus with Rosemary providing the opening reflection. Rosemary shared some ideas from an article she has by Garrett Hardin that used an analogy of living on a lifeboat to describe the precarious state of the planet. Bob and Klaus chose two metaphor passages for the morning discussion. The first passage was from *Landscape and Memory* (Schama, 1995, p. 261) which related “rivers to the bloodstream of men” and discussed the life and death of nations in the context of their engineering and control of water. The second passage was a quote from Niccolo Machiavelli (As quoted in Merchant, 1980, p. 130) which discussed the wild and dangerous nature of water and the need to make provision against her. The passage concluded, “So it is with fortune which shows her power where no measures have been taken to resist her, and directs her fury where she knows that no dikes or barriers have

been made to hold her.” The metaphor discussion was at times quite animated and included the topics listed in Table 4.

Table 4. Topics raised during the political session metaphor discussion

- | | |
|--|---|
| 1. male and female conceptions of nature | 2. feminism |
| 3. women not being allowed on ships as they were considered bad luck | 4. paternalism |
| 5. the naming of rivers and lakes and ships | 6. human tendency to want to control nature |
| 7. movements to dismantle dams | 8. balancing masculine & feminine, also left & right brains |
| 9. movement of society as compared to the movement of water | 10. the constant of change |
| 11. life as self-organizing | 12. chaos theory |
| 13. balance versus stability | 14. sewage treatment |
| 15. individual versus institutional responsibility | 16. education and awareness |
| 17. promoting the benefits of being responsible | 18. pollution in water coming back to us eventually |
| 19. the clean-up of Midland Bay | 20. draining of wetlands on the prairies |
-

After lunch the session continued by viewing a segment of the video series *A Journey in the History of Water* (Tvedt, 2001) which detailed some of the international conflicts that have occurred, and some that might occur in the future, regarding water resources. Following the video a discussion ensued regarding local decision making versus centralized decision making. Local control over water was discussed in reference to the Walkerton water tragedy. A balance between local decision making and regional planning was suggested.

Bob & Klaus chose two articles for the afternoon discussion. The first was a selection on water issues from *Good News for a Change: Hope for a Troubled Planet* (Suzuki & Dressel, 2002, pp. 127-160) and the second was an article from the *Harvard Design Magazine* titled “Humans Supplant God; Everything Changes” (McKibben, 2000, pp. 19 - 20). See Table 5 for a summary of the afternoon article discussion.

Bob tied the video discussion, the Suzuki article, and Rosemary’s comments about living in small communities together by observing that they each spoke to the need to keep things small scale – where individuals can keep contact with what potential issues are all about. Some discussion of this idea followed before discussion turned to the McKibben article and the statement that “In the blink of an eye, with hardly a thought, our species has come to be on the verge of dominating everything that happens on the planet.” Eric observed that we are pushing ourselves into outer space and that the first thing we are looking for there is water. This resulted in someone asking “What’s wrong with the water here?” John introduced the idea that religion, and now faith in technology,

has promoted the erroneous belief that what happens here on earth doesn't really matter, there is always something better to be found than what we have.

Discussion turned to McKibben's statement "Those of us who live in cities and suburbs have been inside so long it's hard for us to notice that the outside is changing." The idea of action at both community and individual levels was explored, as well as the need to inform decision makers. Partisan politics was discussed as a problem to maintaining an informed dialogue about environmental issues. An impromptu but friendly explanation and debate about Proportional Representation and the Single Transferable Vote (STV) emerged from the discussion (There was an upcoming referendum on changing the voting procedure in British Columbia to an STV system). Several participants suggested that the STV proposal would increase the accountability of governments and politicians.

Table 5. Topics raised during the political session article discussion

- | | |
|---|--|
| 1. the need to keep things small scale | 2. humans dominating the planet |
| 3. searching for sources of water in space | 4. protecting water here on earth |
| 5. belief that religion and/or technology will save us from our environmental destruction | 6. whether urban living creates an impression that we live separate from the environment |
| 7. action at community and individual levels | 8. educating decision makers about water issues |

- | | |
|--|---|
| 9. Proportional Representation / Single Transferable Vote proposal | 10. increasing accountability of politicians and government |
|--|---|
-

Session Four: Aesthetic Ways

Ruth and Eric selected the metaphor passages for the aesthetic session and led the discussion. The session commenced with a segment of part of the video series *Journeys into the History of Water*. The segment showed the magnificent civic fountains in Rome. Bob later recalled visiting Rome briefly in his youth and spending a night walking from fountain to fountain before catching a train the next morning.

Pauline provided the opening reflection for this session. She talked about her grandson and that she wants to instil in him a sense of curiosity and lifelong learning. She talked about why she decided to sign-up for the workshop sessions and her connection to water. She wondered why she didn't have the kind of stories about growing up around rivers and lakes and the ocean that the others had shared. Pauline reflected that she grew up in wartime England where the beaches were covered in barbed wire and bunkers – not a safe place to poke around and explore! She discussed a trip a few years ago to Giverny, France where Monet painted his water lilies and how beautiful that was. As well, she read a poem that she had written after being at a symphony concert where she felt she was being drawn into waves and then rising out again to the strains of Ravel. She showed a personal journal that she had started about the course and her experiences of water.

The first metaphor passage that was selected for discussion was from an essay by Gaston Bachelard (As quoted in Schama, 1995, p. 244) titled “L’Eau et les Reves.” Ruth talked about Niagara Falls and described them as hypnotic and mesmerizing. She

discussed the roar of the water, “the base notes of a symphony not yet written.” She referred to the mist and beauty of the falls and read a quote about it by Charles Dickens. She talked about feeling the power and grandeur, and of seeing the colours of the rainbows in the mist. Again, a wide-ranging discussion ensued, refer to Table 6 for a list of the topics that emerged.

Table 6. Topics raised during the aesthetic session metaphor discussion

- | | |
|---|--|
| 1. feelings of being drawn into cascading water | 2. the pull of the ocean – sailors jumping ship |
| 3. people just staring at fountains | 4. the mesmerizing water at the stern of a ship |
| 5. memories of water from youth | 6. the negative ions released from falling water and the medicinal aspects of this |
| 7. meditative aspects of water | 8. water as a sanctuary |
| 9. water as an integral part of a community | 10. imprisoning water through pipes |
| 11. the fountains of Rome & Versailles | 12. reverence for water |
| 13. the Symphony Splash (‘on that god awful barge’) | 14. connection between music and water |
| 15. development pressure on the harbour | 16. lost streams, wetlands and bays in the city |

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|--|--|
| 17. poetry about water | 18. listening to the ocean in a seashell |
| 19. the sounds of water | 20. cultural significance of wetlands and
of their loss |
| 21. water in urban areas - enchantment | 22. water as mystical experience |
-

Rosemary read a poem *On a Rainy Day Outside My Home* and talked about her granddaughter buying her a seashell so that she can listen to the ocean wherever she is. John recalled that when he was growing up on the prairies there was always a shell on the mantle so that they could listen to the ocean even though they were thousands of miles away from it. He said that there is something magical about the sound.

Discussion turned to the metaphor passage from *On the Making of Gardens* by Sir George Sitwell (1949) where Sitwell discussed the magic of water and its mysterious influence over the mind. Ruth read a poem she wrote called *My Stream has Hissy Fits* (see p. 152, Figure 6) about a stream that keeps her awake at night. There was discussion about the importance of wetlands to First Nations people and the cultural significance of the loss of those areas. Eric described a stream that flows through the basements of shops along the main street in Midland, Ontario and Ruth commented that the owners of a Chinese Restaurant caught fresh fish for the restaurant by placing nets in the section of the stream flowing through their basement. Rosemary remarked about the magic of water and read a poem she wrote called *Mystical Memory* about being drawn to the sea and encountering an Orca.

In the afternoon participants discussed two chapters that they read from *Deep Immersion: The Experience of Water* (France, 2003, pp. 10 – 14 & 97 – 109). The five

ways of expressing or exploring water that were mentioned in the article were discussed: literature, film, music, painting, and architecture. Table 7 lists the range of topics explored in response to the article.

Table 7. Topics raised during the aesthetic session article discussion

- | | |
|--|--|
| 1. the fountains of Rome | 2. the film <i>Swimming Pool</i> |
| 3. “dirty water signifies moral pollution” - from the movie <i>The Third Man</i> | 4. a chase scene around a fountain in the <i>Pink Panther</i> |
| 5. <i>Lawrence of Arabia</i> and an image of terrible thirst | 6. mirages and freighters in the Sinai Desert |
| 7. Ralph von Williams’ <i>Sea Symphony</i> | 8. Schubert's <i>Trout Quintet</i> |
| 9. Group of Seven paintings | 10. paintings by Toni Onley |
| 11. poetry by William Wordsworth and the Lake District in England | 12. the role of art and architecture in conservation and education about water |
| 13. water parades and events to raise awareness about water issues | |
-

Rosemary showed a photograph that she had taken and then painted, that reminded her of a Wordsworth poem. The session concluded by watching the Oscar award winning animation *The Man Who Planted Trees* (Giono, 1987) which used drawings to

tell a story of hope about restoring a French valley after WWI and II. By continuously planting trees over several decades one man was able to get streams and fountains flowing again in an area that had become barren.

Session Five: Utilitarian Ways

The utilitarian ways of knowing water session started by watching a segment of *A Journey in the History of Water* (Tvedt, 2001) which explored the role of water in the Industrial Revolution. Linda and John led the discussions for this session. Linda also provided a remarkable opening. To everyone's delight she sang *Blow the Wind Southerly* a traditional song, which she said, had been a signature piece of contralto singer Kathleen Ferrier. Linda asked participants to visualize the story contained in the song,

A woman has gone down to the sea because her lover is supposed to be returning.

She gets there, down by the lighthouse she is waiting, and he has not come in. So she is very sad and she wants the sea to blow her lover back home to her.

Linda explained that she sees this story as a metaphor for the salmon, where the salmon have not returned and we can only hope they somehow find their way home. She asked participants to shut their eyes and visualize the scene and whisper *wishfall, wishfall, wishfall...* She said that the whispering did not have to be in time but that it would represent the sounds of the sea and the wind and the falling waves. With this background Linda sang the hauntingly beautiful *Blow the Wind Southerly*.

John then told participants about Rithet's Bog, a raised peat bog near where their house is located. He brought several props including plates and a sponge to create a visual metaphor of how the bog works and relates to the surrounding community,

Imagine that the tin plate is the basin on the peat bog and the basin of Rithet's bog is on the perimeter of the Colquitz watershed. So the only water that comes into the peat bog is by precipitation. Then you are going to have to really use your imagination because the wetlands are about thirty hectares in extent and that is represented by the black plate which will give you some idea. And in the centre is a five to ten hectare body of peat that extends to about 15 metres. The body of peat is still there but the action that causes the peat bog to exist is probably stopped now because of a whole variety of things that I could explain. The value of a peat bog is that it releases water all year long because peat has a tremendous ability to absorb water. Like a sponge in nature it drains down into the watershed all year long to assist in maintaining the proper temperatures and water depth so that among other things salmon fry can exist. Without that function of the watershed you toast your little salmon fry in the middle of the summer.

Linda and John chose two metaphor passages and two articles for the readings. The first passage was from Roderick Haig-Brown's (1968, p. 299) *The Western Angler* and addressed society's tolerance of those who illegally poach fish. During the discussion this was compared to our unsustainable approach to the exploitation of other 'resources' such as water.

The second metaphor passage was a paragraph from Theodore Schwenk's (1976) book *Sensitive Chaos* which described a technical or utilitarian orientation toward water overtaking a spiritual orientation that had been predominant prior to the Industrial Revolution. The discussion of this passage was quite short as we had lost track of time over the course of the earlier one. It was commented that "we now feel that we can do

what we want with water in anyway we like.” Table 8 lists the wide range of topics that were generated from discussion of the two utilitarian metaphor passages.

Table 8. Topics raised during the utilitarian session metaphor discussion

1. human behaviour on a global scale	2. externalities
3. commodities	4. recognition that there are limits to the exploitation of resources
5. optimism – a search for new possibilities	6. corporations
7. ‘oxygen rooms’ in Japan	8. bottled water
9. paying more for water than for gas	10. fixing the problem at the source
11. China’s industrial revolution	12. paradigm shifts, tipping points, consciousness
13. concepts of progress	14. economic policy after WWII
15. consumer culture	16. false economies
17. educating youth	18. recycling
19. the sixties, the eighties, the stock crash	20. the start of the consumer culture
21. the start of the environmental movement	22. diseases of affluence

- | | |
|---|-----------------------------|
| 23. technology as escapism | 24. control over water |
| 25. commercialism/marketing | 26. Walkerton water tragedy |
| 27. worldviews | 28. information age? |
| 29. post-industrial age? | 30. development mentality |
| 31. farming mentality | 32. supporting local change |
| 33. the importance of grassroots activity | 34. the mining of peat |
| 35. the draining of wetlands | |

John and Linda had also selected two articles for the afternoon discussion. The first was a selection from *The Food Revolution* by John Robins (2001, pp. 231-252). This selection focused on the impacts of industrial agriculture on water supplies. The second article selection was from *Real Food For a Change* (Roberts, MacRae, & Stahlbrand, 1999, pp. 48-53) which outlined the collapse of the East Coast cod fishery. It was suggested that the article was a good analysis of how an entire industry can go down very quickly. Table 9 lists the discussion topics that came up in response to these articles.

Table 9. Topics raised during the utilitarian session article discussion

- | | |
|-----------------------------------|---|
| 1. SARS | 2. changing diets |
| 3. the smell of beef on the BBQ | 4. sales and promotions of beef products since SARS |
| 5. the incredible amount of water | 6. personal action and conservation |

required to produce a pound of beef

- | | |
|---|--|
| <p>7. bias and sources of information</p> <p>9. the depletion of the Ogallala aquifer</p> <p>11. proposed solutions often a continuation of the underlying problem</p> <p>13. election rhetoric</p> <p>15. STV (Single Transferable Vote) / proportional representation</p> <p>17. family connections to the cod fishery</p> <p>19. the recreational fishery</p> <p>21. the futility of trying to manage the remaining 10% of a fishery</p> <p>23. increased catches despite rapidly diminishing stocks</p> | <p>8. small things people can do to conserve water and health</p> <p>10. water diversions from Canada to the U.S.</p> <p>12. impacts from the depletion of the draining of the Ogallala aquifer - beyond comprehension</p> <p>14. misinformation campaigns</p> <p>16. desalinization of ocean water</p> <p>18. movement from small family-based fishing operations to large industrial offshore operations</p> <p>20. the amount of wild fish required to produce meal for one farmed salmon</p> <p>22. poaching by other countries</p> <p>24. giving back responsibility to local small scale fishers</p> |
|---|--|

25. collective mass of a species

26. collective memory of a species

Session Six: Recreational Ways

Pauline and Rosemary facilitated this session and Bob provided the opening reflection. He explained that he had been wondering what deep associations he has with water. So he had tried a word association exercise and decided to have the group share in it as his opening reflection. Participants were asked to list the five letters of the word water vertically along the edge of a piece of paper. Bob asked participants to take a minute per letter and list any words or vocabulary that came to mind regarding water that start with that letter. For example he suggested *wet* might be listed next to the W. This exercise proved to be a wonderful way to demonstrate how many ways we all relate to water.

Everyone came up with associations under each letter. For example: under W there was weeping, Walkerton, womb, wilful; under A there was avalanche, Amazon, artesian well, alone; T there was tepid, titanic, tsunami, toilet; E there was ebb & flow, eel grass, energy, eye of the storm; and under R there was rivulet, raging, runoff, and respect. Bob concluded that he was amazed how many words we have in our language that are associated with water.

The first metaphor passage that Pauline and Rosemary selected was from the book *The River Why* (Duncan, 1983, p. 6) and described an epoch battle between a fisherman and a fish. The second passage was from the book *Riverwalking* (Moore, 1995, p. xii). This short paragraph described the joy of rafting on rivers and provided a beautiful metaphor for life. Pauline read it out loud. Table 10 lists the topics that arose from the discussion of these metaphor passages.

Table 10. Topics raised during the recreational session metaphor discussion

- | | |
|---|---|
| 1. feelings of independence and self-sufficiency when fishing | 2. the challenge and excitement of fishing |
| 3. fish as victim | 4. dislike of fishing |
| 5. knowing where your food has come from | 6. a fish outsmarting the fisherman |
| 7. the metaphor being over-the-top | 8. hunting and killing for glory |
| 9. killing to sustain oneself | 10. by-catch |
| 11. eating lower on the food chain | 12. fish that you shouldn't buy |
| 13. the unpredictability of water and of life | 14. whether we know where we are going |
| 15. the peacefulness of floating on the water | 16. death |
| 17. the cycle of water and of life | 18. reincarnation |
| 19. physicality and non-physicality | 20. watershed models |
| 21. relationship of water to us | 22. whether the passage suggests an idealized connection with water |
| 23. youthful innocence | 24. drifting |
| 25. a spiritual feeling | 26. whether you can get back in touch with water |

- | | |
|--|--|
| 27. childhood exploration around
water | 28. kayaking, sailing... |
| 29. whether our connection to water
is stronger when we are young | 30. spending our first nine months
in water |
-

Pauline and Rosemary also selected two articles for the afternoon discussion. The first was an article from the *Harvard Design Magazine* called “Kiss Nature Goodbye: Marketing the Great Outdoors” (Beardsley, 2000, pp.60 - 67). This article explored attempts to simulate nature for consumption, recreation, and education. See Table 11 for a list of discussion topics that arose in response to the two articles selected for this session.

Participants then went for lunch at Rosemary’s house on the water near Patricia Bay. After lunch we went for a walk along the bay led by local biologist Ian Bruce. Ian showed us a watershed model that is used to demonstrate to youth that when water in one area of the watershed is polluted the polluted water then cycles and affects other parts of the watershed, for instance by being carried downstream or being evaporated and coming down in rainfall. Then we walked along the beach and Ian discussed impacts from the airport, local agriculture, and the construction of retaining walls along the bay. He showed us beach organisms and talked about First Nations traditional fishing practices in the bay. We returned to Rosemary’s to discuss the last article for the day which was a selection of chapters from *Riverwalking: Reflections on Moving Water* (Moore, 1995 pp. ix - xiii, 149 - 156, 167 - 175, 188 - 193). Table 11 lists the topics that came up in the lively discussion of the two articles.

Table 11. Topics raised during the recreational session articles discussion

- | | |
|---|---|
| 1. we act as if consumption has no consequences | 2. children valuing the built environment over the natural one |
| 3. (re)constructing nature for the joy of the masses | 4. bringing exotic animals where masses of people can see them |
| 5. whether introducing urbanites to exotic animals has educational value | 6. admission fees to animal exhibits often prohibitive for low income families |
| 7. a captive animal being so different from the real thing in its natural environment | 8. whether it is better to see a captive animal than not to have an opportunity to see that animal at all |
| 9. experience of nature as a commodity | 10. whether nature would be destroyed if everyone was able to have a real experience with it |
| 11. the message that captive animals can live in isolation from their natural environment | 12. whether children need to actually see an animal in order to value it |
| 13. teaching respect for the local environment including local plants and animals | 14. one stop shopping 'buying your groceries and seeing a polar bear' |
| 15. nature as entertainment for the | 16. message that our transactions with |

masses

nature can be safe, agreeable, and
problem free

17. whether it makes sense to remove
oneself from nature in order to
enjoy an experience of it

18. where inner city children can go to
experience nature

19. the danger of suggesting that only
exotic animals and areas have value

20. bringing back a sense of wonder

21. school programs

22. walking in rivers

23. the wonderful imagery of water
invoked in the writing

24. relation to water during youth and
then as adults

25. philosophy and education

26. life cycles

27. living as a part of the earth or
merely living on it

28. awareness of issues increasing with
age but depth of involvement
decreasing

29. that thinking about the environment
might lead to action in unexpected
ways & places

30. that depth of involvement can relate
to larger life choices rather than
specific projects

31. previous assumption that there are
water problems but that they exist
elsewhere

32. the belief that water issues don't
affect us here

33. how do children grow up to be

environmentally conscious?

Session Seven: Spiritual Ways

The spiritual session started by watching a segment from *A Journey in the History of Water* (Tvedt, 2001) that explored water and spirituality around the world including pilgrimage sites such as the Ganges in India and Lourdes in France. Eric provided an inspiring opening for the session. He read excerpts from a Unitarian sermon, *The Confluence of Grace*, written by Rev. Edmund Robinson (source: http://www.uubelmont.org/sermons/S2004_09_12.html). Here are a few of the passages that Eric selected from Reverend Robinson's sermon,

There are no rivers present in this church. That is true; there are no rivers present. But there is about to be a confluence. There is about to be a flowing together of waters from many rivers, lakes, ponds and seas, not to mention a few taps, bathtubs and swimming pools. And this confluence is a powerful metaphor.

Some of the youngsters among us may be thinking, what did he say? What is this word metaphor? A metaphor is a figure of speech in which something stands for something else; usually it is something we can see and touch and feel which we talk about to stand for something we can't see or touch or feel. You see, it's a problem with language that some of the biggest ideas, the ones that are most worth talking about, are hard to talk about because they don't fit very well in words. Things like the love that we have for each other, things like spirit, things like God. So we use something we can see, like water, to stand for something we can't see like spirit. We say water is a metaphor for spirit. Metaphors are all around us and we use them a lot.

This reading was a wonderful surprise as it elegantly tied together several elements of the course and my research. It highlighted the significant use of water as metaphor in our culture, in this case the spiritual use of water as metaphor, and how metaphors stand in for larger ideas that we may have difficulty talking about, understanding, or describing. It was a tremendous lead-in for the discussion on spiritual perspectives on water.

The first metaphorical passage that was chosen for discussion during this session was a short passage from *The Daodejing of Laozi* (2002),

In all the world, nothing is more supple or weak than water, yet nothing can surpass it for attacking what is stiff and strong. And so nothing can take its place. The weak overcomes the strong and the supple overcomes the hard, these are things everyone in the world knows but none can practice.

The other passage covered two paragraphs from *Sensitive Chaos* (Schwenk, 1976) which described paying religious homage to water and also to philosophers known for celebrating its mystical properties. Table 12 lists the topics that flowed from the discussion of these metaphor passages.

Table 12. Topics raised during the spiritual session metaphor discussion

- | | |
|--|---|
| 1. whether you can practice being like water through Tai Chi | 2. the bible statement ‘The meek shall inherit the earth’ |
| 3. Mother Nature doing her own thing | 4. the futility of trying to hold water back |
| 5. water signifying wisdom and regeneration | 6. consciousness levels |

- | | |
|---|--|
| 7. commodification of water | 8. photography of crystallized water |
| 9. thinking of chaos as raw and rough | 10. sensitive (as in 'sensitive chaos') as
a modifier changes the whole
concept of chaos |
| 11. whether chaos is good | 12. Western society's desire for control
versus the 'chaos' apparent in
nature |
| 13. chaos as not necessarily harsh or
out of control | 14. whether there can be a self-
organizing chaos |
| 15. whether the natural world is chaotic | 16. chaos as a modern theory |
| 17. water in mythology | |

Two longer readings about water and spirituality were discussed in the afternoon. The first was a poem by local First Nations poet Philip Kevin Paul called *Water Drinker* (in Dowse, 2003, pp. 9 - 12) which related the poet's connection to a local stream and the loss of culture and identity associated with its degradation. The second reading was a chapter called "The Sacred Waters" from Vandana Shiva's (2002, pp. 131 - 139) *Water Wars*, which discussed water as sacred in religion and mythology. In it, Shiva related a Hindu myth about the origin of the Ganges, as well outlining some of Christianity's history concerning the sacredness of water. Table 13 lists the topics that emerged from the discussion of these two articles.

Table 13. Topics raised during the spiritual session articles discussion

- | | |
|--|---|
| 1. parallels between the branches of a tree and of a river | 2. water flow in a river and a reverse flow in a tree |
| 3. loss of local fish | 4. hope and loss of hope |
| 5. connections between generations | 6. that nothing totally disappears |
| 7. spirituality in different cultures | 8. sense of loss when a landscape has been destroyed |
| 9. things being no longer as the author knew them | 10. chaos of youth versus sensitivity of mature years |
| 11. the loss of roots / re-establishing roots | 12. changes in life |
| 13. drinking-in life | 14. spirituality as compared to dogma |
| 15. the power of ritual | 16. commercialization of ritual |
| 17. ritual of baptism | 18. whether the imposition of ritual and myth discredits them |
| 19. religion as commodity | 20. whether spirituality is something that can be commodified |
| 21. religious wars of the past, water | 22. thankfulness for water |

wars of the future

23. power of myths to inform and
provide knowledge

25. whether myths lose their
meaning with knowledge

27. physicality of water

29. Shiva's hair (vegetation)
breaking the force of the water

24. whether people believe in myths
because they don't have
knowledge

26. whether myths are attempts to
make sense of things we don't
yet understand

28. union between water and air

30. the accelerated melting of the
glacier that feeds the Ganges

Session Eight: Project Day

The first part of the last session focused on agricultural issues and water use. This focus seemed appropriate for the last session as the Saanich Peninsula has a strong agricultural base and participants had expressed interest in agricultural issues during previous sessions. We started out watching a video called *Deconstructing Supper* (Kaplan & Weisbord, 2002) which featured Vancouver chef and restaurateur John Bishop as he explored how the food he served in his restaurant was grown.

Following the video we were joined by two guests for a discussion on local agriculture and water issues. Tina Fraser Baynes is a local organic grower who is also very active with organic farming organizations and associations, teaches classes in organic farming at Camosun College, and has co-founded a community market and several businesses selling organic produce and seeds. Mike Doehnel is a member of the

Peninsula Agricultural Commission growing barley for local craft brewers, and he has a particular interest in water issues such as the pending review of Capital Regional District (CRD) agricultural water rates.

The discussion was very informative and helped to connect participants to local agricultural practices as they relate to water. The importance of purchasing local produce to support farming in the community was highlighted. Ways of conserving water through the planting of appropriate seasonal crops and through organic production methods were discussed. Ian Bruce, a local biologist and coordinator for Peninsula Streams, joined us just before lunch and we discussed agricultural impacts on local wetlands as well as opportunities to volunteer with a local Shorekeepers group. Nikki Wright from SeaChange Marine Conservation Society joined us as well and the conversation continued while everyone enjoyed a potluck lunch.

Over the course of the previous seven sessions participants were asked to brainstorm ideas for a group project and then to choose one to undertake in the afternoon of the last session. The objective of the project was to connect participants to water, develop an affinity for it and make a small contribution to addressing a local water issue.

Several possibilities were considered such as planting vegetation along Mermaid Canal in Sidney or helping SeaChange propagate Eel Grass. However, several limitations were considered such as the season (winter), the time constraint (2 hours), and accessibility.

Rosemary suggested that participants each choose a favourite 'watery walk' to describe and explore through photographs or art. This suggestion tied-in with the walk along Patricia Bay that Pauline and Rosemary planned as part of the recreational session.

Participants would do that walk as a group and learn about Pat Bay and then during the last session they would introduce the group to favourite 'watery walks' of their own.

Several participants were new to the area and it was suggested that this would be a good way to connect to local watery places they hadn't yet explored. One participant suggested that the descriptions might be of use to visitors to the area if they were assembled and made available at a visitor centre. Meeting as a group to walk each of these sites after the sessions conclude was also discussed.

During session eight, each participant introduced the 'watery walk' they described for the water journal. Rosemary started by introducing a scenic drive that she likes to intersperse with a series of short walks. She starts in Sidney at the coffee shop at the end of the pier, drives along Resthaven Drive to Deep Cove Marina for a visit, then along Madrona Drive to any one of the beach accesses for a stroll, then to West Saanich Road and on to Patricia Bay Beach for a 20 minute walk, then driving across to Lochside Drive and the beaches along Bazan Bay before returning to Sidney.

Pauline described a trip to Coles Bay with her daughter and grandson. Coles Bay Regional Park is located North of McTavish Road off of West Saanich Road. They visited the beach and the nature walk and found the park to be fairly limited and in need of some care including invasive species removal. She indicated that she will try visiting the park in a different season. She liked the sheltered feeling of the Bay.

Eric was next and described a beautiful trail through the 75 acres of the development where he and Ruth live called Eagle Ridge Estates. It is a private gated community located off Wain Road in North Saanich. There is a large pond in the centre of the property and a creek that meanders along the trail and past homes. He described many

animals such as a river otter, racoons, and osprey that might be seen along the trail. As well, there are numerous eagles that perch in a certain tree. Eric related that, “that's why they call it Eagle Ridge.”

Bob described the Robert's Bay Bird Sanctuary near his home. The sanctuary was established in 1931 and today the area is largely residential with marine industrial businesses located nearby at Shoal Harbour. He appreciates the rural atmosphere in such close proximity to urban activity. He described one walk when he counted 12 great blue herons standing absolutely still in the bay. He also described several of the species of ducks that can be found there.

Linda noted that since 1999 she has not been able to walk by water due to injuries and surgery but she stated that her objective is to walk the Coast Trail in East Sooke Park again. She said, “...no long walks by the ocean, no pleasurable strolls by lakes or even around the wetland where I live. But my memory can take me to the places I loved to walk, or sometimes racewalk...” Linda went on to describe the seven hour (over 10 km) Coast Trail walk! She described the journey, “The forest and the sea sang all along the route. Birds added their own chorus; seals barked their melody. They laughed at us struggling with the unfamiliar melody of that trail's score...” She continued, “I'll revisit the park one day – with hiking sticks instead of crutches.”

Klaus described a walk down the forest trail to Warrior Point which faces out into Patricia Bay off of Towner Park Road. He said that he always finds himself looking ahead where he is stepping to see the oysters, crabs, clams, seaweed and rocks. He collected stones on a recent walk there and glued them together to resemble ducks and other ‘critters.’ He reflected that, “Water being gentle and embracing everything also has

the power of shaping the most rigid of what we know – rocks.” A short discussion followed about the joy of beachcombing.

John talked about the Rithet’s Bog Nature Sanctuary near where he and Linda live. He described the nature of the bog and how it is the last of seven large peat bogs that existed in the region. The bog has been threatened by the impact of agricultural and urban development. There is a three kilometre trail around the perimeter of the bog floodplain. John concluded by saying, “In the early spring...bird songs during the day and the unbelievable cacophony of tree frog mating calls at night give hope that nature will persevere and perhaps sphagnum will again flourish in Rithet’s Bog.”

The Watery Walks were added to the Water Ways Journal and copies were made for each participant. The session concluded with a quick presentation by Trevor on one of the articles for this session titled “The Power of One” by local M.D. Mary-Wynne Ashford (1997). This article focuses on maintaining hope. It talks about the importance of individual and collective action without any guarantee that such actions will ever make a difference. Even the smallest actions represent hope and they provide our greatest protection against resignation and despair. Skipping stones were handed out to the participants and they were asked to cast these over their favourite body of water while reflecting on the workshop series.

Water Ways Journal

An important aspect of the workshop series was a group Water Ways Journal to which the participant’s each contributed. They were invited to contribute items about water that they had reflected on outside of class. These took the form of personal

reflections, brochures, artwork, poetry, and newspaper and magazine clippings. Figure 2 shows a water colour painting by Ruth, which she contributed to the journal.



Figure 2. Sample Water Journal entry – a painting by Ruth

Participants were also given ten questions (Appendix A, p. 220) about their relationship to water that they were asked to reflect on while doing the readings. Time was set aside every second session for participants to discuss the questions and it was hoped that each week participants would enter reflections on these questions into the journal. Figure 3 shows a sample Water Journal entry by Eric.

Memories relating to water:

Just got our first boat, 27ft power, went up into 30,000 islands for weekend. On the way home, Sunday, big wind storm came up and we had to take shelter in an island inlet until the next day. Left on Monday morning and had to cross open water known as "the gap" and the waves were washing over the top of the cabin and tossing us helter skelter. Very frightening thing and we all started to realize the power of water.

Remember the serenity of midnight cruise on calm waters in the moonlight on Georgian Bay.

Sitting on balcony of cruise line at 3:00 am looking at the gently roll of waves and the moonlight on the Pacific Ocean.

Peak Moments:

Just after drinking it.

Eric Fowler

Figure 3. Sample Water Journal entry – Eric's reflections

It was infrequent that specific reflections were entered into the journal but the questions did come up often during the metaphor and article discussions as well as during the Water Ways Journal sessions. Below is a sample of one of the dialogues that resulted,

What changes have you witnessed with any body of water, shoreline, lake, etc. over the course of your lifetime? What kind of changes did you see?

Eric:

I can remember when we moved to Leaside which was a suburb of Toronto. It is almost the center of Toronto now. It was probably three blocks wide. Our group used to hike not very far away down to the Don River. The Don River was quite a size at that time. That's where the swimming hole was. It is pretty well gone now. It's all filled in. IBM has a big thing there, business park, hotels. It's just gone. I can remember those days back when we had that thing. And we'd go up into Sunnybrook Park which is now the big hospital etcetera and the Don River ran down through there as well. It was really a nice place to go in the ravine and everywhere else. All gone. It's filled in. ... At one point in my life I thought that's progress. Now Eglinton Avenue goes right through. You used to have to detour about five miles to get from point a to point b. Now I can go right across. It affects me the fact that there are so many kids growing up today that don't realize that or don't know those kinds of things. Don't experience it. I feel very sad in that respect. The swimming hole is gone, the fishing hole is gone. Where do you go to find a swimming hole today? You go down to the pool – the cement pond.

Bob:

When we first moved to Nelson in the late 60's I can remember driving up to Balfour and taking the Balfour Ferry across to Kootenay Bay. ... At Queens Bay there would be easily 300 boats fishing. Any time in the summer, any weekend, less during the week, there would be 300 boats of anglers out there. As the years went on those boats decreased as the fish decreased to the point when 15 years ago fishing was totally banned on the lake. Now because of environmental action that has taken place combined with government action those fish have largely returned, not in the same numbers but now it is much more tightly controlled, monitored and so there was, out of what looked like total destruction, through a managed program of scientific alongside environmental those fish came back. I have come to the conclusion that very often as human beings we literally almost have to hit the wall before we start to realize that there is another way and we can do something about it. I tend to be optimistic in the sense that the way things look very black in this particular area we are smart enough to realize that we can turn back and take another look.

Eric:

I think we are also so much of a 'me' generation. All I am doing is worrying about me these days, we don't think of the future and of other people. If it is not going to hurt me I don't worry about it. Until something happens to you, you get sick or something or other, then you become aware. It's the same with our sewage and our water, if it isn't hurting me what am I worried about. It's twenty miles away out in the Bay, I don't care it's not bothering me. I know that when

we moved to Midland in the late fifties you could almost, if you went out to the harbour, you could almost walk across the bay because the sewage was so bad.

All the boats just dumped over the side and everything else. They finally put in a sewage system plant and regulations for holding tanks etcetera for boats. Within probably ten years you could see a dramatic change in the water in Midland Bay.

Ruth:

Back home there are no more fireflies because of the DDT that was put on the grass for lawn maintenance. When I was a kid coming home from the beach on hot muggy nights just beautiful and we sat out on the porch and watched all the fireflies. As I got older they, you know, they are gone.

Bob:

I grew up in the city and in my, when I started teaching, in my second year of teaching I was transferred to a country district in Western Australia and I had always, just as children today believe that chickens come out of supermarkets have no idea that they actually start somewhere else, I fully believed that water just came out of a tap – just magically appeared. I went to live in the country and I became friendly with farmers in the area and visited their farms and they would have these huge, huge water tanks and I realized that these were to collect water off of the roof and keep the tap running. And as I thought about it, and lately we are in an age where we have to purify everything to the point where there is almost nothing in it. Most of the farm house roofs were galvanized iron and the tanks were galvanized iron and so you would have the rain fall on the galvanized iron and it would run off the roof into a tank and so by the time it came through

the tap particularly in the bath and for showers and that there would be this iron coloured build up in the showers etcetera. I realized later that all of that iron was being absorbed into the people that drank it. So I ask myself what damage did it do? Well I don't know anybody then or now who died of iron poisoning but we all drank it and never thought about it. Now we seem to have gone to the opposite extreme where to even take water out of the tap we wonder what it is going to do to us without accepting that maybe it's not that bad. There was a major water issue, the collection of water, in this country town where I lived because it was a dry area. How it was collected and how it was used and what wasn't done to it wasn't thought about.

Figures 4 and 5 are samples of some of the other participant entries in the Water Journal.

WATER TO NOWHERE

by Ruth Fowler Jan 28, 2005 2005

I went to the tap to get a drink
 Though my thirst was very small.
 But when I turned the spigot on
 There was nothing there at all

I thought duck stew would be good for a meal;
 Mouth-watering like it ought.
 I went to turn the water on
 And there was nothing for the pot.

"A fish dinner would be good" I mused.
 To the beautiful lake I trudged.
 But my pristine lake was as dry as a bone—
 And the middle of it was sludge—.

I wanted to paint a likeness one day
 Of my lovely blue-eyed daughter,
 But my palette needs moisture for it to work
 And I found I had no water.

The Communal well is not far from here;
 I can manage a pail or two.
 The waste of our resources is abundantly clear
 And our only salvation is you.

Figure 4. Sample Water Journal entry – Ruth's "Water to Nowhere"



Figure 5. Sample Water Journal entry – Pauline's fish

Session Openings

Another aspect of the sessions were the ‘openings’ that participants provided. The ‘opening’ was the reading of a source of inspiration regarding our relationship to water. This could take the form of a short quote, memory, poem, artwork, or reflection of the participant. Below is an example of one of the openings where Pauline reflected on her youth:

...why don't I have the kind of stories that you've all shared and I was quite envious of some of your childhood stories and your playfulness, your poking around, and things like this and I thought why didn't I do that? What is the matter with me? But then when I started to think about the fact that I grew up in Second

World War Europe - England. It really wasn't a time for play and I think that my parents didn't want to let me go to far a field because they were worried about what's going to happen today and the beaches were certainly nowhere to play because they were full of barbed wire and full of bunkers and you know my brothers used to go and jump on them anyway, but I am sure that my Mom and Dad told them to stay away. We didn't live near the beach. I was an urban child and didn't have a lot of money. My parents worked full time. They didn't have a car. I don't really remember playing as such. I do find myself thinking what did I do – reading, going to school, and things like that. By the time the war was over and I was going into high school I became more interested in sports and what was happening at school. So I am not a poking around water person and here I am at Water Ways! I find myself really enjoying and constantly analyzing what I am doing here.

The other openings included: an evocative description of traveling across the desert and seeing children collecting water from a deep well, a wonderful poem written after the first session, Garrett Hardin's lifeboat analogy, singing of *Blow the Wind Southerly*, a word association exercise, and a sermon that used water as metaphor. The openings were an engaging start to each session.

Chapter 6 – Post Workshop Orientations

Participants were interviewed (Appendix A) following the workshop series to determine if there was a change in participants' environmental orientations and an increase in their understanding of water issues following participation. The post-workshop interviews were audio recorded with each participant's approval and transcribed for analysis.

Pauline:

Pauline's responses to the metaphoric questions during the second interview were consistent with her first set of responses. She continued to view water largely from an aesthetic perspective and she expressed utilitarian and spiritual orientations toward water to a lesser extent.

At the start of the second interview Pauline commented that she didn't recall what she had answered during the first interview. Considering this, it is interesting that many of her answers were almost identical in the second interview as in the first.

Pauline's preference for aesthetic metaphors was still strongly evident in the second interview. Again, she chose *snowflake* for its beauty and *reflection* referring to artistic images of trees reflected in water. Pauline chose a *mosaic* to describe her relationship with water,

...because a mosaic is very colourful and I think of the colours in water when I think about it and the mosaic is composed of all different shapes and sizes as is the availability of water.

Symphony was selected again and in several responses the musical properties of water were referred to. When asked if there was a metaphor that she read during the course of the workshop that had particular resonance for her she referred to a quote from Renee Flemming (as quoted in Ryerson, 2003) that considered water as music,

Water is

The splashing of florid, majestic Mozart

Cheerfully running melismas

The flow of a river, a long Straussian phrase seeming never to end

The majesty of the ocean-a chorus of untold voices which makes us seem small and our sorrows trivial

The calming repetition of waves-a soft mournful drone which slows time and breath

Water and great music enable us to step out of our daily lives for a moment and experience timelessness. We are humbled by the experience and grateful for the reminder that life is fleeting and the soul wants feeding. Mostly when I think of water, I think of flow - the same flow I feel in my body as a tone begins and travels into aural liquid on breath, perhaps meandering or chromatic, an ever-flexible waterfall of sound. (p. 44)

Pauline's responses in the second interview also indicated a lesser utilitarian orientation. Again she referred to water as a *treasure*, "especially when it is scarce". This time she selected *well* as a response because a well provides a continuous supply of water for people. During the second interview Pauline's reference to the intrinsic value of water again suggested a spiritual orientation.

Klaus:

In the second interview Klaus selected *snowflake* as a response and again referred to a snowflake's energy level and discussed consciousness. This seems to be primarily a continuation of the scientific orientation observed in the first interview, however, Klaus' references to higher consciousness also has overtones of a spiritual orientation. Indeed, during one of the sample questions Klaus selected *spirit* and stated that, "the spirit is in everything at the same time. [It is] some energy beyond the physical..."

Again, Klaus selected *medicine* as a response and discussed the healing properties of medicine and of water. In the first interview Klaus had selected *melody* as a response. This wasn't commented on in my analysis of the first interview with Klaus because his explanation did not suggest a particular orientation, however, he selected it again in the second interview and his description suggests a clear scientific orientation. For instance in comparing water to melody he states,

It has a waveform that is never flat. It combines many drops together. It has a wave form, a sound associated with it if it is in contact to something more solid such as a beach below. You can hear the wind on it also. No two waves are the same either and yet they do form something that is probably harmonious in itself like a melody. And we vibrate too. We are vibrations with our moods.

Emotions are a vibration. On the atomic level: the molecules, vibration, and a pattern.

Klaus stated quite simply that "water is life" when asked if there is a metaphor for water that most appealed to him. This is consistent with the scientific and a spiritual orientation that was evident in the metaphoric interviews.

Rosemary:

The second interview with Rosemary was largely consistent with the first. Most of the responses suggested a spiritual or aesthetic orientation to water. Rosemary selected *sanctuary* again to express what water is to her. She described water in a spiritual sense, as a source of life that can be returned to: “Water has always been there in all its forms and so even taking a drink of water in a way is like a sanctuary.” Water was described as a place of origin where one can retreat to and then start out again,

Even if you just immerse yourself in water, that’s what a baptism is like that, it is like a retreat going back to a starting place. It is kind of a rebirth or a start over, that’s the way I see it when people want to be baptized as adults.

The meditative qualities of water and its effect on consciousness were also mentioned,

...water changes consciousness. You can’t have any type of relationship with water without a change of consciousness ... So in a way it is almost like meditating when I look out there. I can feel it mentally, physically, emotionally or whatever, there is a change.

An aesthetic orientation to water was expressed in the second interview when Rosemary discussed observation of water and referred again to photography,

...there is a photographer in Sidney. I don’t know. Did you ever see his photographs of water drops? Black and white photographs and he did them so that the drops are just elongated and then all different shapes. The photos were just of water drops ... I quite liked his photographs.

The metaphor passage that Rosemary found to be most evocative was by Russell Sherman (as quoted in Ryerson, 2003) from the book *Water Music*,

Water, paradoxical and addictive, womb of human life and source of Narcissus' fatal obsession. Water, which reconfigures light and color. Water, architect of miraculous designs and of the endless melody so seductive to Wagner. Water, which can never be stepped into twice, and therefore becomes the paradigm for performances that are singular and unrecoverable.

It is water that eternally and helplessly rearranges its components, and that reminds us of the special bond between music and life. For they both are fleeting, ephemeral and magical. And, finally, it is the intrigues and intricacies of water that precede and illuminate our destiny. (p. 47)

Bob:

Bob's second interview is particularly interesting because, unlike the other participants, his responses were significantly more varied after the workshop. In the second interview there was no one orientation that dominated and several of his responses suggested orientations that had not been present in the pre-workshop interview.

Bob's responses that were consistent with the first interview suggested utilitarian, recreational and aesthetic orientations but, unlike in the first interview, the utilitarian orientation was not dominant. The few comments during the second interview that suggested a utilitarian orientation included his response that water is a valuable treasure and a later comment where he stated "I can channel it, I can consume it, I can use it for decoration." An aesthetic orientation was expressed when he pointed out that clouds can result in heightened sunsets. Echoing the first interview he selected *symphony* as a

response and reflected on the musical nature of water. He selected *swimmer* “just for the enjoyment of water” which again suggests a recreational orientation.

The three orientations identified in Bob’s second interview that were not evident in the first are political, scientific, and spiritual. He indicated a political orientation in his description of himself as a trustee in relation to water,

...like school trustees take on responsibility for education, I see that a water trustee would be continually aware of what is happening with water in their local area particularly and on a global scale. That’s how I see trusteeship.

A political orientation was also expressed later in the interview when Bob selected *I am to water as a citizen is to a country*. He expressed this relationship as “...being part of a much larger whole. It’s the responsibilities, the laws of the country.” He expressed a scientific orientation by pointing out that clouds are water in another form and that they result in rain. A spiritual orientation was briefly indicated by Bob’s selection of *sanctuary* and his comment on the use of water in the Christian service.

When Bob was asked which metaphor passage was particularly appealing to him he selected one by Eric Lehrman (As quoted in Multifaith Calendar Committee, 2001),

The water which softens us as it circulates through each cell has already been down every river and slept in every ocean. The blood of the land is the river of the body.

Eric:

In the post workshop interview Eric’s responses were consistent with his earlier ones in the first interview. Again his comments demonstrated primarily a utilitarian orientation toward water with an aesthetic orientation being brought out in one comment.

Eric selected *symphony* again because water has many sounds and aspects like a symphony has. In this interview Eric's responses did not clearly indicate a recreational orientation, although his answer in one of the sample questions did suggest that it remains one of his preferences.

Eric's responses that suggested a utilitarian orientation included his description of water as a gift for anyone who has clean water. He referred to it as a treasured commodity. He also described water as a puzzle and himself as an investigator seeking, trying to figure it out, determining the end result. Eric related this to his background as an accountant.

During the workshop series Eric introduced some interesting metaphors that expressed a utilitarian orientation, from an article he had found called "Western Water Metaphors" which he shared as part of his opening for session seven. The article was posted on the internet by the Salt Lake City Department of Public Utilities and it discussed some of the very serious water issues facing communities in the American West. In particular it described the declining water level of Lake Powell as a metaphor for drought and the efforts to control water to mitigate it. Lake Powell was also the subject of an article in the readings for session one where it was used as a metaphor representing North American's changing attitudes about the environment. The second of the metaphors referred to in "Western Water Metaphors" was of Las Vegas which provided a familiar example of population growth outstripping local supplies of water and was used as a metaphor representing communities throughout the American West.

Ruth:

In the second interview Ruth's responses were still largely aesthetic in nature, however, she did also comment on her fondness of swimming which suggested a recreational orientation as well. Ruth selected *ripple* because of the movement and patterns it suggested to her,

I was on a ship last year and I watched the ripples from the boat. They were at the back of the boat and we were on the side of the ship and looking down onto the waves that the boat cast and on the top of the waves there was a breeze probably from the ship causing a ripple, ripples and it was like a, ah I can't explain it to you, but like a web. Not like a cross piece only light on the top on the ripple and dark in between. I had just never seen anything like that before and so in that way I could be a ripple and go around the world.

She selected *symphony* again but this time referred to the crescendo and the calmness of water. Ruth selected *homeland* but described her choice in aesthetic terms by describing the forms and patterns of the plains and the Rockies and the different qualities of Canada's lakes. She also described water as a *mosaic* because it is constantly changing shape and form.

Ruth shared some wonderful metaphors of her own that express her aesthetic sensibilities and a great sense of humour as demonstrated in her poem "My Little Stream Has hissy Fits" (see p. 152, Figure 6):

MY LITTLE STREAM HAS HISSY FITS

The little stream in my backyard has "hissy-fits".
 In winter, when I cannot sleep for the sound of rain,
 I hear music of a thousand snakes that hiss and garble
 Over rocks and pebbles past my bed.
 Springtime brings snowmelt from the hills above.
 The quiet gives reminiscences of the air
 In the old pump organ , and the sougning of the wind in the trees,
 Along with the hiss and hum of the hymn of the snakes
 Keeps me awake from listening.
 In Summertime the stream is dry.
 The snakes are gone.
 I hear the silence.
 And then I sleep.

by Ruth Fowler. Feb 2005

Figure 6. Sample Water Journal entry – Ruth's stream

Also see Ruth's poem *Water to Nowhere* which was entered into the Water Journal and is included in Figure 4 (p. 141).

John:

John's responses in the second interview again suggested that he had a spiritual orientation toward water. However, this time his responses also indicated scientific, aesthetic and political orientations. No one orientation appeared to be preferred over the others.

A spiritual or holistic orientation might be inferred from his description of why he selected *ripple*,

...because in the end that's all we are – just one of the ripples on the water.

Individually we are one ripple and then we are gone and there are a whole sea of ripples out there. There and gone but part of a continuum.

An aesthetic orientation was suggested in his initial response to the second metaphor question where he considered that water might be like a *dance* or a *symphony*. However, he decided on *community* and described this selection in a manner that expressed a scientific orientation,

In a sense its chemical composition known to human beings is standard but it is not. Water on this planet is a whole community of things and it includes us. It is a very inclusive community. I think that I would be technically correct to say that all life as we know it requires water as we know it. That's probably at this time because I am not exactly sure when life first evolved on this planet what the state of water was. Whether it was H₂O and a bunch of other things or whether, yes I guess it was combined at that time, as the basic element of life. It certainly is the basic element of life. A community in the sense of life – ecological community.

In the final metaphor question John selected a response that also suggests a strong political orientation: *I am to water as a citizen is to a country.*

I am thinking of the responsibilities. Responsibilities because it is seldom implied that there are duties. That seems to me to be very specific because I am a human, I am part of human society and as a part of this community or a country or whatever. We should be citizens. We are consumers here but we should be citizens. And active citizens and take part as citizens. And that relates to water. ... because we are dealing with natural systems we have no rights, we like to think of ourselves as having rights but we don't.

When asked which of the metaphors listed in the course pack most appealed to them John and Linda selected two passages that they both liked. The first of these addressed

how industrial society has lost sight of the spiritual and life-giving qualities of water and included,

The more man [sic] learned to know the physical nature of water and to use it technically, the more his knowledge of the soul and spirit of this element faded.

This was a basic change of attitude, for man now looked no longer at the being of water but merely at its physical value.... (Schwenk, 1976)

Linda:

Linda's second interview was consistent with the first in that many orientations were expressed including aesthetic, spiritual, scientific, and political. However, in this interview it is striking how she integrated several of the orientations so eloquently.

In response to the first metaphoric question Linda again chose *hymn* and *devotee* connecting the spiritual and aesthetic orientations,

In relation to water I would be a devotee in the water. I really want to, you know, not study from afar. A devotee – to be completely involved. Not separate from the object of study. ... Hymn, quite beautiful – musical. It's the gloriousness of it. I took my mother to the Easter services and the hymns were beautiful. So an ode – 'A Hymn to Water'.

For the second metaphor question Linda selected *community*, *symphony*, and *homeland*. She shared a wonderful reflection that beautifully linked together her aesthetic and political orientations,

I just recently heard, and it was very forceful, it wasn't a symphony (although there is a wonderful symphony [about water], it was the Moldeau by Smetana and it was very beautiful. It is a beautiful piece of music that expresses the flow of a

river through from its source, through Czechoslovakia. He's a Czech composer.

It was conducted by a man who has lost his homeland, Czechoslovakia. ...he left Czechoslovakia before the Russians had moved into it. He was very dispirited. Before he died, was very ill, Czechoslovakia regained its independence. It was the eighties or early nineties and he went back to the Moldeau. It was just beautiful to hear this performance and you could hear the river and everything that the water meant to the people. So that is very strong right now.

She continued her description of this music and combined a political orientation with a scientific one,

That piece of music embodied everything that was community and in relation to that people, but also the community of life. You know we forget that there are other creatures on the earth, we are not aware of the importance – so the whole community. And water is that – holding that – and homeland. Community, support, bringing life, not just ecological – much more – all that it embodies, gives and takes away.

Linda elaborated on *homeland* with what can be described as a spiritual sense of land and water,

Homeland, because of the call, it's your reference. Mine is largely the prairies I guess but what I am developing here is with the sea. A feeling for the sea and the ocean. When I think of the prairies, in the Spring I think of the water returning after the snow, snow melting and it brings back a sense of the land.

The second metaphor passage that both John and Linda found particularly appealing over the course of the workshop series was an excerpt from Aldo Leopold's *Sand County Almanac*. Here is part of that excerpt,

In general, the trend of the evidence indicates that in land, just as in the human body, the symptoms may lie in one organ and the cause in another. The practices we now call conservation are, to a large extent, local alleviations of biotic pain. They are necessary, but they must not be confused with cures. The art of land doctoring is being practiced with vigor, but the science of land health is yet to be born. A science of land health needs, first of all ... a picture of how healthy land maintains itself as an organism. (as quoted in Oates, 1989, p. 37)

Summary:

1. The post-instructional results for Pauline, Klaus, Rosemary, Eric, and Ruth were not markedly different from their pre-instructional responses.
2. The pre and post interview responses for Bob and John were different. For both of these participants their post-instructional responses incorporated more of the orientations and none of the selected responses appeared to be preferred over the others.
3. The post instructional interview with Linda was particularly interesting because, although she expressed most of the same orientations as in the first interview, they were described in a richer, more integrated manner following the workshop.

Chapter 7 – Discussion

Research Questions:

1. *What are the participants' orientations towards water prior to and after instruction?*

Table 14 summarizes the pre and post-workshop interview results for each participant.

Table 14. Orientations to Water in the Pre and Post Workshop Interviews

Participant	Pre-Workshop	Post-Workshop
Pauline	aesthetic*, utilitarian, spiritual, recreational	aesthetic*, utilitarian, spiritual
Klaus	scientific*	scientific*, spiritual
Rosemary	spiritual*, aesthetic	spiritual*, aesthetic
Bob	utilitarian*, recreational, aesthetic	utilitarian, recreational, aesthetic, political, scientific, spiritual
Eric	utilitarian*, recreational, aesthetic	utilitarian*, recreational, aesthetic
Ruth	aesthetic*	aesthetic*, recreational
John	spiritual*	spiritual, scientific, aesthetic, political
Linda	aesthetic*, spiritual, scientific, political, utilitarian	aesthetic, spiritual, scientific, political

political, utilitarian

political

* indicates preferred orientation

The pre and post results for Pauline, Klaus, Rosemary, Eric, and Ruth were not markedly different from one another. This suggests that for these participants their basic orientations toward water were unchanged by the workshop. This is perhaps not surprising in that one's underlying orientation to the environment is developed over the course of a lifetime. Much research and writing (e.g., Snively, 2002; Bixler, Floyd, & Hammitt, 2002; Corcoran, 1999) has suggested that our experiences in youth have a formative influence on the way we view the environment in later life. It may be unrealistic to expect significant changes in participants' orientation toward the environment in the course of an eight week workshop (40 hours) especially when it is put into the context of the many other influences one has over the course of a lifetime.

2. *Instructional Metaphor:*

2.1. *Does the use of environmental metaphors in the workshop curriculum contribute to enhancing the range and depth of environmental orientations held by participants?*

I had hoped to find that following the workshop participants were viewing water from a broader horizon – one that included their earlier orientation(s), as well as incorporating references to other orientations introduced during the workshop. This is not evident in the metaphoric interviews for five of the participants. However, the interviews with Bob and John suggest that at least for them participation in the workshop may have brought additional orientations forward in their minds. This is the broadening of outlook that I had hoped for. The interviews with Linda were particularly interesting because, although

she expressed most of the same orientations in each, they were described in a richer, more integrated manner following the workshop. This suggests that her existing conceptualizations of water became richer and more integrated over the course of the workshop series.

2.2. Does the use of environmental metaphors in the workshop curriculum contribute to participants' understanding of water issues?

Most participants reported in the post-instructional interviews that their views of water had changed and that they had gained insight into how others view water. When asked *Has the workshop led you to think any differently about water?* six of the participants said yes. Eric indicated that it hadn't and he later elaborated, "I've been so conscious of water all my life, living on water etcetera that that's why I said in the first instance that my answer was no...". John also indicated that the workshop hadn't led him to think differently about water but he added, "It is more a degree of emphasis or some aspects that weren't apparent, that I hadn't thought of that had come to the fore." In response to the same question Klaus stated, "Yes, it has expanded it. You know, it has really expanded the views and how we are all linked to it and so on." Bob reported that he was seeing water in a new way:

Oh yes, in the terms of viewing it more as a disappearing resource as opposed to taking it for granted and as a consumable resource which I always assumed was totally replaceable and I have come to the conclusion after the course that it is not. As much as we might think it is, it is a bit along the lines of fuels, oils and so on. You know, we need to take care of it. So I would say that was a pretty important recognition for me.

Rosemary reported that she is more conscious of various aspects of water and interested in other peoples views on water:

Something comes up everyday that makes me think about water and maybe start to discuss it with somebody. I don't think I had gone into discussion about it with anybody before.

Linda also stated that the workshop had caused her to relate to water differently and to look at other facets of it,

Water as metaphor yes. Also, I think I noted this in the questionnaire as well, it was really interesting to explore the other, you know the aesthetics and the spiritual because I have been so involved in the conservation side of it. It was almost like taking time to smell the roses.

When asked, *During the workshop did you gain any insight into how others view water issues?* all participants stated yes. John replied,

Yes, very much so. One of the very interesting aspects of the workshop was the diversity that the group had. I don't know how you select a diverse group? They all had to volunteer and in that way you would almost anticipate that there would be similarities but there wasn't marked similarities at all. Interesting.

Linda replied to the same question by stating,

Absolutely. And that was good, very interesting too because we sing to our own little choir, we trundle down that road and we focus so much. So it was wonderful to hear people talking about how they are inspired artistically to hear other opinions expressed about it that way. To hear other impressions and the diversity of it all.

Klaus responded with,

Yes, I think that people that were here are quite remarkable. You know they are very sensitive and also committed towards water, like Nikki. Yes it has and I think it is wonderful because when you share something you give and take but you leave richer than you were before. Everyone does.

Pauline also indicated that she had gained insight into how others view water issues,

Oh, a huge amount. There was such a wise knowledgeable group. I was amazed. It just directed me into a lot of different areas, all the groups on the peninsula, and things that I'd like to, and now I find I'm looking in the paper, before I was looking for language things which still interest me but now my eyes are looking at articles that I probably wouldn't have looked at too much before. In particular politically, I'm terrible politically, political issues which are really, I think I am changing though now that I am retired and now that I am not focused on planning lessons and my ESL students I think that I am getting into a new area where I can start looking at different things. And so you have directed me into this area and I think that I might go out and start poking around or something. I will step into the water and talk to my neighbours about being more ecologically wise. I think there are a lot of people around here who aren't.

Bob agreed,

Oh yes, certainly. From the readings – the metaphors. I didn't realize before the course that there are so many metaphors for water. So that is the first thing, writers have obviously identified that water definitely can be written as metaphor. And then the readings, as I commented in my summary, were particularly well

chosen. They gave me an expanding awareness of that others, many, many others are concerned, as I have now become.

Rosemary observed that,

It seemed that everybody had a different idea about water... So I found it interesting that although we were sort of standing in a different place looking at water we were more or less seeing the same thing.

Over the course of the workshop series metaphor was effective as a starting point to generate engaging discussions about water and water issues. Several participants commented that while they were not always able to complete the assigned articles they always read each of the metaphor passages (not just the ones identified for discussion). They also noted that while they tended to read the articles the night before the corresponding session, they found that they read the metaphor passages earlier in the week often immediately following the preceding session. This is likely due to the fact that the metaphor passages are significantly more concise than the articles – requiring less time to read through and take in. For most participants their novelty was also an attraction. The passages have the advantage of being very focused, offering a few ideas to process and reflect on as compared to the multitude of facts, opinions and ideas introduced in the articles.

The analogies that the metaphor passages develop are creative and require the reader to actively engage in the comparisons being drawn. The reader must engage in selecting, organizing, and projecting various images. This is very different from a literal expression which can often be taken at face value. The metaphor passages require a form of lateral

thinking that some participants may not have been accustomed to but that most participants found enriching.

Most participants reported enjoying the discussion of the metaphor passages and while they may not have grasped all aspects of a particular metaphor they appeared able to relate to most of them at some level. This is a particular advantage of metaphor in that the creative process required of the reader calls on personal experience and knowledge to a degree that is not usually needed to interpret a literal passage. The same process is also more likely to result in novel insights and connections. For these reasons metaphoric passages are particularly suited to stimulate discussion and reflection. Two participants commented that the metaphor passages were a good way to start the sessions as they were useful to get conversation and ideas flowing.

However, for Ruth and Eric the discussion of water metaphors was the source of some concern. They both indicated that the format of the workshop was less conventional than they had anticipated and they remained unclear about the purpose of the metaphors. Ruth was not immediately familiar with what a metaphor is and expressed a strong preference for information to be presented in a clear and unambiguous way. When asked if she was able to retain interest in the course over time Ruth replied, “No – too many wise men speaking in ‘tongues.’ Putting words, ‘metaphors,’ into the writers’ mouths. Tell it like it is”. Likewise, Eric indicated a preference for literal expression and replied that he too was unable to retain interest in the course over time. Both participants characterized the use of metaphor in the curriculum as a distraction rather than as something that they felt contributed to their understanding of water issues.

Ruth and Eric participated throughout the workshop series and contributed actively in every discussion. They incorporated metaphor into the opening reflections each had prepared. Eric found a wonderful sermon that connected spirituality and water through metaphor and Ruth incorporated some very witty metaphors into the poetry she shared with the group. While they responded effectively during the metaphoric interviews and both used metaphor at several points during the workshop series the metaphoric interviews with both subjects were more brief than with the others and their participation in conversations regarding water metaphors was notably less.

The other participants indicated in conversation and in written responses that the metaphor passages had been a valuable aspect of the sessions and of their understanding of water issues in general. Five participants made specific mention of the metaphor discussions in the workshop evaluations (see Appendix A, p. 221) that they completed. In response to the first question, *Which aspects of the workshop made you feel involved and challenged?* Bob identified the metaphor discussions as the first of three workshop elements that were most significant to him in this regard. Eric responded to the same question with “challenge - trying to identify a metaphor”. In response to the second question, *Did you experience creativity and enjoyment?* Pauline replied “Definitely – many participants [were] very creative in their metaphor descriptions.” To the same question, Linda commented, “Yes, definitely! Using metaphor – excellent tool for exploring other dimensions of water issues.”

In response to the third question, *Did the workshop content link effectively to your personal experiences?* Klaus expressed his conviction that water supports life and he reiterated several themes from the metaphor discussions,

...and it seems to connect with some dimension beyond the purely physical, as also some of the metaphors reflect, such as 'Holy Water', 'Ocean of Life', 'Fountain of Youth', and it is the symbol used in baptism. In earlier times water was treated with great reverence. Today, water to most people has slipped to the level of commodity.

Interestingly the metaphor passages appear to be slightly more evocative than the articles in terms of the number of discussion topics generated. Over the workshop series 134 topics about water were identified as being generated during the discussion of the metaphor passages and 120 topics resulted from the discussion of the articles. The duration of the discussions were generally the same as an hour per session had been scheduled for each. The metaphor passages and the articles were each equally useful to generate interesting insights and discussion about water. For instance, one of the metaphors resulted in an unexpected discussion of chaos theory and the chaotic properties of both water and society. One of the articles resulted in a fascinating discussion on religious myths and rituals concerning water. The discussion of environmental metaphors can contribute positively to participants' understanding of water issues. However, it may not be suitable to all participants.

2.3. Do environmental metaphors act as catalysts for conversation about how participants view, understand and relate to water?

Environmental metaphor was a wonderful catalyst for conversation about how participants view, understand and relate to water. For instance, the poem *Enigmas* by Pablo Neruda uses vivid metaphors to describe the beauty and mystery of the ocean.

The discussion of this poem sparked reflections on how individual participants relate to the ocean. Bob started the conversation with this comment,

From my perspective where I fit in with the ocean while I have a feeling of awe about the ocean in terms of its power, its depth, its mystery and so on I am also very glad to a large extent that in my realm the technology is available for me to feel somewhat more than the ocean. I can sail on it if I want if I choose. And I have a lot of choices here, I can go on a boat which I have done across the Pacific and across the Indian Ocean, I can fly over it, I can go under it if I want. So while the ocean is there and can claim me at some point, and at one point it nearly did, at the same time technology, and you know I can talk under the ocean as I do regularly to my Mother in Australia. So I guess I feel a little bit superior in that technology has come to my aid to do what I want to do with the ocean. So I am not hung up on its glamour, mystery like I detect some of you are.

John shared this response,

Ah, hubris in action. The reality is that we all feel that way I think. It is only when we think about it that we express our feelings in many ways but in our daily lives technology has gotten us to a place. The human need to control the environment is an important aspect of this. I can understand the attitude because really all these things go on quite handily in our perception and there are only very few moments of stark raving terror which you've come out the far end and know about if you have lived through the experience. It's interesting that you've expressed what I think is probably the norm of human thought of a whole variety of things involved with the environment involved with water and all its aspects.

We have built devices that are far more dependable, depend more on brute strength and technology than the ability to live intimately with our environment...

Pauline commented that the vivid images in *Enigmas* resonated with her and the way she relates to water,

I see ‘...what is the lobster is weaving there with his golden feet?’ and ‘...the kingfishers feathers which tremble in the pure springs of southern tides.’ It just creates all this beauty that I felt. Beauty that I will never see either. I will never go under the water – I have to depend on things like this to appreciate it.

Rosemary reflected on her sense of interconnection with the environment and referred to Neruda’s phrase, “I want to tell you the ocean knows this, that life in its Jewel boxes is endless as the sand, impossible to count, pure...” stating,

I often think how do I fit into it with the whole? Where is my place in the ‘jewel box’ – I’m a part of that. I’m not separate. So when you are not separate from it how can you really truly know it – you are a part of it.

Klaus also related to Neruda’s phrase about the sand but for him it represented vastness and possibility,

When you are in the prairies where I spent many years of my life in Alberta you also have a very wide view, it is pretty flat land. Where the view ends it actually continues, if you were to move you have a new view. A feeling of largess or something that is bigger. When you are out there on the prairies or the ocean you relate to something that is almost infinite in that sense. So I like the ocean very much. We are like sand on the beach - part of something that is huge beyond any comprehension.

The Recreational Ways session included several chapters from the book *Riverwalking*. In one of the chapters the author (K. D. Moore, 1995 p. 192) shared a wonderful metaphor,

‘Most people are on the world, not in it,’ John Muir wrote. ‘[They] have no conscious sympathy or relationship to anything about them—undiffused, separate, and rigidly alone like marbles of polished stone, touching but separate.’

This idea of living on the world, not in it led into an exchange about participants’ awareness of water issues and their roles in communicating and acting on it.

Bob:

...particularly as I get older my awareness of these kinds of things increases, but my depth of involvement decreases because I see that, for whatever reason, as a younger person’s prerogative. Maybe that’s a copout in some ways but I think being aware of it and the very fact of communicating it to someone else ... That understanding that you have becomes communicated to others.

And it is the same as with a class group. John and I were talking about this and it is the same with Ian [Ian Bruce, a local environmental educator] and class groups. You know in a class group he takes there will be that one boy whose eyes light up and bells rang and the penny drops. It makes the whole thing worthwhile. He didn’t say there were ten in a class that did that there was just one but he may end up like Ian is.

Linda:

I think that you underestimate yourself when you were talking about that as your awareness grows your involvement drops off...

Bob:

I would say that based on what I used to do before, I see my awareness in this area has grown tremendously, but my involvement in it I am specifically limiting because of other things in my life. Whereas once upon a time as my awareness heightened my involvement would have heightened because I would have made it a priority in my life.

Linda:

But I'll bet your involvement is much fuller than you think it is because of the choices you have made affect your choices in living. I'll bet that is changing.

Bob:

Okay, sure. Good point.

Klaus talked about studies of prayer and how sick patients who have groups of people praying for them seem to recover more quickly than similar patients without people praying for them. He likened prayer to positive thought and suggested that just thinking about the environment can have positive effects,

...the fact that when you get older and you think more, and you penetrate more into why is this, what is it, how do I relate to it, what is water really, what is health really and all of those things. The fact that we are thinking we are spreading something around and it may not have to relate to action. The positive mind and the inquisitive mind will also probably generate somehow some positive results. We don't know why but maybe other people will wake up and do something.

John:

That's a heightened state of awareness. I can think of dozens of things that I would really urgently like to do but I am restrained by the knowledge of previous experience that if I was to embark on any one of them I wouldn't get anywhere because I'd spread myself too thin. I guess it's a heightened state of tension as you get older.

Rosemary:

I don't think that you want to be tied down as you get older. You don't want to commit yourself to some long project.

Pauline:

We already did. [referring to participant's having signed-up for Water Ways]

Linda:

There are so many older people, I mean older than we are, who have done just that – Jane Jacobs, Merve Wilkinson...

Rosemary:

But they have probably done that all of their lives.

Linda:

But I think it is an individual thing, it is where your comfort is, where you recognize your abilities lie and what you can do.

Pauline:

I think that is why I view myself the way I view myself now because I have been a part of the world but more from a people's point of view because I have always been interested in other cultures and been quite involved with kids from other countries and all of those kinds of things and yet not really into the earth in the

same way. Yet, I think of the earth in the context of the cultures that I have been interested in. I was more aware of water problems in other parts of the world. I was more conscious of them having problems because ‘they have problems and we don’t’ kind of thing. I don’t really mean that we don’t, but I think that there is a general feeling here that we don’t have water problems – you turn on the tap and there is water and you know it is fairly clean.

In the conversations sometimes one view of water was explicitly contrasted with another. For instance, John referred to a metaphor passage that viewed water from a political orientation.

In the Roman West, from a very early date, rivers were conceived as roads: highways that could be made straight; that would carry traffic and, if necessary, armed men; that defined entrances and stations. The model for the well-behaved watercourse was the aqueduct: the highest achievement of Roman engineering. It was in Latin texts, too, that history was straightened in linear development so that rivers-not the least the Tiber-might also be imagined as lines of power and time carrying empires from source to expansive breadth. (Schama, 1995 p. 261)

He compared this passage with a passage by Bachelard that was discussed in the Aesthetic Ways session,

I was born in a country of brooks and rivers, in a corner of Champagne, called le Vallage for the great number of its valleys. The most beautiful of its places for me was the hollow of a valley by the side of fresh water, in the shade of willows....

My pleasure still is to follow the stream, to walk along its banks in the right direction, in the direction of the flowing water, the water that leads life towards the next village.... (as quoted in Schama, 1995 p. 244)

John noted,

Compared to the reading we had on the Roman approach to water and you can see the Western cultures compulsion which was very strong even 2000 years ago to control and direct water and dominate. All the terminology that was used in that reading as compared to this. A very dramatic difference in the thought processes, in the use of words and language as it is reflected towards water. We can understand how we have got ourselves into the situation that we are in when we disassociated ourselves to that great extent from our life support system without conscious thought.

Environmental metaphor can act as a catalyst for conversation about how participants view, understand and relate to water.

2.4. Are environmental metaphors useful in group discussion to help draw out the accumulated knowledge and prior experiences of participants?

Environmental metaphor was a useful tool to help draw out the knowledge and experiences of the participants during group discussion. For instance, in the Scientific Way session participants read a poem titled *Enigmas* by Pablo Neruda (In, Bly, 1993 p. 131) which drew out Bob's experience as an English teacher, Linda's family history, John's experiences in the Middle East, and Rosemary and Klaus' experiences traveling to Canada. Bob described how the poem contains both hard and soft images of the ocean,

It is interesting that these images that he relates in the first section are all hard, he talks about crystal architecture, electric nature, ocean spines, armoured stalactites, wicked tusk, you know you can pick them out all over the place. Then he seems to soften up and get into the jewel boxed, the sand, the grapes, the jelly fish ... and then he goes back again after that and I am looking at this as an English teacher which I was...

Conversation continued with participants discussing both the hard and soft realities of the ocean. Linda recalled her family in the often harsh environment of Labrador,

I go back to my mom and her experiences. She lost a brother who was epileptic and he drowned in Labrador. They don't swim, no one learns to swim. Its too cold. There are no pools. And an aunt, two sisters and a brother perished on an island when they went berry picking and a storm came up. They couldn't get back to shore and no one could get there to rescue them and they died of exposure overnight on the island. The cold and the wet and the wind. I don't want to romanticize too much. Its everything that is real and the reality is that it can take. People live and die in and around and appreciate and love and fear.

Rosemary recalled her journey to Canada,

When I emigrated here going by boat and came in February. In the ocean there was a big storm. When we left Liverpool the boat we were on seemed huge but when it was in the middle of the ocean it was really tiny.

Discussion turned to respect for the ocean and to its ability to captivate and how people can be drawn to it even in the face of fear. John related his experience with this,

... I have a bit of an insight. If any one has done relaxation or stages of meditation and the instructor is trying to tell you to be in the moment. I think I understand it when I am looking at these vistas. When I am looking at a vista or a sweep of water what is occurring in my mind is what I would say is nothing. I become very quiet. I also think back to my expedition on the Baltic when the boat we were on would fit in this room diagonally quite handily and the waves were about from the floor to the ceiling. You ended up gyrating wildly. I can remember having an excellent time standing on the prow kicking the jib around as we tried to beat our way out of the harbour which was about the width of the room. All during those occasions it was also very quiet in my mind. I was 'in the moment' in those periods of time. In this discussion it just popped into my mind.

Klaus added,

I came from Germany many, many years ago on a little freighter to Canada. We also went through a storm, we took on water, the waves came right across the bow. What you are saying there I connect to that. When you are on the water you have left one reality, the past, the country you came from, the solid ground, and you are floating through all sorts of possibilities and eventually arriving at another sort of reality you haven't discovered yet in detail but you are back on solid ground.

In the Aesthetic Ways session participants read a passage from an essay by Gaston Bachelard (as quoted in Schama, 1995 p. 244). Bachelard describes water as being a source of inspiration and happiness,

...But our native country is less an expanse of territory than a substance; it's a rock or a soil or an aridity or a water or a light. It's the place where our dreams materialize; it's through that place that our dreams take on their proper form....Dreaming beside the river, I gave my imagination to the water, the green, clear water, the water that makes the meadows green. I can't sit beside a brook without falling into a deep reverie, without seeing once again my happiness....

This passage inspired participants to reflect on memories of water from their youth.

Rosemary commented,

I was thinking about the selection water as reverie and kind of what Pauline was talking about living in post war. I was always looking for water... We lived in council houses and where we were it used to be farmland, and so from a very young child something we did, my friends and I, was go looking for water and it was basically a canal type thing that as far as my mother was concerned was just an open sewer. Its where all the water drained. That's where we used to hangout and jump across there and looking for puddles, always looking for puddles. I've never missed an opportunity to jump in a puddle. I always encourage my grandchildren – the good thing about being a grandmother!

Rosemary then recited part of a wonderful poem from her collection,

I used to collect old poetry books from all over the place, the older the book the better for me. This one was just part of a poem and it is *On a Rainy Day Outside my Home*. ... 'A child from school wading knee deep in the water. Unhurried because he loves it. Water in his pockets. Joy about his face. A crazy kid's world. Rain.' You know looking back I remember it is nice, nothing to think

about just enjoy the moment, enjoying the rain. Not thinking about it as negative, positive, or where it came from, or where it goes to or anything. Just fill your pockets with rain.

Linda responded to the Bachelard passage by sharing a reoccurring connection to water from her youth,

In Winnipeg there was a long strip of field behind our house and in the Spring time, I don't know what it is, but whenever I smell it I go right back to a little, it wasn't a stream or a ditch but something filled with water, and I hear blackbirds and I can smell this beautiful smell of running water as the earth is just waking up. ...a little tiny trickle of water and the scent, and the blackbirds, and there were also meadowlarks... it's a flash, I just go right back to it. Every once in a while something around here reminds me of that.

Often themes from earlier discussions re-emerged in later sessions and sometimes metaphors would be found and discussed in the articles chosen for the afternoon discussions. One of the articles for the Recreational Ways session described the author's experiences floating along a river,

Drifting on rivers, you know where you will start and you know where you will end up, but on each day's float, the river determines the rate of flow, falling fast through riffles, pooling up behind ledges, and sometimes, in the eddies at the heads of sloughs, curling upstream in drifts marked by slowly revolving flecks of foam. So, drifting on rivers, I have had time to reflect - to listen and to watch, to speculate, to be grateful, to be astonished. (Moore, 1995, p. xiii)

This generated discussion about how the flow of a river can be like the flow of life and also discussion returned to the idea that children have a special connection with water.

Klaus explained,

Something just came to my mind when we were talking about metaphors and all ... the connection from next to nothing and developing into who we are now in a water type of fluid. And the growing phases, scientists say that we almost look like fish in there, we have gills and then they disappear. Maybe that is also why we are when we are young drawn to water; in all its forms. We have a connection to a point before we were born - the first nine months there swimming around.

Environmental metaphor is useful to foster discussion which draws on the accumulated knowledge and experiences of participants.

3. Metaphor interviews as a research method:

3.1. Are metaphor interviews useful to help draw out the environmental orientations, accumulated knowledge, and experiences of older adults?

Participants responded to both the literal and metaphoric forms of questioning with responses that drew on their accumulated knowledge and experience. However, the metaphoric questions were particularly useful for probing further and obtaining richer and more diverse responses. For instance, when Pauline was asked *What significance does water have to you?* she replied that she felt fortunate to have easy access to clean water given that so many women around the world don't,

I think that we are very lucky here to have access to water and again because of Thailand [December 26th, 2004 tsunami], particularly now, I think that we are lucky to have clean water. And because I worked with immigrants I was always

very aware of immigrant women spending hours and hours and hours trying to get water. And children doing this too. So water has deep significance to me when I compare my life to other women's lives.

When asked to select from a list of options in response to *If you could be any of the following in relation to water, which one (or ones) would you be? Why?* she expressed similar sentiments regarding water, but with richer description of its personal significance:

If water was one or more of the following it would be a treasure, because of the great necessity and value. It is something that we should realize that we need to treasure more. In a way I guess it is a fuel, it fuels the body, no different than food. The musical aspect of symphony interests me. A lot of music has been made with water as a theme. I like listening to symphony music and I like the way the instruments in the orchestra convey the feeling of water. In fact I wrote a little poem one time for an English class I was taking and I was listening to some music at a symphony concert and I just closed my eyes and felt like I was falling into water and sinking, and sinking, and then gradually coming up again. It really surprised me what came out and the instructor liked it too. So I think I would connect all those things together: the value of water and the music. I don't think of it as sanctuary because to me if I fell into water to me, you know watching the news lately, it would be so frightening – what a horrible experience.

As a research tool metaphoric interviewing is useful to draw out the accumulated knowledge and experiences of participants.

Summary:

1. Following the workshop series: five participants' basic orientations toward water were unchanged, two participants experienced a broadening of outlook, and one participant's existing conceptualizations of water became richer and more integrated.
2. The discussion of environmental metaphors can contribute positively to participants' understanding of water issues. However, it may not be suitable to all participants.
3. Environmental metaphor can act as a catalyst for conversation about how participants view, understand and relate to water.
4. Environmental metaphor is useful as an instructional method to foster discussion which draws on the accumulated knowledge and experiences of participants.
5. As a research method metaphoric interviewing is useful to draw out the accumulated knowledge and experiences of participants.

Chapter 8 – Conclusion and Further Discussion

This chapter summarizes the major points of the thesis. Conclusions are drawn with reference to previous studies on orientation as a research typology and on the relationship between metaphor and instruction. Finally, implications of the study and opportunities for future research are outlined.

This research incorporated a case study format to examine the environmental orientations of a group of retirees before, during and after an eight-day discussion-based environmental education workshop. The workshop incorporated metaphors about water in order to increase participants' understanding of water issues and to broaden their knowledge of it. The research follows an earlier study by Snively (1986) which utilized instructional metaphor to develop "...a more detailed and clearly delineated awareness" of various orientations related to the seashore (p. 227).

The study had two purposes. Firstly, to examine the use of instructional metaphor in educational practice. Secondly, to examine environmental orientations towards water, and the interplay between contrasting orientations, among a group of retirees before, during and after an eight-day discussion-based environmental education workshop.

Summary of the study

This study utilized interviews of each participant before and after participation in a workshop which examined water issues. The intent of the interviews was to identify possible changes in conceptual understanding regarding water issues. This involved the collection and analysis, by metaphoric and literal interviews, of participants' orientations before and after instruction. The comments and reflections of participants as recorded in

a group 'water journal' and in transcripts and notes taken by the investigator during the workshop were used to gain insight into the use of metaphoric instruction in educational practice with older adults. Borrowing from Bergmann's (1999) study of visual imagery, the present study was qualitative, interpretive and designed to describe, explore and understand the use of metaphor in environmental education.

Eight seniors registered for the Water Ways series. They represented a wide range of backgrounds and experience which contributed to dynamic conversations about water. Their backgrounds included: nursing, education, art, real estate, design, accounting, opera, and the armed forces. Two of the participants had been actively involved with environmental issues. Their ages ranged from mid-sixties to early seventies.

The study was unique in its focus on a discussion-based curriculum exploring environmental orientations through the use of metaphor with older adults. The study demonstrated that, at least for some participants, the use of metaphors representing a variety of orientations has the potential to increase participants' appreciation of alternative ways of relating to water. Overall, the metaphor passages appear to have been a valuable aspect of the sessions and contributed positively to most participants' understanding of water issues.

However, some participants found the use of metaphor in the curriculum to be a distraction rather than as something that they felt contributed to their understanding of water issues. This suggests that while the approach was beneficial for many it is not necessarily suitable for all learners. The results of this study indicate that the use of environmental metaphor in the curriculum affects students differently.

Environmental orientations remained relatively fixed for most students despite the introduction of alternate orientations over an eight week period. However, the study suggests that a broadening of outlook is possible for some students over the course of the same period. In addition, it suggests that while a participant may not adopt new orientations their existing ones may become richer and more integrated.

As a research method metaphoric interviewing is useful to help draw out the accumulated knowledge, beliefs and experiences of older adults. Metaphoric questions are particularly useful for probing further and obtaining richer and more diverse responses. As an educational method environmental metaphor is useful in group discussion as a catalyst for conversation about how participants view, understand and relate to a subject. For adult education this is particularly significant as incorporating the experiences and knowledge of participants is an integral goal of adult education. Many would argue that it is integral to all forms of education.

Orientation as research typology

Human relations to the environment are partly constituted by metaphoric understandings of what nature is (King, 1999). Individuals understand and experience the world through an interpretive framework which embodies a coherent set of beliefs and values (Lakoff & Johnson, 1980). This human tendency has been referred to as an 'orientation' (Snively, 1986). The use of metaphor is dependant on the existence of underlying orientations and they are also indicative of such orientations (Andersson, 1993).

The use of the term *orientation* in this study follows from the definition provided by Snively (1987). In her work an *orientation* is defined as, "a tendency for an individual to

understand and experience the world through an interpretive framework, embodying a coherent set of beliefs and values. (p. 434)” Following Snively (1986, p. 57) five general orientations were examined: utilitarian, aesthetic, scientific, spiritual, and recreational:

Utilitarian: Humans are the benefactors, directors, producers, developers, controllers. They harness nature for their own practical and necessary use.

Aesthetic: Humans are the admirers, reflectors, imitators, lovers, protectors.

Humans are aware of the beauty or ugliness in nature. Pertaining to, an artistic interpretation of nature: art, music, poetry, drama, dance, etc.

Scientific: Humans are the observers, identifiers, quantifiers, predictors, theoreticians, experimenters, controllers. Humans and nature are interconnected and dependent on one another for survival.

Spiritual: Humans are aware of the sacred, or moral, or spiritual, or supernatural aspects of nature. Humans are part of nature, but nature runs itself. Humans may help and protect nature, and the plants, animals, objects and events in nature may even help humans. Of, or pertaining to, an organized religion, or an ability to 'indwell' or 'become' part of another living, or non-living entity.

Recreational: Humans are aware of nature as a source of refreshment for their own body and mind; for exercise, relaxation, entertainment, exploration, enjoyment.

A sixth orientation examined was identified by Snively in more recent interview work (Snively, 2002):

Political: Humans are aware of nature as a source of human conflict between people and cultures. Political and economic processes are often related which

might advance a city or state. Because nature has economic, spiritual, scientific, aesthetic or recreational value, humans may engage in debate, or diplomacy or even war to gain or maintain control over nature.

By examining the elements of a metaphoric construct that participants chose to focus on, the researcher was able to classify participants according to their preferred orientations. These were the orientations that were most often represented in their responses. At the outset of the present study it was thought that additional orientations might emerge or that definitions may need to be adjusted. As this was not the case the typologies defined by Snively (1986) are supported in the findings of the current study.

In the pre-workshop interviews each of the orientations defined by Snively was represented at least to some extent. All participants were viewing water from a mix of orientations, however each identified most strongly with a particular one: three participants had a preferred aesthetic orientation to water, two had a preferred utilitarian orientation to water, two had a preferred spiritual orientation to water, and one had a preferred scientific orientation to water. The recreational and political orientations were not preferred orientations for any of the participants but they did show up as lesser orientations for several of them.

The pre and post workshop interview results were not markedly different for five of the participants. This suggests that for these participants their basic orientations toward water were unchanged by the workshop. This is consistent with the research by Snively (1986) where most of her subjects also maintained their preferred orientations in post-instructional interviews.

Metaphoric interviewing as a research tool

In this study metaphoric interviewing was useful to help draw out the accumulated knowledge and experiences of the participants. This is in keeping with previous research which indicates that metaphoric comprehension remains intact with aging (Newsome & Glucksberg, 2002). Participants responded to both the literal and metaphoric forms of questioning with responses that drew on their knowledge and experience. However, the metaphoric questions were particularly useful for probing further and obtaining richer and more diverse responses.

Snively (1986) reported similar results. In her analysis of student's pre- and post-metaphor interviews she described the complex interactions between students' previous experiences and their recent instructional experiences. She explained that the meaning that students incorporate into their pre-instructional metaphor responses may stem from their previous personal experiences with "multiple physical, social, and cultural objects and events" (p. 311). The meaning they weave into their post-instructional interviews results from an interaction between those previous experiences and their recent instructional experiences. Snively concluded that,

The students' metaphor responses allow researchers to get at modes of thinking that are grounded in the students' experience. Also, they enable communication of the students' ideas, beliefs and experiences with a richness of detail. (p. 311)

The results of both the present study and the previous research by Snively suggest that metaphoric interviewing may produce richer responses than other techniques, such as literal interviewing.

Orientation, metaphor and instruction

An objective of instruction was to increase the number of orientations through which participants viewed water. That this was achieved with only two of the eight subjects is consistent with previous research (Snively, 1986; 2002). It may be unrealistic to expect significant changes in participants' orientation toward water in the course of an eight week workshop (40 hours), especially when it is put into the context of the many other influences one has over the course of a lifetime. Longitudinal research by Snively (2002) suggested that orientations are established early and remain stable except in response to significant life experiences.

Snively (2002) followed up on her original study (1986) by interviewing the same subjects 17 years later. She concluded that participants' immediate family had a strong formative influence on their orientations and that these orientations remained "...remarkably enduring, thereby accounting for many of the uniformities I observed in the respondents' adult actions, choice of career, life stories and future aspirations" (p. 28). This indicates that a person's orientations are established early and that this initial set of orientations is likely to influence one's views and actions throughout life.

Aiming to significantly change personal orientations toward any subject may not only be unrealistic, it may also be undesirable. In Snively's (1986) metaphoric research with school children of mixed ethnic backgrounds she commented that,

...it doesn't make sense to talk about changing (in the sense of replacing) students' orientations. Since the students' orientations are a complex cluster of interrelated beliefs and values, we can teach in order to increase the students' understanding.... But this instruction should always recognize that there are

many interpretations of scientific phenomena, just as there are many interpretations of religion, politics, economics, or art. (p. 326)

In this context the objective is not to replace existing orientations but rather to introduce new ones and to encourage all participants to view water from a range of orientations – a broadening of outlook.

Caine and Caine (1991) shared a quote from Paul Bitting and Renee Clift (*Images of Reflection in Teacher Education*, 1998, p. 11) which spoke to the reflective value of metaphoric instruction, “Socrates advocated reflection as opposed to observation, an activity dependent upon a principle that is important to any theory of reflective method: what we are trying to do is not to discover something of which until now we have been ignorant, but to know better something which in some sense we know already; to know it better in the sense of coming to know it in a different and better way” (p. 147).

The interviews with Bob and John suggest that at least for them participation in the workshop did bring additional orientations forward in their minds. This is a broadening of outlook that the researcher had hoped for. It is also consistent with Snively’s (1986) research where she concluded that, “The fact that many students still used orientations which they possessed prior to instruction, and that for some students these orientations were more elaborated, provides evidence that they were willing and able to view the [topic] from a variety of orientations” (p. iii).

In the present study the interviews with Linda were particularly interesting because, although she expressed most of the same orientations in each, they were described in a richer, more integrated manner following the workshop. This suggests that her existing conceptualizations of water became richer and more integrated over the course of the

workshop series. This too is consistent with Snively's (1986) research where she concluded that the effect of metaphoric instruction, "...was to develop a more sophisticated and diverse knowledge base. This is clear from the elaboration of beliefs in the post-instructional responses. So in this sense the students' orientations became more extensive in scope and nature" (p. 277).

Interestingly, the results are also consistent with Bergmann's (1999) research on the use of visual imagery in environmental education in which she concluded that "...the participants' conceptualizations of their topics became more differentiated, complex and defined; multiple perspectives were constructed and their own positions and feelings clarified." She stated that the process of comparing images regarding an environmental topic is,

...an active, self-guided, highly personalized process of negotiating a new position towards environmental issues. This shift in thinking is not so much a paradigm shift but a broadening of the initial view, including a clearer differentiating or focusing.

The similar finding, at least for three of the subjects, supports the idea that metaphoric imagery is related to visual cognition. An important aspect of the instructional value of metaphor is that it helps students to 'visualize' what they are trying to understand by relating it to something with which they are already familiar. The comparison of one image to another helps them to identify new patterns and orientations thus forming deeper conceptualizations of a topic.

Over the course of the workshop series metaphor was effective as a starting point to generate engaging discussions about water and water issues. Week-by-week the

conversations became longer and more elaborated. One participant commented that he felt an increase in group cohesion over the same period. This is consistent with the work of DeJong (2004) who maintained that in a metaphoric conversation the new meaning construction which is shared among participants may foster a closeness or intimacy between them. DeJong concluded that metaphor involves a complex array of comparisons based on experiences within families, social settings, and cultural landscapes. The sharing of these experiences tends to foster social cohesion.

Snively (1986) concluded that students should "...be given the opportunity to re-interpret new information in light of their own orientations. Students should be given opportunities to identify and articulate their own orientations with each other. In this way pupils are encouraged to defend their own ideas, have a personal interest in the discussion, and focus on the relevant issues" (p. 327). The success of the workshop series outlined in the present study suggest that these conclusions hold equally for retirees as well.

Six out of eight participants in the current study reported verbally and in writing that they found metaphor to be a valuable aspect of the sessions and of their understanding of water issues in general. This is consistent with the work of Caine and Caine (1991), Snively's (1986) research with school children, and also Newsome and Glucksberg's (2002) research which indicated that the ability to comprehend metaphor remains in tact as we age.

Interestingly during the workshop series the metaphor passages appear to have been slightly more evocative than the articles in terms of the number and quality of discussion topics generated during the workshop series. The novelty that is inherent in most

metaphors and the creative response that is required to make sense of them may play an important motivational role in learning. This is in keeping with Black's (1979) assertion that metaphor demands a creative response. Caine and Caine's (1991) writing provided some clues as to why metaphor is so useful in generating discussion and insight among participants. They discuss the relationship between creative engagement and learner motivation,

This follows in part from the work of O'Keefe and Nadel (1979), who demonstrated that the local memory system is motivated by novelty and curiosity. We are literally driven to make sense of unfamiliar and, in many instances, incomplete stimuli. (p. 92)

Caine and Caine (1991) suggested that three types of "Creative Elaboration" be incorporated into teaching. The use of metaphor in the workshop series involved all three of these:

Reorganizing Experience. Creative elaboration emphasizes the reorganization of experience. One of the keys to effectively digesting and learning from experience is to deliberately set out to represent such learning in different ways and from different points of view. (p. 152)

By incorporating metaphors which focused on different orientations toward water the workshop series was designed to represent water in different ways and from different points of view.

Reperceiving Information. ...to use what reflective practice calls 'seeing as.' The objective is to analyze a field of interest metaphorically. In other words, we see the content or subject as if it were something else. This use of analogies and

metaphors is not only a way of introducing new material, but also of gaining a fresh perspective on a subject. Many people who are already moderately proficient in some field find it useful to explore it from a significantly different viewpoint. (p. 152)

The use of metaphor and orientation in the workshop series lent itself to the re-perceiving of information. For instance, in the Aesthetic Session participants read a passage that compared water to music. In the Utilitarian Session water became energy and 'pathways of civilizations'. In the Scientific Session water became blood in our bodies and in the Spiritual Session it became the origin of life.

Using Personal Analogies. A related type of elaboration can be described as 'compare and contrast.' Students need to take advantage of the brain's desire and ability to make multiple connections between what is new and what is known.

The key is for each student to find some of their own analogies and metaphors so that what is learned can better fit into their personal world. (Caine & Caine, 1991, p. 153)

The workshop series incorporated a group journal with questions (Appendix A, p. 220) about participants' relationships to water. They were asked to identify metaphors for water that held particular personal meaning. Metaphoric instruction fosters the reorganizing of experience, the re-perceiving of information, and the development of personal analogies. The creative response necessitated by metaphor helps to make it a particularly evocative means of education.

However, two participants characterized the use of metaphor in the curriculum as a distraction rather than as something that they felt contributed to their understanding of

water issues. They expressed a strong preference for the use of literal language over metaphoric during instruction and conversation. They also expressed a preference to be taught lecture style rather than in the discussion based format of the sessions. These preferences may be based in more traditional experiences and expectations of education. While the use of metaphor in instruction was successful with most participants it was not suitable to all.

As an educational tool instructional metaphors were useful in group discussion to help draw out the accumulated knowledge and experiences of all participants. For instance, the metaphors discussed drew out professional knowledge, family history, and travel experiences. This is consistent with Snively (1986) where she concluded that the meaning that students weave into their metaphor responses during class instruction may stem from their previous personal experiences. During the present study discussions typically combined insights and comments regarding the course material with rich narratives of personal experience.

In this way instructional metaphor that highlighted environmental entailments were a catalyst for conversation about how participants viewed, understood and related to water. For instance, metaphors about the ocean resulted in discussion of the varied ways that participants relate to the ocean. For one participant technology gave him a sense of superiority over the powers of the ocean. Another expressed a desire to live intimately with the environment and one participant spoke of a sense of interconnection with it. Another participant found inspiration in the beauty of the ocean. One reflected on how the ocean represents possibility and vastness.

In both the present study and Snively's (1986) research an objective of instruction had been to enhance the participants' willingness to view the subject of study from a variety of different orientations. Snively found that following instruction students' orientations had become more extensive in scope and nature. She also reported that there was no significant shift in participants' preferred orientations. So while the students' orientations changed it was in the sense of becoming more extensive and wide-ranging, enabling them to view water from a greater mix of orientations.

The result was the same in the present study where for the most part participants retained their original preferred orientations and where change occurred existing orientations were elaborated on or added to. In this study most participants reported in the post-instructional interviews that their views of water had changed and that they had gained insight into how others view water. Both Snively studies (1986, 2002) and the current study suggest a stability of preferred orientations, but also indicate that an elaboration of existing views and a broadening of overall outlook is possible regardless of age.

Implications for environmental education

Being able to Foster a broad view of the environment is important for many reasons. Diversity is accepted in ecology as increasing the stability of a system. Miller (1988) stated that, "High species diversity tends to increase long-term persistence because with so many different species, ecological niches, and linkages between them, risk is more widely spread" (p. 122). The principle of diversity is also applicable to the minds of students. The greater the number of connections that can be drawn to a topic, the more likely they are to connect with that topic personally and incorporate their knowledge of it

into their lives. In this way connectivity may also foster the persistence of knowledge, experience and action.

There is an often cited analogy by Jalal al-din Rumi (as quoted in Wall, 1994) called *The disagreement as to the description and shape of the elephant* that expressed the importance of taking a broad view of any subject:

The elephant was in a dark house: some Hindus had brought it for exhibition. In order to see it, many people were going, everyone, into that darkness. As seeing it with the eye was impossible, (each one) was feeling it in the dark with the palm of his hand.

The hand of one fell on its trunk: he said, 'This creature is like a water-pipe.'

The hand of another touched its ear: to him it appeared to be like a fan.

Since another handled its leg, he said, 'I found the elephant's shape to be like a pillar.'

Another laid his hand on its back: he said, 'Truly, this elephant was like a throne.'

Similarly, whenever anyone heard (a description of the elephant), he understood (it only in respect of) the part that he had touched. (p. 92)

If we only focus on one element of the elephant we miss its great complexity and beauty. This is true for any aspect of the environment. To learn about the environment in only one way is hardly to learn about it at all. To teach only a narrow view of the environment risks leaving students without opportunities to personally relate to it. By helping students identify possible connections (orientations) to the environment they may be more likely to place personal value on it and thus want to protect its place in their lives. They may

also be able to better relate to others who approach the environment from different orientations.

Opportunities for further research

This study focused on a discussion-based workshop that incorporated metaphor as a tool in environmental education for older adults. This was by no means a typical program and there appears to be little to compare it to. It would be useful to be able to refer to a survey of environmental education opportunities for older adults across Canada. Such a survey would look at two elements: environmental education opportunities *for* older adults and environmental education *by* older adults. It might also include an evaluative component to assess the quality of environmental education opportunities for seniors in Canada. A separate random survey component could assess the interest among older adults in participating in environmental education as both students and mentors.

The timeframe of the study is acknowledged as a limitation. This study focused on whether the environmental orientations of participants changed during and immediately following an eight-day workshop exploring water through the use of metaphor. One of the assumptions of the study was that the orientations that we use to relate to the environment affect our choices and therefore our actions with respect to it. However, this study did not test this assumption by attempting to establish corresponding changes in environmental behaviour. Do changes in environmental orientation produce corresponding changes in behaviour? This is a significant question that requires longitudinal research, and a research methodology that attempts to trace changes in specific behaviours over time.

Additional longitudinal research is also needed to help address the question of whether people develop preferred environmental orientations early in life and maintain the preferences over time, as the earlier research by Snively (2002) indicates. This question has important implications for the practice of environmental education in all its forms (formal, nonformal, youth, adult).

The research raises many questions for further study regarding orientation and instructional metaphor.

Orientation:

- How significant is the role of parents and immediate family in developing orientations?
- What role (if any) should environmental education play in establishing particular environmental orientations or in promoting one orientation over another?
- Once established do environmental orientations remain fairly fixed or are they periodically adjusted in response to significant life events? If so, how?
- Would students benefit from identifying their own orientations to a topic and comparing that orientation to others?
- Are there differences in preferred orientations among different age groups? If so, how is society's orientation to the environment changing?
- Are there differences in the mix of orientations, or preferred orientations in different social and cultural groups? If so, how?
- Should 'orientations' be approached in teaching in a similar manner as 'literacies' or 'intelligences'?

- Are learning outcomes improved by teaching to the multiple orientations that might be found in a classroom? If so, how?
- What strategies could be proposed to engage a group of students who hold differing preferred orientations toward the environment?
- How might older adults act as mentors to youth in helping them to understand other orientations to the environment?
- Is an understanding of other orientations necessary for communicating effectively about the environment and about environmental issues?

Instructional metaphor:

- What proportion of the population is comfortable, and not comfortable, learning through metaphorical instruction? Is age a factor? Is culture a factor?
- Does an ability to grasp metaphor effect a person's understanding of abstract phenomena (such as 'the greenhouse effect')? If so, how?
- Should metaphor receive more emphasis in formal education? If so, how?

Previous work by Snively (1986; 1987; 1990; 2002) which focused on metaphor and environmental orientation with youth, and this study which has focused on the same factors with respect to older adults, inform many of these questions; but additional research is clearly required.

My hope is that this study has made a contribution to the growing literature on adult environmental education, that it has contributed to educational practice by exploring the use of metaphor and orientations in learning about complex environmental issues, and specifically that it has helped to develop the topic of environmental education for seniors. The case study format was chosen to provide rich information on the workshop series so

that its successes can be duplicated elsewhere. It is also desired that this study serve to promote environmental education programs for seniors.

This study is also an invitation to view the environment more broadly. We do the environment (and ourselves) an injustice if we view it, for instance, only on ecological terms or primarily in reference to political issues. If we only experience one or two facets of the environment we miss the larger picture and much of the great complexity and wonder of it. To use a common metaphor, we may not see the forest for the trees. Worse, we may not fully appreciate what is being lost through environmental degradation.

By helping students identify possible connections (orientations) to the environment they may be more likely to place personal value on it and thus want to protect its place in their lives. Each orientation or 'way of knowing' helps students to complete the larger picture and to understand their relationship within it. For instance, the physicist Vandana Shiva (2002) advocates that a spiritual orientation may be necessary to promote the conservation of living systems to which we are intimately connected:

Oceans, rivers, and other bodies of water have played important roles as metaphors for our relationship to the planet. Diverse cultures have different value systems through which the ethical, ecological, and economic behaviour of society is guided and shaped. Similarly, the idea that life is sacred puts a high value on living systems and prevents their commodification. (p. 138)

Environmental education must take a broad view to promote an environmental literacy which engages many ways of knowing and many ways of valuing the environment.

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Appendix A – Interview and Survey Questions

Pre-workshop Interview

Literal interview questions:

1. When you think about water what do you typically think about?
2. What significance does water have to you?
3. What can you tell me about water issues?
4. Have you ever been involved in addressing an issue related to water?
 - a. If yes, what issue, and what did you do?
 - b. Were you successful?
5. Are you aware of any local water issues? If so, what issues?
6. Are you aware of any international / global water issues? If so, what issues?

Metaphoric interview questions:

7. If you could be any of the following in relation to water which one (or ones) would you be? Why?

trustee	measuring cup
cloud	microscope
ripple	hymn
boat	snowflake
devotee	reflection
well	swimmer

8. If water was one or more of the following, which one (or ones) would it be:

Sanctuary	Gym	Fuel	Symphony
Prize	Home	Prayer	Homeland
Road	Medicine	Community	Gift
Treasure	Dance	Playground	Experiment

Why, please elaborate...

9. This set of questions has two parts:
- a. First select a metaphor from the list that you believe best expresses your relationship to water:
(In relation to water I am a... or, in relation to me water is a...)

mosaic sports field store electricity citizen puzzle

referee melody flower faith tourist meditation

Is there another?

- b. Now view the card(s) that correspond(s) to the metaphor(s) you selected.

Six options are identified on the card(s) to help you elaborate on the metaphor(s) you selected. Please select the option that you believe best characterizes your relationship to water.

Mosaic:

I am to water, as a

artist is to a mosaic	art collector is to a mosaic	tile is to a mosaic
mosaic is to an artist	mosaic is to an art collector	mosaic is to a tile

Why, please describe the relationship further...

Electricity:

I am to water, as a

generator is to electricity	Light bulb is to electricity	spark is to electricity
electricity is to a generator	electricity is to a light bulb	electricity is to a spark

Why, please describe the relationship further...

Store:

I am to water, as a

shopkeeper is to a store	customer is to a store	merchandise is to a store
store is to a shopkeeper	store is to a customer	store is to merchandise

Why, please describe the relationship further...

Citizen:

I am to water, as a

country is to a citizen	lawmaker is to a citizen	vote is to a citizen
citizen is to a country	citizen is to a lawmaker	citizen is to a vote

Why, please describe the relationship further...

Flower:

I am to water, as a

seed is to a flower	bee is to a flower	soil is to a flower
flower is to a seed	flower is to a bee	flower is to soil

Why, please describe the relationship further...

Faith:

I am to water, as a

belief is to a faith	believer is to a faith	A soul is to a faith
faith is to a belief	faith is to a believer	faith is to a soul

Why, please describe the relationship further...

Puzzle:

I am to water, as a

picture is to a puzzle	investigator is to a puzzle	piece is to a puzzle
puzzle is to a picture	puzzle is to an investigator	puzzle is to a piece

Why, please describe the relationship further...

Melody:

I am to water, as a

music is to a melody	listener is to a melody	notes are to a melody
melody is to music	melody is to a listener	melody is to notes

Why, please describe the relationship further...

Referee:

I am to water, as a

dispute is to a referee	player is to a referee	uniform is to a referee
referee is to a dispute	referee is to a player	referee is to a uniform

Why, please describe the relationship further...

Tourist:

I am to water, as a

destination is to a tourist	guide is to a tourist	camera is to a tourist
tourist is to a destination	tourist is to a guide	tourist is to a camera

Why, please describe the relationship further...

Sports field:

I am to water, as a

park is to a sports field	athlete is to a sports field	goal post is to a sports field
sports field is to a park	sports field is to an athlete	sports field is to a goal post

Why, please describe the relationship further...

Meditation:

I am to water, as a

mind is to a meditation	thought is to a meditation	mantra is to a meditation
meditation is to the mind	meditation is to a thought	meditation is to a mantra

Why, please describe the relationship further...

Post-workshop Interview

Literal interview questions:

1. Has the workshop led you to think any differently about water? If so, how?
2. During the workshop did you gain any insight into how others view water issues?
3. Please state a few things that you have learned about local water issues.
4. Please state a few things that you have learned about global water issues.
5. What are the obstacles to improving water issues?
6.
 - a. What would be one way to improve a local water issue?
 - b. Can you think of another way?
7. What do you see yourself doing (if anything) that might be useful in addressing water issues?

Metaphoric interview questions:

These are the same as the pre-workshop questions seven through nine.

Journal and Discussion Questions

1. Please share a few memories relating to water.
2. What are your peak moments in relationship to water; when do you feel most alive, most energized, and most fulfilled by it?
3. Can you recall any water issues when you were young? Please explain.
4. What environmental changes have you witnessed relating to water?
5. What is it that you value most about water?
6. Are people more or less aware of water issues now than when you were younger? Please explain.
7. What type of changes do you think are important in addressing water issues?
8. What does the term 'stewardship' imply to you in relationship to water?
9. Do water issues affect you? If so, how?
10. What changes (if any) would you like to see in people's attitudes toward water?

Workshop Evaluation

Adapted from, Caine, R. N., & Caine, G. (1991). *Making Connections Teaching and the Human Brain* (p. 157). Alexandria, Virginia: Association for Supervision and Curriculum Development.

1. Which aspects of the workshop made you feel involved and challenged?

2. Did you experience creativity and enjoyment? Please explain.

3. Did the workshop content link effectively to your personal experiences? Please explain.

4. Were you able to retain interest in the course content over time? Please explain.

5. Will the workshop influence other aspects of your life? If so, how?

6. Were the setting, room layout, and other features of the workshop environment appropriate? Please explain.

7. Were the workshop design and coordination effective? Please explain.

8. How can we improve future *Water Ways* workshops?

Appendix B – Sample Water Ways Session

Session Three – Political Ways

10:00 - 10:15	Opening: (participant)
10:15 - 11:15	Metaphor discussion Readings: • Political Ways
11:15 - 12:30	Water Journal
11:45	Lunch (salad & desert provided by participants)
12:30 - 1:30	Article presentation & discussion for session three
1:30 - 2:45	Guest speaker or activity
2:45 - 3:00	Closing (participant)

Session Objective(s)

To gain new political perspectives on water and to make connections in our thinking about water to other aspects of our experience. Session three is facilitated by participants.

Selected Readings

*One or two of these articles will be identified for discussion. Please read (or skim) the others as your time allows.

1. Suzuki, D., & Dressel, H. (2002). *Good News for a Change: Hope for a Troubled Planet* (pp. 127-160). Toronto: Stoddard Publishing Co. Ltd. Notes: A River Runs Through it: Save the Water.
2. Earle, S. A. (1995). *Sea change: a message of the oceans* (pp. 226 - 244). New York: G.P. Putnam's Sons. Notes: recollection of environmental change.
3. Shiva, V. (2002). *Water Wars: privatization, pollution and profit* (pp.ix – xvi, 1 – 17). Toronto: Between the Lines. Notes: political conflicts over resources, ecological democracy.
4. Coupland, D. (2002). *Souvenir of Canada* (pp. 122 – 123). Vancouver: Douglas & McIntyre. Notes: touches on science, history / memory, relationship to water, commodification of water, water and our national identity.

5. McKibben, B. (2000). Humans Supplant God; Everything Changes. Harvard Design Magazine, 10(Winter/Spring), pp. 19 - 20. Notes: Written by a journalist concerned that the headlines of today miss the most important stories - those that point out our impact on the planet.

Water Journal Questions

1. Can you recall any water issues when you were young? Please explain.
2. What environmental changes have you witnessed relating to water?
3. What is it that you value most about water?

Suggested Activities (one to be selected - optional)

- Tod Creek Watershed Overview – Slideshow by Sheila Levy, Friends of Tod Creek. To discuss how and why they became involved, their favourite places in the watershed, the challenges that the group faces...
- Hike in the watershed led by Friends of Tod Creek Watershed?
- Grant, D., & Stefaniak, L. (1993). *Estuaries: A Day at the Bay* (pp.183 – 188). Sandy Hook, New Jersey: Ocean Institute, Brookdale Community College. Notes: Methods of Oil Recovery and Cleaning Up an Oil Spill activities.

Local Resource People / Audio Visual Resources

- National / Global Water Issues – speaker Karen Hurley, environmental planner (karenhurley@shaw.ca, 477-2290).
- Video on Ryan Hreljac (<http://www.ryanswell.ca>) the youth from Ontario who has developed the Ryan's Well Foundation to raise money for water initiatives in the Southern Hemisphere.

- Shelagh Levey (wconnections@shaw.ca or 479-1956) on what one local organization, The Friends of Tod Creek Watershed, is doing to protect their watershed. Shelagh has put together a great slide-show about the watershed. Also, Mary Haig-Brown has been active with the Friends of Tod Creek for years (mhaigbrown@shaw.ca).
- Misty McDuffy, researcher at the Raincoast Conservation Society (<http://www.raincoast.org>) and a founder of Peninsula Streams Society (<http://www.peninsulastreams.com> phone: 363-6837 or macduffeem@pac.dfo-mpo.gc.ca).

Opportunities for Action

- As a group research the political issues surrounding the proposal to lift the moratorium on offshore drilling in the waters near Haida Gwaii (Queen Charlotte Basin). Have a letter-writing session to express your individual views to political representatives and opinion leaders. Let the recipient(s) know that you have considered both sides of the issue.
- Review your Local Community Plan (visit the planning office) and if it is lacking in protection/restoration of local water features urge your municipal council to amend and strengthen the plan. If it appears adequate let council know that you support the plan and thank them for their foresight in protecting local water features.

Metaphor Discussion

*Two of these metaphors will be identified for discussion. Please read (or skim) the others as your time allows.

Water as Political Expression

Water as: bloodstream, life and death of nations, security...

So the self-regulating arterial course of the sacred river, akin to the bloodstream of men, has constituted one permanent image of the flow of life, the *line* of waters, from beginning to end, birth to death, source to issue, has been at least as important. It has, moreover, dominated the European and Western language of rivers: supplying imagery for the life and death of nations and empires and the fateful alternation between commerce and calamity. In classical Eastern and Near Eastern cultures, the great sacred rivers were seen as temporal and topographical loops. In the Roman West, from a very early date, rivers were conceived as roads: highways that could be made straight; that would carry traffic and, if necessary, armed men; that defined entrances and stations. The model for the well-behaved watercourse was the aqueduct: the highest achievement of Roman engineering. It was in Latin texts, too, that history was straightened in linear development so that rivers-not the least the Tiber-might also be imagined as lines of power and time carrying empires from source to expansive breadth. At the same time, though, Western writers often sensed a disturbing paradox about these fluvial boulevards. For while the site of riverbanks seemed to assure a kind of security (the sort denied, for example, to mariners who lost sight of land), upstream explorers also appreciated that until they had mapped the course from end to end, they had little control over their destination. The currents might end up taking them to places where they would be the captives, rather than the masters, of the waters.

Schama, S. (1995). *Landscape and Memory* (p. 261). London: HarperCollins.

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*Water as wild & dangerous, water as fortune, water as society, water as woman*

Fortune is the ruler of half our actions....I would compare her to an impetuous river that when turbulent, inundates the plains, casts down trees and buildings, removes earth from this side and places it on the other; everyone flees before it and everything yields to its fury without being able to oppose it; and yet though it is of such a kind, still when it is quiet, men can make provision against it by dikes and banks, so that when it rises it will either go down a canal or its rush will not be so wild and dangerous. So it is with fortune which shows her power where no measures have been taken to resist her, and directs her fury where she knows that no dikes or barriers have been made to hold her.

Niccolo Machiavelli (1469 – 1527). As quoted in, Merchant, C. (1980). *The Death of Nature: Women, Ecology and the Scientific Revolution* (p. 130). San Francisco: HarperSan Francisco.

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Watershed as reservoir, watershed as temple

As to my attitude regarding the proposed use of Hetch Hetchy by the city of San Francisco ... I am fully persuaded that ... the injury ... by substituting a lake for the present swampy floor of the valley ... is altogether unimportant compared with the benefits to be derived from its use as a reservoir.

Gifford Pinchot, 1913

These temple destroyers, devotees of ravaging commercialism, seem to have a perfect contempt for Nature, and instead of lifting their eyes to the God of the Mountains, lift them to the Almighty Dollar. Dam Hetch Hetchy! As well dam for water-tanks the people's cathedrals and churches, for no holier temple has ever been consecrated by the heart of man.

John Muir, 1912

As quoted in, Nash, R. (1967). *Wilderness and the American Mind* (p. 161 & 168). New Haven: Yale University Press.

Water as rhetoric

...if this country were in danger of habitually ignoring utilitarian practice for the sake of running after sentimental dreams and aesthetic visions we should advise it ... to dam the Tuolumne River in order to instruct its citizens in the use of the bathtub. But the danger is all the other way. The national habit is to waste the beauty of Nature and save the dollars of business.

Lyman Abbot, 1909. As quoted in, Nash (1967). *Wilderness and the American Mind* (p. 166). New Haven: Yale University Press.

Water as rhetoric / commodity

True conservation of water is not the prevention of its use. Every drop of water that runs into the sea without yielding its full commercial returns to the nation is an economic waste.

President Herbert Hoover, 1926.

When the well runs dry, we know the worth of water.

Benjamin Franklin, Poor Richard's Almanac, 1746.

Water as rhetoric

With the tide of national opinion running in their favor, defenders of an undammed Grand Canyon pressed their case. Another Sierra Club advertisement appeared in nationally important newspapers on July 25, 1966. Later in the summer a number of newspapers and magazines carried still a third, this one headlined: 'SHOULD WE ALSO FLOOD THE SISTINE CHAPEL SO TOURISTS CAN GET NEARER THE CEILING?' The gist of the preservationists' argument was simple: like the Sistine Chapel, the Grand Canyon was one of the world's treasures. It should be kept in pristine condition.

Nash, R. (1967). *Wilderness and the American Mind* (p. 231). New Haven: Yale University Press.

Watershed as playground

Using these arguments, and the especially effective one (unrelated to wilderness) that the valley as part of Yosemite National Park was a 'public playground' which should not be turned over to any special interest, the preservationists were able to arouse considerable opposition to San Francisco's plans. Members of the Sierra and Appalachian Clubs took the lead in preparing pamphlet literature for mass distribution. *Let All the People Speak and Prevent the Destruction of the Yosemite Park* of 1909, for example, contained a history of the issue, reprints of articles and statements opposing the dam, a discussion of alternative sources of water, and photographs of the valley. Preservationists also obtained the sympathies of numerous newspaper and magazine editors in all parts of the nation. Even Theodore Roosevelt retreated from his earlier endorsement of the reservoir and declared in his eighth annual message of December 8, 1908, that Yellowstone and Yosemite 'should be kept as a great national playground. In both, all wild things should be protected and the scenery kept wholly unmarred.'

Nash, R. (1967). *Wilderness and the American Mind* (p. 168). New Haven: Yale University Press.