

# Eco-Literacy Development through a Framework for Indigenous and Environmental Educational Leadership

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## **Abstract**

*In response to the call of curriculum reforms at the international, national, and local levels, we conceptualize an eco-mentorship program and envision a learning garden alternative practica. We aim to advance a framework enabling the innovation of Indigenous environmental studies, eco-justice education, and Western scientific environmental knowledge as part of a larger eco-literacy and environmental leadership curriculum in Ontario. We explore the application of a framework for environmental learning that involves eco-hermeneutic practices, making historical and etymological connections between land and language through the development of relationships with place. As gathering and gardening practices have taken place in Indigenous cultures since time immemorial, we investigate how earth, water, food, and plants can be explored through an inter-generational knowledge model.*

## **Résumé**

*En réponse au besoin d'actualisation des programmes d'études aux niveaux international, national et local, nous conceptualisons un programme de mentorat écologique et envisageons des pratiques parallèles en jardin d'apprentissage. Notre intention est de promouvoir un cadre permettant l'innovation dans les études environnementales autochtones, dans l'éducation en justice écologique et dans le savoir environnemental scientifique occidental, dans le cadre d'un programme d'études plus large axé sur les compétences en écologie et le leadership environnemental en Ontario. Nous étudions l'application d'une structure d'apprentissage environnemental mettant en jeu des pratiques herméneutiques écologiques, en établissant des liens historiques et étymologiques entre la terre et la langue par l'amélioration des relations avec le lieu. Comme les pratiques de cueillette et de jardinage existent dans les cultures autochtones depuis la nuit des temps, nous examinons l'étude de la terre, de l'eau, de la nourriture et des plantes par un modèle de connaissance intergénérationnel.*

**Keywords:** eco-literacy, curriculum, Indigenous environmental studies, eco-mentorship, leadership

## Introduction

Our article emerges from several knowledge sources, that is, an acknowledgement that Dan Roronhiakewen Longboat belongs to the Turtle Clan of the Mohawk Nation, is a citizen of the Haudenosaunee, and is originally from Oshwe:ken, the Six Nations community on the Grand River Territory, and is a trained scholar of Indigenous environmental studies. Kelly Young is Canadian born of mixed European heritage, and Andrejs Kulnieks is Canadian born of Latvian heritage. These non-Indigenous authors have spent over a decade learning from both Anishinaabee and Haudenosaunee Elders in order to inform a conceptualization of an eco-mentorship teacher education program. The mission of the program is to bring together both Indigenous and Western scientific knowledge systems into an additional certificate program in a teacher education curriculum.

This article draws upon decades of experience as teachers and academics, and of lived experiences of traditional teachings. We share our insights of the conceptualization of an eco-mentorship program that integrates ecological and Indigenous perspectives. Our thesis is simply that any eco-mentorship program should address, involve, and fully integrate Indigenous Knowledges, in addition to Western scientific inquiry as part of the curriculum. The aim of this paper is to explicate how environmental learning can be applied in teacher education programs in a conceptual manner, as curriculum, or *currere*—a course to be run—emerges in what Pinar (1975) terms as a *reconceptualization* of curriculum. That is, we are reconceptualizing a course to be run in an environmental leadership program. Curriculum theorizing is an important part of the process of planning for and delivering a program that seeks to move beyond a solely scientific model of environmental learning for teacher candidates.

### *Terminology*

In the context of this article, we acknowledge the constraints of meaning through academic writing, so we include a section on terminology. As Simpson (2000) has acknowledged, there is a vast range of perspectives of Indigenous cultures, therefore the term “Indigenous Knowledges” is difficult to define. We acknowledge that there are many Indigenous Knowledges, and that our program draws upon our own experience of traditional teachings and those of local Elders to help students learn about the environment from diverse knowledge sources.

A growing body of research is recognizing Indigenous Knowledges in scientific research, exploring the ways it can inform education from Kindergarten to PhD levels, and examining its role in environmental education (Battiste & Henderson, 2009; Cajete 1994; McGregor 2004; Simpson, 2002). Environmental problems impacting communities led to the need to address “building capacity” to help resolve environmental issues. In 1998, a collaboration of scientists, eco-theorists, community leaders, and Elders created an Indigenous Environmental Studies program at Trent University (Longboat, Kulnieks, & Young, 2009).

It is hard to raise Indigenous Knowledges without Traditional Ecological Knowledge when conceptualizing an eco-program. We acknowledge Traditional Ecological Knowledge as part of the framework of our program, as Traditional Ecological Knowledge informs a curriculum of Indigenous environmental studies. Indigenous environmental studies is built on the premise that two knowledge systems—Indigenous and Western scientific—are important in environmental learning (Longboat et al., 2009). Traditional Ecological Knowledge is important and evolving; as Kimmerer (2002) writes:

TEK [Traditional Ecological Knowledge] is increasingly being sought by academics, agency scientists, and policymakers as a potential source of ideas for emerging models of ecosystem management, conservation biology, and ecological restoration. It has been recognized as complementary and equivalent to scientific knowledge. (p. 432)

We also draw upon *eco-justice education*, which brings forth a framework that involves a cultural analysis of the environmental crisis via a critique of modernism, and brings forth diverse cultural methods for social action (Bowers, 2002; Martusewicz, Edmundson, & Lupinacci, 2011).

### An Eco-Mentorship Program

We bring together: science educators, specifically with a biology focus; eco-justice/environmental educators; Indigenous scholars and Elders; a garden animator with many years of experience working with educators; in-service and retired Kindergarten-Grade 12 teachers with an environmental background; the Director of Camp Kawartha; and language and curriculum theorists. Together, this vast array of educational leaders, Elders, and researchers provide a balanced framework for advancing a curriculum that focuses specifically on creating a relationship between two knowledge systems as a basis for fostering the development of eco-literacy leadership in teacher education (Orr, 1992). This program has evolved over many years and the collaboration of many partners who have environmental learning as a focus. The program consists of four half-day workshops and an action project whereby teacher candidates demonstrate the ways they integrated environmental learning in their Kindergarten-Grade 12 practicum experiences.

In light of the United Nations Educational, Scientific and Cultural Organizations' (UNESCO) designation of 2005-2014 as the Decade of Education for Sustainable Development, we examine and explore the possibilities for the interaction of Indigenous Knowledges with a particular view of environmental education that has typically been based on scientific models of learning. With the publication of the recent *Canadian Accord on Indigenous Education* (ACDE, 2010), there is recognition of the need for teacher education to respond to the vibrancy of Indigenous peoples as part of a Canadian learning strategy. In addition, given the Ontario Ministry of Education's policy framework for Aboriginal education

(2007), and resources for teaching about Aboriginal peoples (Ontario Ministry of Education, 2009), both of which call for a bringing forth of Indigenous understanding into the mainstream curriculum and all classrooms, we endeavor to address ways of infusing public systems of environmental education curricula with Indigenous environmental knowledge. The aforementioned practices are a way of promoting and (re)conceptualizing an environmental curriculum that critiques a solely Western cultural knowledge perspective through development of advanced interdisciplinary programming, integrating academic disciplines with cultural knowledge systems (Beckford, Jacobs, Williams, & Nahdee, 2010).

In this article we (a) outline the beginnings of the Eco-Mentorship Certificate Program and a proposed Learning Garden at Trent University, and (b) discuss how learning gardens can be used to help teacher candidates construct a deeper awareness of food. We argue that getting learners of all grade and university levels excited about becoming part of the process of growing their own food can help to change attitudes towards the importance and vitality of local knowledge. In an age of unprecedented environmental degradation resulting in species extinctions, loss of biodiversity, exponential population growth, sustainability questions, and global climate change, systems of education have continually failed to recognize the importance of Indigenous Knowledges as part of a necessary paradigm change within mainstream environmental curriculum development. Much of the contemporary view of the environment is shaped by a Eurocentric view of ecology (Battiste & Henderson, 2009; Kapyrka & Dockstator, 2012; Simpson, 2002). As such, environmental imperatives have suggested that environmental education is put back on track and through a paradigm shift, returned to its origins as reflected in Orr's (1992) understanding that "all education is environmental education" (p. 90).

In response to the call for environmental reforms, we have been conceptualizing an alternative practica—"The Learning Garden"—as part of an established Eco-Mentorship Certificate Program, whereby teacher candidates are engaged in activities for eco-literacy development and environmental leadership. By providing opportunities for pre-service teachers to participate in a collection of activities—workshops, curricula planning and development, learning gardens, and community outreach—we aim to help them explore and integrate Indigenous Knowledges and local perspectives about the environment. Working with faculty from the Trent University School of Education, Indigenous Environmental Studies Program, and the Nipissing University Schulich School of Education, alongside university students at the bachelor level, we bring forth an inter-generational, experiential approach to developing eco-literacy. Ultimately, the significance of this work involves disseminating a framework for best innovative practices for infusing Indigenous Knowledges within the curriculum, and building stronger community networks that address issues of diversity and leadership in translating local knowledge as eco-literacy development for pre-service and practicing teachers, community leaders, and the broader education community.

## Eco-Mentorship and the Role of Indigenous Environmental Studies and Eco-Justice Education

We have argued elsewhere for the inclusion of eco-hermeneutic practices that trace the history of words beyond their first usage to their engagement with local culture and place (Kulnieks, Longboat, & Young, 2011). Eco-hermeneutic cultural practices include the ongoing revitalization of inter-generational knowledge, to create a dialogue with inter-generational knowledge in terms of meaning and applicability within a contemporary context. In recognizing and encouraging focal practices, such as plant identification and harvesting, through an exploration of both scientific and Indigenous knowledge systems, our focus involves developing an understanding of the pedagogy of gardening and food preparation. We are committed to problematizing and questioning limitations of the Ontario government's policy framework for environmental education, *Shaping our Schools, Shaping our Future* (Working Group on Environmental Education, 2007). As part of this larger program, we investigate how to enable meaning-

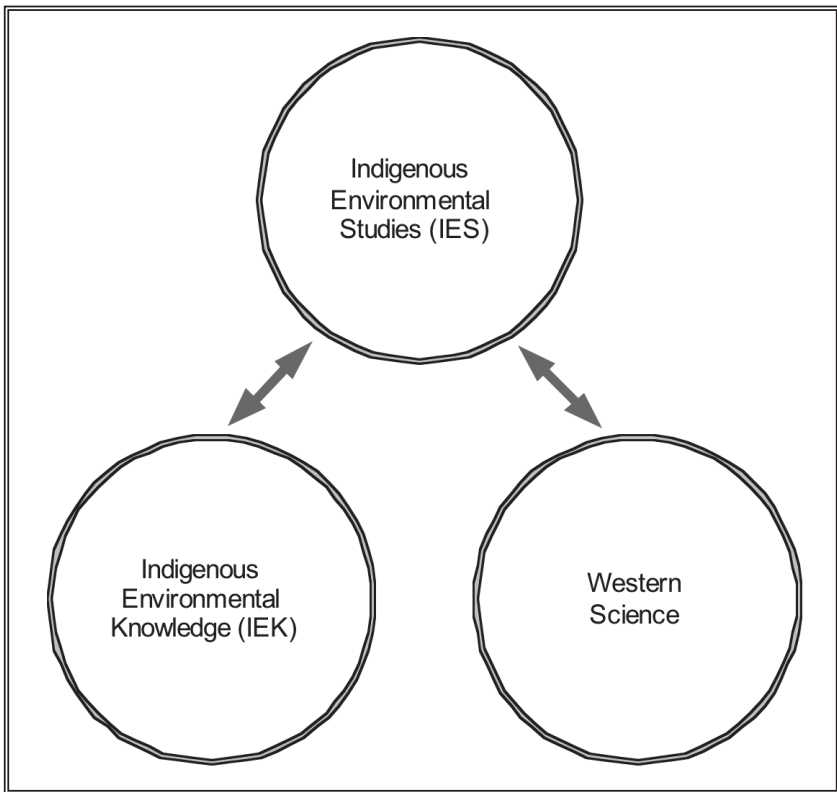


Figure 1. Integrating knowledges

ful interaction with Indigenous environmental studies and environmental education. The preceding diagram illustrates the interaction of knowledge systems of environmental sciences and Indigenous environmental knowledge into an emerging discipline of Indigenous environmental studies.

The conceptual framework enabling knowledge interaction, as within the development of Indigenous environmental studies, is growing, as it is designed to broaden and inform multiple disciplines. In our case, it informs an environmental leadership program. As part of a larger eco-mentorship curriculum, we engage students in activities that involve becoming naturalized to a particular place. This process includes (a) developing a framework that integrates environmental learning through a deep analysis of language that can enhance the understandings and establish greater relationships with the places in which we live, (b) investigating a model for infusing Indigenous environmental knowledge within environmental education curriculum, and (c) an application of these through developing focal practices that make use of curriculum that is already in place in systems of schooling across North America (Kulnieks, Longboat, & Young, 2010).

Eco-justice education brings forth a linguistic and cultural analysis of the environmental crisis (Bowers, 2002; Kulnieks et al., 2011; Martusewicz et al., 2011). Eco-justice involves investigating the intersection of oral and literary traditions and how focal practices that include food connections can be applied to a process of sharing inter-generational knowledge through what Bowers (2011) refers to as “ecological intelligence.” The application of a cultural and linguistic analysis of local knowledge can also help teacher candidates develop a deeper understanding of who they are, and make meaning for why they are here and what their role is in creating the future. Telling ancestral stories through the act of engaging with focal practices is an integral aspect of learning (Bowers, 2002; Martusewicz et al., 2011). By revisiting the etymology of the language, as well as inter-generational stories that develop through engagements with particular places, we consider the importance of including eco-hermeneutic and eco-justice practices in the curricular development of public systems of education. By inter-generational knowledge, we mean knowledge that is passed down from one generation to the next, usually via stories.

### Eco-Mentorship in the Learning Garden

We begin with a poem that asks us to consider collective memories about place, and teachings about inter-generational knowledge and eco-hermeneutic practices:

## *Walk along ancestral shores*

stride ocean sand white washed along mountains of memory and movement  
with and across paths that grandparents walked with their grandparents  
tastes and sounds of summer simmer with music-filled air  
along years of freedom hidden through and beyond forest paths

some continue to work as they always have wage shifts unnoticed  
the power of words flows through the relationship of language and place  
vendors sit in short-sleeved tops attempting to sell the work of earth and farmers  
to those who have not grown - memories of what happens when there was time to be

you can still find wild strawberries collected under pine-tree canopies  
in late June and early July grandmothers collect them to pay for what they cannot grow  
through spring and summer months beekeepers who have not retired work their magic  
customers talk in remembrance of days when they shared these experiences

when they had time to collect berries and mushrooms with grandmothers and grandfathers  
along shores when they had time to think about the land that gave them life  
knew where the fish were and understood paths animals moved along  
recognized which plants to pick through the quickest paths to water

now they arrive to board planes unrecognized along unfamiliar skyscapes  
like birds in movement drawn further by more than themselves  
sustenance searched to find where they are going to be  
tastes, textures and smells connect us with former selves

remember through little things that transferred energies  
a backyard garden reduced to patios or rooftops - a dozen pea plants enjoy sun rays  
bouncing off the metal roof as basil, sage, and rosemary wind contributions  
flavours brought inside during winter months to enhance munched feasts

in sheds, attics and boathouses plants silently dry along hemp strings and wooden planks  
places they grew and harvested, smell landscapes revisited  
memories here along the water far from crowded market scenes  
faces move us beyond who we are as we exchange commodities and thoughts

food as plant medicines collect in basements and pantries shift linear time  
long after they have moved outside as those who can communicate  
to ancestral places shared with songscapes of story worlds  
take care of us as they always have. (Kulnieks, 2013, p. 43)

We conceptualize relationships with food (including growing, gathering, cooking, and eating) as *ecological practices*. Traditional focal cultures hold within them the memory of time immemorial and are informed by traditional practices that encourage the ongoing revitalization of inter-generational knowledge. It is through this conceptualization that we investigate how mytho-poetic folksongs, as well as newer interpretations that foster dance and musical performances, can provide insight in examining the benefits of using archival technologies to re-examine the relationships with the places we live.

There is a great deal of *in situ* learning that takes place as learners help to develop a communal garden. One of the things that educators can do is help students focus their energies through communicative and cooperative practices. These involve discussing what the plants are doing, which is also a scientific inquiry. In addition, there are multimodal language approaches that can be tapped into in terms of the language arts. As well as being an art form in and onto itself, extensions to the pedagogy of the garden can include the culinary arts as well as learning to describe what they see beyond a linguistic approach (Iwama, Marshall, Marshall, & Bartlett, 2009).

Through a deep analysis of language, teacher candidates get a sense of how the language that they know is a tool for thinking, but this same tool also makes them think in a way that can follow and build positively upon past assumptions and beliefs. Language about progress and advancement often neglects to acknowledge what is lost when written forms are prized over oral tradition and inter-generational knowledge. Abram (1996) explains: "Sooner or later, that is, technological civilization must accept the invitation of gravity and settle back into the land, its political and economic structures diversifying into the varied contours and rhythms of a more-than-human earth" (p. 272). The above poem, for example, alludes to plant medicines that sit quietly in basements and pantries, that are ready to boil during winter months long after they have moved underground. It is during the preparation of plant medicines that Elders can communicate inter-generational knowledge through stories and songscapes that tell of the memory of medicines, and foods that connect us with local places and look after us, as our ancestors once did.

### Relationships with Food

The deeper question that arises, beyond how to make particular delicacies, is how our ancient relationship with food is tied to use over time. In terms of corn, when left on its own, corncobs fall down, corn begins to come up, but over time, the corn plants are taken over by other plants, insects, or wildlife, and no longer can grow. They need us to survive if they are to be sustained over multi-generational time in a sacred, reciprocal relationship. Similarly, communities of people dependent on corn need large numbers of plants if they are to survive. In our Eco-Mentorship Certificate Program, we ask students to think about the



connection between how plants and animals support us, which is intricately tied to the fact that we need each other. Based on that need, our understanding of food being indigenous to a place means connection to, respect for, and responsibility to food in a larger context. So too is our relationship with other ecosystems, including forests, meadows, and marshes, as they both provide food and help to ensure ecological integrity and function.

Food and medicine are intricately linked: from an Indigenous perspective, food is medicine and medicine is food, although this idea may seem far away when you walk down the aisle of a North American grocery store. As educators, we can help rekindle this understanding through Indigenous knowledge, scientific inquiry, and terminology. Students should be invited, for example, to consider that blueberries are often acknowledged as having antioxidant properties, but also are intrinsic to wildlife and meadow and forest ecosystem function. The premise is that by understanding stories and traditional practices, we are better enabled to develop strategies for understanding what those foods actually do, and we can set students' learning towards the larger goal of thinking about integrated areas of ecological importance. For example, what chemical properties are in certain types of tree bark, berries, animals, and fish? As teacher candidates engage with these ideas, patterns begin to emerge. As they develop a deeper understanding of the ecology of earth, water, and food in relationship to a rich, healthy, natural diet, they also realize that these foods were traditionally not available all year. This availability corresponds with ecological function, weather, and seasonal cycles in relation to the availability of local foods and the necessity of understanding about eating cyclically.

Within our area, a local traditional Indigenous diet would provide for approximately 250 different types of foods within an annual cycle, but within the dominant Canadian diet we are usually habituated only to about 20. This severely limits the macro and micro nutrients that should be part of our knowledge of optimizing human health regarding the foods we ingest. Much of the information that is available lacks the deeper knowledge that is required to develop a healthy ecological relationship with these foods. As we know, corporations are not set up to take care of our health. As citizens, many of us have lost that connection and love for producing or harvesting our own food, either in the garden or from natural ecosystems. As educators, we need to provide opportunities for teacher candidates to extend that love to all ecosystems, to encompass Creation itself.

One way we can do that is to encourage each student to take a particular food and look at all the different things there: macro and micro nutrients, vitamins and minerals, and so on. What do these have in connection to human health? Three important aspects within an Indigenous Food Systems course to investigate are the following: (a) a specific food/medicine, and the associated Indigenous stories of origins and understandings, creating connection and relationship to ecosystems, (b) chemical composition, including micro and macro nutrients, and (c) impacts on human growth and development, and

their meaning to optimal health. At the end of the term, the application of this knowledge requires students to produce a recipe based on their research, which is then celebrated collectively in a class feast.

## Earth and Water

In graduate programs engaged in Indigenous environmental education, students engage with growing traditional plants and medicines. In the above poem it is clear that, from an Indigenous perspective, animals, plants, foods, and medicines are viewed as the same thing. For example, in many Indigenous cultures there is no difference in understanding healing provided by traditional medicines, as mixtures that help heal us, and the prescriptions that doctors write out. Traditional plants are still widely available and are currently being marketed, dried, labeled, and bagged, as can be seen at the Kensington Market in Toronto, for example, as well as at Indigenous conferences and meetings across Canada. This practice of using plant medicines evokes a contemporary process of “gathering,” reminding many people who purchase the plant medicines of the gathering their ancestors once did.

One way to think about food is through the relational aspects that plants have with other beings. This relationship is far more than the analogic metaphor of “food as fuel” often advertised in Western cultures of modernity. The aforementioned metaphor “plants as medicine” is far more useful to learners if educators wish to lead them towards the understanding that if we want to live longer and healthier lives, we have to go back to the teachings that proponents of mass production would like us to forget.

The school system of both Europe and North America is based on time, that is, a cycle, as there has always been a need to work the fields and tend to the important job of making sure that there is enough food for the winter—something that fewer and fewer students have an opportunity to experience (e.g., Nabhan & Trimble, 1994, among others). This is why it is becoming increasingly important for us as educators to provide gardening experiences for students. As Williams and Brown (2012) point out, schools need tools to address diversity and engage students and their families: “Learning gardens’ pedagogy organized around food gardens draws students into a mode of inquiry related to the food and culinary traditions of diverse families and communities” (p. 39). Developing a healthy relationship with plants is often overlooked in the curriculum of public schools because it may seem as though it is more important to understand the English language and to develop a relationship with scientific and economically-inspired methodologies. However, it is difficult to overlook what our ancestors knew and their connection with local events, like changes in the weather patterns, seed and soil types, and understanding subtle changes in the surroundings. Local knowledge about foods is an essential aspect of fostering an understanding of relationships with place.

There are a great deal of ecologically-minded educators developing opportunities for teacher candidates to develop a deeper relationship with the earth, through what McKeon (2012) refers to as “transformational experiences in nature” (p. 139). An essential aspect of our work with teacher candidates involves a deep investigation of the etymology of language, and the implication of how language influences the way we see the world.

Developing a healthy relationship with, and understanding of, the land is essential because of its gift of sustaining life in the form of air to breathe, water to drink, and food to eat. One of the reasons teacher candidates should be encouraged to develop that connection is that all human actions impact and depend upon multiple daily interactions with food. As McKeon (2012) outlines, we are dependent on the plant world to sustain us, although systems of education (as well as Western systems of economy) fail to recognize the importance to developing a deepened sense of place that recognizes our ultimate reliance on the ecological health of the places we live.

Food should be more than just a transfer of energy. The consumption of food is also a communication *with* energy. Maturana and Varela (1987) describe the notion of how ants communicate with each other through trophallaxis. Humans also communicate with the plants that we consume. More than just an increased yield takes place when we provide plants with nourishment and water. For anyone who has ever participated in the relationship of growing plants for food knows, plants that come from a local garden taste much better than food grown by agribusiness. A healthy relationship with the plants that we eat is therefore an important aspect of identity formation. Gaylie (2012) writes:

In a garden, the idea of a single, individual student contributing the basis of all knowledge is not a sustainable notion of stewardship, teaching or learning. Instead, in a garden, pathways to larger understandings begin with sharing and with the actual *doing*. (p. 77)

On a primordial level, our thoughts, emotions, and energies go into the plant beings that grow there, and the food results are both nutritious and very delicious to us. Working in the garden is also an opportunity to share inter-generational knowledge. Sutherland and Swayze (2012) suggest that many of the relationships with gardening, food preparation, and inter-generational knowledge learned through the telling of stories is being lost and forgotten. For example, this past summer we pickled some cucumbers. The result was more than the sharing of recipes. The stories that came through this process evoked memories and stories about grandparents as well as other gardens we worked in. The way our recipes differed from the various ones colleagues shared evoked memories of gardening in other places and times. It inspired us to take time to think about those relationships that earlier generations lived. This is a sharing of inter-generational knowledge that helps teacher candidates develop a deep sense of fulfillment from their work and can foster healthy thoughts about our

role as human beings, including our connection and respect for Mother Earth and all of Creation. Williams and Brown (2012) write:

Through applying living soil as a guiding metaphor to sustainability education, we can further distinguish between two types of curiosity: one that delves deeper in the established disciplinary boundaries and one that seeks whole systems perspective and adds breadth of perspective to depth of understanding. Education guided by living soil as a central metaphor is enlivened by the latter form of curiosity. (p. 79)

We believe that a paradigm shift, for the purpose of developing a framework that seeks to integrate academic disciplines and cultural knowledge systems into a more integrative and interactive process, is needed to address the complexity of environmental education and to inspire a new generation of teachers and their students. As gardening is an ancient practice and school greening is not a new concept, our understanding of learning gardens emerges from Elders and academic research, for example, a partial special issue of the *Canadian Journal of Environmental Studies* was dedicated to “school ground greening” in 2005.

## Conclusion

Our research advances a framework for integrated environmental education that is based upon a relationship between an interdisciplinary and cross-curricular approach to environmental education and Indigenous environmental knowledge, in making environmental education relevant for today and the future. Science and technology, eco-justice pedagogy, experiential and outdoor education, food and stories, and Indigenous environmental knowledges are part of the spectrum of a whole systems framework for the development of eco-literacy and environmental educational leadership. Williams and Brown (2012) remind us:

Madhu Prakash (1994) challenged the notion of “thinking globally,” pointing out the human impossibility of the first half of the directive. As she writes, “while assuming the moral obligation to engage in ‘global thinking’...the philosophy encapsulated in the second half of the slogan implicitly warns against the arrogance, the far-fetched and dangerous fantasy of acting globally, and urges us to respect the limits of local action”...Prakash replaces the image of global thinking with local thinking, and suggests instead that we attempt to “think locally, act locally.” (p. 63)

In addition, Prakash (2009) suggests that “our backyards can educate us about healing our bodies and our earth” (para. 4). It is important for educators to provide opportunities to be inspired to think about what they can learn from their grandparents and parents who still remember how to engage with practices that are ecological. Williams and Brown (2012) explain:

Learning gardens provide comprehensive, experiential, and transformative experiences to students, creating a grounded sense of place before they can truly become

stewards of the land. As they design their own garden beds, students begin to fit plants and life cycles into the context of place. (p. 33)

When we take care of the plants that take care of us, there is a relationship that is deeper than an exchange of money which makes no connection with the plants themselves.

It is important for educators to provide opportunities for teacher candidates to recognize the deeper implications of their relationships with water, earth, plants, and animals. Foods can be prepared in such a way that makes the food taste great and allows the body to enjoy the healthy benefits the plant and animal worlds provide. This exchange of energy is particular to the place we live. It serves to make meaning for us; it connects us to place. The process of growing and consuming food locally is one that has allowed human societies to survive and flourish. Healthy eating lifestyles are an essential aspect of a quality of life and should be considered as an essential consideration of curricular development, to help connect students to time, space, and place.

We believe that ecologically-minded educators working in academic institutions have the potential to positively impact curricular development to enable knowledge system interactions. They can also have great influence on future scholarship and policy development driving provincial education. An interdisciplinary environmental education theoretical framework within public systems of education should draw upon “nearby nature” to inspire students to adopt an ethic of care and stewardship for their local environment.

Teacher educators have a responsibility to help teacher candidates think about themselves as being part of the places where they live. Practices that develop an understanding of the earth, through developing a deeper relationship with plants, animals, and the way in which water connects us all, should be a primary focus in curricular development. The fact that this is overlooked poses serious questions not only in environmental education but in public systems of education in general. Through thinking about the practices we have outlined, we hope to inspire discussions about how educators can be part of the process of becoming naturalized to the life-giving places in which we live.

## Notes on Contributors

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