By bringing together the literary imagination with ecological literacy (Orr, 1992) through oral readings and a close reading of root metaphors, I open possibilities for the development of ecological habits of mind. The development of ecological habits of mind involves the enhancement of an ecological consciousness that brings notions of interdependence, co-implicated relationships, and the natural world into focus in daily educational practices (Bowers, 2001, 2002, 2004). It is through the literary imagination that ecological habits of mind can be fostered in teacher education.

What follows is an outline of the ways in which I help students become ecologically literate (Orr 1992) through close readings of root metaphors at work in texts that reveal the way language carries forward anti-ecological ways of knowing and being (both culturally and naturally) in the world (Bowers 2001, 2002). My example involves bringing together:

a) a close reading of root metaphors in an oral reader’s theatre of The Lorax (Seuss, 1974) that involves both a theoretical and experiential approach to pedagogy through the development of ecological literacy (Bowers 2001, 2002; Orr 1992);

b) theoretical readings on the importance of becoming ecologically literate informed through an ecojustice framework (Bowers 2001, 2002; Orr 1992) and, finally;
c) a reflection upon experiences with the natural world through an ecological hermeneutic inquiry into the close reading and interpretation of both theoretical and literary texts by evoking the literary imagination (Davis, Sumara, & Luce-Kapler, 2000; Sumara, 1996).

**Evoking an Ecojustice Framework and Developing Ecological Literacy**

In my English Intermediate/Senior teacher education class, we begin by reading Orr’s (1992) chapter on ecological literacy before engaging in a writing activity outdoors among tall grass and cedar trees that involves recording our oldest memory in the natural world. We then read Bower’s (2002) article, Toward an Ecojustice Pedagogy, where he outlines an ecojustice education framework that explains the ways in which language and, more specifically, root metaphors are linked to the development of anti-ecological ways of knowing and being that exclude human relations with the natural world.

For Bowers (2004), several principles of ecojustice education involve, among other things, the exploration of:

a) root metaphors,
b) the ecological crisis
c) the cultural and environmental commons (in terms of the ways in which cultural dysfunction through a producer-consumer model is related to environmental degradation, and;
d) forms of enclosure that are at work and embedded in daily life that need to be named and recognized before any action can take place (1).

In order to help students understand these principles, we define new terms such as root metaphors, the commons, and ecology using the Ecojustice Dictionary (Bowers, 2004).

Root metaphors are described as:

The languaging processes carry forward past ways of thinking that are based on assumptions unique to the culture; these deeply held and generally taken-for-granted assumptions, which are derived from the culture’s mythopoetic narratives and powerful evocative experiences, are encoded in the words that called root metaphors; the root metaphors of a culture provide the interpretative frameworks that survive over many generations and influence values, approaches to problem solving and activities in a wide range of daily life; the root metaphors, as meta-cognitive schemata, also influences the silences as well as what will be marginalized; the dominant root metaphors in the West that have contributed to an ecologically destructive culture include mechanism, a linear interpretation of progress, anthropocentrism, Cartesian individualism, patriarchy, and, now, evolution as a way of explaining which cultures wills survive; these root metaphors reproduce the pre-ecological ways of thinking, and are also basic to the continued expansion of the industrial culture; the root metaphor that serves as an interpretive framework for addressing ecojustice issues is ecology—which highlights awareness of relationships and interdependencies with the commons; as a root metaphor, ecology locates the individual as a participant within the ecological systems that we are calling the commons, which is profoundly different from how an anthropocentric root metaphor (interpretative framework) leads to thinking of oneself as an observer, a person who appropriates the environment for personal gain, or as totally indifferent to the changes occurring in the environment. (8-9)

From my reading of this definition, it is clear that root metaphors carry encoded assumptions about our way of knowing and being in the world. Many discussions and examples are reviewed through small group and large group discussion. We then move to
define the commons:

The commons represent both the natural systems (water, air, soil, forests, oceans, etc.) and the cultural patterns and traditions (intergenerational knowledge ranging from growing and preparing food, medicinal practices, arts, crafts, ceremonies, etc.) that are shared without cost by all members of the community; nature of the commons varies in terms of different cultures and bioregions; what has not been transformed into market relationships; the basis of mutual support systems and local democracy; in the modern world the commons may be managed and thus kept from becoming enclosed through private and corporate ownership by being managed by local and national government—municipal water systems and state and national parks are contemporary examples of the commons. (Bowers, 2004, 1-2)

The commons include both cultural and natural entities related to our way of knowing and being in the world. Students are asked to name their relationships with the commons that are both commodified and non-commodified. Finally, we define the term ecology:

Ecology comes from the early Greek word oikas which meant managing the daily relationships and activities within the household; currently it refers to the interdependent nature of natural systems—and by extension, the symbolic systems and human activities we refer to as culture; it represents the parts as interdependent with the larger whole such as the interactions between cultural and natural systems; this interdependence of cultural and natural systems was expressed by Gregory Bateson when he wrote that “no system which shows mental characteristics (when differences are the source of information circulating through the entire system) can any part have unilateral control over the whole” (1972, Steps to an Ecology of Mind, 316); the opposite of an anthropocentric way of thinking. (Bowers, 2004, 3)

In the close reading of this definition, my focus is drawn to the notion of ecology as relationships between cultural and natural systems. Since it is my intention to bring together ecology and habits of mind in the development of ecological habits of mind, the term habit involves, “the sense development…hence the way in which one is” (The Oxford English Dictionary, 1989, 1235). Habit is also closely related to habitation—a habitual practice in mind and character. As I bring ecology and habit together, it seems that ecological habits of mind involve habitual practices related to relationships between cultural and natural systems.

Once we have reviewed and identified root metaphors that are related to notions of progress and a producer-consumer model as outlined in Bower’s article, we again reflect upon our own relationships with the natural world. We compare our own stories about relating to nature and the commons with stories about the ways in which our foremother’s and forefather’s related to the natural world. For example, we might reflect on the fact that bottled water was not always a common practice for our foremothers and forefathers, whereas it is commonplace today. Relationships with natural elements such as water have changed. Naming these relationships and these changes reveals how forms of enclosure—such as the closure and distribution of bottled water—is an important step in the development of ecological literacy and the formation of ecological habits of mind. Through a deep exploration of root metaphors, we can begin to question our relationships with the natural world. Abram suggests that:

Today we participate almost exclusively with other humans and with our own human-made technologies. It is a precarious situation, given our age-old reciprocity with the many-voiced landscape. We still need that which is other than ourselves and our creations. (Abram, 1996, ix)

Abram believes that we need to explore human relations with the natural world. Similarly, for Orr (2002) “all education is environmental education” (81). He believes that we should bring education outdoors and reconnect with the very landscape that Abram is describing. I
believe that by questioning the root metaphors at work in text/language, English teachers can develop a deeper understanding of the connectedness of language and the cultural and natural world.

It is in the naming of the root metaphors that we can begin to connect how language influences commodified and non-commodified relationships in student’s lives and in their communities. Students can explore how language in general and root metaphors in particular, participate in both cultural and natural relationships.

It is through an exploration of the ways in which human domination over nature is taken for granted in western ideology that it becomes important to question; “how western civilization became estranged from non-human nature—from the natural world and the need for reconnection through a participatory mode of experience” (Abram, 1996, 137). Once students begin to recognize the ways in which language is encoded with assumptions about human and non-human relationships, they will begin to identify their own patterns of relating with nature. A vehicle for revealing these relationships is through the literary imagination, as Orr (2002) suggests that learning to become ecologically literate can provide a basis for developing ecological habits of mind.

In my class, I evoke a reader’s theatre and orally recite Dr. Seuss’ (1971) *The Lorax* that we use as an interpretive text and teaching tool in the study of the development of ecological habits of mind. We read the text closely looking at the illustrations. Dr. Seuss (1974) writes,

Way back in the days when the grass was still green  
and the pond was still wet  
and the clouds were still clean,  
and the song of the Swomee-Swans rang out in space…  
one morning, I came to this glorious place.  
And I first saw the trees!  
The Truffula trees!  
The bright-colored tufts of the Truffula Trees!  
Mile after mile in the fresh morning breeze. (74)

*The Lorax* highlights a way of knowing and being in the world through a relationship with miles and miles of wilderness and pristine landscape as readers imagine the Truffula trees. Yet, many children who live in densely populated urban areas rarely experience trees, ponds, or swans. As the story progresses, the truffula trees are cut down for profit until only one truffula seed is left. The forest in *The Lorax* represents a green landscape in which trees are turned into ‘thneeds’ through a producer-consumer model of capitalism. For this reason, we identify root metaphors such as progress at work in the story. The assumption in the story is that the trees should be cut and used for human consumption rather than preserving the trees. The characters in the story clearly subscribe to a model of ‘progress’ whereby capitalism and a producer-consumer model is inherently a given.

By reading the story aloud, readers can develop imagined relationships with nature. For example, Dr. Seuss elaborates on the ways in which the Truffula trees enable fish to splash in a shady pond, “Brown Bar-ba-loots” (that resemble cute bears) frisk about and eat Truffula fruits. But as the story moves along, Dr. Seuss (1974) writes,

In no time at all, I had built a small shop.  
Then I chopped down a Truffula Tree with one chop.  
And with great skilful skill and with great speedy speed,  
I took the soft tuft. And I knitted a Thneed! (80)

Before long, out of greed, all of the trees are cut down and the fish no longer have a shady pond and the “Brown Bar-ba-loots” are no longer eating Tuffula fruits. Dr. Seuss (1974) writes,

I’m the Lorax who speaks for the trees
which you seem to be chopping as fast as you please.
But I’m also in charge of the Brown Bar-ba-loots
Who played in the shade in the Bar-ba-loot suits
And happily lived, eating Truffula Fruits.

“NOW…thanks to your hacking my trees to the ground,
there’s not enough Truffula Fruit to go ‘round.
And my poor Bar-ba-loots are all getting the crummies
Because they have gas, and no food, in their tummies! (97)

Dr. Seuss illustrates how language can affect subjectivity in his story as readers develop a relationship to the imaginary Truffula trees. Throughout his text, he explores the relationship between cutting one tree and destroying an entire forest as it pertains to the wild animals and their need for food, in order for his readers to come to a new understanding in and about the past. In another way, Dr. Seuss describes the relationship between trees, animals, and human greed by demonstrating the destructive behaviour of his character. For example, at the end of his story is the moral,

“So…
Catch!” calls the Once-ler
He lets something fall.
“It’s a Truffula Seed.
It’s the last one of all!
You’re in charge of the last of the Truffula Seeds.
And Truffula Trees are what everyone needs.
Plant a new Truffula. Treat it with care.
Give it clean water. And feed it fresh air.
Grow a forest. Protect it from axes that hack.
Then the Lorax
And all of his friends
May come back.” (123)

Ultimately, Dr. Seuss (1974) urges readers to engage carefully in the natural world. After a reading of Dr. Seuss, I reiterate the importance of ecological literacy with my teacher candidates as we walk outside and pay particular attention to white pine trees in the natural world and the ways in which they relate to them. I ask them to revisit memories of engaging in the natural world with and describe a special place of being in nature. As a researcher and teacher educator, reading texts such as The Lorax with my teacher candidates enables me to think about my own experiences with the natural world in new ways. Writing about my experience of reading allows me to think about how reading and engagements with the natural world contributes to my sense of self in terms of my relationship with the environment. Bruner’s (1990) conceptualization of self as storyteller is a suitable analogy for my interpretation of the ways in which ecological literacy can play a vital role in a quest for identification with text and natural environments.

Through a close reading of Dr. Seuss’ The Lorax, we questioned “common sense” theories about ideology that were prevalent in the 20th century by discussing the production and acquisition of knowledge (mental activity) that was considered separate to physical experience while in an outdoor context. We challenged our beliefs about modern theories that situate learning as passive (recording and labelling things) rather than interpreting things and producing new knowledge (as we were doing under the white pine trees). I believe that the literary imagination has an important role to play in the development of ecological habits of mind and that The Lorax is one text that may be used as a teaching tool to foster these habits.

In addition, I theorize my own experience of engaging with the literary imagination through mental and physical identifications with ecological literacy that provide possibilities to interrupt the status quo, and therefore, for a reader to experience learning differently in a natural setting. Sumara (1996) suggests that a reader’s experience continues to be fluid, finding itself lodged in the particularities of the text and the reading contexts. Ecological
literary forms are influential in the ways readers experience identity and relationships with the natural world. Keeping in mind that, according to Bruner (1990) this self finds itself lodged in the cultural-historical situation as well as in the private consciousness, forms are mediated and organized by language and the natural world. Literature and the natural world organize human consciousness in particular ways, and ecological literacy becomes the thing that organizes perception.

Reflections on the Literary Imagination and Ecology
Linking literacy and ecology involves an engagement with the natural world as described above. Davis, Sumara & Luce-Kapler (2000) suggest that 20th century cognitive theories that view learning as a systematic process are changing toward an ecological approach to meaning-making. That is, learning theories are evolving to include complex learning theories that function from a new set of assumptions that include but are not limited to the fact that by linking ecological literacy and children’s literature, the literary form organizes the reader’s experience, sense of self and the natural world in particular ways by physically engaging and being in the natural world. By adding the natural dimension of nature to a reading experience as described above, I work to organically organize a reader’s experience, and at the same time, teach about the importance of making relationships with the natural world.

Davis et al. (2000) suggest that metaphor organizes how humans literalize text. Metaphors go unnoticed as they are literalized during the reading process. Language begins with metaphor both in reading and writing and metaphors are evoked in the imagination. Metaphors for cognition also became literalized during the early 20th century. Such metaphors include the camera, whereby a human takes a mental picture of the outside world. Similarly, current metaphors include computers. These metaphors are shifting to include notions of language as technology. Late 20th century complex learning theories involve holist, constructivist, social constructivist, cultural and critical discourses, and ecological theories. An importance is placed on the role of both memory and collective memory in complex learning theories.

Paying particular attention to one’s evolving identity as it emerges and changes through reading is a hermeneutic act. Culler (1997) understands this as he states:

> Stories, the argument goes, are the main way we make sense of things, whether in thinking of our lives as a progression leading somewhere or in telling ourselves what is happening in the world. (83)

Theorizing about language in teacher education classrooms is important work in order to help students develop an ecological sensibility to literacy. After several weeks of debate about the dominant paradigms alive and well in language and literacy education, my students and I read consider Orr’s (1992) assertion about the “impoverished mental landscapes” that students are so often dealing with in school. He writes, “If literacy is driven by the search for knowledge, ecological literacy is driven by the sense of wonder, the sheer delight in being alive in a beautiful, mysterious bountiful world” (1992, 86). Orr (1992) draws on Rachel Carson’s understanding that children simply enjoy being in the world and have an innate sense of wonder. So one could say then, that children are already predisposed to ecological literacy. It becomes clear that teachers need to help foster such a predisposition throughout a child’s education between K-12. For Orr (1992), ecological literacy involves relationships with healthy natural systems, the outdoors, aesthetic appreciation, and the possibility to see things whole and in a relationship, rather than seeing things classified and subdivided. Orr (1992) believes that all education is environmental education, which is complex and involves dialogue and an engagement with the natural world and natural systems.

An Ecological Hermeneutic inquiry
I purposely juxtapose ecojustice theoretical foundational readings with the reader’s theatre reading of The Lorax to evoke my students to literary imagination. Through a close
reading, we define root metaphors such as progress (which implies linearity), anthropocentrism/individualism, and consumer-producer relations. Then we consider how these are different than the root metaphor, ecology (which implies relationality among everything in a holistic, rather than linear manner). We explore further definitions of terms that may be useful in the ecojustice dictionary.

My reading and teaching of Dr. Seuss’ (1971) *The Lorax* is used hermeneutically as an interpretive text both in the classroom and afterwards as I ruminate on the processes described above. For example, in my role as writer of my research, I am reminded that “researcher” can be defined in relation to hermeneutic reporting (Smith, 1991). In order to write with a hermeneutic attitude, as a researcher, I am attentive to language and ecology through spending time in the natural world. I work to deepen my sense of interpretability and interconnectedness of life, and I understand that it is through the hermeneutic imagination that there is creation of meaning.

According to Smith (1991), these four important aspects of hermeneutic reporting reveal that the researcher takes part in and reports on interpretive practices. These requirements influence my inquiry into the ways in which teacher candidates can become ecologically literate by engaging with cultural objects and the natural world inside and outside of classrooms. Bowers (1990) states, “Thinking of the classroom as an ecology that is, in terms of interactive relationships and patterns, is the best way of understanding the interconnection of behaviour and learning” (xi).

From these positionings, I begin to understand that I am able to engage the literary imagination through fiction as an ecology of ideas to help students connect with the natural world. In other words, I help students to realize their ability to evoke memory of their own experience in the natural world. An excerpt of my rumination in the natural world:

> My interest in the natural world stems back to my childhood when I could play freely in the woods for hours. However, at the age of 10, my family moved to a large city and my experience with the natural world became limited. I no longer played among pine trees on a regular basis. My understanding of the significance of my childhood experiences in the forest did not develop until graduate school when I started to learn about the origins of environmental education in Canada and its Indigenous roots. For example, reading texts such as *The geography of childhood: Why children need wild places* (Nabhan & Trimble, 1994) juxtaposed with *Educating for ecojustice and community* (Bowers, 2001) helped me to better understand the ways in which language perpetuates the hyper-separation of humans and nature.

It is through the narration of my environmental autobiography chronicling my relationship with the natural world that I am better able to consider the influence of the aesthetic of the forest in relation to the development of my identity and ecological habits of mind.

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[1] My conceptualization of “ecological habits of mind” brings together Willinsky’s (1998) notion of “habits of mind” (19)—i.e. those that are acquired in terms of the ways we learn to understand and divide the world through our literary imagination via dominant cultural stories—with Orr’s (1992) understanding of the importance of developing ecological literacy. Drawing upon these same concepts, I have written about what I have termed the development of “ecological habits of mind” and “anti-ecological habits of mind” elsewhere (Young, 2005a; 2005b; 2006) as I traced the origins of environmental education to both imperialism and Indigenous Knowledges.

**References**


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