

# Food for Thought: An Analysis of Pro-Environmental Behaviours and Food Choices in Ontario Environmental Studies Programs

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## **Abstract**

*In Canada, there exists a noteworthy educational initiative referred to as Environmental Studies Programs (ESPs). These secondary school programs are interdisciplinary, helping to link subject matter and encouraging student responsibility. This paper will present student reports from five case studies where I investigated how ESP participation impacts secondary students' attitudes about the environment, and their willingness to make pro-environmental and pro-social choices. "Food" emerged as a primary theme, along with several subthemes: Farm School; Food Production; Outcomes of Action; Locavore; and Reports of Limited Behaviour Change. The discussion integrates the study results with relevant literature, provides pedagogical recommendations for teachers, and offers ideas for future research.*

## **Résumé**

*Il existe au Canada une initiative en éducation digne de mention dénommée Programmes d'études environnementales. Ces programmes en école secondaire sont interdisciplinaires : ils contribuent à établir un lien avec la matière des cours obligatoires et suscitent le sens des responsabilités des élèves. Le présent article expose des rapports préparés par des élèves dans cinq études de cas où j'ai examiné les effets d'une participation à des programmes d'études environnementales sur les attitudes d'élèves du secondaire par rapport à l'environnement, et sur leur volonté de faire des choix favorables à l'environnement et à la société. La nourriture est un thème qui y a été désigné essentiel, tout comme plusieurs sous-thèmes : la ferme-école, la production alimentaire, les résultats d'un acte, la consommation d'aliments produits localement et les signalements de changement comportemental restreint. La conclusion confronte les résultats de l'étude aux publications pertinentes, présente des recommandations pédagogiques pour les enseignants et suggère des idées en vue de recherches ultérieures.*

**Keywords:** environmental education, Ontario secondary schools, case study research, environmental studies programs

## Introduction

I arrived at the research site at 9 a.m. It was my first week of data collection for a project that investigates how participation in Environmental Studies Programs (ESPs) impacts Ontario secondary students' attitudes about the environment and their willingness to act pro-environmentally. Students were gathering in the front room of the program site for a morning check-in. I was carrying my briefcase, which contained a recording device, focus group session script, and a small plastic food container filled with pasta. I asked the program teacher if I could put my lunch in the refrigerator until lunch time. A student enthusiastically approached me and asked if I would prefer to share lunch with them, pointing over to the program greenhouse and chicken coop. This incident foregrounds the purpose of this paper, which is to investigate how Ontario ESP participation influences students' pro-environmental and pro-social choices about food.

The paper will review relevant research literature including: (a) environmental education in secondary schools, and (b) environmental and social justice, with a focus on food. The study methods will be explicated including study purpose, theoretical framework, methodology, data collection, and analysis, followed by study results and discussion.

## Literature Review

A growing awareness of environmental issues and impacts of people's actions on the environment are topics that find resonance across a wide variety of audiences, from the popular media to educational discourses. What ought and can be done about environmental degradation is contested and relates to opinions regarding fundamental cause(s), but one of the solutions commonly suggested is education (Ones & Dilchert, 2012; Ontario Ministry of Education, 2009).

### *Environmental Education in Canadian Secondary Schools*

In 2002, the Canadian government developed a broad vision for environmental learning in Canada through the development of the document *Framework for Environmental Learning and Sustainability in Canada* (Government of Canada). This vision states that Canadians of all generations and from all sectors of society should be given opportunities to engage in environmental learning within and beyond the classroom walls, where critical questions can be asked and a sustained and meaningful dialogue can take place. The document encourages educators to find ways to present environmental and sustainability concepts that will allow learners to draw their own conclusions about important environmental and societal issues (Government of Canada, 2002).

As a result, Ministries of Education across Canada have introduced a variety of environmental education initiatives into school settings. One initiative is

Manitoba's *Guide for Sustainable Schools*, which provides step-by-step instructions for building stewardship into school curriculums, governance, human resources, and operations (International Institute for Sustainable Development, 2012). Nova Scotia's *SENSE* (Sustainability Education in Nova Scotia for Everyone) project, funded by Environment Canada, which aims to upgrade educational facilities with community and school gardening programs, is another such example (Nova Scotia Environmental Network, 2012). In British Columbia, there exists an interdisciplinary guide for teachers, which promotes facilitating environmental education learning across subjects (rather than isolating it), and modeling for students how the environment is connected to their daily lives and relationships within their communities (British Columbia Ministry of Education, 2007).

One successful Ontario environmental education initiative is integrated Environmental Studies Programs (ESPs), an approach in which environmental topics are integrated into an interdisciplinary curriculum model taught at the secondary school level with one to two teachers and a single student cohort (Russell & Burton, 2000; Sharpe & Breunig, 2009).

*Environmental Studies Programs.* ESPs are a type of "Integrated Curriculum Program" whose intent is to ground learning in authentic "real world" experiences, linking subject matter across disciplines and encouraging student responsibility (Ontario Ministry of Education, 2002; Russell & Burton, 2000). Taught in a format that is different from the typical rotation of isolated secondary school courses, ESP participants form a cohort of typically between 20-25 students that spend an entire term with one to two teachers, taking courses offered in a "package" that allows content to be taught in a holistic and interdisciplinary way (Horwood, 2002; Russell & Burton, 2000).

The credit package offered varies between schools. These courses most often include credits in Physical Education, Geography, Interdisciplinary Studies, and English (Russell & Burton, 2000). Most programs involve a Cooperative Education credit and all emphasize experiential learning. The programs offer students the opportunity to receive these credits through a combination of traditional academic studies and practical outdoor skills, promoting community building in the classroom and offering students an alternative perspective and format of learning (i.e., field trips and wilderness canoe expeditions) (Breunig, Russell, Murtell, & Howard, 2013). While both the broader Canadian vision for environmental education and the Ontario Ministry assert that environmental education is woven into all subjects and grades with a concomitant focus on social issues (Ontario Ministry of Education, 2007), Stevenson (2007) asserts that the gap between policy rhetoric and practice in Ontario prevails. Perhaps unsurprising then, the presence of and approach to environmental education in the classroom continues to be the personal decision of each teacher (Mayberry, 2007).

*Environmental and Social Justice.* Increasingly, issues of environmental justice are linked with societal concerns (Pellow, 2000). Mohai, Pellow, and Roberts (2009) further assert that the most pressing and basic environmental issue is social inequality. Environmental education exists at the very junction of social

issues, and thus environmental justice issues are inextricably linked to social ones (Gruenewald, 2003).

The Ontario Ministry of Education summary document, *Shaping Our Schools, Shaping Our Future* (2007) states that Ontario students will be prepared with the knowledge, skills, perspectives, and practices they need to be environmentally responsible citizens. The document also emphasizes that students will learn about their relationship to food, water, energy, air, land, and their interactions with all living things as a means to contribute to a prosperous and cohesive society as pro-active and engaged citizens. What is noteworthy is the Ministry's concomitant to both environmental issues and social issues, with food being central to that discussion. In light of that and given the focus of this paper, the topic of food will be explored next.

### What's in This [Food]?

Day-to-day food choices are intimately intertwined with environmental and social justice. Food "consumers" are increasingly focusing on personal health and well-being, as well as environmental impacts and global sustainability (Wasserman, 2012). Wasserman asserts that "the link between food and sustainability allows many people to readily make the connection between our own health and the health of the environment at a visceral level" (p. 448). Components of the "food conversation" include: food security, factory farming, food production and transport, the Slow Food movement, eating "organic," raw food diet, 100-mile diet, farm-to-table, farm-to-school, and beyond.

Food security refers to a household's or country's ability to provide physical and economic access to sufficient, safe, and nutritious foods that fulfill not only the dietary needs but the dietary preferences of living an active and healthy lifestyle (Riches, 1999). One organization dedicated to food security is "Food not Bombs." Food not Bombs began in 1980 in Cambridge, Massachusetts, and their focus is to draw attention to the immediate food security needs of individuals and communities (Mair, Sumner, & Rotteau, 2008). Their focus is also on challenging notions of democracy and social justice through a critique of the corporate global food system, by examining issues of food access for individuals living in poverty (Hassanein, 2003; Mair et al., 2008).

There is a growing concern worldwide about food security and sustainability and the socially exploitative nature of some food production systems (e.g., factory farming and methods that rely on high inputs of non-renewable resources), the impact on animal welfare, and the dietary and nutritional quality of highly processed foods (Luke, 2010). Jones et al. (2012) assert that while these issues are of particular concern to young people:

it may also be the case that young people in industrialized countries are becoming progressively disconnected from the food that they eat, both in terms of their

understanding of an increasingly complex global food production system and of the skills required to act as critically informed producers, purchasers, and preparers of food. (p. 78)

They go on to suggest that the influence of the multinational fast food and soft drink industries are shaping young people's tastes in such a manner as to further reinforce their distance from environmental and social relations of food.

The Slow Food movement was founded in 1986 when Carlo Petrini discovered that a McDonald's restaurant was opening on the Piazza di Spagna in Rome (Mair et al., 2008). Petrini vowed to create an alternative to the fast-food frenzy that was standardizing food by refocusing on local food culture and ensuring equity, sustainability, and pleasure in the food that people consume (Petrini, 2009). The Slow Food movement became an environmental movement with a political dimension (Mair et al., 2008)—one that allies itself with progressive and social ideals and is aimed at recreating gastronomic culture by facilitating meal experiences that are convivial, mindful, and ethical (Dunlap, 2012). Slow Food has been hailed as an important vehicle for addressing not only the global agri-food system, but also our environmental crisis more broadly (Mair et al., 2008).

Redmond (2002) and Vallianatos, Gottlieb, and Haase (2004) studied what they refer to as a "community food systems approach," which is a synthesis of health, environmental, social, and economic justice. This approach represents a new type of social movement that seeks to empower its participants, whether farmers, farm workers, community residents, or students, parents, teachers, and school food staff (Vallianatos et al., 2004). It is a movement of producers and eaters, articulating a new food ethic that seeks to shorten the distance between the production and consumption of food, examining the environmental, financial, and social implications of food transport (Redmond, 2002).

The "food conversation" encompasses individual and community concerns, activism, agricultural practices, impacts of globalization, and food consumption—all components of the food justice movement with parallels to the aforementioned social and environmental justice movements. Food-related issues are being addressed via various means, including diets such as the raw food diet and 100-mile diet (i.e., locavores), in addition to increased efforts by people to purchase organic or ethically grown food. Increasingly, restaurants are adopting "farm-to-table" practices in trying to source their food locally, and some schools engage in farm-to-school practices (see Sterling College and Chewonki Foundation as examples).

That said, there are few studies to date that have explored environmental-justice oriented behaviour change, including outcomes specific to pro-environmental food choices. One study in England explored the experiences and attitudes of students and staff regarding their engagement with food-related citizenship education in secondary schools and discovered that while staff reports show successful implementation of program activities, there was little positive student behavioural change (Jones et al., 2012). Another research team

examined 224 environmental-focused lesson plans from such curricula as Project Wild and World Wildlife Fund, and found there was little explicit environmental justice framing (Kushmerick, Young, & Stein, 2007). A team of researchers (see Breunig et al., 2013) is exploring what environmental knowledges encourage emancipatory (pro-social and pro-environmental) changes versus domestic behavioural changes (i.e., recycling) in secondary school students. Kolmuss and Agyeman (2002) encourage environmental educators to “mind this gap” between experience, knowledges, attitudes, and actions, encouraging further research on this complex interplay. This study aims to further bridge that gap.

## Methods

This section describes the methods employed in this study. The results presented here comprise one component of a Social Science Humanities Research Council (SSHRC)-funded longitudinal study that commenced in 2007 and is ongoing. The purpose of this qualitative case study is to: (a) evaluate the impact of ESP participation on student learning about the environment; and (b) evaluate the impact of ESP participation on students’ attitudes to and relationships with the environment, and how that relationship informs social and environmental actions.

The theoretical approach will be explicated and a summary of case study research will be provided, followed by an overview of the study sites and participants, data collection methods, and data analysis.

### *Theoretical Approach*

While there is no one definition of environmental education, Gruenewald (2003) asserts that its general purpose is to provide experience and knowledge necessary for caring for environments. There are many approaches to environmental education scholarship, each reflecting particular contexts and ideological predispositions (Sauvé, 1996), and thus it is important to acknowledge one’s epistemological and ontological leanings. As perhaps already reflected in the literature review, I favour a socially critical and holistic approach (Schram, 2003). Environmental educators working from this perspective aim to encourage critical reflection on human/nature relations and nurture healthy relationships, both among humans and between humans and other life, while working concurrently toward social and environmental justice (Breunig, 2005; Fawcett, Bell, & Russell, 2002; Gough, 1997). Jickling, Sauvé, Briere, Niblett, and Root (2010) impel environmental educators to embrace the social, political, and ethical issues inherent in ecologically-focused environmental education scholarship. I acknowledge that the impetus of the proposed research is my own commitment to social and environmental justice.

## *Methodology*

Inquiry that is field-based, sensitive to context, and calls attention to particulars is essential, and therefore, a qualitative approach is most appropriate for this study (Schram, 2003). Case study research involves answering “how” and “why” questions related to a particular contemporary event (Yin, 2009). Given its emphasis on gathering rich, detailed, and descriptive data (Yin, 2009), a multi-site case study allowed me to better understand the complex, detailed, and multiple perspectives of student experiences as a result of ESP participation.

## *Study Sites*

Purposive sampling was employed in choosing the study sites, including both newer and longer standing programs and both rural and urban programs. The case studies are descriptive (offering rich accounts), interpretive (analyzing data in light of theory), and evaluative (determining educational outcomes and identifying educational potential and challenges) (Merriam, 1998). Pseudonyms are used hereafter for schools, students, and teachers. The five schools will be hereafter referred to as:

- Valleyview (rural with 600 students),
- Grove (rural with 950 students),
- Hillcrest (urban with 850 students),
- Centurion (semi-urban with 1600 students), and
- Packer (urban with 1300 students).

Case studies are necessarily limited in their generalizability (Merriam, 1998); focusing on only five limits the scope of this project, but will provide the depth of understanding that is being sought.

## *Data Collection Methods*

Data were collected post-ESP at the five schools during the 2010-2011 academic year. The two primary data collection methods employed were student focus group sessions and teacher interviews. Because meanings and answers arising from focus group interviews are socially rather than individually constructed, focus groups provided a forum for students to collectively reflect upon and articulate their experiences, resulting in responses that were generative and sapient (Berg, 2011). Two focus group sessions were held at each of the five school sites, totaling ten focus groups in all. Berg (2011) recommends that focus group sessions not exceed 12 people. The cohort of 20-25 ESP students at each school were thus split in half and students participated in one focus group session, totaling 105 student participants. The gender split was almost equal across all focus groups and schools. These sessions were 1.5 hours in duration,

as recommended by Berg, semi-structured, and based on a list of guiding questions tied to the research objectives, but also provided room for general conversation. This allowed for the collection of data on issues of concern to the researchers, allowed for comparisons to be made, and provided the flexibility for other issues to emerge (Berg, 2011). Student focus group questions probed how students' participation had influenced their environmental knowledge, attitudes, and actions.

A teacher interview at each of the five study sites was also conducted and lasted approximately 45 minutes in duration. Teacher interview questions focused on: program mission, vision, and goals; perceptions about program influence on students' social and environmental attitudes, knowledge(s), and actions; and program successes and challenges.

### *Data Analysis*

Data from interviews and focus group sessions were coded for conceptual themes, topics, and subtopics, using inductive analysis (Berg, 2011; Yin, 2009) with the help of the qualitative software package, *Atlas.ti*. I read through the ten 2010-2011 post-program transcriptions in the spirit that Berg suggests—as a “passport to listening” to the words of the text and understanding better the perspective(s) being offered. I read through these with a view to inductively identify themes that emerged out of students' reports about their ESP experiences, and did the same with the teacher interviews.

A set of initial codes was identified and articulated as a result of this process. As coding and reviewing of transcripts continued, certain codes were merged and themes began to emerge. “Food” arose as a prevalent theme in the student focus group sessions, despite little mention of this in the teacher interviews. Five sub-themes relevant to this theme were identified: (a) Farm School; (b) Food Production; (c) Outcomes of Action; (d) Locavore; and (e) Reports of Limited Behaviour Change.

Given the emergence of this theme in the student focus-group sessions, I followed up with teachers (post-data analysis) via an email correspondence asking what (if any) food specific curriculum had been taught that year. The teachers' comments are merged below with the post-program teacher interview reports to provide context. The study underwent university, school board, and secondary school ethical review.

### **Context: Teacher Reports about Food-Specific Curriculum**

Each teacher at the five school sites reported that “food education” was a component of the curriculum. I have assigned pseudonyms to each teacher below: Gabe (Grove School); Claudette (Valleyview School); Tamara (Packer School); Teresa (Hillcrest School); and Dawn (Centurion School).



At Grove, Gabe reported that food is discussed in brief as a component of the Physical Geography credit. The specific curricular focus is on the “ways in which we can improve our protection of natural systems while continuing to meet human needs (e.g., through organic food production, wetland restoration),” according to Gabe’s report.

Gabe asserted that the program focus is on the environment and that extended field trips and physical activity are the primary means to teach about the environment.

At Valleyview, Claudette talked about the importance of good role modeling of behaviours as an essential component of effective teaching for a program, and said that there was tension this year and some push/pull between she and the students overall. In the follow-up email that I sent, she said that regarding food-specific curriculum, she asks the students to watch *Food Inc.*, and, while she is not explicit about teaching about food production, the film seems to impact them in that regard.

According to Tamara, at Packer the program is experiential and integrated, with role modeling, leadership, literature, communication, and student reflection being key components to the learning process. One of the field trips encourages students to think about food from a systems-based perspective. Tamara reported, “We do a field trip to someone’s house and he’s completely off the grid, he has his own pond with his own fish stocks and it’s pretty neat.” She said that the students also go to a locally-sourced restaurant to share a meal together.

At Hillcrest, Teresa asserted that “the overall purpose of the program is to teach the Ministry curriculum but to do so while providing experiential learning and hands-on experiences that are beyond what they would normally receive in the traditional classroom.” “The program adopts a theory first approach,” she explains. “We’ll spend some time talking about ecology, and plant and animal interactions, predator-prey relationships, ecosystems, and biotic issues through theory and some activity before going on field trips, linking it all to the resource management and science credits.” Teresa also mentioned that the students were caregivers for the rooftop greenhouse/garden at the school.

At Centurion, Dawn said:

We teach very specifically about local food and food sustainability. We have a sugar bush where we produce maple syrup, raise chickens for eggs, have an organic garden and greenhouse and students make locavore meals on Fridays where they track their food kilometres. We also visit local farms and interview organic farmers. In the past the program has also explored drying and preserving and growing sprouts but only when there has been time for that, which represents one of the program challenges, [time].

Judging from the teacher interview reports, the food-specific curriculum and what gets taught clearly depends a great deal on the individual teacher. The results of the 10 post-program focus group sessions are presented next.

## Results

Students at all school sites discussed their evolving “relationship” with food as a result of ESP participation. The main themes that emerged as a result of analysis across all five sites will be presented here as a merged “conversation,” together with each comment attributed to the school of program origin. Students’ self-assigned pseudonyms appear either in text or listed first in the bracket after the quote, followed by the school name. The foods-specific themes that emerged include: Farm School; Food Production; Outcomes of Action; Locavore; and Reports of Limited Behaviour Change.

*Farm school.* Students at two of the five schools reported about how some of the activities made them feel like they had a farm experience at school. “With our [rooftop] garden that we have, we get rid of all the food waste in the school, we put them in our composting bins [Maverick, Hillcrest].” “Composting, with the worm bins upstairs, [makes us] responsible to take care of all that. Grow lettuce, grow peppers, using our compost to grow more types of foods that we can eat” [Gloria, Hillcrest].

We get the scraps from the cafeteria for the worm bins and they eat it up and then we use their fertilizer to grow our vegetables that we have upstairs in our greenroom. One day we’re sitting there and our teacher is like, ‘how do you think pineapple grows?’ And we’re like, ‘we don’t know, let’s try it.’ So we looked it up on YouTube, so we have some pineapple up there, mango, avocados, wheat grass, bell peppers, hot peppers, tons of things. [Big, Hillcrest]

At Centurion, there is a garden group that’s taken on project oversight of a chicken coop and greenhouse. During the focus group session, Autumn shared, “we have like our own chickens which many people in high school can’t say that they’ve done and learnt how to do.” Talking about the program garden, chicken coop, and locavore lunches, Stellaluna commented,

What we do is we learn about different concepts and then we actually apply it [to] what we actually can do, even as a small solution but things like growing a garden or having locavore meals every Friday is just an interesting concept. It’s a lot about the knowledge that we’ve lost over the generations of knowing the land. We’ve almost forgotten about how to actually live with the land and having to adapt to nature.

*Food production.* Students at all five school sites commented about how their views and environmental behaviours have changed related to food production. Gloria [Valleyview] stated:

We watched *Food Inc.* And this film presented where America’s food comes from as a company. And, the way that the film portrayed this just really stuck with me. And then, the way our class discussed it afterwards just really made the lessons sink in.

Another female student at Valleyview said, “How Coke is actually made was the

most interesting thing I've really learned this semester. [We] learned the entire process and everything that can of Coke went through to finally get to you."

Brian [Grove] reported, "Me and my friends were talking about factory farming and if you decide to get free range meat instead of factory farmed meat, not only are you helping out local farmers, but you're eating better for yourself." Lillypad [Centurion] stated,

I was in the grocery store the other day and my friend wanted to get steak and on the steak it said corn-fed beef. And I was like, I don't want to get this steak 'cause it's corn-fed beef and we watched *Food Inc.* and you know cows are supposed to eat grass and like corn is mass produced to feed all these animals and you're not supposed to eat it. I've become more conscious.

Connie talked about an eye-opening experience in learning "how much water it takes to actually make a burger from McDonalds." Spida [Grove] said, "I didn't know that organic farms existed. I knew what organic food was but I didn't really know any sort of background information about it."

*Outcomes of action.* Students at three of the school sites reported that knowledge about the environment translated to a deeper understanding about the outcomes of their individual actions. At Hillcrest school, Black stated,

I knew throwing food out of my car was bad, but I didn't know that a raccoon would come, and then it would get hit, and then a vulture would come, and it would get killed. It just keeps going.

Students also discussed learning about the consequences of food choices. Big [Hillcrest] summarized the discussion by saying, "it [food choices] is a systems idea, you understand the ripple effect." At Centurion, Otter reported:

I know that pretty much all of us like when we go on to university or whatever, we're going to make local food and litterless lunches. And it's really helpful that we're just carrying that forward, that we're at this point where we are changed because of what we've gone through and now we can start to make that difference in our lives when we become individuals.

Treetop added to Otter's comments by saying, "I think the biggest new learning was just that connection both on a local and global level with food and it was really neat to tie into something that you know everyone loves [food]." Sunshine talked about global food distribution and her realization about the plentiful and abundant food choices that an average family in Southern Ontario has on their plate compared to a family in the Middle East, relating it to both the environment and global development. Autumn referred to her experience teaching local grade school kids about maple syrup production and the impact that had on her, stating, "So I think one of the major ways we help locally is by teaching people what we know. Like one of the results of this program is we're teachers now and we're ready to share [our knowledge]."

*Locavore.* The students at Centurion spoke extensively about eating locally and the locavore emphasis of the program curriculum. In one focus group session, two girls were talking and reported, “I think environmentally friendly is like a zero carbon footprint and so we try to [eat] local organic foods and bike when we can. Even if that’s hard out in the country.” “With my family, we’re not that good at being environmentally friendly. We try and buy locally grown food if we can but I think we could probably be doing a lot better than we are,” responded Margot. Max said his family always buys from the local farmer’s market. In another focus group Kip commented, “The learning about conventional farming versus organic farming and learning about the benefits of eating local food and not using tons of fossil fuels to ship our food all around the world when it’s just not necessary” [has been important]. “I can’t with a good conscience keep eating the way I’ve been eating. This program, unlike normal school, actually makes you aware of what’s going on in the world and, and it makes you want to change.” Moss added to this, saying, “For example, we cook locavore meals and we track how far our food has travelled and, and we see how this makes an impact.”

Other students at Centurion talked about trying to “convert their parents” to purchase foods that were local. One student talked about confronting his mom when she brought home apples from Argentina. Gloria added, “I used to think that local eating would just be really easy ’cause like we live in southern Ontario, we’ve got lots of food growing here. But I was involved in the first locavore meal ....and it’s very difficult.” Other students at two other school sites (Hillcrest and Valleyview) said that trying to encourage parents to purchase food locally has been a challenge: “trying to figure out where we should get local food instead of going to Zehrs” has been hard, according to one student. Students also talked about trying to do more canning at home and growing gardens with their parents. Students also talked about the expense of eating local. Becca (Valleyview) said, “If you’re buying something from down the street and it’s grown close to you I think it should cost less and it’s really sad that it’s not [grown close].”

*Limited behaviour change.* Few students explained that despite their new environmental knowledge, “I can say safely that I’ve changed nothing about my eating habits” (John, Grove). Billy from the Grove school talked about how the trip food was “crappy,” saying “everything is a just add water [meal].” Brian added, “We didn’t talk about food. And I’m a big food guy, ’cause I got a problem with my guts. I’ve got Crohn’s disease” and “in this class, [we eat] just unhealthy food.” At the Valleyview School, Depot said, “I know what greenwashing is and I inspect [the] products [I buy] sometimes. Not my food, definitely not my food. I just eat it.” Also at Valleyview, Monica said, “My mom’s not the kind to stay home with us, so whatever is in the freezer is what she cooks for supper.”

## Discussion

This discussion will integrate the above results with previous relevant literature, and provide pedagogical recommendations for teachers. I will also highlight potential steps forward for future research.

As highlighted earlier, the attitude-behaviour relationship is complex (Kolmuss & Agyeman, 2002; Rodriguez, Boye, & Stanisstreet, 2010) and is closely linked to personal convenience (Boyes, Skamp, & Stanisstreet, 2009). In reference to the results in my study, one factor related to behavioural change was convenience. For John at the Grove School and Depot at the Valleyview School, these were independent declarations. For other study participants, comments about personally convenient food choices related to living at home with parents and having less control over making pro-environmental food choices. Family members and the home food environment are important influences on dietary intake, especially for children and adolescents (Larson & Story, 2009). Turning off the television during dinner has been related to good eating habits and higher dietary quality among adolescents as well as parents (Larson & Story, 2009). Larson and Story (2009) thus assert that parents and other family food preparers play central roles in shaping the dietary habits of household members, serving as nutritional gate-keepers by determining what foods are available in the home, the quantities in which they are stored, and how they are prepared and served.

Clearly, there is resonance in my study results with students talking about how differently they will eat, once they are living independent of family and can exercise control over food choices. Parents serving as home-based role models should work toward integrating kids' ideals and evolving ethics with their own.

Additionally, a study by Jones et al. (2012) indicated that teenagers, similar to the demographic of my participants, in comparison to younger children, are often more fixed in their dietary, social, and environmental views, suggesting that "effecting behavioural changes with regard to food-based citizenship education with this age group" (p. 88) can be particularly challenging. Some evidence from this study reflects the conclusion presented by Jones et al (2012), particularly in John's (Grove) report, "I can say safely that I've changed nothing about my eating habits." A case can be made here for an environmental education curriculum, particularly a food-specific curriculum, to be introduced at the primary levels and not just as a component of environmental education, but with/in school culture more broadly. In studying one school's slow food initiative in integrating healthier options into the cafeteria, Slawson et al. (2013) recognized the important role of school nutrition services in influencing student choices about food. Their results indicate that the perceived lack of administrative support for cafeteria-based interventions, and minimal interaction with teachers, were barriers. They further concluded that students choose less nutritious options due to family influence. Another study found that children are often being served double the age-appropriate portion of a school lunch than what they need, and

school boards do very little to limit the sale of competitive foods in schools (i.e., soft drinks and potato chips) or to set school-wide nutrition standards (Larson & Story, 2009). Clearly, there is a strong link to school-based eating practices that warrants further consideration.

There is a similar strong link between peer influences and eating habits. Interestingly, Lillypad from Centurion school noted that she redirected her friend away from purchasing a corn-fed steak, given her new learnings from the ESP. Food consumption amongst teenage peer groups is its own complex dynamic, involving issues of weight stigma, social norms, peer pressure, financial means, and other issues, and thus also warrants further exploration.

In looking at what aspects of the food-specific curriculum were most impactful for students in this study, the results indicated that watching *Food Inc.* to learn about food production, having a greenhouse or chicken coop, eating weekly locavore meals, field trips, and teaching others were significant. These examples provide some evidence of the impact on students' knowledge gain and behavioural change through both media-based and experience-based approaches to teaching and learning.

Watching *Food Inc.* and learning how Coke is produced were impactful experiences that led to pro-environmental food behaviour changes, according to student reports. There is an ever-growing and evolving media surrounding the "food conversation," including films such as *Food Inc.* and *Fast Food Nation*, as well as books about the 100-mile diet (Smith & MacKinnon, 2007), *Diet for a Small Planet* (Lappe, 1971), and books on veganism and raw food diets, to name a few. Celebrity chefs are entering into the debate with one television-network food competition involving chefs preparing a meal from food waste (i.e., "freeganism") (British Broadcast Corporation, 2013). Integrating contemporary media-based methods to teaching and learning about food, including encouraging student groups to prepare 100-mile diets, assigning students to take a pre-and post-program ecological footprint quiz that is specific to personal food consumption, and integrating documentaries that are impactful may be means to further enhance food-specific curriculum.

According to student reports, other experience-based learning also profoundly impacted them. Being connected to the source of their food through their collective care of a greenhouse (Hillcrest) or a chicken coop (Centurion) were impactful components of the ESP experience. Across all study sites, home gardening and trips to farmers' markets also connected students to their local food sources, and impelled them to make pro-environmental food choices.

According to the Association for Experiential Education (2012), "experiential education is a philosophy that informs many methodologies in which educators purposefully engage with learners in direct experience and focused reflection in order to increase knowledge, develop skills, clarify values, and develop people's capacity to contribute to their communities" (para. 2). With roots in the outdoor education field, people often think of field trips as central to this experiential

pedagogy. According to Freeland (2009), the movement to link action and practice is not limited to programs that take students out of the classroom and is also reflected in coursework. The “thinking” orientation of theory and the “doing” emphasis of professional studies emphasize a practice-oriented approach to pedagogy which enhances student learning (Freeland, 2009).

Environmental educators may wish to consider student processes and outcomes closely in determining methodological approach when teaching about food as an environmental knowledge. Educators may also want to consider what approaches most lend themselves to pro-environmental and pro-social actions, and use this as a measure/indicator of efficacy. For example, is it more impactful for students to have a guest lecturer speak about pro-environmental food choices during a farm visit, or for students themselves to create a meal together even if doing so as a school lunch? In other words, “leaving the classroom” is not necessarily an essential criteria for effective experiential learning, and this merits further consideration when teaching about food justice.

According to Levkoe (2006), the corporate food economy has led to the increased separation of people from the sources of their food and nutrition. The students and teacher at Centurion offer an important lesson regarding the ways in which locavore meals can serve as a centerpiece for pro-environmental behaviours and a “living example” of a food justice activity that can happen at a school site, at home, or at a local park, and does not necessarily require the greenhouse/chicken coop facilities that Centurion has. This is resonant with Dunlap’s (2012) assertion that both locavore meals and the Slow Food movement have been hailed as important vehicles for addressing both the global agrifood system and environmental issues.

Finally, there were some participant reports that explicitly addressed pro-social and global issues. At Centurion, students reported a heightened understanding of the social and global impacts of their environmental actions, specifically their food choices. While one research team concluded that the lack of explicit environmental justice framing in their study of environmentally-focused lesson plans from Project Wild and World Wildlife Fund curricula was a “missed opportunity” (Kushmerick et al., 2007), I prefer to view my study results through the lens of Jones et al. (2012), who concluded that there is positive potential in the latent behavioural change that likely occurs post-data collection. Early indicators from retrospective data collection about ESP participation (one component of our larger study) reveal that behavioural changes do occur; they just may be latent or delayed.

That said, the collateral learning about food that happened for students as a result of ESP participation should impel educators to not “miss the opportunity” to formalize a food-specific curriculum as a component of the ESP, given both the universal imperative and appeal of food, as well as the potential pro-environmental impacts of pro-food choices. As we approach the end of the United Nations Decade of Education for Sustainable Development

(2005-2014), innovative educational initiatives that focus on pro-environmental behaviours and food choices frame a critical area of investigation that merits further consideration. As we educate forthcoming generations of global citizens, the potential impact of what and how we eat truly adds a new dimension of meaning to the old adage—“food for thought.”

### Notes on Contributor

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