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IN THIS ISSUE

This themed issue engages with the pedagogical turn in food systems scholarship and asks simply, what is the state of (critical) food systems pedagogy in so-called Canada? The contributions (16 articles in total, including two perspective pieces, six field reports/narratives, and eight original research articles) reveal a diversity of perspectives and approaches to teaching and learning about food.

The articles also evidence a lively and conceptually rich pedagogical milieu comprised of community members, students, faculty and staff. Readers of this collection will find valuable insights from the level of assignment interventions, to program curriculum development, and from community-campus partnerships to arts-based pedagogical techniques.

guest editors: Michael Classens, Jennifer Sumner

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image: Luciana Godoy

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Editorial

Reflecting on food pedagogies in Canada

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The original deadline for submissions for this special issue was March 1, 2020, just days before the destabilizing and disorienting first wave of pandemic-related shutdowns in many parts of Canada. The (r)evolution in food systems pedagogy we were hoping to document and celebrate was promptly preempted by an abrupt transition to virtual learning. In an instant, teachers and learners alike were attending to a pedagogical revolution of another kind altogether. The enduring impacts of this upheaval remain unclear. In the immediate term, though, the shift to online learning presented a crisis (a hasty 'pivot' to online teaching and learning) within a crisis (the daily reality of living within the context of a deadly global pandemic). For many critical food systems students and teachers, these new crises layered on top of the already front-of-mind crises propelled by the capital-intensive, industrialized food system. Like peering through translucent nesting dolls, we squinted through layers of pedagogical disruption and pandemic to remain focused on the economic, social and ecological devastation wrought by our dominant food system, and for glimpses of the pluriverse of food systems alternatives that inspire and nourish us.

Food systems scholars were quick to dismantle the facile refrain so often repeated in the early days of the pandemic, "we're all in this together," by incisively demonstrating the ways that familiar patterns of social and ecological injustice were worsening in the days of COVID-19. At the same time, as this special issue demonstrates, food systems students and teachers were boldly pressing on with the task of teaching and learning for more sustainable, just and equitable food systems, in spite of the challenges. As we potentially enter a post-pandemic period, the question of how to teach for food systems transformation seems more pressing than ever.

It wasn't so long ago that Sumner incisively observed, "those who study learning have not often turned their gaze toward food, while those who study food have generally overlooked the learning associated with it" (2016, xix).

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This isn't to say that teaching and learning about food wasn't occurring—there is indeed an inevitability to learning about food, with every bite we take we're learning in an informal way. In more formal registers, agricultural education at the postsecondary level has existed for about as long as postsecondary institutions. Yet this more conventional curriculum is often narrow in scope (for example focused on yield maximization) and disciplinarily bounded (Jordan et al., 2014). In the past decade, however, critical food systems scholars have insisted on a capacious and critical approach to food systems pedagogy, making the case that meeting the challenge of food systems transformation requires, "fundamental changes…in both *what* and *how* we teach" (Galt et al., 2012).

Recent scholarship on food systems pedagogy reveals interdisciplinary, and ontologically and epistemologically diverse, approaches to teaching and learning about food (Valley et al., 2017; this issue). Relatedly, this work makes explicit value claims by committing to addressing economic and socio-ecological inequities resulting from the contemporary food system (Flowers and Swan, 2012; Galt et al., 2012; Sumner, 2016). Importantly, beyond the impulse to unpack and expose various power dynamics that are reproduced within food systems, scholars are also reflecting on the ways in which these same economic and socio-ecological relations are being reproduced pedagogically.

As an example, Deana Leahy and colleagues (2015) expose how the so-called 'obesity epidemic' has imprinted responsibilizing and moralizing discourses on 'sustainable' food systems learning. Within this context, finger-wagging 'what to eat' discourses refract through the possessive individualist lens of neoliberalism to misguidedly teach us that skinny people are better for the planet (see also Guthman, 2011; Russell et al., 2013). Similarly, others have demonstrated how garden and farm-based education operates to reinforce unequitable power relations that cleave along categories of gender, class and racialization (Flowers and Swan, 2012; Sumner, 2013). In many cases, garden-based learning is animated through appeals to local food and terroir, though it fails to problematize the "unbearable whiteness of alternative food" (Guthman, 2011, 263), or other ways in which structural dominance is reproduced in these spaces.

One cannot escape the issue of *power* when attempting to teach for more economic and socio-ecologically equitable food systems. While the material and ideological forces that structure inequity within food and education systems may differ, both are reproduced through the persistence of unequal power relations. Within this context, Meek and Tarlau (2016, 246) insist that critical food systems educators are confronted with an explicitly political choice, to "use education to reproduce the current food system, raise awareness about the inequities of the food system, or *utilize education as a means to form individuals who are determined to transform the food system*" (emphasis added). Educators, as hooks reminds us, have power too—and this isn't necessarily a negative thing; it just depends on what we do with it (1994, 197).

Overview of the papers

The overwhelming response to this special issue is demonstrative of the extent to which scholars and advocates are actively engaged in thinking about, animating and practicing reflexive and critical food systems pedagogy in these territories known as Canada. The issue features 17 contributions in total, including, one Art/Design Work, two Perspectives, six Field Reports, and eight Research Articles.

The cover image for the collection was created by Luciana Godoy in Sumner's "The Pedagogy of Food" graduate class at the Ontario Institute for Studies in Education at the University of Toronto. As you'll read in her artist's statement, Godoy challenges gendered culinary expectations through a provocative embrace of them. Her "Chocolart" homage to Rosie the Riveter results in a compelling expression of visual and edible pedagogy.

In the opening Perspective piece, Hernandez scrutinizes conventional approaches to food literacy, suggesting that they are typically too narrowly focused on nutrition and food skills. In contrast to this, Hernandez offers a Food Literacy Conceptual Model that integrates multiple conceptual and interdisciplinary perspectives as a way to broaden the conceptual scope of food literacy, and ultimately, make it a more useful concept. Following this, Doyle's Perspective offers reflections on the role that schools do (and can) play in broader food systems. Doyle makes the case that schools in Newfoundland and Labrador are at the forefront of catalyzing broader food systems change in the province.

The six Field Reports that follow provide, in different ways, glimpses into innovative pedagogical interventions from the assignment to the program level. They also, not surprisingly, reflect a variety of adaptations in response to the constraints and opportunities related to COVID-19. Kavcic, Moraes, and Rahouma report on an assignment, steeped in experiential and decolonial pedagogical approaches, in a course at Ryerson University called FNU100—Canadian Cuisine: Historical Roots. The assignment asks students to encounter food places—or sitopias—as sites themselves of learning. Through photovoice, presentations and reflection, the students are guided to better understand the history of cuisine through encounters with downtown Toronto. Bujold, Fox, Martin and Pictou draw similarly on experiential and decolonial pedagogy within the context of a program in rural Nova Scotia designed to engage youth in intergenerational learning about their traditional foodways. The adjustments they were forced to make in response to COVID-19 revealed to them the ways that technology can gamely facilitate intergenerational, land-based learning.

Connell provides insight into a disruptive course-level intervention in a summary of how he designed his syllabus for a first-year course at the University of Northern British Columbia. Connell begins the course, provocatively, by simply writing "food" on the blackboard. This is the opening move in inviting students to co-create the syllabus for the course, based on their own interests and experiences. This, Connell demonstrates, provides students with an opportunity to express some autonomy over, and directionality with respect to, their own education.

In their Field Report, Ng and Cole describe a similarly disruptive process of introducing dietetic graduate students at the University of Toronto to the complexity of food systems, beyond the positivist and nutritionist approaches typically employed in the field. They conclude that being clear about intentions, deliberate in facilitation, and embracing of the tensions that arise are successful pedagogical strategies for introducing critical food systems concepts to their dietetic students. Scott and Stahlbrand's piece extends beyond course-based interventions to consider pedagogical design aspects of an entire program. In their Field Report they share their experience developing Canada's first Honours Bachelor's Degree in Food Studies (BFS). The program, offered by George Brown College in Toronto, finds opportunity for transformative change by bringing together culinary training with critical food studies education. They argue that the former grounds the latter in an applied materiality, while critical food studies opens up a dialogue with respect to socio-cultural, political-economic and environmental issues within conventional culinary training.

In the final Field Report of this special issue, Barndt and Gelis report on their multi-year, intergenerational, intercultural and multi-media exploration of knowledges and practices related to food sovereignty. Readers will learn more about their innovative Field to Tables Legacies Project, which brought together activists working toward food justice in dialogue and discussion, and resulted in a variety of pedagogical outputs, including a website, videos and photo essays.

The first two of the eight Original Research Articles included in this special issue engage with the concept of food literacy within the high school context. Based on qualitative research with teachers and students at two high schools in Ontario, Martin and Massicotte demonstrate the importance of focusing on both health and broader agrifood systems issues in critical food literacy curriculum. Similar to Hernendez, Martin and Massicotte are dissatisfied with conventional approaches to food literacy, and argue for agrifood systems literacy (AFSL)—an approach to food literacy that insists on including social and ecological lenses to deepen the analysis and impact of food literacy. In their piece, Campigotto, Barrett and MacRae identify several barriers to integrating more wholistic food literacy curricula into the elementary and high school levels. They find that K-12 pre-service teachers are keen to teach food literacy in ways that highlight issues of equity and environmental justice, though they are lacking the supports in their training to implement such an agenda.

Food itself, not surprisingly, plays a central role in many of the pedagogical approaches written about in the pages of the special issue. Four of the Original Research articles, in particular, demonstrate the effectiveness of using food as a pedagogical tool.
Sweatman, Anderson, Redcliffe, Warner and Annett demonstrate the effectiveness of community-engaged and community-service learning as a strategy for teaching about complex food systems issues. A partnership between the School of Nutrition and Dietetics at Acadia University and the Wolfville Farmer's Market led to the development of Kitchen Wizards—an initiative that brings together first year dietetic students with six-to-twelve-year-old children to learn about food through taste-testing based on food from the Wolfeville Farmers Market.

Across the country, in Vancouver, Soma, Wilson, Cao and Mackay explore the role of intergenerational and cultural approaches to food waste. In a course titled Building Sustainable Food Systems at Simon Fraser University, students are asked to interview relatives as a means of documenting traditional food preservation techniques. The authors conclude that intergenerational storytelling as a pedagogical intervention can increase food literacy, improve cultural connections and challenge the commoditization of food. Also in Vancouver, Coca interrogates the role of food as a pedagogical tool within the context of the linkages and socioecological relations that exist within the procurement process. Coca explores the Farm to Cafeteria Canada (F2CC) network in Vancouver and demonstrates the many ways in which points along the procurement process provide pedagogical experiences for various stakeholders in a range of education settings. Finally, in a course at Quest University Canada, Szanto integrates food with a pedagogy of performance in a course designed to activate intersubjectivity, emotions and relationships to food. Szanto argues that performance is a framework through which we can learn about food, and the course provides opportunities for students to mix discursive and embodied learning while examining complex food systems issues. This creative intersection, Szanto concludes, transforms and activates students.

The final two Original Research Articles in this special issue take a broader stance, to examine the state of (critical) food systems pedagogy across the country. Corkery, Valley and Dring explore the design of food justice curricula in Canada and the U.S. They use the Understanding by Design instructional design framework to analyze and sort food justice course goals and learning outcomes, pulled from syllabi from fifteen postsecondary institutions. They identify a number of challenges and opportunities for instructors of food-justice courses, and provide insight into supporting student development in the context of food-justice education. Finally, Stephens and Hinton report on their project interviewing program administrators and faculty members of food studies courses and programs across Canada. They are interested, in particular, in exploring the normative commitments and philosophical orientations of various food studies (and cognate) programs. They find that food studies programs in Canada are critically orientated, broadly speaking, but note that there is a gap in terms of moving from critique to action.

The contributions to this special issue demonstrate that food pedagogy as it exists in Canada is indeed dedicated to confronting power and inspiring transformation. Again, hooks is instructive in noting, “Conversation is the central location of pedagogy for the democratic educator” (2003, 44). We hope that this collection—itself a form of food pedagogy—opens space for conversation and dialogue, and that it provides inspiration to teachers, students, advocates, and practitioners struggling for food systems change.

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Perspective

Toward a common understanding of food literacy: A pedagogical framework

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Abstract

Food literacy is an evolving term fundamental to both health and education. The concept of food literacy (FL) typically has been informed by nutrition-focused thinking, with particular emphasis on food skills. Moving beyond this traditional focus is necessary to address the demands of consumers navigating today's complex food environments. Although the term is increasingly recognized, there is no consensus regarding the definition of food literacy or its conceptual dimensions. This paper describes a *Food Literacy Conceptual Model* that integrates multiple food literacy perspectives and theoretical frameworks. This *Food Literacy Conceptual Model* provides an enhanced framework with potential application as a pedagogical tool. As an interdisciplinary approach to food literacy, the conceptual model has the potential to increase teaching and learning effectiveness in the learner's context through educating on the core components of this construct. In addition, a learner's food literacy may be enhanced with the application of this practical and more inclusive, applied framing in the conceptual model.

Keywords: Food literacy

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Introduction

Without a common understanding of FL, there are no shared identifiable variables and indicators for analysis, parameters for inquiry, or measurement tools (Pleasant et al., 2016; Rosas et al., 2019). This limits progress on "providing practical tools and tailored methodologies" (Palumbo, 2016, p. 105) for FL teaching, education, and learning, as well as policy and program development, implementation, and evaluation. To achieve this multifaceted goal and ultimately effect social change, a common understanding of, and respect for, FL needs to be more centrally positioned within education, social discourse, and public conscience.

How FL is conceptualized and communicated is therefore of timely importance. Through developing shared understanding and agreement around approaches, skills required, and use of resources by various researchers, government departments, non-government organizations, and schools, more attention can be directed at developing and enhancing FL. Understanding FL as comprising multiple interdisciplinary components has the potential to create opportunities for researchers, educators, practitioners, and policy makers to harness and situate their currently profound, yet, disparate perspectives. This new way of thinking has been identified as a new approach to teaching and learning (Classens & Stysma, 2020) and may, in fact, better position learners, researchers, educators, practitioners, and policy makers to explore the variety of factors and components within this construct in ways central to enhancing their collective practices and outcomes. Specifically, this new approach to FL has the potential to contribute to increasing the effectiveness of situating FL in the learner's context by emphasizing elements of systems thinking that may empower the learner to take action towards social change. The aim of this paper is to describe this more inclusive and applied interpretation and introduce a *Food Literacy Conceptual Model,* which provides an enhanced framework with potential application as a pedagogical tool to effectively plan and evaluate food literacy teaching, education, and learning as well as policies, programs, practices, and initiatives.

Literacy

Given that the concept and definition of 'literacy' has evolved over the years with varying perspectives but still no consensus, it is not surprising that we see a lack of a shared definition of FL which emerges from understandings of both literacy and health (also lacking a universal definition). In fact, Barton (2007) asserts identifying a precise definition of literacy may be an impossible undertaking. Notwithstanding the evolving, dynamic nature of defining literacy, four understandings of literacy have appeared in the literature which align with Pace's (1982) understanding of literacy as both a process and a product: 1) literacy as an autonomous set of skills; 2) literacy as applied, practiced and situated; 3) literacy as a learning process; and 4) literacy as text (UNESCO, 2006). Sørensen et al. (2012) assert literacy also includes contextual and societal transformation. Therefore, literacy can be viewed as the ability to construct meaning

in any given context (Pahl & Rowsell, 2005) that is embedded in social practices. Barton & Hamilton (1998) support this social perspective of literacy:

> Literacy is primarily something people do; it is an activity, located in the space between thought and text. Literacy does not just reside inside people's heads as a set of skills to be learned, and it does not just reside on paper, captured as text to be analyzed. Like all human activity, literacy is essentially social, and it is located in the interaction between people. (p. 3)

As such, a literate person must possess a wide range of abilities and competencies in the 21st century (NCTE, 2008), identified as multiliteracies. This concept of multiliteracies is inherently complex and social.

It is important to acknowledge that the term multiliteracies identifies learners' worldviews as a key component of their literacy development (New London Group [NLG], 1996) and is suggestive of a holistic approach to literacy comprising the "mind, society and learning" (NLG, 1996, p. 83). In fact, the original intent of multiliteracies was a pedagogical approach created for teachers in elementary and secondary schools (Cope & Kalantzis, 2000); however, with the changes in society due to globalization and the advancement of technology, our evolving understanding of literacy and literacy practices are continually being challenged. For that reason, health literacy, and by extension, nutrition and FL have emerged in recent years as specific components within literacy.

Health literacy

There has been increased awareness of the correlation between literacy and health with recent public health actions and interventions to promote health equity (Gillis, 2016). The term 'health literacy' was first coined in the 1970s and gained attention from education and healthcare; but has since expanded its scope and depth to include public health. In the early days of health literacy, there was a primary focus on "an individual's capacity (and motivation to learn) and the resources provided by the health care system" (Baker, 2006, p. 878). However, Nutbeam (2000), acknowledged health was not only "influenced by individual characteristics and behavioural patterns (lifestyle) but continues to be significantly determined by different social, economic, and environmental circumstances of individuals and populations" (Nutbeam, 2000, p. 260). This view is consistent with the emergence of health promotion thinking over the past 40 years and, in particular, with social determinants of health discourse.

Health literacy's importance is increasingly being recognized as a means to "meet the complex demands of health in modern society" (Sørensen et al., 2012), though there is "no universally shared definition" (Gillis, 2016, p. 87). In Canada, an expert panel on health literacy adopted the following definition of health literacy: "the ability to access, understand, evaluate and communicate information as a way to promote, maintain and improve health in a variety of

settings across the life-course" (CPHA, 2008, p. 11). Sørensen et al. (2012) addressed the issue of competing definitions of health literacy through research, which resulted in an integrated health literacy definition and framework. While "the current health literacy movement seeks to improve health outcomes and reduce health disparities through improved health communication systems and health education programs" (Freedman et al., 2009, p. 446), it is imperative that "communication…draw[s] upon personal experience, invite[s] interaction, participation and critical analysis" (Nutbeam, 2008, p. 2075). This perspective reflects the typology of functional, communicative/interactive, and critical health literacy as found in Table 1 (Nutbeam, 2000). This "typology for health literacy…has relevance to health promotion practice, including implications for framing [nutrition and] food literacy" (Gillis, 2016, p. 89) in programs aiming to increase FL teaching, education, and learning.

Table 1: Functional, Interactive, and Critical Health Literacy (Nutbeam, 2000)

Functional health literacy	Basic health literacy skills that are sufficient for individuals to obtain relevant health information and apply that knowledge to a limited range of prescribed activities
Interactive health literacy	More advanced literacy skills that enable individuals to extract information and derive meaning from different forms of communication; to apply new information to changing circumstances; and to interact with greater confidence with information providers such as health care professionals
Critical health literacy	Most advanced cognitive skills which, together with social skills, can be applied to critically analyze information, and to use this information to exert greater control over life events and situations

Nutrition literacy

Evidence suggests that "health literacy skills were found to correlate with numerous nutrition-specific skills such as estimation of portion sizes, understanding of nutrition labels, and seeking of and trust in nutrition information sources (Carbone & Zoellner, 2012). The connection between health and nutrition literacy surfaced since individuals with low literacy and numeracy levels are more likely to have poorer diet and health outcomes (Higgins et al., 2008). Nevertheless, many researchers such as Kickbush (2001) have highlighted that the health literacy construct is complex; Velardo (2015) notes ''it can mean many different things for different people" (p.386). Correspondingly, research has found the following concrete examples of health literacy application in nutrition knowledge and skills: knowledge of macronutrient intake, food groups, and food composition, combined with basic math and measurement competencies, as well as the ability to understand nutrition concepts if an individual is presented with a disease that has nutrition implications (Gibbs & Chapman-Novakofski, 2012).

Recently, a scoping review of nutrition literacy definitions was conducted and 14 definitions were found "which generally described knowledge, skills, and competence necessary for nutritional health" (Vetorri et al., 2019). A systematic review found six original definitions of nutrition literacy (Krause et al., 2018) and most of the definitions have "described the abilities necessary to obtain and understand nutrition information" (Krause et al., 2018, p.381) whereas,

> All definitions of nutrition literacy centered on an individual's cognitive capacities and strongly emphasized basic literacy and numeracy skills needed to understand and use information about nutrition. They argue that without these skills people cannot access and understand nutrition information and thus cannot build on nutritional knowledge, which is one of the keys to healthier eating practices. (Krause et al., 2018, p.381)

Parallel to health literacy, "three cumulative levels of nutrition literacy referred to as 'functional', 'interactive' and 'critical' nutrition literacy" (Guttersrud, Dalane, & Pettersen, 2014, p. 877) have been developed. Gillis (2016) notes, "nutrition literacy tends to align with the clinical [individual] approach to health literacy…rather than a health promotion context" (p. 95). Furthermore, nutrition literacy often takes the form of nutrition education to increase knowledge and practical skills. Murimi (2013) points out that "nutrition education focuses on food intake and how the body utilizes nutrients for growth, development, and health" (p. 195). This limits the focus to that of individuals and does not reflect the two sided approach to health literacy that looks beyond individual skills to the demands and complexities of the systems through which information is provided (Pleasant et al., 2016). This displaces the opportunity to engage in teaching, education, and learning about the far broader 'scope' related to FL.

Food literacy

Food literacy has been explored as a "sub-concept of health literacy", but it has recently emerged "as a relevant concept in its own right" (Gillis, 2016, p. 98). Progressing from food and nutrition knowledge and skills, FL is an evolving term fundamental to both health and education as it "is currently discussed as an aim of food education in the western world, partly inspired of a fundamental literacy understanding and partly of health literacy or other related literacy areas to food" (Benn, 2014, p. 13). A recent scoping review examined 38 novel FL definitions that demonstrated the breadth and depth of meanings that exist in health and education research (Truman et al., 2017). However, as often as FL is defined and referenced, there is no common understanding of this construct. Existing definitions vary greatly and repeatedly interrelate nutrition education, improved nutrition abilities, and cooking skills, while often reflecting the interests and discipline-specific context of those involved in developing them. These narrow interpretations miss the opportunity to connect "well-being at both the individual and collective level" (Palumbo, 2016, p. 104). Given these varying definitions of FL (akin to health literacy), it is not surprising that teaching, education and learning programs, practices, and policy initiatives are inadequate or compete against each other (Finley et al., 2017; Malloy-weir et al., 2016). Researchers, educators, practitioners, and policy makers' expertise may be adopted for diverse contributions to this evolving field of inquiry and practice; yet advancing the outcomes of FL, like improving individual and systems level health and well-being, requires some shared momentum and vision (Cardwell, 2005; Vigden & Gallegos, 2014). This work has begun;

Truman et al. (2017) found that despite the many novel, yet, diverse FL definitions, there are six common themes woven throughout these conceptualizations: knowledge, emotions, skills/behaviours, health/food choices, culture, and the broader food system. Rosas et al. (2019) explored domains, factors of influence, and potential determinants to advance the construct of FL and found congruence for many of the attributes acknowledged in the literature, though some concepts, specifically around influential factors and determinants, were presented and require further consideration.

Food literacy paradigms

Food literacy appears to be situated within two paradigms as reflected in various definitions throughout the literature. Some view FL as apolitical, highly individualistic, and lacking an overt consideration of the wide-ranging social or ecological context (Block et al., 2011; Bublitz et al., 2011; Cullerton et al., 2012; Fordyce-Voorham, 2011; Howard & Brichta, 2013; Kolasa et al., 2001; Murimi, 2013; Pendergast et al., 2011; Thomas & Irwin, 2013). In contrast, others argue the need to consider the broader environmental, social, economic, cultural, and political forces implicit in FL (Belotti, 2010; Benn, 2014; Cullen et al., 2015; Desjardins & Azevedo, 2013; Dyg, 2014; Kimura, 2010; Martin, 2018; Stinson, 2010; Sumner, 2013). By way of example, Vigden (2016) draws attention to the term FL as being "most often applied to the outcome of nutrition but is also applied to other food related outcomes, particularly environmental sustainability, informed consumerism, active citizenship, and food security" (p. 2). Given the expansive scope concerning food related outcomes, Sumner (2013) recognized there is a need to reframe FL as a social practice. She has connected Habermas' (1978) theoretical understanding of the three domains of knowledge to FL: empirical/analytic knowledge (reflects knowledge and skills adopted through individualistic approaches to food); historical/hermeneutic knowledge (understanding culture and meaning associated to food), and critical/emancipatory knowledge (critical reflection; exposing the hidden power within food system structures for social transformation). Slater (2013) advanced this notion whilst "encompassing applied and theoretical aspects of functional, interactive and critical 'food literacy'" (p. 623), which aligns with Nutbeam's (2000) typology of health literacy. Researchers have also acknowledged that multiple literacies such as civic literacy and cultural literacy (Zarcadoolas et al., 2005) and literacies related to agriculture and environment (Yeatman, 2016) are well aligned with FL, which considers the notion of how social, structural, and economic components interact with and influence food systems. This broader food systems lens has been described as 'food systems literacy' (Widener & Karides, 2014) which is outside the scope of this paper.

Food literacy has been described "as a crucial determinant of health improvement, environmental sustainability, and social equity" (Palumbo, 2016, p. 104). This broader, more comprehensive FL definition acknowledges benefits to the individual as well as the positive impact on health and environmental outcomes (Howard & Brichta, 2013) leading to a "viable improvement of the various determinants of individual and social well-being" defined as

'enhanced well-being sustainability' (Palumbo, 2016, p. 104). Vetorri et al (2019) suggest FL "could be described as a multidimensional concept that implies an individual dimension (knowledge, motivation, competences, and awareness) as well as the relationship between individuals and their context, aimed at consuming foods assuring nutritional health and a sustainable food system" (p. 13). Rosas et al (2019) outlines many influences that may enhance or hinder FL "within a larger scope, by including hierarchical relations among diverse aspects integrating the food system" (p. 25) to illustrate there are individual level factors as well as additional factor's that limit one's FL. As such, it is our responsibility to directly expose various learners to the importance of gaining individual food and nutrition skills (ie., knowledge, access, values, beliefs, culture) as well as provide supportive environments (ie., food environment, food and nutrition programs, access, availability, and affordability) to "enable individuals to implement their food literacy" (Poelman et al., 2018, p. 10). Doing so may support learners to interact with a critical FL perspective, considering the structural, social, environmental, and economic inequities and injustices.

Mapping and integrating multiple dimensions of food literacy

Recent research, including qualitative studies, systematic, and scoping reviews, have documented, analyzed and, in some cases, categorized different definitions, themes, domains, attributes, and concepts of FL to interpret its representation, introduce a new or integrated definition of FL, develop a new FL framework, or create evaluation measures (Amin et al., 2018; Azevedo Perry et al., 2017; Begley et al., 2018; Cullen et al., 2015; Krause et al., 2018; Palumbo et al., 2017; Poelman et al., 2018; Rosas et al., 2019; Slater et al., 2018; Truman et al., 2017; Velardo, 2015; Vetorri et al., 2019; Yuen et al., 2018). This timely body of research and theory has informed the development of the *Food Literacy Conceptual Model*.

The current literature on FL reveals the foundation of a conceptual model by illuminating many interconnections and overlapping dimensions. Through a comprehensive literature search and mapping exercise, the multiple dimensions of FL incorporated into the *Food Literacy Conceptual Model* have been summarized (Table 2). With a goal of uniting the multiple perspectives within FL, the initial step was informal interviews with practitioners, specialists, and scholars in various disciplines (i.e., public health, education, nutrition, political science, and agriculture) to bring in their unique perspectives. Next, a literature search, drawing on health, nutrition, agriculture, sociology, environment, economics, political science and education, was conducted. A search strategy was developed based on key concepts derived from the qualitative process and using relevant search terms for electronic bibliographic databases of peer-reviewed literature, supplemented by grey literature. Key FL concepts were extracted and mapped through populating a table that included the various theories, models, components, attributes, domains, pillars, and themes and were categorized by discipline, alongside a description and references. The goal of mapping these concepts was to integrate and group similar concepts into dimensions. Finally, an iterative process was used by the authors to synthesize the dimensions into the

conceptual model. The following multiple literacies were captured within the umbrella of FL: health literacy, nutrition literacy, agri-food literacy, food media literacy, civics literacy, cultural literacy, and eco-literacy.

Table 2: Multiple Dimensions of Food Literacy Conceptual Model

Author/Year	Type of Literacy	Definition
Sorenson et al., 2012	Health Literacy	Linked to literacy and entails people's knowledge, motivation and competences to access, understand, appraise, and apply health information in order to make judgments and decisions in everyday life concerning healthcare, disease prevention, and health promotion to maintain or improve quality of life during the life course.
Zoellner, Connell, Bounds, Crook, & Yadrick, 2009	Nutrition Literacy	The degree to which individuals have the capacity to obtain, process, and understand nutrition information and skills needed in order to make appropriate nutrition decisions.
	Agri-Food Literacy	**No formal definition as of yet; a combination of agricultural and agroecology literacy*
	Agricultural Literacy	
American Farm Bureau Foundation for Agriculture, n.d.		To understand the relationship between agriculture and the environment, food, fiber and energy, animals, lifestyle, the economy, and technology.
	Agroecology	
Francis et al., 2003		To understand the entire food system, encompassing ecological, economic, and social dimensions.
Peterson, 2012	Food Media Literacy	The ability to critically respond to food-oriented media [written, verbal, visual] that might empower people to pursue healthier choices in a commercially driven food landscape.
Zarcadoolas, Pleasant, & Greer, 2005	Civics Literacy	The abilities that enable citizens to become aware of public issues and to become involved in the decision-making process related to food [and food systems].
Zarcadoolas, Pleasant, & Greer, 2005	Cultural Literacy	The ability to recognize and use collective beliefs, customs, worldview, and social identity in order to interpret and act on health [and food related] information.
Puk, 2009	Eco-literacy	The capacity, based on a comprehensive understanding of the interconnections between natural systems and human systems, to make informed decisions about the future of life in relation to food [and food systems].

Health literacy is foundational to FL as it "frames literacy as a continuum of proficiency that benefits not only the individual but society more broadly" (Truman, et al., 2019, p. 9), as such, it may be a mechanism that leads to empowerment. In order to achieve critical health literacy with the aim of benefiting society more broadly through empowerment, it is necessary to focus on "an ability to question and reflect on the prevailing power relations and societal conditions; increased senses of power, self-esteem, and self-efficacy; and an ability to utilize these resources to engage in social and political action for change" (Crondahl & Karlsson, 2016, p.1). Nutrition literacy is "conceptualized as a specific form of FL" (Krause et al., 2018; Vetorri et al., 2019) and may "be considered as an independent concept" (Vetorri et al., 2019). Nutrition literacy is therefore considered one dimension within the more inclusive and applied concept of FL and has been

referred to as a "prerequisite" for individual FL (Schlüter, et al., 2020, p. 4). Although no formal definition appears yet in the literature, the emergent term 'agri-food literacy' captures the essence of agricultural literacy and agroecology. As a key element of FL, agri-food literacy represents the intersection between agriculture and food systems. The following definition for agri-food literacy is offered for consideration:

> The ability of an individual to understand the interrelationship between agriculture and food systems, including ecological, economic, social/historical, political, and cultural components in ways that contribute to personal and environmental health and well-being.

Moreover, food media literacy, civics literacy, cultural literacy, and eco-literacy are interrelated, yet distinct concepts, and highly overlap with the other literacies within the inclusive and applied FL approach. Food media literacy is "preoccupied with producing educated citizens able not only to engage with, but also to challenge and change broader social conditions" (Truman, et al., 2019, p. 10) such as inequities and injustices. Civics literacy, cultural literacy, and eco-literacy include making individual decisions while embracing the interests of the broader public and ecological health targets (Zarcadoolas et al., 2005). In doing so, environmental, economic, cultural, social, and political considerations are taken into account in the *Food Literacy Conceptual Model*, thereby comprising the critical literacy domain of FL with a goal of food citizenship. Food citizenship has been defined as "the practice of engaging in food-related behaviors that support, rather than threaten, the development of a democratic, socially, and economically just, and environmentally sustainable food system" (Wilkens, 2005, p. 271). Therefore, how FL is conceptualized is important for social change. Furthermore, integrating these considerations into the multiple dimensions of the more inclusive and applied FL construct removes the false dichotomy of an individualistic notion of FL contradicting that of the broader societal context. Rather, the individualistic notion of FL is a component within this construct of FL. As such, it is important to note that the *Food Literacy Conceptual Model,* which encapsulates these dimensions, does not comprise a simple progression.

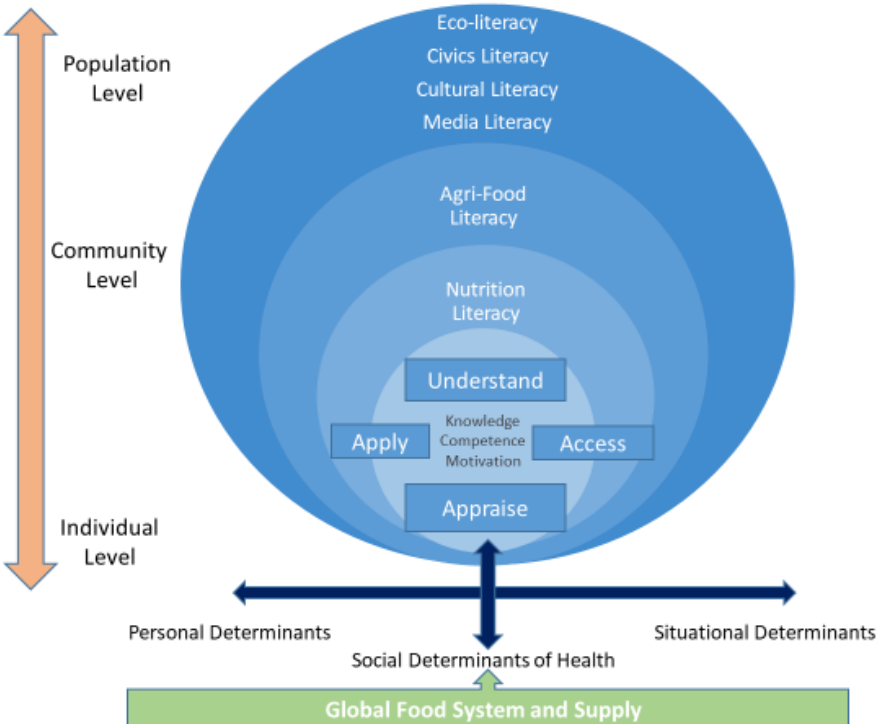
Food literacy conceptual model

Given that food and health are synergistic, there is a need to bridge health literacy and FL. Both health literacy and FL are multidimensional, consist of diverse components and have no unanimously accepted definitions in the literature. Both literacies consider an individualistic approach while acknowledging the many system-level factors and forces that influence and/or impact an individual's extent of health literacy or FL. Understanding the intersection of health literacy and FL is essential in order to advance FL education, interventions, policy, programs, and practice. Hence, we saw the need to incorporate the various domains of literacy into a conceptual model in order to demonstrate the integrated and interdisciplinary nature of this construct and to inspire development of a shared understanding of FL.

The *Food Literacy Conceptual Model* (Figure 1) includes an interpretive approach and a deeper understanding of FL through an interdisciplinary lens by building upon Cullen et al.

(2015) *Food Literacy Framework for Action* conceding that "individual behaviours and skills cannot be separated from their environmental or social context" (p. 144) and adapting Sørensen et al. (2012) *Integrated Model of Health Literacy* while taking into consideration the various themes, attributes, domains, competencies and concepts of FL described in the literature (Amin et al., 2018; Azevedo Perry et al., 2017; Begley et al., 2018; Cullen et al., 2015; Krause et al., 2018; Palumbo et al., 2017; Poelman et al., 2018; Slater et al., 2018; Truman et al., 2017; Velardo, 2015; Vetorri et al., 2019; Yuen et al., 2018). As previously stated, the broader ecological public health perspective was included in Cullen et al.'s (2015) FL definition and framework; this was foundational for framing this conceptual model with a strong focus on critical literacy and engagement in order to lay the "groundwork for engaging with food systems' power structures" (Renwick & Powell, 2019, p. 29). The *Food Literacy Conceptual Model* also builds upon the framing that Renwick and Powell (2019) shared as situating FL as "developing the knowledge, critical thinking, analytical, and communication skills necessary to join communities surrounding food systems and the social relations in which they are embedded" (p. 29). Fundamentally, this *Food Literacy Conceptual Model* provides a starting point to evolve our thinking about FL and to highlight the need for a shared understanding building on the multiple and interdisciplinary perspectives and worldviews in the literature. This approach sets it apart from existing conceptual models and frameworks examining key domains, attributes, and competencies specific to FL to an expanded model that highlights the interdisciplinary approach while putting more emphasis on the "literacy" aspect coalesced from the various perspectives in the literature. This model has been academically recognized and integrated into the recently published "Conceptual Model Map on Health and Nutrition Behavior", which aims to demonstrate "the connections between different theories and constructs in the field of health and nutrition" (Schlüter et al., 2020, p. 8).

Figure 1. Food literacy conceptual model



Reminiscent of health literacy, the *Food Literacy Conceptual Model* integrates the characteristics of a conceptual model delineating the main dimensions of FL, and a logical model illustrating the proximal and distal factors that impact on health literacy (Sørensen et al., 2012), and ultimately FL. Furthermore, the core of the model illustrates the concepts that relate to individual influences such as "knowledge, skills, access, values, and beliefs, which interact with community factors including policies, programs, availability, and culture. This leads to a comprehensive understanding of food systems and food within culture and society, all culminating in how food choices impact health and wellbeing" (Cullen et al., 2015, p. 143). Likewise, the center of the model captures the essence of Sørensen et al. (2012) competencies of understanding, accessing, appraising, and applying health and food-related information:

(1) *Understand* refers to self-awareness and the agency to comprehend and make meaning of food-related information that is accessed;
(2) *Access* refers to the ability to seek, find and obtain relevant food-related information;
(3) *Appraise* describes the ability to interpret, filter, judge and evaluate the food- related information that has been accessed for credibility of information as well as relevance to one's food related needs and goals; and
(4) *Apply* refers to the ability to communicate and use food-related information to make a decision to maintain, improve, and promote health (in the larger context of self, community, and

environment) (Sørensen et al., 2012, p. 9) through practical hands-on food skills and critical thinking. The above named competencies also align with Nutbeam's (2000) and Slater's (2013) typology for health (food) literacy: functional, communicative/interactive and critical health (food) literacy as well as Habermas' (1978) three domains of knowledge: empirical/analytic knowledge (reflects knowledge and skills adopted through individualistic approaches to food), historical/hermeneutic knowledge (understanding culture, history, and meaning associated with food experience), and critical/emancipatory knowledge (critical reflection; exposing the hidden power within food system structures for social transformation).

Moving away from the core of the model, each of the FL concepts embodies a fundamental dimension represented as nested circles, akin to Bronfenbrenner's ecological model of human development (1979), two demonstrate the complex and interrelated construct of FL. Each dimension of FL integrates the features of functional (basic knowledge), interactive (hands-on, practical food skills) and critical FL (critically analyzing and appraising information to engage in food related actions to overcome challenges related to personal, structural, social and economic barriers to accessing food for health and well-being); though not visually depicted in the model. Furthermore, this *Food Literacy Conceptual Model* acknowledges that in order to foster the critical/emancipatory aspects of food, the knowledge and skills in each of the knowledge domains should be realized; each of these knowledge domains may develop at different paces and through varying experiences, which aligns with Bronfenbrenner's thinking around human development.

Given the challenges related to accessing food for health and the "growing concerns about social inequities and health inequalities" (Gillis, 2016, p. 98), the need to identify other factors and forces influencing health, social equity, and FL is recognized. The foundation of the model identifies the more distal factors, including the global food system and supply leading up to "the societal and environmental determinants (i.e., demographics, culture, language, political forces, societal systems), proximal factors, which are more concerned with personal determinants (i.e. age, gender, race, socioeconomic status, education, occupation, employment, income, literacy) and the situational determinants (i.e. social support, family and peer influences, media use and physical environment)" (Sørensen et al., 2012, p. 10). Furthermore, as individuals engage with food on a daily basis, the context related to food is temporal and thus requires development of their knowledge, skills, and competencies to navigate and challenge the food system and environment in which we live as the context changes and demands for FL evolve.

Conclusion

Many diverse disciplines can contribute to improving FL. Although FL often focuses on individuals, it also embraces the public health lens placing importance on other aspects of food such as a sustainable food supply (agriculture) and the environment. Not all disciplines focus on the core elements of public health; nevertheless, they can still contribute to the more inclusive

and applied context of FL through teaching, education, and learning as well as population-based programs, practices, initiatives, and policies. Thus, FL truly has an interdisciplinary scope and must be interpreted as such.

This *Food Literacy Conceptual Model* can serve as a basis for developing FL pedagogy, policies, programs, practices, and initiatives and can provide a conceptual basis for the development and validation of evaluation tools. For example, this Food Literacy Conceptual Model may be used in developing food and nutrition related curriculum, standards for professionals, and the basis for creating and evaluating FL programs. Based on these analyses that ground this *Food Literacy Conceptual Model* and integrate the individual and public health perspectives, we call for the appreciation, application and adoption of the concepts intertwined in the *Food Literacy Conceptual Model*. This will lend itself to aligning pedagogical aims, content, vision, strategies, and priorities within and across teaching, education, and learning, as well as within and across academia, government, and non-government organizations locally, nationally, and internationally.

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Canadian Food Studies La Revue canadienne des études sur l'alimentation

Perspective

From a study of the Newfoundland and Labrador school food system: Describing an evolution in ways of knowing about school food

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Abstract

In this perspective piece I reflect on the importance of considering the place of schools within broader systems for critical school food study and intervention. These reflections are based on my study of school food in Newfoundland and Labrador from a systems perspective which helped reveal to me how assumptions about school food tend to get in the way of deep understanding about the impact and sustainability of programs.

Keywords: School food system

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What is a systems approach to school food?

The discussion of school food closely nestles changing conversations within food policy and public health which take into consideration the material, biological, social, and cultural reasons why people eat what they eat and how these factors operate within the food system (Lang, 2009; Rayner & Lang, 2012). Along with a shift in thinking about the broader social, economic, and environmental consequences of food systems has come a shift in thinking regarding school food and its relevance to society. Critically, Morgan and Sonnino (2008) have proposed the concept of a "school food revolution," which connects school food to concerns of food production, nutritional health, and environmental sustainability. Consideration of this larger scope entails understanding school food as a system. "Systems thinking" has been proposed as an alternative to a more reductive approach to understanding school food. Understanding school food as a system requires consideration of how multiple factors combine to influence it. This type of thinking requires researchers and practitioners to move away from traditionally more reductionist perspectives on school food towards a more systems-based, critical approach.

Informing this approach are ongoing conversations within research about food systems, education systems, and health systems, which share the sentiment that the act of knowing about these systems depends on a shift in epistemology towards socio-ecological, i.e., systems, understanding. Each field has developed its own concept born as a response to viewing and confronting the barriers of the current system in achieving healthy food systems (i.e., critical food pedagogy), socially and ecologically meaningful education systems (i.e., place-based education), and holistically healthful school environments (i.e., Comprehensive School Health framework) (Gruenewald, 2003; Simovska, 2014; Sumner & Wever, 2016). These concepts all address the consequences of reductionism for school food, including the limits of an industrial consideration of food, an industrial model of learning, and a biomedical approach to health. The interdisciplinary view of school food has evolved over a long history, beginning during an earlier time when school food was a simple response to a "simple" problem, that of child hunger (Oostindjer et al., 2017). The current thinking is that, to understand or improve how the current school food system functions, a particular critical form of knowledge about the system can address the crisis in thinking of past approaches to school food and the negative impacts on schools and school health.

More recent discussions of school food consider many factors: children eat at school, the school setting can influence how students understand food, schools can engage students in the entire food cycle, and school food can influence the broader community in its promotion of food practices (Rojas et al., 2017). Gilbert et al. (2018) describe school food as the tool "… for introducing a just transition to the local food system, enhancing food equity built from healthier social, economic, ecological, and political systems" (p. 95). They see public education systems as having a role and responsibility in managing and enhancing community food systems through public policy. Morgan and Sonnino (2008) describe school food as a litmus test to judge the degree to which countries are responding to social and ecological concerns.

Seeing these potential opportunities of societal transformation through school food potentially reveals a place where we as a society are calling into question not only the appropriateness of school food, but of schools themselves, for our changing society.

School food interventions and research need to consider the built-in infrastructure and assumptions around schools that come to fundamentally influence the limits and possibilities of school food. Part of this infrastructure includes the way in which schools tend to offer a fragmented view of the world. A number of school food interventions, such as school gardens, are helping educators and communities link together constructs and processes that tend to be neatly divided in society. Schools are linked into a societal infrastructure that has tended to ignore ecological or systems thinking (Greenwood, 2014). Greenwood (2014) explains how the dominant form of schooling is based on "…root metaphors of modernism- individualism, anthropocentrism, faith in progress, assumptions which have come to overdetermine or restrict possibilities for people and the places where they live" (p. 20). The question becomes: to what degree do we address school food as an eating problem versus a thinking problem? As Sumner and Wever (2016) indicate, with school food, there are deeper lessons at stake. A systems view of school food offers new possible collaborations and tools that can propel social systems in healthier and more sustainable directions.

What are examples of systems approaches to school food?

A systems approach to school food leans toward an understanding that the ways we know food (the mental aspects of food systems) are fundamentally linked to the infrastructure and connections to our places in those systems (the material aspects of food systems). Awareness of the systemic challenges within the school food system has led to research which attempts to be systematically thorough in its investigation of the characteristics and possibilities of this system, and how these change through time. For example, the Think and Eat Green @ School (TEG@S) project was built on the recognition that there were many positive school food system opportunities ongoing, but that they were functioning independently (Rojas et al., 2017). Rojas and colleagues (2011) defined the goal of school food transformation:

> The goal of school food system transformations is…to provide opportunities for students and staff at all levels to reconnect with the sources of their food and to learn to see food as the grand connector of all aspects of human life, including the relationship between humans and nature. The ways in which we learn about the connections among food, health and the environment at school, both explicitly and by the modelling of behaviours, have a lasting influence on the health of children, the school community and the ecosystems in which schools are located. (p. 766)

The School Food Environment Assessment Tool (SFEAT) was also a product of the TEG@S project (Black et al., 2015). This tool was developed in response to an absence of knowledge about the degree to which schools were engaged with food systems issues. The SFEAT was designed to support building a common language to describe the multiple domains where schools are taking action. It helps to outline some factors and processes considered in a school food system. These include: (1) the availability of healthy food; (2) food teaching and learning; (3) engagement with community; (4) food preparation; (5) gardens/ composting; (6) availability of environmentally sustainable food; and (7) the integration of school food actions along the food system. Black et al. (2015) developed the SFEAT because they found that "…existing tools largely evaluate only narrow components of school food environments such as local food procurement policies or access to healthy food in lunch programs, but seldom concurrently consider multiple facets of complex school food systems" (p. 2).

Another innovative example of school food systems practice that is particularly relevant to the study of the NL school food system is the lessons from Haida Gwai connected to Farm to Cafeteria Canada, which highlight practices such as using the land in school programming and incorporating traditional food into school meals (Farm to Cafeteria Canada, 2014). The link between systems thinking and Indigenous knowledge systems suggests that an education inspired by Indigenous cultures and epistemologies can help us to question assumptions on which unsustainable contemporary ideas about education, economics, and culture are based (Greenwood, 2014; Kincheloe, 2014; Morito, 2002).

The suggestion that improving school food connects to an epistemological problem which is best addressed not only through food policy and programs but also by applying ecological thinking more broadly to the infrastructure which makes up the school food system, including policy, learning, research, and engagement, is critical. An interdisciplinary framework informed by contextualized knowledge of the school food system permits crossing boundaries that lead to current fragmentations in approaches to school food, in schools, academia, and society. This research explores systems-thinking inspired methodology to bridge different ways of thinking about school food.

Methods as a systems approach to knowing school food

My research process connects with three key systems-thinking strategies and tools used for transformational change within systems (Swanson et al., 2012). The first is the principle that systems transformation depends on collaboration across disciplines, sectors, and organizations. The second is the principle of ongoing iterative learning for systems transformation. The final principle is that transformational leadership, i.e., innovation, is required for systems transformation.

Interdisciplinary = collaborative

The systems principle of collaboration manifests in an interdisciplinary vision of the actors and systems involved in addressing the question of school food. Framing an understanding of school food by linking together literature on school food systems, food policy, school gardens, school health promotion, public health theory, and systems thinking or ecological literacy allows a de-fragmentation of narratives that, when joined together, potentially allow for transformation of multiple parts of the system. The concept of the "school food system" addressed through this research was inspired by the definition developed by the School Food Environment Assessment Tool (SFEAT), which uses Comprehensive School Health framework components to frame the school food system in order to discover the extent to which schools have integrated healthy and environmentally sustainable food initiatives (Black et al., 2015). Within my own research, this new approach led to the use of an expanded map of school food system stakeholders. By overlaying a collaborative framework on the analysis of the school food system in NL, strategic areas for collaboration and integration were identified. Issues such as educational restructuring and unhealthy food environments play critical roles in school food programs and policies. While there are diverse supports available to and accessed by schools, there is a lack of strategic integration and systemic accountability regarding how health and food system resources function in individual schools to effectively confront consistent barriers.

Innovative = new tools, new concepts

While previous research in this province has addressed the effects of social and economic transformation on health and food systems, these discussions have not been connected directly to investigations of school food (Dolan et al., 2005; Keske, 2018; Parrish et al., 2007). The principle of transformational leadership manifests in this systems-inspired methodology by asking novel questions which attempt to push the boundaries of what factors are relevant when we discuss school food. This study of the system of school food in the province of NL can be understood as research that provides a site to create, imagine alternatives, and attempt to repair the distance between unecological and ecological approaches to this setting in society (Gruenewald, 2003). When school food is understood as a system in need of transformation, research can be positioned to help propel this transformation; this has been described by Rojas et al. (2011), who use a research process that relies on collaboration to identify opportunities to generate knowledge, and to devise and implement locally appropriate action to create desired change. Applying an alternative lens to the question of school food helps to narrate some of the tensions in the NL school food system. The best example of existing tensions is the discovery of barriers to the consumption and integration of fish in schools.

This is significant in a place that has dramatically transitioned from the "land of the fish" to a site where cod fish is an endangered species that interestingly (due to food allergies) has been banned in a majority of schools (Davis, 2014, p. 696). Another issue emerging at the time when I am completing my dissertation is the impact of COVID-19 on school food. I observe in my own children's school that the lunch service has been cancelled, and innovative approaches such as the farm to cafeteria local food salad bar are advised to halt at this time (Government of Canada, 2020). These new barriers occur at the same time that changes brought on by the COVID-19 pandemic will increase food insecurity (Food Secure Canada, 2020), and the emergence of the COVID-19 virus itself has been linked to problems with our food system (Wallace, 2016). The interconnectedness of these two issues further justifies approaches to school food research that can cross boundaries and support positive adaptations to systems that every day appear more broken.

Conclusion

This description of the study of school food in NL addresses the potential problem that perhaps our ways of knowing about school food are too entrenched. Thus far, the predominant approach to school food intervention and research has failed to respond to a larger critique that the education system (including research generated through it) has been incompatible with an approach to school food systems that critiques the fragmentation of social practices on a larger scale. The alternative approach described here involves critical school food systems pedagogy. I aim to demonstrate how a systems-minded methodology offers a new way to read and interpret the school food system in the province of NL. On a larger scale, this research about the province of NL can help to inform ongoing and emerging conversations about school food systems in Canada and throughout the world. This research contributes to our understanding of how fragmentation of knowledge characteristic of the current NL school food system can lead to a reduced ability to perceive and account for larger trends, which come into focus when a longer time frame and wider lens are used.

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Field Report

Decolonizing the learning of sitopias in Toronto: The case of the Canadian Cuisine Photography Challenge

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Abstract

The Canadian Cuisine Photography Challenge is a pilot experiential learning activity created at Ryerson University for the class *FNU100-Canadian Cuisine: Historical Roots,* a first/second year liberal studies course offered to students from diverse programs and cultural backgrounds. This activity is both a fun challenge and a required course assignment. It aims to engage students with Canadian cuisine and is inspired by a decolonial pedagogical approach (Mignolo & Walsh, 2018; Santos, 2018) to food studies, and elements of photovoice methodology (Wang & Burris, 1997). The Canadian Cuisine Photography Challenge consists of a field trip to different food places or sitopias in Toronto, with the goal of learning about their histories and developing an appreciation of the roles of food and people in the city (Newman, 2017). The activity includes a map, instructions, and a set of ten challenge questions that students answer through photographs taken during their field trip. The field trip is followed by students' presentations in class and a reflection on their experiences. In the first phase of the project, students explored two sitopias: Kensington Market and Chinatown.

This paper will first describe the co-creation of the Canadian Cuisine Photography Challenge with students from the School of Nutrition at Ryerson University. This was a collaboration between the course instructor and two School of Nutrition students and included input from other students who had previously taken the course. It will present key learnings from the feedback of students who participated in the challenge in the fall of 2019, including how they described their experience, what they learned, and suggestions for the future development of this

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project. In particular, this field report will discuss the use of a decolonial pedagogy in food studies, recognizing and challenging a Western hegemonic view of food places as representative of Canadian cuisine, while at the same time outlining the co-construction of experiential learning activities to engage students and provide content that reflects the multiple identities and food cultures of Canadians in Toronto. The main purpose of this field report is to share our experience co-creating and implementing this pilot project as one contribution towards decolonial food pedagogies.

Keywords: Canadian cuisine; photography; food pedagogies; decolonial pedagogies

Introduction

What is Canadian cuisine? Is it maple syrup, salmon, poutine, butter tarts, peameal bacon, or Montreal style bagels? Hot dogs? Tim Hortons' doughnuts (Ferguson & Ferguson, 2001; Power & Koc, 2015)? It is not easy to define Canadian cuisine due to the large size of the country, the diversity of Indigenous peoples, the historical impact of colonialism, and the continuing waves of immigration to Canada (Duncan, 2011; Jacobs, 2009; Newman, 2017; Mintz, 2020). A part of culture, food is closely tied to identity. Food can help a nation or group of people "assert its diversity, hierarchy and organization, but also, at the same time, both its oneness and the otherness of whoever eats differently" (Fischler, 1988, p.275). This means that cuisines have the potential to exclude or include, and to define who belongs and who does not.

Historically, Canada's regional cuisines were rooted in Indigenous foodways and European traditions brought by the English, the French, and other European immigrants. With few exceptions, it was only in the 1960s that immigration requirements changed from country of origin (mostly European) to a merit-based points system. This enabled the immigration of people of non-European background and the creation of the term 'cultural diversity', referring to "growth of non-white populations other than Aboriginal People, in Canadian society" (Li, 2000, p.1). The increased numbers of immigrants from different parts of the world and the challenges they faced in Canada with racism and discrimination led to the creation of the term "visible minorities" in 1986, referring to ten origins: "Blacks, Indo-Pakistani, Chinese, Korean, Japanese, South East Asian, Filipino, Other Pacific Islanders, West Asian and Arab, and Latin American, excluding Argentinian and Chilean" (Li, 2000, p.5). This is important for Canadian cuisine because, according to Li (2000), most native-born Canadians in the 1990s were of European origin, while most first-generation immigrants were visible minorities, the majority of whom settled in metropolitan areas such as Toronto.

Since 2016, the course FNU100: *Canadian Cuisine: Historical Roots* has been offered every fall as a *Lower-Level Liberal Studies* course from the School of Nutrition at Ryerson University. This course is an elective open to students from all academic programs (except Nutrition), including Engineering, Biological Sciences, and Graphic Arts. Based on student

demographic survey information, the majority of FNU100 students are second-generation Canadians from multiple cultural backgrounds. The enrollment limit is 60 students, and the course has been full every year since it was first offered. The main goal of FNU100: *Canadian Cuisine: Historical Roots* is for students to "explore the multidisciplinary field of food studies to understand the historical and cultural determinants of food selection including social, philosophical, political, and religious factors and their impact on cuisine" (Ryerson University, 2019). A special focus is given to understanding the contributions of new Canadians and Indigenous Peoples and the impacts of Canadian immigration and colonization policies on cuisine.

While the course covers important historical time periods and related cuisines, it also explores current manifestations of Canadian cuisine and identity, including the role of food markets as public spaces where people eat together (commensality). In one of the key readings assigned to students, Newman (2017) uses the concept of sitopias (food places) as important sites for cuisines, both geographically and culturally. For her, these are spaces where cuisines are "shaped and constrained" (Newman, 2017, p.21). Moreover, sitopias are spaces of innovation and experimentation where citizens can learn about new foods and new immigrants might find previously known ingredients. Nevertheless, oftentimes easily identified sitopias do not provide the entire picture of Canadian food culture (Newman, 2017).

In fall 2018, feedback from a student's course evaluation suggested incorporating a field trip to one of Toronto's food markets into the course. This feedback ultimately sparked the creation of the Canadian Cuisine Photography Challenge (CCPC), with the goal of creating an engaging experiential learning activity that would guide students in small groups to explore the history and role of sitopias in Toronto. Student engagement in higher education is a long-standing concern for educators (Brown et al., 2015). Engagement is a multidimensional concept that is associated with: being active and motivated; persistency, commitment, and attentiveness; curiosity and critical thinking; and a link between teaching and learning (Christensen Hughes & Mighty, 2010; Freire, 2013; Schlechty, 2011a; Sclhechty,2011b). Fredricks et al. (2004) state that engagement can be considered a multifaceted construct that takes into account behavioural engagement, emotional engagement, and cognitive engagement. Others highlight the relationship between engagement and active learning to facilitate building new knowledge and understanding (Coates & McCormick, 2014, p.3). As Hao et al. (2020) suggest, "in contrast to passive lectures, active learning emphasises real-life application, learning by doing and collaborations, which contribute to the ultimate goal of preparing students for lasting achievements and future roles outside school" (p.2). Informed by this research, we attempted to create an engaging educational activity for post-secondary students at Ryerson University. Our goal was to spark students' curiosity about Canadian cuisine, and to enable them to discover it through a collective adventure and a personal perspective.

The Canadian Cuisine Photography Challenge (CCPC) Design

The CCPC was initially inspired by a treasure-hunt game called Geocaching (Geocaching, n.d) and a photography challenge called "Snap and Share", in which the City of Toronto partnered with Nikon Canada to capture different areas of Toronto using photographs (City of Toronto, 2018). After this initial inspiration, we conducted a literature review and visited a couple of food places in Toronto to refine our assignment structure. The activities guidelines were created to suit our intended learning outcomes, and they focused on creating a number of educational challenges that students of FNU100 would resolve on defined sites in Toronto. With the support of the course instructor, two senior Ryerson Nutrition and Food undergraduate students were involved in the pre-production, production, and testing of the CCPC. This involved conducting a scoping search of the literature and on-site research to define the structure. Senior students each focused on one Toronto sitopia and created a set of ten corresponding educational challenges that students of FNU100 would resolve in Fall 2019 (See Appendix A for challenge outline). Designing the CCPC also included testing and revisions if needed.

Photovoice, an effective methodology within the context of food studies (Pink, 2007), uses photography and group dialogue to enable people to record and reflect their community's strengths and concerns through critical dialogue and knowledge generation (Wang, 1999; Wang & Burris, 1997). It emphasizes multi-disciplinary community involvement—from community members, researchers, policy makers, and others—in the production of photographs and encourages knowledge exchange within and between communities to mobilize change (Wang & Burris, 1997).

Photovoice has been used extensively in food studies research, emphasizing the "voices" of marginalized populations. In Canada, photovoice has been used to study international students' food experiences in Canada, urban school food systems, experiences with traditional foods among First Nations female youth, experiences of the food environment among new immigrants, and food (in)security (Amos & Lordly, 2014; Genuis et al., 2015; Hanemaayer, et al., 2020; Rodriguez, et al., 2016). Photography provides an opportunity for teaching and may offer unique contributions to food studies and education.

In order to explore the intersectionality between food studies and the broader cultural, political, economic, and social aspects of food and food practices, students were asked to visit two different Toronto sitopias: Kensington Market and Chinatown. We chose Kensington Market, located in the west end of downtown Toronto, because it is one of Toronto's oldest and most well-known cultural regions and has been designated a National Historic Site of Canada (Parks Canada, n.d.). Kensington Market has evolved into a cultural mecca, with many different immigrants settling there over the past century. The neighborhood comprises a unique blend of restaurants, specialty food shops featuring cuisines from all over the world, eclectic vintage stores, and quaint cafes.

Despite having five other designated Chinatowns, we chose the downtown location at Spadina Avenue because it is the largest and oldest in Toronto. This Chinatown is best known

for its many Asian and Asian-fusion restaurants (Hauch, 2017). Originally located closer to the downtown core, Chinatown was displaced when City Hall was built in 1960 and now resides at its current location at Spadina Avenue (Flack, 2017). Additionally, Chinatown is unique in that the majority of its businesses and residents are of Asian and Chinese descent.

In addition to their rich history and cultural diversity, we chose the selected sitopias based on geographical proximity to the Ryerson University campus, making the CCPC more accessible to students. It was important that students could walk to the selected food places from the University, not excluding anyone due to financial or mobility issues. Prior to choosing Kensington Market and Chinatown, we also explored St. Lawrence Market and Little India, however, limited hours of operation and geographical proximity to the University played a role in selecting other neighbourhoods for this pilot challenge activity.

Challenge testing and implementation

The development and design of the CCPC included testing and revisions. Student co-creators and the instructor were responsible for visiting each specified neighbourhood, answering a series of challenge questions (see Appendix), and documenting their experiences. This was done to see if the challenge would be accessible for students, thought-provoking, sensitive to time limitations of the course, and engaging, and to determine whether it would capture the major themes of the course.

Challenge questions acted as prompts that guided students to learn about the history and culture of food in Toronto. For example, Kensington Market challenge question one required students to search for a historic plaque that describes the successive waves of ethnocultural communities who have immigrated to Toronto since the beginning of the 20th century. The plaque describes how the district was first occupied by British workers, then Jewish immigrants, and later post-World War II-era new Canadians from Italy, Portugal, the Caribbean, and Asia. This challenge question gave students a brief history of the Canadian urban immigrant experience and is located in the centre of Kensington Market, which provided a good starting point for answering other challenge questions.

Kensington Market challenge question two gave insight into the specific cultural needs of Jewish immigrants living in Kensington Market during the early 1900s. At this time there were over 30 synagogues in Kensington Market, and now there are two fully operational synagogues left from this era: the Kiever Synagogue and the Anshei Minsk Synagogue. Students were required to walk around the neighbourhood in search of the Kiever synagogue and take a photograph, illustrating the specific cultural needs and practices of Jewish immigrants living in Kensington Market and how this synagogue remains a historical symbol of the Canadian urban immigrant experience.

In Chinatown challenge question one, students were encouraged to explore symbolism and cultural motifs. The symbol of a dragon is often associated with Chinese culture and

symbolizes power, strength, and luck (StudyCLI, 2020). This challenge question was developed to allow students to have the flexibility of exploring a cultural motif of their choice. While it is common to make cultural connections and associations, it is important to understand their underlying purpose and meaning.

Chinatown challenge questions two and four highlighted culture-specific food and food practices. In question two, students were asked to explore several grocery stores that sell specialty Asian food products, and to choose and photograph one food item used in Asian cuisine. Some examples of popular chosen market items included mangosteen, custard apples, dragon fruit, daikon, spices, and dried fish. In question four, students were asked to find a piece of equipment used in food preparation. This allowed students to explore different foods from other cultures and to understand preparation methods that might be unfamiliar to them.

All of the challenge questions from each site, maps, and detailed assignment instructions can be found in the Appendix as FNU100 Canadian Cuisine Photography Challenge Instructions. Students used their cell phone cameras to take pictures of the sites required in the challenge. They were expected to take at least one on-site selfie with the group as proof of participation, however most pictures taken were selfies.

Completing the CCPC, attending a class presentation, and participating in a class discussion were worth 10% of the students' total grade. The field trip was planned for week four of the semester, which allowed students to form groups early in the term. There were 12 groups in total: six visited Kensington Market and six visited Chinatown. The field trip was scheduled during class time and gave students a two-hour period to walk to and from the chosen sitopias and have at least one hour to complete the challenge. Out of 60 students, only one student could not participate due to a family emergency and decided to do the challenge separately and present it to the instructor during office hours. Other than this one exception, there were no other issues.

Impact and student evaluations

The CCPC played a significant role in creating a safe environment where students felt they could share their ideas and express themselves. By participating in the CCPC, students were able to meet their classmates and collaborate, bringing more interest and enthusiasm into the classroom. This enhanced in-class participation within the first few weeks of the course.

On week seven, when students shared their presentations in class, we noticed the positive impact the activity had had. Students talked about the history, food, and food practices of the two Toronto sitopias with great enthusiasm. It is important to notice that most of the photographs presented were selfies, with the group of students in the photograph and the places as a background, which embedded them in the sitopia, as part of the food environment. Students told stories about their experiences navigating the different streets and local vendors, interacting with different people in the community, and seeing and smelling (sometimes even tasting) different foods in addition to taking photographs. Many students drew inspiration from their own cultural

backgrounds to explain observations and their experiences during the challenge. They saw themselves in these places.

Once students completed the challenge, they were asked to answer a survey about their experiences and provide feedback about ways to improve the challenge. The questions were: (1) In two words describe your experience doing the CCPC; (2) What did you learn, that you will not forget?; and (3) What were your suggestions to improve this activity? All students were required to give consent for their answers to be shared anonymously. Student evaluations and feedback were to be used to improve the challenge and to create a proposal for expansion. The following provides a sample of students' responses to the questions.

Two words that describe the experience

Based on students' feedback, 42 out of 55 students described the experiential activity as "fun". Other keywords included interesting (20), meaningful (5), engaging (2), interactive (2), refreshing (2), and exciting (2). This demonstrates that students enjoyed the activity and found it engaging.

What students learned

There were three main themes that students reported learning about: the historical significance of immigration, multiculturalism and diversity, and teamwork (see Table 1). Students recognized that both sitopias had multiple waves of immigration and that this played a role in shaping food practices and cuisines in each sitopia as well as in the city of Toronto. Another important theme highlighted was multiculturalism and diversity. This was represented by the diverse food places, cuisines, and fusions in both Kensington Market and Chinatown. Students discovered new food places and were surprised to discover there were many cuisines they had not tried before.

Students reported learning about cuisine, history, and culture, but also about teamwork and navigating challenges associated with working in groups. After reflecting on their experiences, students stated that "teamwork is very valuable," thought it was important to be "mindful of other team members' points of view," and enjoyed "working together to find answers". The focus on teamwork and collaboration shows that learning can be an engaging, social experience while simultaneously involving completing tasks and having fun.

Table 1: Selected student responses to reflection question two: "What did you learn that you will not forget?"

Student Responses
"I learned about the history of the market and its restaurants"
"I learned about the history and significance of Kensington Market. I never knew the impact of immigrants on the community"
"I learned that many nationalities came together to create an amazing environment of food and culture"
"The diverse blend of cultures shown through food"
"I learned that there are many different infused cuisines I have not tried. For example, the Italian/Jamaican dishes at Rasta Pasta"
"I learned the neighbourhood is a good place to show regional food of China. Also, I found some food that shows the multicultural part of Chinese cuisine"
"Very prominent Latin American food culture within Toronto"
"I got a better understanding about why we say, 'regional cuisines constitute national cuisines'"

Student suggestions

Suggestions on ways to improve the learning experience included changing the presentation format from a powerpoint slideshow to include more audio and video elements, creating more interactions with community members, and having students taste and try foods from the sitopias. However, the most common suggestion (23 out of 55 students) was to include more food places, as the class presentations sometimes felt a bit repetitive. New food places suggested included Greektown, Little Italy, and Little India, but also flea markets, which are important sitopias to new immigrants and visible minorities (Sharkey et al, 2012) and definitely deserve more attention.

In addition to completing these evaluations, students also participated anonymously in an end-of-term evaluation, which showed similar feedback. Students mentioned how much they enjoyed the field trip and hands-on learning experience, and stated that they considered the CCPC to be a positive experience while taking the course. Students also highlighted the benefits of group work, with some students mentioning that this activity helped them make friends in class. Finally, similar to the previous evaluations, students also mentioned that they wanted the CCPC to be expanded and to include more locations.

Discussion

The main goal of the CCPC was to engage students from different academic backgrounds in the study of Canadian cuisine. As previously stated, engagement can be considered a multifaceted construct that takes into account behavioural engagement, emotional engagement, and cognitive engagement (Fredricks et al., 2004). All three of these constructs were observed following the completion of the challenge and presentations among the students. Behavioural engagement was seen through the collaboration among groups. This allowed for learning to occur among peers,

and ultimately resulted in a supportive class environment for the following weeks of the course (Coates & McCormick, 2014). Of importance, a culture of trust was created in the classroom, where students felt comfortable sharing their personal experiences and how they related to the course content. An important benefit of creating this environment in the classroom was that students felt connected to and respected among their peers. These students, being in first and second year, were provided with the opportunity to make friends in one of their courses. Emotional engagement was evident in the ways that students described the activity. The students were invested in completing the challenges, the presentations were creatively executed, and students were able to situate the content of the challenge and the course to their own personal context and realm of knowledge. Finally, cognitive engagement was apparent through discovery of new information and the inquisitive nature of the activity. Some students commented that the challenges exceeded their expectations, creating a sense of commitment to achieve all ten of them (please see the ten challenges in the Appendix). The students were allowed the freedom to discover two Toronto sitopias through an active method of learning. In essence, students participating in this game were building and constructing their own knowledge through active exploration.

Students engaging in the CCPC were able to partake in a non-traditional way of learning. The interdisciplinarity of food studies lent itself to the development of a pedagogical tool that allows students to actively explore their surrounding environment through a photography challenge. Small group discussions and teamwork were at the core of the activity, where students were provided with many opportunities to participate and share their insights. Additionally, the incorporation of technology and photography further engaged students in this unique way of learning.

This challenge was designed to allow students to enhance their learning outside of the classroom and the traditional uni-directional lecture format. Similar to what Santos (2018) calls knowing-with instead of knowing-about, the CCPC created a co-learning environment that enabled students to question concepts, find answers, and exchange with peers and the instructor. The role of the instructor was to facilitate continuous knowledge exchange among peers. In this environment, students and the instructor were both learning and teaching simultaneously about Canadian cuisine, which ultimately led to an inquisitive and supportive classroom environment. Through this activity, we observed a significant shift between students' participation and comfort. After numerous peer collaborations, students were more willing to participate in class discussions and share personal experiences.

Food studies includes a wide range of perspectives and approaches to understanding the processes that are involved in providing food for populations (Levkoe et al., 2020). The multidisciplinarity of food studies allowed students to draw connections between food and cultural influences, economic impacts, and political movements. In Kensington Market and Chinatown, students were exposed to and gained a deeper understanding of examples of urban policy, the importance of architecture, and its relation to food. Incorporating knowledge from many disciplines allowed students to widen their perspectives and understandings of sitopias in

Toronto. Students were also able to draw from personal experiences as a valid way of knowing (Gingras & Tiro, 2008) and see themselves within Canadian cuisine.

Activities such as the CCPC carry the potential for enabling students to situate themselves as participants of Canadian cuisine. Since cuisines can be inclusive or exclusive, there are contested views around multiculturalism and food. A common trap is the concept of "boutique multiculturalism", where a superficial commitment to diversity occurs while many underlying systemic social issues are ignored, such as racism, differences in religious beliefs, oppression, and other local conflicts (Fruchter & Harris, 2010). Another trap is the tension between "high cuisine" and the anthropological concept of cuisine as part of culture (Fischler, 1988). This highlights the need for decolonial approaches (Mignolo & Walsh, 2018) in food studies that invite us to recognize and challenge the predominance of a Western hegemonic view of food places and Canadian cuisine as being overwhelmingly white. It also inspires us to co-construct with students (including Indigenous and other visible minorities) experiential learning activities and content that reflect the multiple identities and food cultures of Canadians in Toronto, including the students and instructor in this course.

Future perspectives

Looking back at the CCPC pilot phase, it is possible to see areas that could be expanded in the future, including community engagement, the number of Toronto sitopias included as part of the activity, and improvements to funding and resources. Furthermore, it is also impossible to ignore the impact of COVID-19 on the future of experiential learning activities such as the CCPC. The CCPC did not include organized interactions with the community and community members within Kensington Market and Chinatown. Therefore, people from the local communities were not involved in challenge selection, planning, and creation processes. Students did not visit these food places to extract information from communities, but rather to co-create knowledge about Canadian cuisine and their own identities as Canadians. In future, we would include community members in the activity creation process. Despite not organizing more community engagement opportunities, this naturally happened during the challenge. For instance, while exploring the two sitopias, locals asked students about the project and volunteered to share information about specific sites, for example the car park in Kensington.

One limitation of the CCPC was the number of sitopias researched and included as part of the challenge. Due to logistics and course time constraints, more sitopias could not be included in 2019. Based on extensive student feedback and given how successful the challenge was, we are looking to expand the CCPC to include other Toronto food sitopias such as St. Lawrence Market, Little India, Little Italy, and flea markets, and to diversify the types of food places by including more Indigenous restaurants and food hubs.

Lack of funding and resources represented another limitation. Due to budget constraints, we did not have the funding to support students in tasting and trying different foods in

Kensington Market or Chinatown. This was unfortunate because food and eating are in themselves very engaging, providing deep significance through time and across cultures. The sensuousness, tastes, smells, and appearance of food are recognized as having the power to connect people, places, and occasions together (Crowther, 2014). Lack of funding was also a barrier to hiring more Indigenous and visible minority students to expand the CCPC to other less well-known locations in Toronto, with greater focus on decolonizing the learning of Canadian cuisine in Toronto.

Finally, if COVID-19 persists, *FNU100-Canadian Cuisine: Historical Roots* will likely be an online course, and the CCPC would need to be modified for the safety of the students. We foresee adapting the challenge through having student do an analysis of their own food communities and coming together to share their findings in an online format. The challenge questions would consist of more general guidelines and prompting questions to explore key themes within the course, and yet would still challenge students to be creative. Additionally, we could include the involvement of guest speakers who might not be able to travel to a classroom (e.g., restaurant owners, community members, or members of parliament), as well as ways to engage with multimedia (e.g., new food-related films and podcasts, slideshows) that new technology and advanced software platforms would enable. As a result, the future of the FNU100 Canadian Cuisine Photography Challenge remains uncertain. As creators, we will continue to be open to change and willing to adapt the course and experiential elements in such a way as to keep students engaged under the circumstances.

Conclusion

The main purpose of this field report was to share our experience in co-creating this pilot project and its impact on students. We recognize that there are other initiatives, such as the Culinaria Research Centre, that are also exploring how food is shaped in different food places in Toronto (University of Toronto Scarborough, n.d). We wanted to inspire others to use decolonial approaches to Canadian cuisine and have created an open-access educational resource to share with other educators. With this experiential activity, in future, we hope to engage more students and expand the Canadian Cuisine Photography Challenge.

The Canadian Cuisine Photography Challenge serves as a novel, pedagogical tool created to facilitate students' engagement with Canadian cuisine. It was designed to introduce students to the historical roots of Canadian cuisine, show how food has been an instrument of adaptation, and demonstrate the multidisciplinary ways in which food explains the human condition. Food is essential for life, and the foods we consume reflect our personal, social, and cultural experiences. National cuisines are simultaneously outcomes and processes, being in constant creation. This project highlights these aspects and challenges students to look deeper into people's relationships with food, and to explore how these relationships are shaped by broader and intersecting systemic forces. By taking students out of the classroom to explore the diversity of Canadian

cuisine in the streets of Toronto, we wanted students to construct knowledge collectively and to see themselves as part of Canadian cuisine.

As an essential ingredient in Canadian culture and identity, Canadian cuisine reflects continuity and change. It is also influenced by its geography and people, as well as by global influences, climate change, and recently by COVID-19. We feel that it is important that all Canadians see themselves in this picture, including young adults that are now second-generation Canadians. Say cheese!

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Field Report

Etuaptmumk-two eyed seeing: Bringing together land-based learning and online technology to teach Indigenous youth about food

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Abstract

In 2019 we began an intergenerational land-based learning program with the goal of engaging a group of Mi'kmaw youth from a rural community in Nova Scotia with their traditional foodways. When COVID-19 and the physical distancing restrictions hit Nova Scotia, however, this changed how we implemented the project. During the early phases of strict isolation, we turned to technology to connect us with youth. As public health protocols changed over a ten-month period, we drew on a combination of learning approaches to share Mi'kmaw traditional knowledge. This paper describes the dilemmas we faced as we considered what initially seemed like a paradoxical relationship of using online technology to promote land-based learning. Our aim is to not only draw attention to what we believe to be the centrality of the land in understanding Indigenous foodways, but also the potential for online technology to enhance youth engagement on and with the land. Our experience suggests that communication technology can support land-based learning about traditional foodways and culture, but that there are challenges such as access to and expertise in using it related to implementing land-based pedagogy in virtual environments. A major insight was that an *Etuaptmumk*-Two-Eyed Seeing lens allowed us to include both Western and Indigenous knowledges in the program and helped us adapt to the unanticipated logistical challenges we faced. We came to see that online

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technology is not only a product of 'Western' knowledge, but also a powerful resource through which Indigenous peoples can own, celebrate, and share their culture.

Keywords: Land-based learning; two-eyed seeing; technology; Indigenous health; youth; Indigenous foodways

Etuaptmumk-two-eyed seeing: Bringing together land-based learning and online technology to teach Indigenous youth about food

We begin by acknowledging that we reside in Mi'kma'ki, the ancestral and unceded territory of the Mi'kmaq people. It is essential to understand the history that has brought us to reside on the land, and to seek to understand our place within our shared history as treaty people. We, a team composed of health researchers, Indigenous Knowledge Keepers, and dietitians, see the centrality of the land and its foods as sources of health and resilience. Despite the past and present forces of colonization within Mi'kma'ki that have attempted to silence their traditional knowledges, Mi'kmaq peoples continue to harvest foods in accordance with their long held spiritual understanding of the relationships between all living things, referred to as "*Netukulimk*" (Prosper et al., 2011). This complex knowledge system continues to be formed, and communities recognize the importance of passing this knowledge on to the next generation in increasingly different ways within our modern world.

Through this field report we aim to share our experiences of implementing the Land2Lab pilot project, a community-based intergenerational traditional foods program that was originally designed to engage youth in land-based learning but was later modified to include online components. We explain the concept of *Etuaptmumk*–Two-Eyed Seeing (E-TES) and how this ontological lens has impacted the project's direction since the occurrence of COVID-19. We draw upon E-TES to explore and reflect on the relationship between land-based and online technologies during the COVID-19 pandemic while trying to implement the program in the Paqtnkek Mi'kmaw Nation.

The Land2Lab Project

The Land2Lab project was built upon a community action approach that positions community members as equal members of the research team, the voices of community needs, and the experts in determining how to meet those needs (Baum et al., 2006). Kara, a member of the Paqtnkek Mi'kmaw Nation and now an employee with The Confederacy of Mainland Mi'kmaq (CMM), was an undergraduate student at St. Francis Xavier University (StFX) in the Human Nutrition program. During that time, she pursued a directed study titled *Reclaiming Traditional Foods in Mi'kma'ki* when she became aware of interest among youth in learning more about traditional

foodways. Kara, along with Kerry, an Elder from Paqtnkek, researcher, and Inaugural Knowledge Keeper at StFX recognized the importance of sharing community-held knowledges on the land with youth and Elders. In 2019, in partnership with CMM and StFX, the Land2Lab project was created to bring youth and Elders together on the land to teach and share traditional knowledges.

The Land2Lab project was developed with the goal of engaging youth from Paqtnkek Mi'kmaw Nation in their traditional foodways, which are the foods, knowledges, and practices handed down for generations that help connect us to culture (Rearick, 2009). The intended program featured Elders sharing stories, food gathering techniques and preparation methods, and food with youth through activities focused on each of the four seasons. The overarching goal of this project was to contribute to cultural, environmental, and community well-being by promoting traditional knowledges about Mi'kmaw foodways and the interconnectedness of climate, food, and health. The specific research and program objectives were to:

1) Provide a vehicle for intergenerational knowledge sharing of traditional foodway practices.
2) Provide youth with employable food skills.
3) Explore the potential for *Etuaptmumk*-Two-Eyed Seeing (E-TES) as an ontological lens for sharing both Indigenous and Western food knowledge.
4) Inspire youth to see themselves pursuing careers related to food, science, and environment.
5) Understand how land-based learning contributes to these goals.

The planned program consisted of four half-day workshops, one for each season, and would take place over the course of one year. During these workshops, youth were to meet with Elders on the land to share stories and learn about traditional food gathering and harvesting practices, then return together to the community kitchen or StFX food lab to learn about food science and food safety, prepare food according to traditional methods, and enjoy eating it together. On February 16, 2020, we had completed our winter eel fishing day, the first of four workshops, where Kerry taught ten youth how to shape their own fishing spears on a carving bench, trek safely across the frozen harbour to saw holes in the ice, provide a tobacco offering of thanks to Creator, and catch eels with their spears under the ice.

During this workshop, we noticed two phenomenon that have inspired this field report: even while on the land and ice, youth were using their phones but were still extremely present and engaged in the eel fishing activities. There was a special moment during the workshop when this became evident to us. We had been on the ice for about two hours when we caught the first eel. This was an exciting moment for everyone, especially when we noticed many bald eagles flying over our heads at the exact moment the first eel was caught. The youth acknowledged this message from Creator and gifted the first eels to the eagles. They then enjoyed taking pictures and videos of the eagles diving down from the sky, swiftly picking the eels up with their talons. Elders encouraged this and acknowledged the significance of this encounter. The Elders used it

as a teaching opportunity to tell youth about the interconnectedness of nature and the food chain, as well as the youths' position within this system as human beings.

Responding to COVID-19

The youth were planning a community feast with the caught eels, a delicacy for the Elders, when COVID-19 hit Nova Scotia in early March and prevented this event from taking place. We initially considered canceling or postponing the project but subsequently decided to adapt our approaches to the circumstances. Over the following ten months, we were able to draw upon a combination of learning and engagement approaches to share traditional knowledges with youth. At the height of COVID-19 isolation protocols, we turned to technology to connect us with youth where we implemented virtual activities rather than bringing groups of youth and Elders together physically on the land. As public health protocols changed over time, however, we were able to blend our approaches to include both online and in-person components.

Initially we were face to face on the land, ice fishing for eels, with other land-based activities planned for the following seasons. When restrictions hit, however, we got word about the iNaturalist app, along with other technology-based initiatives, from the CMM Climate Monitoring Program who were encouraging youth to get out on the land with the app. The iNaturalist app is a citizen science project and online social network that aims to map and share observations of biodiversity across the globe (iNaturalist Network, 2020). CMM was using this app to gather biodiversity and bio-indicator data within Mi'kmaq communities across the mainland. While we were unable to meet in-person, we moved our efforts towards supporting this initiative of getting youth on the land to collect data within their communities.

In the early fall we were able to gather as a small group again, but not yet with Elders. During this time were able to complete two successful kitchen workshops with a group of ten youth at their local community centre where we made wild blueberry jam and a three sisters' soup (squash, beans, and corn). Kara used Facebook to share information and posters about these workshops with members of her community. We also relied on Kara as our Knowledge Keeper to lead these workshops, and we highlighted the importance of food safety and food skills throughout these sessions. In the early winter we were finally able to bring youth together with an Elder to make *luskinikn* (bannock), which we then topped with the wild blueberry jam that we prepared in an earlier workshop. Following this, restrictions tightened again, and as the pilot wound down, we moved back to distanced-online approaches to evaluate and gather youth's perspectives of the Land2Lab project.

As we reflected about the workshop that was able to happen prior to COVID-19, we realized that alongside the re-emergence of land-based opportunities for Indigenous youth, we cannot ignore the fundamental role that online technologies have in shaping their everyday life experiences. With the rise of online gaming, social media, texting, online learning, etc., we recognize that technology and the Internet are inescapable elements that characterize the

experience of being a young person today (Radoll, 2014), and that Indigenous organizations are already using technology to support their communities. Yet, with COVID-19 and having to restructure our program delivery to a blended approach, we soon noticed both the advantages and challenges of using online technology to promote land-based learning, and realized we know little about whether or how technology and the use of the Internet might interact with Indigenous knowledge systems and land-based learning.

Etuaptmumk-two-eyed seeing

While we planned to draw upon the concept of E-TES from the early stages of planning the project, the changes imposed by the pandemic led us to think about it in ways we had not anticipated. *Etuaptmumk* is a Mi'kmaq word that represents the gifts of having multiple perspectives. Elders Albert and the late Murdena Marshall, along with Dr. Cheryl Bartlett from Cape Breton University, further coined the term Two-Eyed Seeing to describe the metaphorical use of one eye to see Indigenous ways of knowing and the other eye to see Western ways, in order to respect and utilize the best of both perspectives (Bartlett et al., 2012; Bartlett et al., 2015). This has been particularly useful when considering how we interact with both our natural and technological environments. Two-Eyed Seeing allows us to acknowledge the entirety of Indigenous knowledge systems alongside Western knowledges and worldviews, so that we can continuously 'weave back and forth' between knowledges to create meaningful and respectful research and community-based programs that recognize the complexity of being a young person today (Bartlett et al., 2012; Institute for Integrative Science & Health, nd). We had intended to marry traditional knowledge about food growing, gathering, procuring, storing, preparing, and sharing with Western science on the nutritional content of traditional foods, microbiology insights on food preservation, and climate science information to reinforce the health and sustainability benefits of traditional methods. Using technology to tell stories and/or encourage land-based experiences had not crossed our minds. We therefore wondered how online technologies and land-based learning might intersect. We believe that there are some experiences and learnings that need to take place on the land but struggled with how to reach youth and get them on the land without physically gathering there together.

Land-Based Education

Land-based learning typically uses an Indigenized and environmentally focused approach to education by first recognizing the deep physical, mental, and spiritual connection to the land that is part of Indigenous cultures (Styres & Zinga, 2011). It offers experiential education on the land that is grounded within Indigenous knowledges and pedagogy, where learning occurs on the land and from the land. Research increasingly shows that learning in an outdoor environment has

mental health benefits, improves understanding for active learners, and can help students develop environmental awareness and a connection to the land (Cherpako, 2019). Within Indigenous pedagogy, learning has been conceptualized as a personal and complex journey that requires internal reflection and integration of one's learnings over time (Battiste & Henderson, 2009), and the cultivation and reflection of the relationship between people and the land is believed to be what allows for knowing and learning to occur (Battiste, 2013). Indigenous knowledge systems, however, have been historically ignored, neglected, or rejected by European and Western cultures, who instead have privileged their own perspectives and knowledge systems above the rest. This prioritization and neglect towards the complex relationship that we, as human beings, have to our natural environment is ultimately what has resulted in the climate crisis (Brugnach et al., 2017). In Western society, we have privileged the ego above our ecological environment (Scharmer & Kaufer, 2013), and now as a scientific community we are increasingly turning towards Indigenous peoples and Knowledge Keepers to lead the way and help us re-frame our relationship with the land and its foods.

Our food inextricably connects us to the land, and land-based education is particularly well-suited for teaching Indigenous youth about their traditional foodways (Big-Canoe & Richmond, 2014; Cidro et al., 2015). This became evident to us during the Elder-led eel fishing workshop. When we got on the ice, we soon noticed that there were square holes that previous eel fishers had made with power saws. Kerry, however, taught us that this was not the most effective way to fish for eel. He went on to demonstrate that making a circular hole with a hand saw allows for your spear to move much more steadily along the perimeter of the hole, giving you more area to fish for eel under the ice, meaning a better chance of catching eels. The youth were watching his every move and the older youth made their own holes with his guidance. Despite the cold, youth patiently fished for hours, determined to catch eels with the spears they had made. From this we learned that without the presence of intergenerational land-based learning, the skills needed to learn how to ice fish could not be passed on.

While it is recognized that land-based education is a necessary and effective way to teach Indigenous youth about their culture and traditional foodways (Big-Canoe & Richmond, 2014; Cidro et al., 2015; Battiste, 2013; Cherpako, 2019), it does come with its own challenges. For learning to occur, for instance, youth and their communities need to be able to access the land and its foods. This is becoming increasingly difficult due to the alarming effects of climate change and the fear that Elders' knowledges will not be sufficiently passed on to today's youth (Ross, 2016). Teaching youth about traditional foodways without access to safe clean water, land, ice, or air is the reality for many (Richards et al., 2019). Climate change and issues surrounding the land and health cannot be ignored when teaching about traditional foodways. In fact, our own plans to engage youth in eel fishing with Elders was delayed several weeks by new weather patterns wherein the harbour did not freeze, which is increasingly the norm.

Land-based education encourages the celebration of Indigenous culture and knowledges, while also demonstrating to youth the need to combat and protect against the effects of climate change and colonization. Yet, we have learned that these programs are resource-heavy and

require a lot of community involvement and leadership. There can be barriers to implementing successful land-based intergenerational programs, such as cost and transportation, along with liabilities associated with being on the land, the availability of Elders and Knowledge Keepers, and the presence of community supports. Additionally, like any other youth-based program, it may be difficult to get youth on the land in the first place, and we wonder if our experience of integrating online technologies might present a way of mitigating some of these barriers. Arguably, most people would agree that connection to the land, sea, air, water, ice, and its foods cannot truly be replicated using technology or within a classroom setting. At the same time, the photos of the eagles and subsequent Tweets seemed to reinforce the pride the youth felt for having successfully fished in traditional ways, while engaging their online friends in the process.

Online Technology

Although we acknowledge that there are exceptions related to equitable access, we can generally say that youth, both Indigenous and non-Indigenous, represent the first generation to grow up with online technologies at their fingertips (Radoll, 2014). It is the first generation to have spent their entire lives surrounded by computers, cell phones, and all the other technology that we use today. For this field report, online technologies will be broadly defined as any technological platform or device that youth utilize to share, engage with, and gather information that is connected to the Internet. We have kept this definition broad, as the Land2Lab project activities are continuously changing based on the needs of community members.

Despite challenges of access and adoption of digital connectivity, the use of the Internet and social media has spread within Indigenous communities (Castleton, 2018). In the past 20 years, the Internet and its use has grown into the largest, most accessible database of information ever created (Castleton, 2018). It has changed the way people communicate and connect, do business, and think about knowledge and learning (Prensky, 2001). The Internet has become more than just a medium to access information; it increasingly connects communities and provides access to important services (Campbell, 2018). While there have been differing views regarding the acceptance and use of the Internet within Indigenous communities, its access is fundamental for the development of basic rights such as social security, cultural expression, and conservation (Castleton, 2018).

Online technologies are making education more accessible than ever before, especially now in the midst of a global pandemic. Online education relies on the Internet for sharing and teaching information, and with this simple definition comes many ways in which youth can engage with their learning though online technology. Through online education, students can access information in many forms including audio, video, text, graphics, virtual and interactive programs, and even live chats (Anderson, 2008). Many young learners today, because of their

experiences with and proficiency in online technologies, are able to obtain information quickly and can access perspectives that may not be shared with them in a classroom setting (Prensky, 2001). This may be different from previous generations who relied on learning through oral and written teachings, which may not be the preferred method among young learners today.

Online technologies provide Indigenous youth with a way to explore and express their identities in ways that may not be possible elsewhere (Edmonds et al., 2012; Lumby, 2010). Having this space for exploration is important for Indigenous youth in Canada, as Western knowledges and worldviews have been prioritized in learning environments, which has limited Indigenous students' ability to understand, protect, and utilize their Indigenous knowledge systems (Battiste, 2013). This favouring of Western knowledges may create a learning environment for Indigenous students where they feel that they do not belong and where their cultural knowledges, traditions and values are not recognized or celebrated in parallel (Kirkness & Barnhart, 2001). If a young person's culture and cultural knowledges are not shared within their learning space, this could lead to identity struggles, as one's culture provides a measure of sameness and support while entering young adulthood (Chandler & Lalonde, 2008). The Internet, however, allows for the existence of multiple perspectives and worldviews which may uniquely support Indigenous youth in forming a learning space and online community that encourages their Indigenous identities. This sense of community is significant for Indigenous youth, as the Indigenous population in Canada is on average younger than the general Canadian population and Indigenous peoples in Canada, while moving towards urban centers, are more likely than other Canadians to live in small, remote communities (Statistics Canada, 2016). Social media allows youth to connect with relations who may not be close by and with people outside of their communities to further broaden their understanding of their culture and the surrounding world.

Due to technological advancements, today's youth are living and learning differently than previous generations which complicates how Indigenous knowledges have traditionally been passed on. Now, youth can access information about Indigenous culture online, and within Mi'kma'ki, there is a growing online presence of Mi'kmaw Knowledge Keepers and organizations dedicated to highlighting and sharing their culture. For example, on Instagram and Facebook there are several accounts that showcase land-based activities and intergenerational knowledge sharing surrounding *Netukulimk*. Sharing images and the experiences of Indigenous youth while on the land on social media can be a contemporary and complimentary way to store, protect, and celebrate Indigenous knowledges and culture.

Through exploring online technology, we have become more aware of its role within Indigenous youth's lives, how it can potentially help preserve and celebrate Indigenous knowledge systems, and how Indigenous communities are already actively utilizing online technologies in ways that support their culture. Through this, we see online technologies as a way to support Indigenous knowledges. Yet, we still question how land-based learning and online technologies may come together when considering E-TES.

Bringing Together Online Technology and Land-based Learning

There is a lack of empirical research on how to facilitate land-based learning (Bartmes & Shukla, 2020), and on integrating online technologies into land-based programs as a way to teach youth about food. *Etuaptmumk*-Two-Eyed Seeing (E-TES) was initially meant to be a way for us to value and support youth in learning about both Indigenous and Western perspectives surrounding food (learning about traditional foodways, while also learning about food safety, for example). While there is also a lack of empirical data on how to apply E-TES, we believe that it is what allowed us to navigate our program delivery throughout COVID-19 and to challenge our own perspectives surrounding technology use. Little did we know how helpful E-TES would be in allowing us to 'weave' between two perspectives when we needed to: the Indigenous eye which values land-based learning, and the Western eye which values technology. It was a fruitful way for seeing and responding to things in ways we had not anticipated. For instance, instead of cancelling the program we were able to modify and move it online according to community needs.

Through E-TES, we can begin to see the potential relationship between land-based and online learning and how these two approaches can reinforce and support each other in teaching youth about their traditional foodways. We realize, however, that there may be tensions surrounding this idea. Understanding the historical mistreatment of Indigenous peoples by Canadian government and society, we are aware that there may be apprehension concerning the integration of online technologies into land-based pedagogies, as the use of Western technologies and pedagogies could be seen as further perpetuating issues of colonization. Russell Means, in his powerful speech in 1980, warns against adopting aspects of Western culture because it could be detrimental to the Indigenous way of life. Using online technologies could be seen as leaving behind Indigenous knowledges, traditions, and ways of relating to the world. Means' (1980) argument is valid in the sense that there are differences between the Indigenous and Western knowledge systems, and that Western society continues to mistreat Indigenous peoples, even on the Internet. There are concerns surrounding the protection of Indigenous knowledge when it is shared online. For instance, there might be occurrences where websites try to benefit from or claim Indigenous Knowledges as their own, when in reality the hosts of these sites may have no knowledge of Indigenous Knowledge systems or history, further perpetuating issues of colonization. Teaching youth how and where to safely gather and share their knowledges online should be prioritized. The iNaturalist app, for example, has an 'obscured' option when posting observations of culturally significant species to help ensure that the data, and location of the species remains protected (iNaturalist Network, 2020).

Now, however, E-TES gives us the ability to open our minds to the possibilities of multiple worldviews and encourages us to see value in both perspectives. In the past, we can see that the Western eye has been prioritized within Canadian society, so much so that the Indigenous eye has been closed shut. Now, we believe Indigenous knowledges are fundamental in ensuring the sustained health of Indigenous peoples and the planet. Western pedagogies have been notoriously prioritized within Canada's educational system. This hierarchy has influenced how we teach today's youth and what information we have taught them to be valid or true. For instance, Cajete (1999) states that Western pedagogy is privileged in science, and this leads students to perceiving themselves as separate and apart from the world that they are studying. This approach to science is fundamentally different from Indigenous sciences, where Indigenous peoples view themselves in relation to the natural world, not apart from it.

This is where we asked the question: Does technology remove us from our natural world, or can it bring us closer? E-TES supports the consideration of multiple worldviews and perspectives and encourages collaboration in determining how different worldviews can come together to solve social issues, such as the over-prioritization of Western knowledges in education. To support future opportunities for Indigenous youth, Borden and Wiseman (2016) discuss the importance of the integration of Indigenous perspectives into Western pedagogies, and state that this process should not be about specific content and control, but rather about pedagogy and how engagement in teaching and learning allows for growth in mind, body, spirit, and heart. They also quote Mohawk scholar Doolittle (2006), who challenges us to consider how we might bring scientific knowledges into Indigenous culture, rather than how science might be pushed onto Indigenous culture. While this perspective values both Western and Indigenous knowledges as being critical for youth's education, it places greater emphasis on how these knowledges are taught and framed as being influential to how youth perceive themselves and the world around them.

Through this perspective, we can see technology as a tool, and how this tool is used will determine how beneficial it will be in supporting land-based learning. Using technology with a Western worldview that does not inherently value the natural world could further remove us from it, whereas using technology with an Indigenous perspective that encourages us to seek out information relating to the land and our relationship to it could allow us to use technology in a way that supports our connection to nature and encourages us to get outside. Through an E-TES lens, we can see technology as not being inherently Western, but as new way to communicate that any community, culture, or society can benefit from if they are able to harness its power. While online technologies were created out of Western society, Indigenous artists, journalists, activists, and storytellers are using technology in innovative ways to take charge of their culture and express their voices despite colonial influences on the Internet (Carlson & Dreher, 2018). We believe it is possible that online technologies could be (and are already) apart of Indigenous culture and pedagogy in ways that support and uphold Indigenous knowledges and values.

We saw this during our eel fishing expedition where traditional practices were able to co-exist with technology. In fact, the Internet and social media have become crucial elements in

maintaining Indigenous identity through sharing of information (Hicks & White, 2000). In Canada's North, for example, culture and technology could be said to mutually adapt and fortify each other in the shifting circumstances of the Arctic (Hicks & White, 2000). In Castleton's (2018) study, he found that Inuit students illustrated the importance of Facebook groups in their daily lives, as one of them said, "[through Facebook] I learn more about old ways and how things were done before." The young participants of this study referred to a Facebook group called "Inuit Hunting Stories of the Day." This type of group, which shares stories about hunting and traditional foodways, was acknowledged by the participants as a good way to present Inuit culture, to know their own identity, and to learn traditional techniques and knowledge for hunting and survival (Castleton, 2018). We have learned that Indigenous youth are avidly utilizing online technologies in ways that suit their identity, culture, and interactions with the wider world.

E-TES allows us to consider the best of two seemingly divergent worldviews. It allows us to see that Indigenous knowledge systems have different strengths than Western knowledge systems, and we need to prioritize these teachings and perspectives when supporting the health of Indigenous communities in engaging in their traditional foodways. Through this field report we have discussed both the benefits of land-based learning and online technologies, and we value both. Through E-TES we have come to believe that being on the land, and the feeling of being in nature, cannot be formed online. Yet, online technologies can support youth in getting outside in the first place so that they can learn about their food and culture. Better yet, youth can engage with online communities that support their identities and allow them to share their knowledge and experiences with others. Online technologies, in many ways, have become a tool of youth activism and resistance towards colonization, where youth are reclaiming their knowledge systems, both online and on the land. Today's Indigenous youth are simultaneously technology users and the Knowledge Keepers of tomorrow. Utilizing technology may help to ensure that they are able to preserve the traditional knowledges that Elders pass on to them, as well as providing the means to share and pass on their culture with future generations. Indigenous peoples have long been innovators and developers of technologies that have enabled their survival on the land. Similarly, in our changing world, Indigenous peoples have the right to determine how online technology will be used to support their communities and govern their lands in the future.

Conclusion

Seeing the way that Mi'kmaw youth were able to interact with both the land and online technologies during our project workshops and through discovering the presence of other online

land-based initiatives within Mi'kma'ki, we have been able to consider the role of technology in youth's lives and the potential relationship between land-based programming and technology. The unique circumstances of COVID-19 have allowed us to begin a conversation surrounding how land-based and online learning can come together to teach youth about their traditional foodways. Through E-TES we can see the strengths in considering multiple worldviews, while acknowledging the harm that has been caused by privileging and holding one perspective above the rest. Online technologies create opportunities for youth to engage in their culture, to further support the sharing and learning of Indigenous traditional knowledges such as *Netukulimk*, and the sharing and promotion of land-based activities. Through E-TES we have come to recognize the importance of generating a connection with the land. Online technologies can support this connection but cannot replicate it. Historically, we have tried through the Western eye to understand the natural world by removing ourselves from it. Now, we can learn to see and value the Indigenous eye and the spiritual lessons and practices it can instill within us. Getting on the land and learning these lessons and practices is imperative. Moving forward, we can begin to look at this relationship with the aim of getting youth on the land while sharing their experiences with their communities. Ultimately, we see online technologies as a bridge connecting youth to their natural environment, supporting them in preserving and revitalizing their traditional foodways and cultural knowledges.

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Field Report

No syllabus, no problem: Let's co-create a world of food, agriculture, and society

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Abstract

The intimate relation people have with food provides unique opportunities for teaching. In this field report, I will describe and reflect upon the method of student-centred learning I use in a first-year university course entitled Food, Agriculture & Society. The aim of the course is to provide students with a broad understanding of how food and agriculture have shaped society and can contribute to a more sustainable future. Consistent with food pedagogy, a premise of the course design is that the intimate relation students have with the food they eat reflects their personal values and responsibility for their choices. An innovative element of my approach is that I co-create the syllabus. The course starts by writing the word "Food" on the blackboard. I then facilitate a multi-step process with students to co-create the syllabus. For most of the course, students lead the preparation and delivery of lectures on their selected topics. In this report, after describing the course design, I reflect upon my approach in relation to the tenets of food pedagogy, as well as discuss student feedback and my experience of teaching the course.

Keywords: Food pedagogy; food; agriculture; society

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Introduction

To open the first year NREM 110 Food, Agriculture & Society, I explain to students that this course may be different from other courses, and that I don't have a full syllabus, required text, or set of readings.[1] But I do have one word to get things started. I then write "Food" on the blackboard. And the course begins.

In this field report, I reflect on my approach to and experience of teaching this course at the University of Northern British Columbia (UNBC). The content centres on interrelations among food, agriculture, and society. Students learn not only about food and agriculture, they also learn how agriculture and food shape society, thereby gaining insights about the structure and dynamics of the world we live in. By reflecting on their own food choices, students learn about themselves.

My approach to this course has several aspects that I believe are innovative. Importantly for this special issue of the journal, this innovative approach reflects a unique power of food pedagogy—that "Not only is food an object of learning, but it is also a vehicle for learning" (Flowers & Swan, 2012, p. 422). One aspect that makes my approach unique is that I start the course with a single word, "Food," as noted above. This word also begins a novel process to co-create the syllabus with the students. After identifying the topics to be covered in the course, students prepare and deliver most of the course lectures.

In this report, I start with a brief description of the institutional setting before describing the course, including aims and objectives, lecture content, assignments, and forms of student engagement. I provide specific details about the process of co-creating the course syllabus. After describing how I teach the course, I reflect upon student responses to the teaching method and my experience of using this approach. Given that I developed this course before the foundational articles on food pedagogy were published (Flowers & Swan, 2012; Sumner, 2013), I will discuss the extent to which my approach is consistent with the aims and objectives of food pedagogy.[2]

Institutional setting

UNBC is small, with about 3,500 students. The University does not have a food or agriculture program and Food, Agriculture & Society is the only course offered with a primary focus on food and/or agriculture. The first-year course has no prerequisites and is open to all students at

[1] My institution has not raised any concerns about this approach. However, some institutions require instructors to finalize their syllabus at least a week before the start of classes. In such cases, I advise instructors to meet with their institution to discuss how such an approach, if permitted, can be accommodated within existing policies.
[2] This body of literature also includes food literacy.

the university. One of the benefits of a small university is that students are more likely to look at courses offered by all programs at the university.

I have been using the approach described in this report for more than ten years. This approach was developed initially for a second-year environmental planning course that I taught from 2009 to 2014. In that course, I used food as a lens to explore relations between environment and society. Thus, food shifted from being a teaching tool to being both a tool and the explicit subject of study in Food, Agriculture & Society. The course is scheduled as a weekly, three-hour class offered in the evening.

Aims and goals of course

In the syllabus (Connell, 2020), I describe the course this way:

> The food we eat reflects the values and choices of the societies we live in and of the families and friends we grow up with. Agriculture and food are also directly connected to the natural resources we consume and the state of the environment. Therefore, through this course, students examine a range of choices, values, and uses associated with global and local food systems from different perspectives, including social, economic, environmental, health, and political. The aim is to provide students with a broad understanding of how food and agriculture shape society and can contribute to a more sustainable future.

Consistent with a values-based approach (Galt, Clark, & Parr, 2012), a goal of the course is to enable students to understand their values, choices, and place among the relations between food, agriculture, and society. Based on these aims and goals, the course covers a wide range of content, as described next.

Course content

In the following description of the content of the course, I organise the discussion in three parts. First, I describe the process I use to co-create the syllabus. Given unique aspects of this process and the centrality of food as a catalyst, I cover this first part of the course in some detail. I then discuss lectures that I deliver in order to position food and agriculture within a societal context, and to stimulate student interest in the course content. In the third part, I focus on additional topics covered in the course, including topics that students contributed to the syllabus over the years.

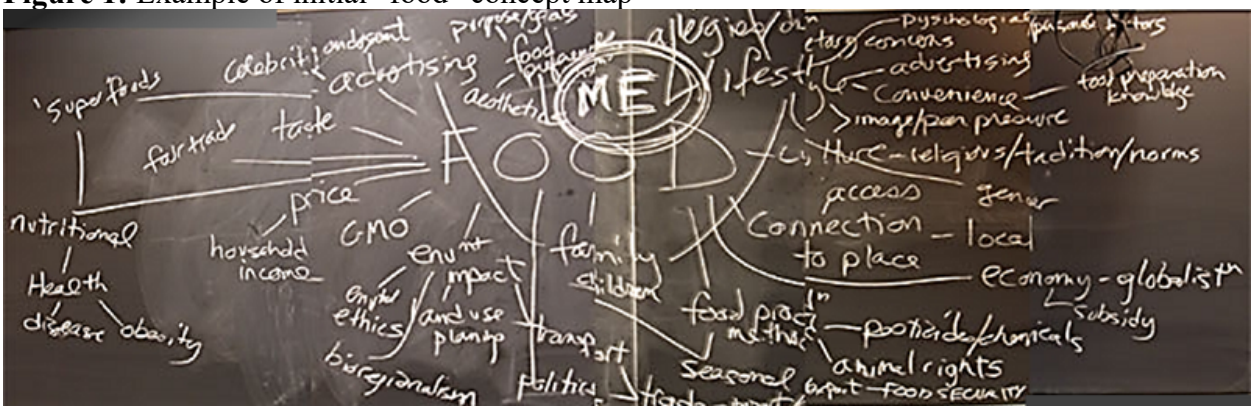
Co-creating the syllabus

Week one (first class)

After writing the word "Food" on the blackboard,[3] I invite the students to share whatever topic comes to mind when they think of food. I add their ideas to the blackboard to generate a concept map. I try to fill the blackboard as much as possible and get each student to contribute something, but full participation is not critical at this stage. I then give students a moment to examine and reflect on the outcome, which looks messy (see Figure 1). The effect of the exercise is twofold. First, students get a sense that almost anything can be connected to food in some way. Second, each student gets a sense that they have something to contribute to the topic, and that they come to the class as experts in their food choices.

I highlight the purpose of the course by returning to the blackboard and writing "Me" in the tangle of words. I then introduce the aim and goals of the course by emphasising that, in the midst of all that is related to food, each student makes choices, that each choice has a ripple effect beyond what we captured on the backboard, and that the aim of the course is for students to examine food choices, and how their personal choices shape the agri-food system and the world we live in.

Figure 1: Example of initial "food" concept map



We are now about thirty to forty-five minutes into the class and students have connected in some way to the purpose of the course. After completing the "Food" concept map as a class, I divide students into groups of three or four. Each group gets a sheet of brown craft paper (about one square metre) and markers. They are asked to do the same exercise: write "Food" on the paper, share their ideas, and explore these ideas in more detail.

[3] This approach also works with synchronous on-line learning using a virtual blackboard.

I move from group to group, spend a few minutes with each one to assess how well they are doing, see what they are writing, contribute to their discussions, and encourage discussion by each student as needed. I usually do two or three rounds. Each group then presents their ideas to the whole class.

The effect of this second step of the syllabus-creation process is to provide space for small group discussions in which all students, especially students who are less comfortable speaking in front of the whole class, have a more private space to share ideas. The exercise reinforces the sense that each student has something to contribute to the course. Collectively, the ideas shared by all groups highlight a breadth of topics as well as areas of shared interest. After this step, I close the discussions with the following quotation:

> Food shapes and reflects all levels of the human experience. It demarcates cultures, borders, nations, and generations, while its significance cuts across all of these categories. Food's smells and tastes account for some of our most sensuous, intimate, and salient memories. On a larger scale, its production brings both order and disorder to local, regional, and national landscapes and controls economies throughout the world. A lack of access to food can cause death, destruction, migration, disease, and even war, reminding us how ecological realities and power relations complicate any simplistic narrative of warm and cherished memories that many of us from relatively privileged societies and backgrounds might associate with the rituals and pleasures of eating. Food shapes families, establishes civilizations, creates relationships, and binds the peoples of the world to one another through trade. Could anything be more important than food? (Chester & Mink, 2009, p. 309).

After sharing this quotation, I describe the purpose and scope of the course, including the assignments. Most importantly, I inform the students that together we will complete the syllabus, and that they will deliver many of the course lectures. This approach becomes clearer to students when I show them the partially completed syllabus. Because the first group to deliver a lecture will need a few weeks to prepare, I deliver the first three lectures (weeks three to five). Thus, to start the course, there are up to six weeks of lectures to be defined, developed, and delivered by students.

Between the first and second classes, I compile all of the ideas captured on the blackboard and brown papers. I group the ideas under similar topics to the extent possible. All of the ideas, grouped by topic, are captured on a single page, printed, and distributed to students at the start of the second class.

Week two

The second class begins by students reviewing the list. Students are instructed to review the list on their own and identify about ten ideas that are of interest to them.

Then, I ask each student to identify their top three choices from among their selected items. Students then share their first choices with the class as I record their responses. When this reporting and recording process is complete, we have a good sense of who is interested in what topics and arrange students with shared interests into groups. Knowing there are up to six weeks of lectures to fill, we aim for five to seven groups now organised by shared interests. We consider second- and third-ranked choices as needed. There is some movement of students between topics as they see what others are selecting and have an opportunity to reconsider their own choices.

The next step is for each of these new groups to create another concept map, starting again with "Food" at the centre of the paper. This time they focus their discussions on their shared interests. Most often, there is sufficient overlap within the smaller groups that their interests align reasonably well. All of the groups return to the classroom to report on their theme. The outcome is a list of potential lecture topics that students identified themselves and, at this point, have already spent about two hours discussing. Throughout each step of the process, students have an opportunity to confirm their interest in a topic or switch topics as we work to finalise groups. Ideally, at this point, students are gaining a sense of ownership over the content of the course and excitement about what lies ahead.

The next step is to draft the syllabus. First, I list all of the group topics on the blackboard, in no particular order. Each group is asked to review all the topics and consider an appropriate order of lectures. I encourage them to think of the whole course as a story, such that the order of the lectures builds from one to the next. Each group then reports back to the whole class and the order of topics is recorded in a table on the blackboard. The class reviews all the group responses and an open discussion ensues about similarities and differences, the rationale for the order proposed by each group, and suggestions for a final order. We also discuss appropriate names for each lecture theme, which also includes suggestions for splitting or combining topics. Sometimes we agree on a final order; more often, we don't reach consensus on everything, so I make the final decision before the next class.

The outcome: a co-created syllabus.

Instructor lectures: The societal context

With a completed syllabus, students have a better understanding of the scope of the course. Over the next three lectures (weeks three to five), my aim is to situate questions and issues related to food and agriculture within a broad societal context.

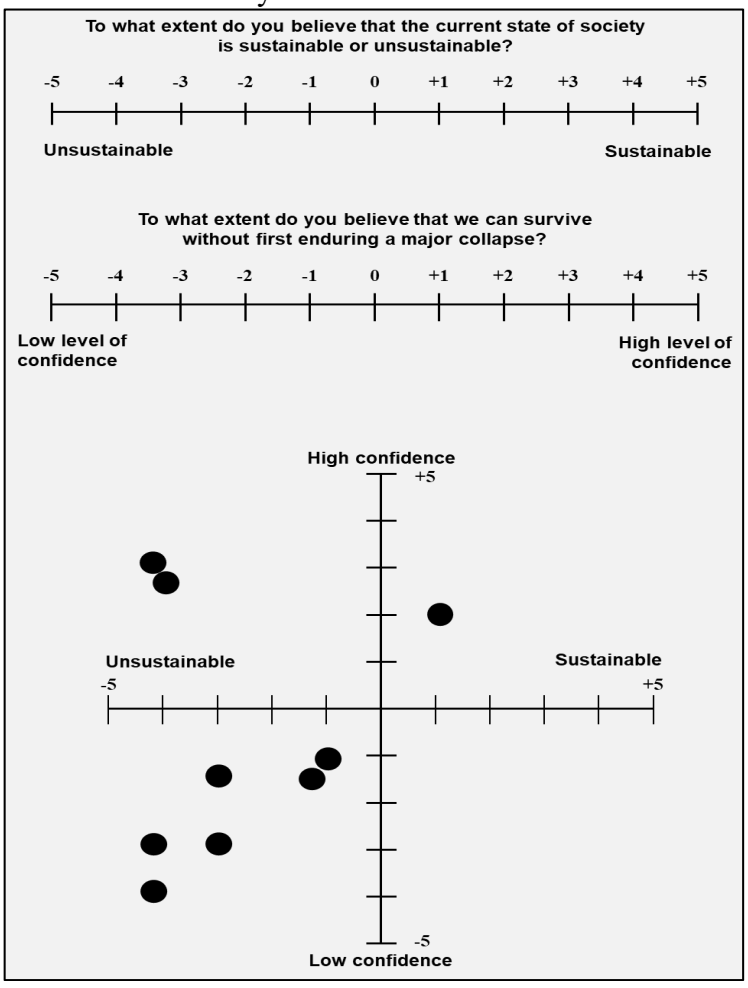
In week three, for example, I start the class with a "sustainability" exercise (see Box 1). I ask students two questions:

- To what extent do you believe that the current state of society is sustainable or unsustainable?

- To what extent do you believe that we can survive without first enduring a major collapse?

I then plot their answers on a chart that forms four quadrants. The upper right quadrant represents the most optimistic outlook; the lower left is the most pessimistic, with a view that society is in an unsustainable state with low confidence that society will avoid collapse. When I do this exercise, the majority of students tend to cluster in the most pessimistic quadrant (as illustrated in Box 1). However, the aim is not to label students but to generate discussion, which leads to insights about one's perspective in relation to time (near to long term), scale (local to global), and scope (personal to societal). Students tend to have different answers to the two questions depending on which perspective they adopt. I then pose a question for students to consider throughout the course: What is the role of the agri-food system in this context, as a contributing problem and as a potential solution? I do this exercise again at the end of the semester as a means for students to consider how their outlook might have changed.

Box 1: Sustainability exercise



After the sustainability exercise, the remaining class time is used to watch *Surviving Progress* (Louis et al., 2011), a film inspired by Ronald Wright's book *A Short History of Progress* (Wright, 2004). These materials are excellent resources to get students thinking about society's reliance on progress as a moral beacon. Among Wright's many insights, I draw upon two elements to help set food and agriculture within a societal context. The first is Wright's use of Gaugin's painting to introduce three questions: Where do we come from? What are we? Where are we going? (2004) I also draw upon Wright's concept of "progress trap," which is "when a particular technology of progress (e.g., weapons) reaches an impasse by threatening to destroy the planet on which it is developed" (2004, pp. 5-6). Whereas Wright focusses on civilisation as a "great experiment," I focus on Wright's description of the change from hunting to farming as the first progress trap (2004). Most students (nearly all) are not aware of the relation between agriculture and the history of civilisation.[4] Once introduced, this concept of progress trap comes up throughout the course. For example, the question of whether the agri-food system is caught in a progress trap relates well to the persistent use of technology to "improve" agriculture.

In *Hungry City*,[5] Steel provides a compelling account of the relation between agriculture, food, and the physical spaces in which we live, which is the subject of another lecture (2008). This perspective reveals important insights about how society is shaped physically by the food we produce and consume. Steel's (2008) concept of "sitopia" combines *situs* and *topos* to mean "food place."

I use Steel's (2008) work to get students to think about their ideal, sustainable society. For this, I review a history of utopian ideas, from Thomas More (1516/1965) to today's ecovillages and eco-cities. Like Steel (2008), I emphasise the place of agriculture in each of these utopian visions that cross five centuries of societal development. I then lead students through an exercise to imagine their utopia. On their own, they contemplate their utopia using maps, images, and words with consideration for scale, physical features, size of population, economic systems (including the extent of trade), political systems, equity, and level of food self-sufficiency. For the latter, students consider where food is grown (how far away), what kind of food is grown, what foods do people eat (e.g., standard North American diet, vegetarian, vegan, hunting and gathering), supply of food, and how to bring in and distribute food. After students share aspects of their vision with the class, they are divided into groups based on the population of their utopia. Within their groups, students discuss what their shared vision of utopia might be.

[4] The term "civilisation" itself often generates discussion regarding its association with a Western view of society and its history of colonialism. I use the term here, and in class, following Wright's definition of civilization as one kind of culture with the following characteristics: large, permanent settlements; based on the domestication of plants, animals, and human beings; vary in their make-up but typically have towns, cities, governments, social classes, and specialized professions (2004, pp. 32-33).

[5] Steel released a new book in 2020, *Sitopia: How food can save the world.* I expect to incorporate this text into the next offering of this course.

One challenging aspect of this exercise is for students to reconcile the land and labour needed for their desired level of food self-sufficiency with expectations about quality of life, interest in technology, and reliance on external trade. Their vision of utopia is something they reflect upon during the rest of the semester.

I end this class with a quotation from Steel, "Once you start seeing the world through food, everything changes. Seemingly unconnected things turn out to be closely linked, apparently confusing relationships spring into relief. Food, as we know, is one of the greatest forces shaping the world" (2008, p. 308).

Range of other topics covered

The range of topics covered in the rest of the course is driven by the personal interests of students. The following list includes themes introduced by students over the years of using this approach:

- Food production
- Food security
- Food sovereignty and food justice
- Food waste
- Fast food
- Environmental impacts of agriculture
- Culture of food and food cultures
- Indigenous food systems
- Values and ethics
- Local versus global
- Consumerism
- Land use
- Agri-food in developing areas of the world
- The role of regulations in agriculture and food and society
- Small-scale farming
- International trade
- Technology and agriculture (including genetic modification)
- Farmland protection
- Health, nutrition, and diet
- Water
- Food processing

These topics have been covered from multiple perspectives. For example, genetic modification of food has been presented as a positive and negative technological contribution. Overall, most students adopt a critical perspective that aligns with local food systems and agri-food systems that advance fair trade, food security, and social justice.

In addition to the topics and materials discussed already, there are other materials that students do not always address, that I try to work into the syllabus. For example, at some point in the course (the earlier the better), I incorporate a discussion about the history of civilisation and the place of food and agriculture within it. Other topics include farmland protection, power and concentration in the agri-food industry, and food hubs. Also, each year towards the end of the semester, I hold a "farmers forum" during class time. For this activity, I invite about six farmers to come to class to talk with the students. To open the discussion, I ask each farmer to express their view of the current state of the agri-food system and of the prospects for future farmers in the region and beyond. Thereafter, the discussion flows freely with students asking questions and farmers responding to each other.

The final class of the semester is a time to reflect on the course as a whole, to do the sustainability exercise again, to return to their personal visions of utopia, and to discuss what they learned and will take away from the course.

Assignments

Students complete different types of assignments throughout the course, which enables them to express themselves in different ways. For example, personal reflection papers (30 percent of course grade) are due after most lectures (usually about eight), and within twenty-four hours of the lecture. Their task is to examine what they feel and think about contemporary issues and opportunities raised during the lecture. A term paper (25 percent of course grade) is a larger, more comprehensive version of the personal reflections that is due at the end of the course. Students are instructed to use a personal perspective to express their values and choices, and about the positive and negative effects of their choices on society and on the environment. Students must also demonstrate knowledge of a range of concepts and issues relevant to their understanding of society-food-agriculture relations. In this way, the term paper addresses the main focus of the course.

In the remainder of this section, I will focus on the student contributions to the course, including student-designed and delivered lectures.

Contributions

The course is designed to engage students and relies on student contributions to both in-class discussions (participation and attendance) and lectures. Contributions to lectures can take several forms, including, but not limited to:

- participating in group discussions about what materials will be included, how the material will be delivered, and helping deliver the lecture;
- researching materials in support of the lecture;

- and presenting materials through, for example, formal lecture, facilitating discussion, or leading an exercise.

A combination of all or parts of the above is acceptable. The full range of possible contributions are worth 20 percent of the course grade.

The grading scheme aims to accommodate different skills and interests of students. Not all students are comfortable speaking in public, while other students are delighted to be in front of the class. This situation is heightened because this assignment is not a fifteen minute "talking head" presentation; it is a lecture that can last over two hours—in a first-year course. Therefore, as much as possible, I try to reduce the level of anxiety among students while encouraging all students to embrace the opportunity. Most importantly, students are not graded on their ability to deliver the lecture. If a student is terrified of speaking in class, I still encourage them to try, because it will not affect their grade. The grading scheme enables students to contribute to the lecture in other ways. Thus far, every student has participated, to varying extents, in delivering lectures.

The primary aim of the lecture is to engage the class in discussions about the topic while also providing the class with sufficient information in order for them to complete the reflection assignment. In other words, the students leading the lecture are instructed to not focus on content as if their fellow students were to be tested on the materials; rather, they are to share information and their own views that, ideally, expose their fellow students to new ideas and different perspectives about food and agriculture and their relation to society.

There is another important aspect of the lecture: students do not develop the lecture on their own; I participate in the process. Typically, the development of the lecture follows a three-step process, as laid out in instructions to students on "how to prepare a lecture": (1) brainstorm to develop the topic and lecture ideas; (2) refine ideas and organise the lecture; (3) final preparations. These instructions also describe "key elements of a successful lecture." Each group is encouraged to meet with me at each step. Working directly with students to develop the lectures has three important benefits. First, being involved provides a way for me to support the students to develop and deliver a good lecture. Second, the meetings become informal tutorials to develop core competencies of communication that help students to acquire appropriate information, transform ideas, and make connections with others. The intended benefit is that students learn how to organise and focus their ideas into a format that is meaningful to their peers. Third, meeting with the groups is an important means for me to evaluate individual contributions to the process.

A research paper (20 percent of course grade) is tied directly to the student lecture topics and is essential to a good lecture. As such, the research paper is due one week prior to the scheduled date of the group's lecture. While the lecture is delivered as a group, the research paper is completed individually. The aims of the paper are for students to demonstrate an ability to think critically about their selected topic and to demonstrate their knowledge of relevant concepts, issues, and/or opportunities.

As a complement to the research paper, students must also submit an annotated bibliography (5 percent of course grade), which is posted on the course website as a resource for their fellow students.

Pedagogy

As noted above, my specific approach to teaching Food, Agriculture & Society was not directed by an explicit understanding of food pedagogy, given that the primary literature emerged after I developed my approach. With this context, in this section I will reflect upon the extent to which my approach is consistent with the tenets of food pedagogy.

The literature points to many ways to think about food pedagogy, the subject matter alone seems limitless. Even the articles included in the special issue of *Australian Journal of Adult Learning* (Flowers & Swan, 2012) and the edited book, *Food Pedagogies*, by Flowers and Swan (2015) cover only a partial range. Broadly, food pedagogy can cover social, political, economic, ecological, agricultural, cultural, class, gender, race, health, identity, labour, morality, and more topics. Given this wide range of possibilities, focusing on food offers advantages that helps make my course design effective. Starting with a word like sustainability, environment, health, community, or water can produce a great concept map, but none, I would argue, has an equivalent combined quality of intimacy and practicality as food, while also connecting personal choices to so many aspects of society and the environment. Herein lies the power of food as a teaching tool. As Sumner states, "Food catalyzes the potential for experiential learning" (2013, p. 47). By starting the course with "Food," the course immediately has access to the full potential of food as a catalyst for learning. It is my task to make the most of the opportunity. As Gerstein states, "It is the teacher's responsibility to *structure and organize a series of experiences* which positively influence each individual's potential future experiences" (2012; original emphasis). I believe that the design of Food, Agriculture & Society fulfills this responsibility. At the same time, the process of co-creating a syllabus with students can be applied to any topic. I suggest that it is not the topic as it is the aims of the course that enables (constrains) an instructor to use this approach. In this sense, food pedagogy is not essential for co-creating syllabi.

As Flowers and Swan (2012) state, teaching about food is not only about the subject matter, but also a vehicle that facilitates the learning process. This aspect of food pedagogy is evident in the literature and reflected in the definition of food literacy by Yamashita and Robinson (see also Classens & Sytsma, 2020), who identify the following four components: "(1) examine one's own values with respect to food systems; (2) grapple with multiple values and perspectives that underlie food systems; (3) understand the larger sociopolitical contexts and factors that shape food systems; and (4) take action toward social justice in food systems and sustainability more broadly" (2016, p. 273).

In relation to Yamashita and Robinson's (2016) definition, I believe my approach resonates strongly with their first three components. The aims and goals of my approach emphasise the values and choices at both the societal and personal levels. The course also emphasises a broad understanding of how food and agriculture shape society, and vice versa. The premise of my approach to teaching Food, Agriculture & Society is that the intimate relationship students have with the food they eat reflects their personal values and responsibility for their choices. This intimate relationship provides unique opportunities for students to gain a broad understanding of how personal choices shape society and can contribute to a more sustainable future. In particular, the intimate connections students have with food fosters learning by bridging critical thinking with personal and social awareness and responsibility, enabling them to consider what a socially just and ecologically rational food system might be.

Although my approach embraces a normative approach to food pedagogy (Greenstein et al., 2015), the course does not include the fourth component of Yamashita and Robinson's (2016) definition, which refers to taking action toward social justice, as an explicit goal. The normative dimension of my approach centres on the aim to consider a more sustainable future and the role of food and agriculture as part of the solution. However, this normative dimension falls short of a *critical* approach to food pedagogy. Critical food pedagogy has an explicit focus on action, change, and social justice. For Sumner, the goal of their graduate course centred on transformation, empowerment, and action informed by reflection "that addresses power and injustice" (2013, p. 45). Similarly, as a component of their definition of critical food pedagogy, Classens and Sytsma include "empowering them to incite socioecological change within the food system" (2020, p. 10). This emphasis on a critical food pedagogy is evident elsewhere in the literature (Flowers & Swan, 2015; Harris & Barter, 2015; Jones, 2019; Lewis & O'Neil, 2019; Ma Rhea, 2018; Swan & Flowers, 2015; Truman et al., 2017; Walter, 2012). Although my course design does not adopt an explicit critical approach, I am pleased and very supportive when students challenge the foundations of the dominant global food system, identify issues of power and injustice, and feel empowered to make change.

In the absence of an explicit critical food pedagogy, my normative approach relies on the open-ended question about whether the dominant agri-food system is, in and of itself, a progress trap. This question helps to open a door to reflection without presenting specific criteria to evaluate agri-food systems. As an element of experiential learning, as much as possible, I leave it to students to consider the question in their own ways, to identify issues on their own terms, and to consider how they might respond. In this context, when the question of a progress trap is complemented by the exercise of articulating a personal vision of utopia—and where agriculture and food fit within and shape their vision—students must begin a process of reconciling critique with solutions, and vision with practicality.

Although students in the same class have expressed opposing views on the same topic (e.g., genetic modification), the opposing views have been treated respectfully. The most common point of debate has centered on the consumption of meat.

Many students who have taken the course are vegetarian or vegan, encompassing a range of ethical, health, and environmental motivations. Many other students are avid hunters. The discussion about this and other opposing views have been respectful. The recent attention given to regenerative agriculture as not only an agricultural practice but also as a response to climate change, has served to open avenues for discussion that help to bridge these opposing views.

Although my approach can embrace a critical food pedagogy more explicitly, I do not feel it is necessary for the context in which I teach. By context, I mean that this is a first-year course (although not all students are in their first year) with students from across campus with many perspectives. As well, a premise of my food pedagogy is that students are experts in their own food choices. This premise is the starting point for co-creating the syllabus and providing space for students to explore their own interests. Adopting an explicitly critical approach to studying relations among food, agriculture, and society may compromise the course design by favouring this perspective when not all students might agree that the agri-food system needs to change. This concern is shared by Yamashita and Robinson (2016), who note that critical food pedagogy often relies on a dualism, through which alternative agriculture opposes conventional agriculture. The potential pitfalls are "oversimplified views about which food systems (and therefore what types of food-related behaviors) are sustainable and unsustainable" (Yamashita & Robinson, 2016, p. 273). On the other hand, giving students space to explore their interests also means that I give up some control over the content of the course and, to some degree, also lose some control of the power of food as a vehicle for learning.

Student responses to the course

To maintain confidentiality, I will not use direct quotations from students in their feedback of the course. A mix of students have taken the course, with the total number of students per semester ranging from nine to thirty-one. The environmental studies version of the course was required for some degrees and an elective for others, thus attracting most students from environmental programs. The majority of these students registered for the course to satisfy degree requirements, with some also having specific interests in food systems, including participation in on-campus food-related activities. For the past two years, Food, Agriculture & Society was not listed as either required or an elective for any degree; it was completely optional. Students take the course out of interest or given the lack of prerequisites and scheduling as an evening course, out of convenience. With this change in the course, I have noticed two things. Over the past two years, a higher proportion of students had a specific interest in agriculture and food and represented a wider range of programs, including anthropology, commerce, engineering, English, geography, health, psychology, and other programs. As this new course becomes established, I expect that more students who have specific interests in agri-food studies will register.

Through formal course evaluations, students have expressed some consistent themes. On the positive side, the most consistent comment is that students highly value the opportunity to pursue topics of personal interest to them and of which they can take ownership. Many students who, prior to the course, had not thought about much about the food they ate, expressed appreciation for the opportunity to gain insights not only about food but also about how food shapes society. These insights were also evident in course assignments, especially the term paper. Students frequently demonstrated they were more aware of the consequences of their choices, from multiple perspectives. For example, students wrote about no longer feeling like the same person when they go grocery shopping, and about the increased time it takes them to shop for food because they spend more time reading labels. The farmers forum is often highlighted as a favourite class of the semester.

The most common concern expressed by students is that I did not deliver enough content throughout the course, and that I should deliver more of the lecture materials. This concern has been expressed consistently since the start of using this approach. Although I do not know the specific reasons for their concern, I presume that these students feel they are not getting enough content from the student lectures. It could also be that students expect instructors to deliver the lectures. Another concern, which seems related to a desire for more instructor-led lectures, is that some students stated they did not learn much more than they already knew about food and agriculture. In response to both of these concerns, I now deliver more content throughout the course with a specific effort to cover current issues and new innovations, some of which are noted above. In one semester I taught the course, a few students expressed concern about the course material not being relevant to their degrees, although I am not certain why.

My reflections on the course

My first time using this course design, it was easy to get excited about trying something new, but I was anxious about the risks involved and had doubts that the approach would be successful. The course was about environment and society, not about food; students had no idea that I would be using food as a vehicle for learning. Not only might they not like studying food, they may not like delivering lectures themselves or not having the instructor deliver lectures. Another major source of doubt arose from me not knowing what quality of lectures students would—or could—deliver. As I told my program chair, I knew it was risky to adopt the approach for teaching the course but, as I also explained, my application for promotion to Associate Professor was already under review. If the course design failed, at least it would not affect my current application.

I am pleased to say that, overall, my first experience was very positive. I was inspired by the written comments students provided about how much they valued having more control over what they learned in the classroom and about how much they learned of themselves and society through the lens of food. I was convinced that, for many students in the first class, the intended

outcomes of food pedagogy had been achieved. Each year thereafter, I remain convinced that food pedagogy works. However, there have been challenges and compromises along the way.

The most difficult experience I had was with a class of thirty-one students, which was the most students I have taught using this approach. From this experience, I learned that this number of students was problematic for the course design. Given the limited number of lectures in a semester, having thirty-one students in the course required more student-led lectures, which reduced the content that I delivered, and required larger student groups for each lecture. Although the course design was able to accommodate thirty-one students, the experience taught me that the disadvantages outweighed potential benefits. It was also during this semester that some students expressed concern that the course did not contribute to their degree, although I am not certain this concern was related to the class size. A more suitable maximum class size is about twenty-five students, although this lower enrolment may not be feasible in some institutions. I suggest a range between fifteen and twenty-five students works best for the approach described in this report.

Although the suite of assignments has remained consistent, modifications have been required. Regarding the quality of the student-led lectures, I found that the quality improves in proportion with the amount of time I spend with the student group. However, getting students to meet with me has been a challenge and the process is demanding. Consequently, over the years, I have relaxed requirements to meet with me and have accepted a greater range of lecture quality. I suspect that the cohesiveness of a lecture as a whole means more to me than it does to the students in the class.

I relaxed another, related aspect of the lecture development. I used to insist that a student lecture group identify an underlying theme that connects all of their ideas and contributes to a more cohesive lecture. This theme was also used as the basis for the personal reflection assignments. When the theme worked, it worked well. Too many times, however, the theme worked only weakly to bring the lecture topics together, and sometimes was more cumbersome than constructive. The theme worked less well for the reflection assignments. Now, for the lectures, I explore possible themes with the lecture groups only when there is an opportunity; I do not require students to work with a theme. For the assignments, I dropped the requirement for students to focus on the lecture theme. Instead, students reflect on any aspect of the lecture that stood out for them, for whatever reason.

Conclusion

Through this field report, my aim was to share and reflect upon my experience using an innovative approach to teaching a course on Food, Agriculture & Society in a postsecondary institution.

The course design enables students to exert ownership over their learning by incorporating their interests into the learning process and deepening learning through collaborative group work. Starting the course with the word "Food" is exciting, with each co-created syllabus being different. It is also risky, especially when combined with a commitment to letting students develop and deliver most of the lectures, as it gives some control of the course over to students. But this level of student engagement in the learning process is also what makes the experience mutually rewarding. The tenets of food pedagogy are consistent with the course design and, from my perspective, have been central to the success of the course.

Based on my experience with food pedagogy, I firmly believe that food is a powerful catalyst for experiential learning. As Sumner states succinctly, "Food is a necessity of life – people have to eat every day" (2013, p. 42). I also believe, to paraphrase Steel (2008), once you start teaching about the world through food, everything (in the classroom) changes.

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Field Report

From tensions to transformation: Teaching food systems in a graduate dietetics course

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Abstract

Dietitians are deeply embedded within food systems, so food systems concepts are becoming an essential component of dietetic education in Canada. Yet how can we, as educators, better prepare future dietitians to embrace the complexity of food systems and be forces of change towards equity? In an effort to explore this question in a practical way, we integrated food systems concepts into a mandatory course of a public health graduate dietetics program. This field report shares our experiences teaching food systems over five years based on our notes kept, student feedback, and course evaluations. Our learnings have been in three key areas: intentions, facilitation, and tensions.

We recognized that teaching about food systems is value-laden. Hence, we have been explicit with the students about our positionality and our *intentions* in designing the course, partly to meet the management of food systems competency requirements, but also to stimulate thinking about alternative options for purpose, structures, and processes in food systems. Our *facilitation* approaches aimed to foster a critical consciousness towards social justice and systems change. Using teaching and evaluation methods such as experiential learning, community projects, and reflection assignments, students have encountered the complexity of food systems and the challenges-opportunities they pose. As educators, we have grappled with the *tensions* of challenging dominant positivist discourses in public health nutrition. Politicized topics such as migrant farm-worker regimes, industrial food production, regulation of food marketing, and mitigation of the impact of colonization have generated debates in the classroom about the role

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and scope of dietetic practice. Most students have situated themselves more explicitly within a food system, and some began to question hidden structures of power. While it remains challenging to address this breadth within the constraints of one course, we believe it worthwhile to model and stimulate critical reflexivity among the next generation of dietitians as critical food learners-teachers themselves. Even though the course is no longer offered using this food systems approach, course components can be integrated throughout the dietetic curriculum.

Keywords: Food systems; andragogy; critical dietetics; public health nutrition; graduate education

Introduction

With growing social inequalities amplified locally and globally through times of crises, sustained examination of the inequities within our food systems is vital for fostering social action for change. As food educators, how we teach and talk about food contributes to the potential for change in our food systems (Sumner, 2015), especially among future generations of public health professionals such as dietitians (Wegener, 2018).

Dietitians increasingly recognize the interconnectedness between nutrition and our food systems. Shifting our food systems towards sustainability is crucial to our collective health. Embedded within food systems, dietitians provide nutrition advice in communities, work with governments to shape food environments, advocate for policies that support security, and manage institutional foodservice operations (Carlsson et al., 2020). According to the *Role Paper from Dietitians of Canada on Sustainable Food Systems* (Carlsson et al., 2020), dietitians are called upon to promote food systems change towards sustainability and equity through collective action. Yet how might we prepare future dietitians better for such a task (Wegener, 2018)?

The purpose of this field report is to critically reflect on our experience teaching a required graduate course on the management of community food systems in a graduate dietetics program over five years. We start by providing an overview of the landscape of food system education, focusing on dietetics. Turning to the course and our approach to transformative learning, we briefly discuss methods before sharing our reflections on key learning areas emerging from our teaching experience (intentions, facilitation, and tensions) and explore the challenges we encountered as food educators.

Due to significant growth in program enrolment in 2019, changes to the overall curriculum were made to accommodate increased demands for the practical training opportunities to meet mandatory dietetic competencies requirements. Consequently, this course was offered for the last time in the format we will discuss here in the Fall term of 2019. This curriculum change provided us with an opportunity to learn from our teaching approach, to reflect on our experiences, and to explore ways to integrate course components into the curriculum beyond the scope of one course.

Landscape of food system education

Surveys of dietetic educators (Carlsson et al., 2019; Harmon et al., 2011) have shown that they are motivated to include sustainability into dietetic education; however, they feel unprepared in the field of sustainable food systems. This trend is demonstrated by more dietetic education programs incorporating food systems into their curriculum in a variety of ways, including some programs designing dedicated courses on the topic (Wegener et al., 2018). Yet, to engage students in thinking about sustainable food systems, dietetic educators are asked to confront complexity, debates, and uncertainty. Teaching such complex and contested topics requires knowing not only the "content of we what teach but also paying attention to the way we teach" (Galt et al., 2012, p.43).

Reflecting on food pedagogies can be useful for dietitians, who, as health professionals, engage in food systems education. Articulated food pedagogies propel us to locate learning and teaching about food systems within "wider social, cultural, and political relations of power" (Flowers & Swan, 2012, p.425). This recognition of power within our food systems, and within food systems education itself, forms a key building block for teaching food systems critically. As for other health professional education (Halman et al., 2017), by considering how dietetic curriculum and educators themselves shape our future profession, training programs can better foster compassion and facilitate social change towards sustainability and equity.

The University of Toronto Master of Public Health - Nutrition & Dietetics Program is a graduate-level dietetic education program situated in the Dalla Lana School of Public Health in partnership with the University Health Network and Toronto Public Health (Dalla School of Public Health, University of Toronto, 2020). Our students come from diverse backgrounds, having completed an undergraduate degree in nutrition. They also have experiences in many dietetic practice areas through research projects, volunteering in community organizations, and paid work in food services. Throughout their program, students develop specific dietetic training competencies to be qualified to write the dietetic registration exam to practice as dietitians in Canada (Dietitians of Canada, 2020).

Course, instructors, and teaching approach

Foundations of Practice III was the third of a series of three mandatory semester courses in dietetic practice covering the five domains of the Integrated Competencies for Dietetic Education and Practice (ICDEPs, see Partnership for Dietetic Education and Practice, 2013).
Although initially designed to facilitate practical experiences for students to achieve dietetic training competencies in the management domain (PDEP, 2013), it evolved to incorporate emerging food systems concepts as essential to extend the scope of dietetics practice adequately.

Course structure & components

The course structure covered various stages involved in the food system: from inputs and production, to processing and distribution, preparation and consumption, and food waste utilization and disposal. Different course components approached different stages and the overall system in different ways (see Table 1). Each week a guest speaker from a particular food systems organization would cover a specific topic e.g., a member of the Agricultural Workers' Alliance on the Seasonal Agricultural Workers Program which brings temporary foreign workers to work on Canadian farms during the agricultural season, with an associated host of challenges to their food security (Weiler et al., 2017). Field visits were arranged with such organizations as well e.g., the publicly funded Ontario Food Terminal, where many small to medium-sized retailers and restaurants buy fresh produce from farmers and distributors, and which regularly donates produce to food banks (Ferro-Townsend, 2011). In-class sessions included interactive activities, such as laying out the commodity chain for a particular food globally. Students also undertook a project with a community organization, e.g., exploring the feasibility and options for a community oven at an urban farm involving racialized community participants. A "book-ended" Food Conception Reflection paper was used for students to articulate changes in their understanding of the complexity of food systems and their place within them (see below in findings).

Table 1: Course components and examples (2015 to 2019)

Component	**Examples**
Weekly Speakers' Topics	Municipal food policy Indigenous food systems seasonal agricultural workers program Local food procurement in an institutional food service environmental contaminants and food pathways Food marketing to children Climate-friendly diets
Field Visits	Community farm Community hub & garden Ontario food terminal Large national food retailer Local board of health & food policy council
In-Class Experiential Learning	Community food mapping Food commodity distribution chain exploration Dietary greenhouse gas emissions calculation
Community-Based Projects	Community food bike delivery project Letter writing advocacy campaign for community food security Community oven animation Healthy snacks program menu for a food bank Healthy eating manual for chefs at women's drop-in Diabetes education & developmental disability project Harm reduction approach to diabetes education project

Evaluations	Community-based project report and presentation Book-ended food system conceptions reflection assignment

Instructors' profiles

Instructors in early iterations of the course included women dietitian colleagues from diverse backgrounds, including working in public health, corporate nutrition promotion, food services, and community health centers, among others.

DCC is a cis, white settler environmental and public health physician with a long history of research on agri-food systems globally. He is also a member of a small-holder ecological, multi-crop, family farm on Chippewa-Haudenosaunee territories of the Saugeen river watershed in Grey County. He co-taught the course in the early years discussed here, and then shifted to a guest speaker.

EN is a settler and immigrant of Chinese ancestry living and working Toronto, covered by Treaty 13 signed with the Mississaugas of the Credit. A dietitian, graduate student, and lecturer of the program with work experiences in public health and health equity, his research interests include neoliberalism and social justice issues in food and health policy. He led the course for the latter years, coordinating the guest lectures, arranging field visits, liaising with community organizations on student projects, and assessing learning.

Our critical approach to teaching food systems

We developed a critical approach to teaching and learning in this food system course. Our understanding of *critical* borrows from the components of critical food studies by Koç et al. (2017), critical dietetics by Gingras et al. (2014), critical food pedagogies by Sumner (2015), and the value-based approach by Galt et al. (2012).

First, we seek to provide alternatives to positivism in public health nutrition. Positivism asserts that knowledge and learning are only objective, empirical, and value-neutral (Galt et al., 2012; Gingras et al., 2014). On the other hand, the value-based approach by Galt et al. (2012) acknowledges that values shape the decisions we make about our food systems, and that values influence food systems education. Recognizing that knowledge can be generated through experience by community members and students themselves, in a constructivist approach to teaching, students learn from existing knowledge and build upon their lived experiences (Seatter & Ceulemans, 2017; Levkoe et al., 2014). We encouraged our students to reflect on their existing knowledge and experiences as part of food systems.

Second, food systems are power-laden at each stage, from production to waste. They are implicated in dominant sociopolitical structures that are often hidden and normalized (Sumner, 2015). These unequal structures of power shape food systems in ways that differentially benefit

some while harming others. We provided opportunities for our students to uncover the power-relationships among organizations and actors within our food systems, from harvesting to food waste, from migrant farm workers to multinational food distributors. Power differences also permeate the classroom setting through teacher-student relationships (Friere, 2018). By not treating students as passive recipients of knowledge, we engaged in dialogue with students as colleagues based on our experiences (Seatter & Ceulemans, 2017). By making the classroom less hierarchical, we aimed to empower students to take more control of their learning.

Third, as instructors, we situated ourselves within food systems by practicing reflexivity (Gingras et al., 2014). Reflexivity is a way to understand our own perspectives and close the distance between ourselves and the field of study (Gingras et al., 2014). Our values and positionalities shape our interactions with the food systems; they also influence why and how we teach food systems. For example, EN's work in social justice advocacy as an immigrant, and DCC's research in global agri-food systems and as a member of a family farm influenced each of them. By modeling this practice, we intended to promote reflexivity among students (Moon, 2001). Also, experiential learning such as field visits and community projects provided opportunities for students to locate themselves within food systems at different scales and reflect on their roles as future food system professionals (Ash & Clayton 2009; Levkoe et al., 2014; Valley et al., 2018).

Fourth, critical approaches call for social change to our food systems, change that addresses structures of power, particularly in globalized capitalist systems (Koç et al., 2017; Sumner, 2016). Koç et al. (2017) describe this approach as part of the "activist orientation within Food Studies to transform the food system and society at large (p.6)." We believe in fostering change through learning that is transformative (Halman et al. 2017). Transformative learning is "a process by which adults learn how to think critically for themselves rather than take assumptions supporting a point of view for granted" (Mezirow, 2006, p.103). As food educators, we agreed that "we feel we must change the way we teach to improve student learning ─t o facilitate their transformation into active knowledge producers, engaged citizens, and democratic members of our global community ─ to ultimately change the food system and the world" (Galt et al., 2013, p.140).

Methods

As co-instructors, we reflected on our teaching experience through a series of steps. In 2017, we reviewed students' assignments and discussed our experiences with the course to present our and colleagues' experience with "experiential-reflective learning in a graduate dietetic food systems course" at the Annual Meeting of the Canadian Association of Food Studies in Toronto (Ng et al., 2017). As the course offered in this integrated format concluded in 2019, we met to reflect on our cumulative experiences from 2015 to 2019. About ninety students took the course over the five years.

Individually, we each reviewed students' assignments from the respective cohorts we taught and selected specific assignments based on our experiences and perspectives. We then sought permissions from respective students whose assignments we selected. In addition, feedback by students were gathered through an open discussion with students at the end of the course each year, where students could provide comments on specific components of the course. We also reviewed anonymous individual course evaluations where students had the opportunity to share their own learning and concerns without fear of repercussion.

We brought the selected materials and evaluations together for joint dialogue and reflection (Brookfield, 2017). From this process, several key areas of learning and challenges emerged. We then revisited the materials we collected to exemplify and refine these themes through an iterative process. Three key interconnected areas of learning were identified: intentions, facilitation, and tensions.

Areas of learning

Intentions

Co-instructors incorporated critical approaches to fill the gap within the competency-based curriculum by addressing critical consciousness and social responsibility, as noted by Halman et al. (2017). The food systems became not only the "*object* of learning but also the *vehicle* for learning" (Flowers & Swan, 2012, p.423). Our intentions were to expand the role of dietitians as nutrition experts and to solidify the connections between dietetic practice and food systems. Although we provided a template of stages from food production inputs to waste, we wanted to go beyond simply describing food systems to our students. Rather, we encouraged our students to situate themselves within food systems, beyond consumer, worker, or observer expert roles, to find gaps, and to imagine opportunities for change. Concepts were integrated into the weekly discussions to facilitate connections to social and ecological dimensions of food systems. Topics such as migrant farm workers, industrial food production, and food justice advocacy were selected to elicit awareness and reactions from students (Sipos et al., 2008).

> "A national food retailer is large enough to interact directly with farmers rather than relying on the Food Terminal for procurement, while smaller operations have to create partnerships with farmers at the food terminal in order to purchase products." (2015 Assignment)
>
> "As a dietitian, it is important to consider the ethical implications of promoting the consumption of foods which are not sustainable." (2018 Assignment)

During an in-class activity, students were asked to trace the flow of a food commodity, e.g., rice or apples, from food production to consumption. Students realized the complexity of the food systems across the globe, of which they were previously unaware.

> "My understanding of a sustainable food system has shifted from a linear process into a dynamic, interconnected process with multiple dimensions." (2018 Assignment)

While they mapped out these commodity flows, issues of sustainability and equity within our current system surfaced. Students were asked to question the multiple purposes of food systems beyond nutrition, such as trade, food security, and social justice.

A string of field visits can sometimes feel siloed and disconnected. To address this concern, an in-class debriefing session was scheduled mid-way through the term. Dialogue among the learner, teacher, and knowledge (Setter & Ceulemans, 2017) was facilitated to support the consolidation of learnings and the meaning-making process. Students began recognizing the complexity of food systems while locating the role of dietitians within them.

> "regardless of setting, the food system plays a role in any dietitian's job and affects large public health issues." (2015 Assignment)

> "dietitians are also implicated in food procurement in hospitals and other organizations that have a major role in food distribution and accessing sustainably produced foods." (2018 Assignment)

In addition to field visits, community-based projects, or service-learning is highly valued in sustainability education (Galt et al., 2012, 2013; Levkoe et al., 2014). It provides students opportunities to connect theory with real-life organizations, actors, and initiatives, and to concretize food systems concepts (Levkoe et al., 2014).

> "Hands-on experiences to interact with people working in the field is very valuable." (2018 Evaluation)

Most projects were rooted in a community organization that serves marginalized populations with a social justice mandate. These included engaging with local residents about the utilization of a shared oven at a community farm serving a racialized neighbourhood, creating a healthy eating guide for cooks working at a women's drop-in center serving women in distress, and writing an advocacy letter for a local food security advocacy group to a local politician. These projects also introduced students to social actors (individuals and organizations) who were active in social change and advocacy (Meek & Tarlau, 2016).

> "Speaking to the community leaders really challenged my critical thinking and makes my learning more practical." (2017 Evaluation)

Student evaluations consistently indicated that interacting with leaders in the field deepened their reflection and practical learning. However, these experiences often led tensions to surface.

Tensions

We understood tensions as the conflict, dissonance, or discomfort experienced during critical reflection processes. Educators have noted this integral and necessary mechanism for fostering critical consciousness through transformative learning in sustainable food systems courses (Galt et al., 2012) and health professional education (Halman et al., 2017). Mezirow (2006) refers to this process as the "disorienting dilemma" resulting from reflection. As one student said:

> "I came across this extremely convoluted diagram of the global food system and thought that it perfectly illustrated why it's easy to feel overwhelmed when brainstorming ways to make improvement or increase its efficiency. There are so many paradoxes in our food system that cloud its current state, and complicate attempts to make improvements." (2015 Assignment)

Halman et al. (2017) suggest that "cognitive disequilibrium leads to students examining their values and beliefs" (p.18). These tensions, however, can seem unfamiliar and amplified in nutrition, a field rooted in the traditional biomedical model, expert-orientation, and positivist way of learning-knowing (Gingras et al., 2014). Galt et al. (2013) noted while self-reflection can be difficult for some students, the dissonance students realize by noting the gap between "what is and what should be" (p.136) propels students to take action and challenge the status quo. As one student noted:

> "I feel obligated to understand how food is produced, and what consequences my recommendations have on not only the health of the general population, but also on the agri-food sector and our environment. However, I'm facing a challenge in my pursuit of understanding the food system – the more I learn about it, the less I seem to know." (2015 Assignment)

Experiential learning itself does not automatically lead to critical reflection (Yamashita & Robinson, 2016); it needs to be guided intentionally. Reflection assignments can be effective in allowing moments of tension students are experiencing to surface. It is one of the most common evaluation methods used in transformative learning in higher education literature (Galt et al., 2013; Sumner, 2015; Levkoe et al., 2014). Reflective writing provides opportunities for students to connect their thoughts, experience, and emotion from the learning process.

Sipos et al. (2008) refer to this process as engaging with the "head, hands, and heart" in transformative learning. It provides educators with a window on students' learning process (Galt et al., 2012) and clarifying self-appraisals:

> "I myself was guilty of not thinking of the farm workers, instead focusing more on the farm owners that tend to represent the farm at farmers' markets." (2016 Assignment)

We integrated reflection in this course in the form of a "book-ended" assignment on food system conception. At the beginning of the course, students were asked to create their understanding of the food systems visual using their own experience. At the end of the course, students updated the visual and reflected on changes they had made resulting from all aspects of their learning. Students reflected on changes in their understanding and commented on their role in promoting sustainable food systems. From our experiences and student reflection assignments, two primary forms of tension emerged.

First, tensions arise when students begin to realize that dietary advice has an unintended impact on the food systems. These unintended impacts are contradictory to their values for an equitable food system. For example, the complexity of promoting local food production or environmental impact of recommending increased fish consumption.

> "I now recognize that even when produced locally, the demand for fresh produce 365 days of the year can be environmentally degrading depending on the type of production methods used." (2016 Assignment)

> "I realize now seemingly benign decisions made by consumers can have global implications." (2016 Assignment)

> "it will not matter if nutrition science finds health benefits from eating fish if we cannot sustain their stocks." (2016 Assignment)

Second, what are the roles of the dietitians in promoting sustainable and just food systems (Carlsson et al., 2020)? Students began to critically consider the limitations of providing nutrition information and individual counseling if structural and institutional power-relations are not addressed (Dharamsi et al., 2010).

> "I believe a significant reason why the food systems' adverse effects on populations in other areas of the world remain largely unknown or ignored is because of how far removed they are from us and our daily lives. Conflict, for me, stems from the challenge of positioning myself in the realities of this system on a personal and professional level." (2019 Assignment)

> "My discomfort with capitalism has only grown through this time; however, I do see the value of working both within the industry and outside of it." (2019 Assignment)

Looking back at these three areas of learning, we reflected on the challenges and complexities of the socio-political act of teaching food systems critically at the university.

Challenges and complexities

Burnout is a "danger all activist-oriented teachers face" (Brookfield, 2017, p.56). Brookfield (2017) cautions us not to measure our teaching effectiveness with "fixing the system" (p.56). It is crucial to set realistic expectations about constraints and limitations with the context of one course. Transformative learning is an on-going and non-linear process. Often food systems concepts are only covered in a one-semester course within a degree program in dietetics. As dietetic programs are required to meet accreditation standards for many dietetic competencies, little room remains for topics outside the core practice competencies.

Students also come to the class from diverse backgrounds, values, and career aspirations. It is important to accept students where they are in their journey and their positionality while acknowledging our differences. Patience is needed as students' transformative learning continues well after the course; moments of critical insights can surface as they start their practice, or even years into it, as was the case with ourselves in our own careers. It takes additional efforts for us to let go of the power of the "all-knowing" teacher and stay with discomfort and tensions ourselves (Lordly et al., 2019).

As facilitators, we often need to let go of the control of the outcomes. Political, value-laden topics are especially challenging to facilitate. Facilitation skills applied around controversial issues are crucial for addressing conflict in a respectful, constructive, and meaningful manner. Effective facilitation requires being cognizant of our own values and areas of discomfort. Fostering an environment where students feel safe and supported is essential, especially around issues of race, gender, class, and colonialism (Lordly et al., 2019; Valley et al., 2018), as these issues are insufficiently addressed in much professional or even food systems training (Meek & Tarlau, 2016). For example, some students were hesitant to talk about racism in the context of migrant farm worker regimes, when most workers are people of colour recruited from Mexico, Jamaica, and other Caribbean countries. Making racialized and Indigenous peoples visible in the food system and exploring the constraints they face was essential to us as instructors but provoked discomfort among some students (Yamashita & Robinson, 2016). It is noteworthy that students increasingly recognized the impact of colonization on Indigenous food systems over the course of five years.

Conflicts can also occur during the discussion of topics such as regulation of food marketing by food industry actors and the influence of large corporations. Some students noted

the power of industries to reach a large segment of the populations, while others pointed out the significant influence of large retailers on small producers. These were challenging discussions in class for educators using critical approaches, as different students held different beliefs and argued different perspectives in class. However, conflict can also advance knowledge through dialogue and reflection (Galt et al., 2012). Our ability to promote alternatives ways of knowing and multiple interpretations was key to meaningful class discussions related to social justice issues, aiming to help students feel safe to express their critiques without fearing that they would be dismissed (Lordly et al., 2019).

Where there are increasingly more food systems concepts included in dietetic education, a scan of syllabi in dietetic education programs in Canada by Fraser & Brady (2019) revealed a lack of integration of social justice issues in the curriculum. Critical perspectives in addressing power, positivism, expert-orientation, and neoliberalism in health professional education are generally marginalized. In this landscape and the constraints of one course, resistance to fostering critical consciousness among students is to be expected. We have found that while most students learned to embrace systems thinking and complexities, only a few went deeper into the structures of power within our food systems. Rather than critical social change responses that addressed power (Galt et al., 2013), we often saw more consumer-based responses to food systems issues. These responses included educating individuals on products that are local or reading food labels to identify ultra-processed ingredients. This resistance to addressing power points to how dietetic education reflects the longstanding challenge within public health nutrition practice in shifting from individualistic understanding to structural and environmental approaches (Ashe, & Sonnino, 2013; Raine, 2005).

While the development of critical consciousness was less clear, it is reasonable for many students to aspire to be health professionals helping others through their evidence-informed expertise based on their professional socialization process. Critical paradigms can be seen as being biased and not grounded in evidence. As health professionals, we have been taught not to "contaminate" our professional practice with our political values and personal biases (Galt et al., 2012; Gingras et al., 2014). This dominant ideology is reflected in how students fell back to individualistic approaches when considering the role of dietitians in everyday practice, despite shifts in perceptions of food systems.

Also, some students found it challenging to learn through "themes" such as complexity, industrialization, and food justice (Burns, 2013). Some preferred more concrete facts and technocratic solutions, while others found that the food systems course lacked focus (Seatter & Ceulemans, 2017). As Brookfield noted, resistance is a natural part of the process, it is often beyond the control of the individual educators, and it is perhaps indicative of structures and institutions of power we brought up in class (Brookfield, 2017, p.52).

Lastly, critical approaches to teaching are often championed and maintained by individual practitioners and educators. The continuity of these pedagogical approaches can be made difficult by the focus on careerist competency-based structures and short-term contract teaching positions.

Conclusion

With its benefits and limitations, teaching a food systems-oriented course in dietetics has been worthwhile. Many students commented on the need for such a course in the curriculum. They appreciated the connection to the land during their farm visits and learning about the realities of the communities they aspire to serve as dietitians through real-life projects.

Even though the course format has changed, course components described here can be integrated into existing courses or the overall curriculum within public health nutrition. *First*, field visits can connect students to the land, agriculture, and front-line workers in the food systems. *Second*, community-based real-life projects provide opportunities for experiential learning, critical reflection, and competency development. They do require long-term, meaningful engagement and relationship-building with organizations to ensure reciprocity and community ownership (Andrée et al., 2013; Levkoe et al., 2014). *Third*, reflection assignments are well-integrated in dietetic education programs. It remains an essential educational tool for the development of critical consciousness. Having specific instructions for students can guide students towards more critical reflections (Dharamsi et al., 2010). One example is Sipos et al. 's (2008) "head, hand, heart" model, where we can ask students to identify structures of power, relating learning to personal experience of dissonance, and reflecting on values of equity, social and ecological justice.

Several course components have been maintained or integrated within the program curriculum. Real-life projects have been transformed into a two-term culminating project to support achievement of dietetic training competencies in the management domain. Visits to community farms and gardens have been maintained and reflective practice is well-integrated into the overall program. Lastly, key food systems concepts such as sustainable food systems are covered by guest lectures, class discussions, and course readings. Beyond curriculum changes, our critical approach to teaching food systems can be meaningfully sustainable and fully integrated when, as food educators ourselves, we become critically aware of how our own values shape education and how we are embedded in structures and relations of power within food systems and universities. The "how" is sometimes more important than the "what."

We hope that this paper sparks further dialogue on how food educators can practice, model, and promote critical consciousness and reflexivity. Sharing our experience with this course can also address literature gaps identified in incorporating sustainability into curricula, specifically for a profession grounded in relationships to food (Harmon et al., 2011; Wegener, 2018). Further, dietetic practice is inherently pedagogical, with clear "educational aims"; it is often situated in influential organizations implicated in educating the public about food, including industries, hospitals, and governments (Flowers & Swan, 2012, p.420).
As our students become dietitians, we can hope that our modeling and their learning can be incorporated into the food education which they provide, exploring the limits of the organizational, social, and ecological contexts in which they practice.

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Field Report

Opportunities for and challenges of developing a culinary food studies Bachelor's degree

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Abstract

Although Food Studies has been acknowledged as a distinctive field in Canada for almost two decades, until now there has not been an undergraduate degree in Food Studies in this country. This is changing with the development of Canada's first Honours Bachelor's Degree in Food Studies (BFS) at George Brown College, launched in September 2021. This field report describes the process, opportunities, and challenges of developing a Food Studies degree at an Ontario college. It explores the unique openings at the intersection of food studies education and applied practical skills training for work in the food sector. In particular, we ask: What can food studies bring to culinary education? And, what can culinary education bring to food studies? We contend that food studies can contribute to a more transformative culinary education focussed on social, cultural, political, and environmental influences in the food system. Simultaneously, culinary education brings distinct insights into operationalization within the food sector which provide new openings for applied research in food studies. We demonstrate how this new collaboration and knowledge are a necessity in a turbulent world.

Keywords: Pedagogy; food studies; culinary arts

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Introduction

Food studies has been acknowledged as a distinct field in Canada for only two decades, yet it has emerged as a dynamic field, attracting some of the best and the brightest scholars and students. One of the reasons for this is the increasing understanding that food connects us all (The Metcalf Foundation, 2008). This rising interest has led to an explosion of books and specialized journals on all aspects of food, reflecting the fast pace of change in the food industry and in food habits. As well, there has been a steady emergence of new food studies and food systems programs, certificates, and specializations across North America (Hilimire & McLaughlin, 2015; Jacobsen et al., 2012; Valley et al., 2018). However, culinary professionals have often been left out of food studies programs that focus on agronomy and nutrition. George Brown College has developed Canada's first Honours Bachelor of Food Studies, combining culinary training with a comprehensive food studies education.

This field report details the process, opportunities, and challenges of developing a Food Studies degree at an Ontario college and exposes the unique openings provided by the intersection between key principles of food studies education and applied practical skills training for work in the food sector. It attends to the questions: What can food studies bring to culinary education? And, what can culinary education bring to food studies? The combination provides new possibilities for enhancing the transformative potential of culinary education in Canada. Food studies has long been interested in activist-scholarship that sees academics co-developing research with local organizations. The vision for this degree is to offer a new point of entry, where food scholarship reaches the next generation of food industry workers to build unique skills and knowledge in interdisciplinary food studies research, non-profit work, and culinary arts —a combination that will prepare graduates to operationalize meaningful change within the sector. The need to operationalize change in the food system is no longer up for debate, but the best points of entry and methods are heavily contested. The goal of this program is to prepare students with a critical understanding of these debates and to carve a bigger role for future culinary leaders, equipped with a new set of tools to contribute to change.

This field report will provide context on Ontario college degree programs and culinary education, briefly overview food studies pedagogy, and then expand on the process of development and pedagogical approach of the Bachelor of Food Studies (BFS), as well as the challenges associated with launching a degree of this type.

Ontario college degrees and culinary education transformation

George Brown College is one of five Institutes of Technology and Advanced Learning (ITALs) in Ontario. The ITAL designation was created in 2003 as a way to bring flexibility, new offerings, and a further emphasis on applied research through partnerships to the college system in Ontario (Ministry of Colleges and Universities, 2003). As an ITAL, George Brown College can provide up to 15 percent of its offerings as degrees, compared to 5 percent for other Colleges of Applied Arts and Technology (Wheelahan et al., 2017, p. 10). The introduction of degrees at

Ontario colleges began with the passing of the *Postsecondary Education Choice and Excellence Act*, 2000 (Wheelahan et al., 2017). This act resulted from a number of political changes under the Conservative provincial government at the time which altered the relationships between the government and colleges and universities under a belief that "greater reliance on market forces within higher education" would make the province more competitive in the global arena (Wheelahan et al., 2017, p. 22). The introduction of degrees at colleges was also seen as a response to labour market demands and a recognized need to expand access to bachelor's degrees to students typically underserved by universities (Skolnik et al., 2018).

The act stipulated that colleges may offer degrees only in "applied areas of study" and until 2009, degree titles were required to include applied in the title (Wheelahan et al., 2017, p. 23-24). The inclusion of applied and subsequent ubiquity of the term "applied degrees" suggested to some that these degrees were considerably different than university degrees, as they are in other jurisdictions, such as Alberta (Moodie et al., 2018; Wheelahan et al., 2017). However, degrees at Ontario colleges must comply with the same qualification framework as university degrees. These degrees must also be given approval and undergo external quality assurance by the Postsecondary Education Quality Assessment Board (PEQAB) every five to seven years (Skolnik, 2012, 2016).

The Chef School at George Brown College is the largest in Canada, and one of the largest in North America. It is recognized as one of the top schools for culinary education in Canada, providing a wide variety of certificates and diplomas (George Brown College, 2020). In 2016, the Chef School launched a Bachelor of Commerce in Culinary Management to offer new educational and career pathways to students. In the process of building that degree, it was recognized that there was space in the culinary educational landscape for another degree that focussed on broader food systems issues, leading to the creation of the Bachelor of Food Studies (BFS). This degree creates even more career pathways for students with culinary training, opening the door to careers in food security organizations, policy work, research, and the non-profit world, in addition to food businesses of all sorts. Increasingly, food professionals are being called upon to assume roles of public leadership, public education, communication, and strategy. For example, Joshna Maharaj, an activist, chef, and author, has documented her work to transform institutional eating in the hospital setting and Johl Whiteduck Ringuette has used his restaurant and catering company, Nish Dish, as a platform to raise awareness about the need for Indigenous food sovereignty (Whiteduck Ringuette, 2020; Maharaj, 2020). The knowledge, skills, and values covered in this degree will become not only "good to know", but also "need to know" to become successful leaders and professionals in the food sector.

This degree is also reflective of calls for culinary education to expand its focus given critiques of limited pathways, the historically colonial nature of culinary study, and lack of diversity in the industry (Deutsch, 2016; Druckman, 2010; Harris & Giuffre, 2015). Some have even gone so far as to declare culinary education in crisis, noting other issues of dissatisfaction and feelings of under-preparedness from both graduates and industry (Deutsch, 2018; Hertzmann, 2016). Culinary education relies heavily on a master/apprentice model that is more

pedagogically aligned with vocational training (Deutsch, 2018; Lewis, 2020). This model of training depends on a standardized curriculum that is similar across all major texts in the field and holds both the Chef and European cooking as the ultimate authority (Deutsch, 2018). This rigidity has created specialized, diligent, and respectful cooks, but may stifle alternative thinking and methods at this stage of education, which are left to advanced chefs who have "paid their dues" (Deutsch, 2018, p. 176).

There have been arguments made for more advanced nutrition training as part of standard culinary education, enhanced sustainability knowledge, more creativity, improvisation, and experimentation (Deutsch, 2016; Hertzmann, 2016; Lewis, 2020; Sweeney, 2020). More importantly, there has been increasing discussion regarding issues of race in the culinary world, with customers unwilling to pay more for "ethnic" foods, nutrition narratives and dietetics being blind to diverse cultures and ways of eating, and the labour practices of restaurants called into question (Pandika, 2020; Liu, 2020; Purdy, 2016). Resolution of these discussions must begin in culinary education and requires new thinking. Bashir Munye, a Chef Professor, quoted in a Toronto Star article notes that culinary designations often "judge and present food through a colonial and Eurocentric gaze" (Liu, 2020, para. 7). He has urged for mandatory training on racial literacy, akin to a food handler's certificate or first-aid training (Liu, 2020). Calls for change have led to suggestions for a new "culinary education manifesto" (Deutsch, 2016, p. 2).

A small number of programs globally have begun to do just that, with examples at Technological University Dublin (T.U. Dublin), the Culinary Institute of America, and courses at Johnson & Wales University (Culinary Institute of America, 2021; Johnson & Wales University, 2021; Technological University Dublin, 2021). These programs are introducing students to the connections between the food they are cooking and the systems in which it is produced through farm to fork training, sustainability, ethics, and enhanced culinary techniques to "keep pace with the vegan race" and meet specials needs and diets (McConnell, 2020; Shani et al., 2013; Sweeney, 2020; Wang, 2017). Simultaneously, the Ontario Ministry of Colleges and Universities mandated that all culinary college programs must include some form of sustainability in their program learning outcomes as of 2016 (Ministry of Advanced Education and Skills Development, 2016). As a result, new sustainability courses have been incorporated at Ontario colleges offering Culinary Management programs (Godoy, 2019). However, it is recognized, that a single course on sustainability is insufficient to truly create graduates with the complex knowledge of food system challenges and opportunities required for the realities of our world (Godoy, 2019). The new BFS fills this gap with a new pathway for students that brings a broad food studies education together with culinary training to form a uniquely Canadian food studies pedagogy.

Principles of food studies pedagogy

Food studies continues to emerge as a distinct field, but draws on a wide variety of disciplines, perspectives, and methods. Recent work has pointed to an emerging "signature pedagogy" for sustainable food systems programs (Valley et al., 2018). The authors draw on Shulman's definition of a signature pedagogy as the "types of teaching that organize the fundamental ways in which future practitioners are educated for their new professions" (Shulman, 2005, p. 52; Valley et al., 2018). Others have supported this vision which finds food studies as a whole to be inherently multi-, inter-, and/or transdisciplinary, practice-facing, and focussed on transformation (Levkoe et al., 2020). This section will outline some key principles of the field of food studies and associated pedagogy.

The multi-, inter-, and transdisciplinary nature of food studies creates a diversity of knowledge and perspectives that is often considered a strength of the field. Incorporating different disciplinary viewpoints, methods, and concepts lends to a rich body of literature central to creating conditions for food studies to contribute to theory and practice. However, as Brady et al. (2015) point out, this feature of food studies also produces a variety of challenges. By incorporating knowledge from different fields, food studies insights may not always align or integrate, depending on the focus in the food system, or the way that a problem is conceptualized. This same lack of congruence may make it challenging for students to decide the most appropriate research methods in their multi- or interdisciplinary work. From a pedagogical perspective, in designing an entire degree, the broad field of food studies combined with culinary industry needs means making decisions about what concepts to engage with, and what to leave out, while ensuring the necessary disciplinary foundations are developed and scaffolded appropriately. There is also the need to provide ways for students to explore their own interests.

Approaching food through a systems lens and understanding complexity is essential to grasp how different structures and processes relate (Ericksen, 2008; Ingram et al., 2020). The complexity of the food system and the ways that food frequently interconnects with numerous other facets of life, politics, economics, the environment, makes it imperative that we study food through a systems lens. Thinking in systems is also commonly highlighted as a program learning outcome across food studies programs and a requirement of "food system analysts" for the future (Ingram et al., 2020, p. 9; Jordan et al., 2014; Valley et al., 2018). A systems lens presents many opportunities to connect to a wide variety of fields and issues but can also present similar challenges to those of multi- and interdisciplinary pedagogy. It is therefore important to ensure that students have the foundations in systems thinking and all aspects of the system, and related concepts to make the necessary connections.

In a session on the current state of food studies in Canada, multiple leading thinkers commented on the nature of food studies scholarship as "practice-facing" and looking to uncover "practical implications for civil society and policy makers" (Brady et al., 2015, p. 4). Indeed, there has been a tradition of activist-scholarship in the field and an argument to "allow ourselves to be drawn out of the ivory tower to participate in those collectives" (Brady et al., 2015, p. 6).

However, critique comes in many forms. While much activist-scholarship is focussed on alternatives in the margins, this approach can leave many people out of the conversation and out of the food studies fold. The culinary industry in particular has often been left out and is increasingly an area where holistic approaches to understanding food production, distribution, consumption, and waste with an analysis of social, cultural, political, and environmental influences is necessary to success. Culinary professionals need to know how food intersects with health, equity, and sustainability.

In their article outlining a competency approach to sustainable agriculture and food systems education, Galt et al. (2013) note that "competency development is always values-laden" (p. 3). In reality, all learning is values-laden, the product of historical, sociocultural, and political processes and knowledge relations (Halstead et al., 1996). That is particularly apparent in food studies, given that food is so political. After all, "food connects us and divides us" (Brady et al., 2015, p. 5) and so often food pedagogy is focussed on getting us to change how and what we eat (Flowers & Swan, 2016; Swan & Flowers, 2015). Key features of many food studies programs revolve around civic engagement, collective action, and transformation (Valley et al., 2018). However, as Valley et al. (2020) note, questions of equity are often missing from these curriculums, or they are not clearly stated as goals.

The issues of equity in the food system need to be grappled with in any food studies curriculum, as white sensitivities and universalism have often featured, even in alternative food movements and programming (Guthman, 2008b; Slocum, 2007; Swan & Flowers, 2015). To grapple with equity issues, food studies must be reflexive. It is therefore essential that approaches to the study of food include opportunities for reflexivity. Faculty and students must constantly be reevaluating their approaches, assumptions and become comfortable in the weeds (Alkon & Guthman, 2017; DuPuis & Goodman, 2005). This is especially true in an era of globalization, and an increasing recognition that culinary institutions have been embedded in notions of white supremacy. Culinary students must learn to become comfortable with discomfort and understand systems of oppression and ways to oppose them.

Development of the Bachelor of Food Studies

The vision leading the development of the program is the need to operationalize change within the food industry, from server to CEO. Choices within the food system relate to some of the biggest challenges of our time: How do we address chronic disease, waste, climate change, rapid urbanization, technological change, hunger, and inequity? Despite the weight of these questions, food holds inspiring opportunities through its pleasures, authenticity, flavours, conviviality, and ability to be part of the solutions to some of the world's most complex and pressing problems. The aim of the program is to equip the food leaders of tomorrow with the necessary skills, insights, and knowledge to help address these problems.

Realizing this vision is challenging but aligns well with food studies pedagogy. The process began with determining what knowledge, skills, insights, attitudes, and attributes would be required to create graduates able to contribute to solutions. The first step of the process was to create program learning outcomes that set out this vision. These program learning outcomes also had to align with the degree-level standards of the Ontario Qualifications Framework, ensuring students acquire the anticipated skills related to research, critical thinking, breadth and depth of knowledge, and communication, to name a few.

The program learning outcomes are as follows:

1. Articulate the interconnected structures and functions of food systems at the local, national, and international levels.
2. Analyze social, cultural, political, and environmental influences on current and emerging food-related theory, policy, and practice.
3. Recommend informed responses to both practical and scholarly issues and challenges using insights from food systems theory and the study of global cuisine.
4. Acquire foundational culinary skill proficiency and operational knowledge appropriate to entry into the culinary industry.
5. Integrate a healthy, equitable, and sustainable food systems perspective into culinary theory and practice.
6. Construct coherent arguments to address debates within the broad field of food studies.
7. Appraise research methodologies used across disciplines related to food studies.
8. Communicate effectively in a variety of formats appropriate to academic, government, nonprofit, business, and media environments.
9. Articulate how uncertainty, ambiguity and limits to knowledge influence perception and interpretation of debates in food studies and consider issues from multiple perspectives.
10. Demonstrate curiosity, initiative, integrity, collaboration, and social responsibility in personal and professional settings related to food.

From here, we began to brainstorm, at a deeper level, the content, skills, experience, and the types of courses that could scaffold the knowledge required to graduate and meet these program outcomes. We put together course titles and course descriptions with as much detail as possible and laid out the order in which we wanted them to unfold. The unique ability to think through a four year food studies curriculum allows for scaffolding that may not be available when teaching an elective food studies course; however, there is also significant work to ensure that we are covering the breadth of knowledge that might normally be covered in other courses of a four year bachelor's degree. Simultaneously, we began to think through when and where to introduce key concepts needed to understand food systems such as systems thinking, globalization, and civil society. Once complete, this package was sent out to our Program Advisory Committee, and additional industry partners, and academics for review.

A Program Advisory Committee (PAC) is a required part of any program development at a college. The PAC, in the context of colleges, is usually made up of industry professionals and is meant to advise on what students need to know to be successful in industry as well as advancements in the field, such as technology, that might change the required curriculum. Given that we wanted students to be open to a variety of pathways beyond the traditional chef, we felt it imperative to have a diverse PAC made up of professionals from every part of the food chain including farmers, distributors, and consumer-facing organizations. The PAC contains people from food non-profits and anti-poverty organizations, academia, Indigenous food organizations, local food hubs, restaurants, local government, food history and culture organizations, and the traditional foodservice sector. The development team met with the PAC early in the process to get their feedback.

The PAC was critical in ensuring we covered everything necessary to meet our program learning outcomes, but also in pushing us to better deal with aspects of the curriculum they knew best—including a chef who emphasized the development of critical thinking and creativity to be able to adjust to seasonality. A representative from a food non-profit brought language around community food access to our attention—reminding us of the importance of the terminology we use and the precision that is needed in certain cases. We had included food security throughout the curriculum, but the terminology of "community food access" was important to this organization, which highlights the food-access barriers of marginalized communities and neighbourhoods within Toronto—revealing issues of race and equity more clearly. We were also pushed on the inclusion and integration of Indigenous food systems and knowledge, to consider how we were going beyond "sprinkling" this knowledge throughout to true integration. This will be discussed further below.

After meeting with the PAC, we began work to further develop course outlines and potential assignments. Given that we did not yet have approval, these were not full course syllabi, but an idea of the types of readings and assignments that would be used in each course. These course outlines, along with narratives to unpack how the degree met the degree-level standards, as well as details about the college, services, the student experience, and the demand for the program were all put together in an application for the degree.

Once the full application was submitted to the Ministry of Colleges and Universities and sent to the PEQAB board, the next major step in the process was a Panel Review, where two experts in the field of food studies reviewed the program application. Two days of "site visit" meetings were conducted online due to Covid-19 travel restrictions. These meetings gave the panel the opportunity to ask questions of the development team, relevant faculty, college administrators, professional development and faculty support staff, student support staff, the PAC, and students in the other Chef School programs. The final panel report provided some small suggestions for curriculum scaffolding and the supports required for community-engaged learning but was overall very positive.

At the time of writing, we have received final approval from the Ministry of Colleges and Universities and launched our first cohort in Fall 2021.

Operationalizing food studies pedagogy: What can food studies bring to culinary education?

With final approval, the real work begins to bring the program vision to reality. There are still many challenges ahead, but we are encouraged to explore what food studies brings to culinary education. This section outlines some of the ways that food studies can complement culinary education.

Interdisciplinarity

Students will be introduced to a breadth of knowledge from a variety of disciplines covering everything from ecology, history, culture, environmental studies, politics, policy, law, transitions, consumption, and nutrition, in addition to many hours of culinary training. A key challenge of program development was simultaneously thinking through how to have students meet the program learning outcomes, while covering everything needed to be engaged citizens navigating the food system. For example, hegemony needs to be introduced before you can explore a term such as "hegemonic nutrition" (Kimura et al., 2014, p. 39). Or, as recently examined in Valley et al. (2020), students must first understand basic terminology of equity such as implicit/explicit bias, white supremacy, structural racism, intersectional oppression, and white privilege before understanding how these concepts can be traced in historical terms, and what sort of processes can promote equity in food systems today. Work also remains to truly integrate these types of lessons of the food studies curriculum throughout the culinary curriculum to ensure that students can learn to apply theory to practice.

Practice-facing and systemic lens

While food studies are characterized as practice-facing and requiring academics to be "drawn out of the ivory tower", there is still a dearth of research that focuses on how mainstream parts of the food system can contribute to change—however small (Brady et al., 2015, p. 6). It is only recently that there has been interest from food studies in the food-service industry. Research is beginning to emerge on the role that restaurants and chefs can play in creating movement towards sustainability (Higgins-Desbiolles & Wijesinghe, 2019; Nelson et al., 2017). Literature has shown, however, that sustainable restaurant conceptualizations and research have tended to focus narrowly on ecological sustainability to the detriment of a more holistic sustainability that takes other elements of society and the economy into account (Higgins-Desbiolles et al., 2019). Focusing on more holistic sustainability is imperative in a time when problems are often so interconnected to all facets of society. The curriculum of the degree needs to be oriented towards people in all aspects of the food sector to broaden pathways. This comprehensive view of the food system is a requirement to make valid risk assessments for businesses and organizations in

all areas of the food sector. Degrees offered at Ontario colleges are required to have a work component. Students will be applying theory to practice in a real work setting. Students will also have two community-engaged learning opportunities of sixteen hours each, where they will be working on smaller projects, drawing on what they are learning in courses on *Food, Equity and City*, and *Food and the Non-Profit Sector*. Sending students out into organizations requires preparation in a number of on-the-job skills that will allow them to adapt to any situation.

Values-based, transformative

A comprehensive and systemic view of the food system is also necessary to make change. This normative and transformative goal is understood to be a key component of food-systems programming—working towards a more equitable and sustainable food system (Anderson et al., 2019; Niewolny et al., 2012; Valley et al., 2018, 2020). This transformation necessitates collective action as demonstrated by numerous food studies scholars and highlighted as a pedagogical requirement. The degree will reckon with the challenges and complexity inherent in trying to balance all facets of sustainability while grappling with the best ways to make immediate and lasting change.

In a recent commentary arguing for critical food literacy on college and university campuses, Classens and Sytsma (2020, p. 8) argue that "institutions should be invested in ensuring that all students—not only food studies students—are exposed to critical food literacy training." The authors tie this need to the high incidence of food insecurity on campuses (Classens & Sytsma, 2020). The practical application of the knowledge being created in the Bachelor of Food Studies provides a potential opening not only to influence the Chef School, but also to bring new programming and knowledge to all of George Brown College.

Need for reflexivity

An area of much needed continued work revolves around "decolonization" or "Indigenization" of the curriculum (Wilson, 2018; Appleton, 2019; Tuck & Yang, 2012). We understand that these terms are fraught with their own underlying assumptions, debates, and uses. We know that we are not the ones to take the lead on this work. However, we are committed to seeing that the required work happens, understanding that this is not an overnight project, that we have not arrived, and this will take concerted effort over a long period of time. Thoroughly integrating and scaffolding Indigenous perspectives, knowledge, and ways of learning throughout the degree requires deep re-thinking and a "pedagogy of discomfort" (Kepkiewicz, 2015, p. 185). Food studies has begun to grapple with these issues, with fraught debates around land, terminology, and the way forward (Coté, 2016; Daigle, 2019; Grey & Patel, 2015; Kepkiewicz, 2020; Kepkiewicz & Dale, 2018). However, we are encouraged by new resources and emerging scholars that highlight Indigenous voices and issues in great detail (Settee & Shukla, 2020).

A parallel path of work deals with structural racism in the food system (Meek & Tarlau, 2015; Slocum & Saldanha, 2016). Again, much work is already under way on this issue, but more and continued work will be required. The issue of food and race is not new, with authors bringing attention to the "whiteness" of community food organizations and movements, and the fact that Black communities are often the object of food pedagogy and research, rather than active participants (Billings & Cabbil, 2011; Guthman, 2008a, 2008b; Jones, 2019; Slocum, 2007). We are in a unique moment where commitment and research are burgeoning on this issue, with the Canadian Association for Food Studies (CAFS) committing to resources, and lists about structural racism in the U.S. updated every year (CAFS, 2020; Kelly et al., 2020). However, Valley et al. (2020) find that there are gaps in programs employing discourses of anti-oppression, anti-racism, and decolonization, or of intersectionality. We hope this degree can be part of efforts to fill that gap.

Conversations of race and culture are also not new to the restaurant and hospitality industry. However, there has been new attention, given scandals at leading food magazines and recent dialogue around the lack of diversity in the restaurant industry (Ore, 2020; Be Inclusive in Hospitality, 2020; EATT, n.d.). In June 2020, the Editor-in-Chief of Bon Appétit resigned after a photo of him impersonating a Puerto Rican man circulated online, followed by the exit of VP of Video after racist and homophobic tweets resurfaced (Heil, 2020). This event became a catalyst for a flurry of accusations, outing the toxic work culture at the magazine, and its sister publication Eater, including discriminatory behaviour, hiring practices, and pay inequities (Premack, 2020). These events rekindled discussions about problems throughout the hospitality industry, and the food media that covers the latest restaurants and food trends (Erway, 2020; Giorgis, 2020). These discussions are ongoing, with other events in the last few years opening dialogue about food media's racial bias, "food gentrification", and cultural appropriation (Alang, 2020; Ho, 2014; Weissman, 2016). The implosion at Bon Appétit highlighted again just how prevalent the culture of inequality and structural racism is across the food industry and the need for tremendous work—work that can begin, in part, at culinary schools and with examination of culinary curricula (Abad-Santos, 2020).

Students will be expected to operationalize these principles and insights in their culinary practice. The degree students will be leaders in the culinary school and the culinary community, possessing a critical food literacy that can have wide-reaching impacts (Classens & Sytsma, 2020; Sumner, 2013; Yamashita & Robinson, 2016). A key tenet of the degree is the way that we hope to differentiate between critical thinking, creative thinking, and integrative thinking, drawing on definitions from the Association of American Colleges and Universities (AAC&U, 2009a, AAC&U, 2009b). Integrative thinking and learning requires students to build understanding across the curriculum and co-curriculum, going beyond simple connection-making to synthesizing and transferring knowledge within and beyond campus (AAC&U, 2009b). While critical thinking is characterized by comprehensive exploration of issues, ideas, artifacts, and events before making conclusions (AAC&U, 2009a), we would argue that it is often associated with challenging the status quo. Finally, creative thinking is "both the capacity to combine or

synthesize existing ideas, images, or expertise in original and imaginative ways" (AAC&U, 2009a, p. 1). Creative thinking is "characterized by innovation, divergent thinking and risk taking" (AAC&U, 2009a, p. 1). These three linked but different thinking capacities are critical to realizing the interdisciplinary, practice-facing, systems-oriented, transformative, values-based, and reflexive education that food studies demand. Food studies brings new lenses to culinary students and will be a key differentiator in their ability to think critically and improvise in innovative ways (Deutsch, 2018).

What can culinary education bring to food studies?

There has already been considerable interest in bringing cooking into food studies programming. However, no program in Canada currently offers a full culinary education in conjunction with the food studies curriculum. Scholars have pointed to de-skilling as an important trend in the lack of food literacy among populations (Slater, 2017). Operationalization of food system sustainability may occur, in part through re-skilling, but requires a more holistic knowledge of systemic barriers to access, issues of sustainability, and possibilities for change. Graduates of the Bachelor of Food Studies will bring unique perspectives to their work as those trained in the culinary field in conjunction with a food studies education. In courses such as *The Evolving Kitchen*, students will take a deep dive into how to transform the way we think about the culinary arts, bringing in fermentation, canning and preservation, and utilization—skills that have been shown to have transformative potential even at a smaller scale (Gabaccia et al., 2019). Having cooking skills and knowledge of how mainstream kitchens think about food will be an important factor in seeing transformative potential throughout the food system. This dual skillset will allow students to contribute to operationalization of food studies insights as part of a practice-facing and transformative pedagogy. Finally, students with knowledge of both alternatives and mainstream practices in culinary arts will be able to better situate solutions within a systemic context.

Culinary education also demands the development of practical skills and competencies. As mentioned, food studies pedagogy is distinctly practice-facing, which makes experiential learning a requirement. Kitchens are inherently team environments where students work together to deliver on a commitment to service, artistry, and innovation. Students must demonstrate the ability to work in teams in conjunction with a capacity to work under pressure and manage their time. The experience of working in a kitchen is unique and demands strict attention to detail, where diners hold new power in the world of instant online reviews (Luca, 2016). Students also learn how to work effectively in a hierarchy, a skill required in a wide variety of professions.

Beyond the practical skills of cooking, time management, teamwork, and attention to detail, culinary education brings the ability to operationalize sustainability, equity, and health in the industry. Thinking about how to design a program that incorporates food studies while meeting the needs of real students with real desires to enter the culinary world is important. What

is the knowledge required to be successful today and into the future? The fields of culinary education and food studies sometimes have different worldviews, with their own norms and values. These two groups do not always understand each other or respect what each brings to the table. Operationalization is deserving of theory and academic study. Much of the scholar-activist research of food studies focuses on alternatives—sites on the edges of the food system. The goal of the program is to attempt to straddle these divides. We have a unique opportunity to bring together culinary educators and food studies educators to find areas of common ground in creating and operationalizing change. We want to educate scholars to become "actionists"—a cohort who can go out into the world and create change (Ballamingie & Levkoe, 2021, p. 130). We hope to develop students who do not just want to study the food system, but to implement changes. This has its own inherent challenges. We can present students with a comprehensive education in food studies, teach them about the inequities in the system, the sustainability challenges, and health outcomes, but they must go out into the world and decide what to do with this knowledge.

Challenges: Managing an evolving food and education landscape

Building a new degree at an Ontario college is not without its challenges. Colleges are still relatively new to offering degrees in Ontario and, as a result, issues are still evolving (Galea, 2015). Major obstacles facing many of these degrees involve questions of legitimacy and academic rigour. Students and faculty at other institutions have expressed concern over how the degrees are perceived as opposed to university degrees (Hurley & Sá, 2013; Wheelahan et al., 2017). However, many in the industry have not voiced the same apprehension (Wheelahan et al., 2017). While the perception and legitimacy of Ontario college degrees may be slowly shifting, this acceptance may be related to the fields that many college degrees occupy, where students have traditionally been graduating from colleges with vocational diplomas (Wheelahan et al., 2017). This industry perception may be the case for the BFS degree, but given that we anticipate students to have broader career pathways, there will be work to maintain academic rigour and build the reputation of the degree. It is also important to revisit one of the key motivations of offering degrees at Ontario colleges—to serve student populations that are traditionally underserved by universities (Skolnik et al., 2018).

The relative newness of degrees at Ontario colleges means that there is still institutional capacity building that needs to occur. Surveys of students have shown that satisfaction with college services is much lower for degree students than students in diploma and certificate programs (Wheelahan et al., 2017). To keep pace, there will need to be a continued emphasis on developing the writing and research supports for students as we offer more degrees.

There have also been concerns at colleges offering degrees around creating "two tiers" of faculty, those with PhDs who teach in the degrees and those who do not have PhDs and teach in diplomas (Wheelahan et al., 2017). Professors who have more traditional vocational training are

concerned they would not be hired for their own jobs if they applied today (Wheelahan et al., 2017). There is also concern that diplomas may be less valued over time if more degrees are offered in the discipline (Wheelahan et al., 2017).

These concerns are exacerbated by the need for degree faculty and programs to engage in applied research as part of the requirements of PEQAB. This research component involves intervals outside of teaching duties, which changes the traditional role and time allocation of faculty. College faculty labour is governed differently than universities, with a collective bargaining agreement that is the same for all college faculty across Ontario. The Chef School is fortunate to have a number of faculty with PhDs and Master's degrees. However, sufficient labour power and diversity of experiences will be something to consider in continuing to build strong faculty connections and cohesiveness.

Beyond the challenges of delivering degrees in the college setting, the food studies curriculum is heavily impacted by evolving societal crises. When the Covid-19 pandemic was officially declared in March 2020, initial work on the Bachelor of Food Studies had been completed. However, it is clear to us that this moment will have lasting impacts on our food system, our institutions, our education system, and the way we teach and learn. As faculty, we are having to learn new skills and pedagogies for online teaching, making sure that content is "bite-sized" and accessible to students in new and creative ways. The move to more online teaching also demands new questions, as recently outlined by scholars, on teaching "food from somewhere from nowhere" (Levkoe et al., 2020). How do we continue to offer high quality, experiential, and skills-focussed education online? The culinary school is already finding that the online experience has changed the skills students are acquiring by forcing them to source their own products and apply food theory in novel ways while making choices about what to buy and possible substitutions.

Simultaneously, like colleges and universities across the country, George Brown College is facing potential budget shortfalls as a result of the Covid-19 pandemic, requiring creativity to ensure the success of the program while maintaining a commitment to justice, equity, and sustainability. However, it may also mean time to take stock and strengthen the program, thinking through the implications of online learning and the impacts of the pandemic on food systems to adjust syllabi and curriculum to reflect new realities of the world. This, in turn, can contribute to more effective food studies pedagogy, which will benefit students, the food industry and society as a whole.

Conclusion

The Covid-19 pandemic has exposed the cracks in the food system. These problems have always been there, but not as visible to all citizens. The turbulence across the entire food sector, and in particular the culinary and hospitality sector, has reinforced the need for a more holistic approach to culinary education and new options for students to examine the food system while mastering a

variety of culinary techniques and skills. This diverse skillset will become increasingly important to succeed in the world.

We hope that this degree will contribute to the development of this diverse skillset and to the Chef School and culinary industry as a whole in dealing with the changing landscape of the food system. The Bachelor of Food Studies degree will bring a new focus on justice and equity, sustainability and health, and a new awareness of how these broader societal issues can be examined at George Brown College. We hope that this new focus on the culinary industry will also offer opportunities for food studies scholarship to reach food industry workers and build unique skillsets and knowledge that prepare graduates to operationalize meaningful change within the sector. In the Food Studies spirit of reflexivity, we will continue to evaluate this degree beyond traditional metrics of higher education reviews and to consider how the degree is meeting its broader vision to create change in the food system. We will consider whether students are becoming highly educated food professionals with unique insights on the pleasures of food and the underlying knowledge of issues throughout the food system. It is our ambitious goal to develop a food studies pedagogy that will equip the next generation of food professionals with the skills and knowledge they need to lead and thrive in a turbulent world.

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Field Report

Looking back, looking forward: A field report on the Earth to Tables Legacies multimedia educational package

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Abstract

The Earth to Tables Legacies Project emerged in 2015, growing out of personal relationships, but also built on a long trajectory of participatory research, multimedia arts production and popular education. We created an intergenerational and intercultural exchange of food activists working for food justice and food sovereignty with the initial goal of producing a feature length documentary. However, the project evolved over five years to culminate in a multimedia educational package with 10 short videos and 11 photo essays, all accompanied by facilitator's guides. A web series on the pandemic is in production and a forthcoming book is to be published in 2021.

The intergenerational production team included Deborah Barndt (co-director and co-editor), Lauren Baker (co-editor) and Alexandra Gelis (co-director). In this 'report from the field,' the two co-directors Alexandra and Deborah look back on the process of co-producing the visual materials for the interactive website and look forward to its potential use in university classes, schools, and social and environmental justice organizations. Parts of the essay include our zoom dialogue as we revisit our process over the past five years and try to elucidate our way of working, while reflecting on the challenges of the collaborative production and use of multimedia educational tools.

Note that this essay utilizes the same kind of text with hyperlinks that are featured in our website and book. The reader is encouraged to click on the links to learn more about the people

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and their practices as well as the concept of a non-linear multimedia educational tool and process.

Keywords: Food sovereignty; food justice; intergenerational and intercultural exchange; interactive websites; collaborative production; multimedia storytelling; participatory arts-based research; Indigenous ways of knowing; Indigenous-settler relations; all our relations; video and photography; hyperlinks or visual footnotes; digital gaps; facilitator' guides

Introduction

The Earth to Tables Legacies Project was born in 2015 as an intergenerational and intercultural exchange among a small group of food sovereignty activists sharing their knowledges and practices across big differences—youth/elders, rural/urban, Indigenous/settler, and Canadian/Mexican. Primarily growing out of personal relationships, it also built on a long trajectory of participatory research, multimedia arts production, and popular education. While there was an earlier idea to produce a feature length documentary, the project evolved over five years to culminate in a multimedia educational package with ten short videos and eleven photo essays, all accompanied by facilitator's guides. A web series on the pandemic is in production and a forthcoming book is to be published in 2021.

The intergenerational production team included Deborah Barndt (co-director and co-editor), Lauren Baker (co-editor), and Alexandra Gelis (co-director). Alexandra is from the so-called global South and identifies strongly with the South, but has lived all over Latin America and in Canada for fourteen years. Deborah, born and raised in the U.S. and Canada, could be seen to represent the global North, but has also lived and worked in three Latin American countries during important political moments. Both of us, each in our own way, see ourselves as translators across these South-North differences, but from distinct starting points.

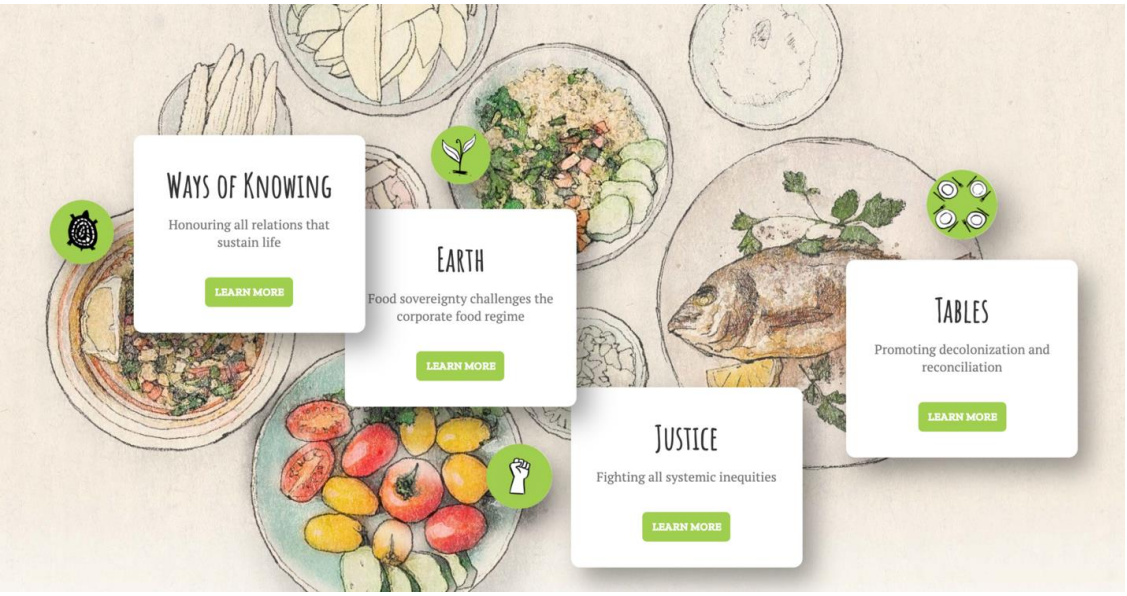
In this report from the co-directors, we look back on the process of co-producing the visual materials for the interactive website and look forward to its potential use in university classes, schools, and social and environmental justice organizations. Parts of the essay include our Zoom dialogue as we revisit our process over the past five years and try to elucidate our way of working, while reflecting on the challenges of the collaborative production and use of multimedia educational tools.

Note that this essay utilizes the same kind of text with hyperlinks that are featured in our website and book. The reader is encouraged to click on the links to learn more about the people and their practices as well as the concept of a non-linear multimedia educational tool and process.

Legacies project as popular education and participatory research

First, we suggest four ways that the Earth to Tables Legacies project could be considered a popular education approach to food education: 1) critical content of power relations; 2) collaborative production; 3) multimedia storytelling; and 4) critical and collective use of the material.

Critical Content: Dynamic Tensions



We organized the videos and photo essays around the interrelated themes of the Earth to Tables Legacies project. These four themes coincide with the four dynamic tensions that frame the project, each reflecting power inequities that popular education aims to reveal, analyze, and act upon.

1) The underlying "Ways of knowing" emerge from the tensions between Eurocentric knowledges and Indigenous ways of knowing, being, and acting.
2) These ways of knowing are grounded in the "Earth" as a living organism as advocated by food sovereignty movements challenging the corporate food regime.
3) Food sovereignty promotes social and environmental "Justice" or equity for intersectional identities rather than hierarchical relations of power.
4) The "Table" represents the broader political struggle between neoliberal capitalism, colonization, and globalization, on the one hand, and decolonization and reconciliation, on the other.

Collaborative production: Pollinating relationships

Our process in some ways illustrates what might be called arts-based participatory research, often associated with popular education. In the book and on the website, we have named our collaborative methodology as a process of pollinating relationships across many differences: generations, borders, language, histories, rituals, methodologies, mediums, and organizations. We probe the collaborative production process more deeply later in this article.

Multimedia storytelling

Popular education honours multisensory learning and draws upon various forms of storytelling as a central starting point. Our project is built around both individual stories as well as dialogues among collaborators, which have been edited into short videos and photo essays. Ultimately, we have chosen to use digital media accessed through a transmedia book and an interactive website with videos as complementary forms of dissemination. The book (Rowman & Littlefield, 2021) follows a linear logic, while our website (Earth to Tables, n.d.) is non-linear and invites multiple entry points and connections.

Collective use of material: Walking the talk

Paulo Freire, Brazilian educator known globally for his articulation of *Pedagogy of the oppressed* (1970), proposed the use of various forms of media to represent people's stories in the forms of "codes." Our project adheres to a kind of Freirean "decoding" process which invites a critical, collective, and creative use of our digital stories. They are not meant to be digested whole and uncritically, but rather to be discussed in groups and made relevant to the specific contexts of the users. As in popular education, our hope is that the critical analysis of these stories will lead to collective action toward a more just and sustainable food system.

Popular education also promotes self-critique and critical collective reflection on a group's process. For the rest of this article, we use this moment to revisit our research creation in the field and in the studio, looking back on what we have learned about collaborative multimedia production, while looking forward to how our interactive website might be used.

Collaborative production as participatory arts-based research

Co-authors filming berry picking in the Gaspé (2018)

Legacies collaborators making cornbread at Six Nations (2019

Our approach to research and creation shares the underlying ideological and methodological positions of practices known as participatory research, community engaged research, arts-based research, decolonizing research—all of which challenge conventional notions of research as individual, objective, neutral, and product oriented. We have found many convergences between these more radical and collaborative approaches and the growing articulation of Indigenous research methods by Indigenous researchers (McGregor et al., 2018).

In our book and website, we identify our approach as "pollinating relationships," starting with our collaborators. As we looked back on our processes of building collaborative relationships, in the context of the pandemic, we decided to have a self-reflexive dialogue through a zoom conversation. This honoured our distinct positionalities and perspectives, and so we offer it here as a conversation.

Collaborators, not subjects: building relationships, creating intimacy

> Alex: We're not working with subjects; we're working with collaborators. In traditional documentary, you'd go, capture the moment, and come back and edit. We wanted collaboration, from production to final editing. Mainly we tried to create an intimacy. And there were already relationships: your partner John had known Dianne Kretschmar the farmer for about twenty years, so there was a relationship of trust. And I had worked before with Jorge and Juan, the other Colombian-Canadian videographers. We already had a connection so we didn't have to talk much while filming. I like to work with a small crew, because it's more possible to create intimacy.

Deb: It's definitely not just a technical process. We've visited our collaborators many times and spent time with them and their families in their homes: from rural Yucatan and Michoacán to Guadalajara in Mexico, from rural Québec to rural Ontario, from Six Nations of the Grand River Territory to the Jane-Finch neighbourhood of Toronto. And they have visited us in our homes, too.

Alex: We were also working in different languages—mainly Spanish and English, but our Indigenous collaborators are defending their own languages: Mohawk, P'urepecha, and Mayan. This richness opened up different cosmologies, revealing different ways of knowing and being. We had the challenge of being physically distant but we visited each other and also brought everyone together as a group three times, so they also got to know each other.

Deb: Now when we're having our monthly Zoom conversations about the pandemic, we feel affection when we see each other on a Zoom screen, and they connect with each other on Facebook.

Alex: When we are editing the videos, we spend so many hours with our collaborators. I need to feel an admiration for the people I'm working with. If I don't feel a connection with them, I don't even turn on the camera. Because I know I'll have to spend twenty-four hours with them. Distance and time give you another possibility of reading the experiences and ideas that you've captured on video. We reconnect with our collaborators and their spaces in the studio, and carry the smells, the tastes, the feelings in our memory and body. In the editing process, you revisit those moments, but you have the commitment to show them in the right way; you can show them as wonderful beings or you can destroy them.

Deb: When they saw themselves and the way we framed them, some felt their daily practice affirmed. Remember when we realized that the two key collaborators represented what could be bookends for the project: Dianne the settler farmer with her hands in the soil, and Chandra, the Mohawk food activist, with a focus on the table. Voilà! That's how we came up with the title "From Earth to Tables." In the end, we realized that the process of developing relationships is as important as the product, and that, in fact, the main message of our product—the multimedia package—also centres on relationships. We began to understand that at the root of the environmental crisis is our disconnection from and inability to care for all other living beings. That the only way to sustainability is through honouring "all our relations."

Alex: While we wanted to make the process as participatory as possible, we often reached the limits of collaboration.

Deb: I kept checking our edits with our collaborators, but then realized that I was asking people to do more than they had time for. John kept reminding me that I was the only one for whom this project was a full-time job. Everyone else has their own lives, their families, and their food work. We couldn't expect that they wanted to be involved at every stage of the process.

Alex: Besides, based on our years of visits and conversations, we had developed a relationship of confidence. They trusted us to edit their stories, on video or in photo essays, using our skills as artists and educators. And they always had a chance to tell us if they felt misrepresented. It will be interesting perhaps to see how they feel once their lives are circulating publicly on the internet, and we get more responses from the users.

Challenge of working across differences

Our process was certainly not without many bumps, missteps, awkward meetings and partings. For we had consciously chosen to work across differences, and that is never easy. We focus on three key differences we wrestled with: Indigenous-settler, Intergenerational, and global North-global South relations.

As Chandra Maracle, Mohawk collaborator from Six Nations, states in *The Mush Hole* photo essay: "Let's not fool ourselves. There are still some tough conversations to be had" (Earth to Tables, n.d.). Exploring Indigenous-settler relations was one of the main goals of our project, using food as an entry point for difficult conversations and video as a tool to mediate our dialogues. During the first year or two we attempted to connect with four other Indigenous food activists, who through direct challenge, refusal, or silence chose not to participate in our exchange.

Deb: I felt strongly that we should have Indigenous filmmakers, because as colonizers we have different identities and worldviews. Here I was, this white woman academic who initiated the project, while it was clear that Indigenous filmmakers have their own media projects and are telling their own stories. "Never about us without us!" is a mantra that is loud and clear.

> Alex: We wanted to respect that the voice of Indigenous people in the project should be captured by them, through their ways of seeing and speaking. They should be deciding how they want to be seen and heard. We didn't want to be invasive and wanted that part of the process in their hands. We never brought out the camera during early visits, even though we never got that feeling with Mohawk food leader Chandra, who was always open to sharing her experience on film. Our relationships with the P'urepecha and Mayan collaborators in Mexico were also more open, not as politically charged as the Canadian context. There's this tendency now for all non-Indigenous people to apologize, saying "I'm sorry I'm white, etc." But there's something in the middle that's called relationships. Trust your heart. Real change doesn't happen just in the naming. It's structural, it's a call to action. Creating relationships of trust is an action in itself, which requires time and commitment.

> Deb: There are two good examples of this tension: *The Thanksgiving Address* video (Earth to Tables, n.d.) was really four years in the making. After the first year, we realized that, in greeting and thanking all the elements that sustain life, the Thanksgiving Address best represented the core message of "all our relations", and what we settlers could learn from Indigenous cosmologies and protocols. Our Mohawk partners had different views among themselves on whether or not such a sacred ritual should be shared publicly on film, even though there are now multiple online representations of it by Haudenosaunee leaders.

It took many visits as well as the hiring of a Mohawk videographer to film Ryan DeCaire offering the address in Mohawk; but in the end Chandra felt comfortable with Alex filming her offering the English version. The contribution of both Rick Hill's artistic drawings of the elements, Alex's video clips to illustrate some elements, and Juan's support in filming and editing a revised edition, all came together for an evolving collaboration that took over a year.

Then there was the serendipity of hearing Chandra and Rick's daughters drum and sing in their bedrooms as we filmed the final narration; so, in the end, they provided live music to join with their parents' narration and artistic pieces. All this could only happen after five years of building relationships.

> Alex: It was a moment of being able to understand another way of knowing. It was about sound, we heard them in their bedroom. It was a moment to understand the drum as a language. They were in a circle, making music together; they were singing to the land, to the family, to the ancestors. It was young people expressing themselves in their daily life.

One of the photo essays, *From the Mush Hole to the Everlasting Tree School: Colonial food legacies of residential schools,* tackled head on some of the dark history of colonialism and long-term impact of residential schools (Earth to Tables, n.d.). It features Chandra in dialogue

with settler historian Ian Mosby who has studied the food in residential schools. This photo essay exposes not only the cultural genocide and health impacts of children being torn from their families, land, and traditional foods, but also celebrates the ways that Indigenous communities are resisting by recovering cultural practices (including hunting and gathering as well as agriculture), and food education through alternative schools such as the Everlasting Tree School. But it doesn't gloss over the uphill challenge of changing unhealthy food practices. Chandra excavates the trauma of colonization that Indigenous people carry in their bodies and, through the psychology of eating, she wrestles with the emotional process of trying to change deeply ingrained habits. In the editing and re-editing of the photo essay, Chandra insisted on recognizing the contradictions of not only Indigenous communities but of all North Americans whose diet is based on the five whites, flour, sugar, salt, lard, and dairy; "gifts" of the Europeans, and processed through the industrial food system.

This photo essay drew on footage co-produced with Red Door Productions, the media production company at Six Nations, who documented the CORNvergence gathering that Chandra organized to explore, among other issues, the colonial history of food in residential schools as well as the creative alternatives being nurtured in Haudenosaunee communities today. It also drew on in-depth research that Rick Hill was undertaking about the history of The Mohawk Institute (known as The Mush Hole for its bland tasting porridge), with photographs that reflect visually the way the schools attempted to "take the Indian out of the child".

Intergenerational differences among collaborators were starkly revealed through our different levels of comfort with the technology. While we were producing multimedia tools to communicate with young people, we experienced intergenerational tensions around the digital gap among ourselves. Everyone has their own preferred mode of communication. An older partner prefers a landline telephone with no answering machine to speak with those who only communicate via Facebook or WhatsApp. Partners include those who prefer text message over email to rural Mexicans who have spotty internet service. Nonetheless, we have managed to bring some folks into conversations via FaceTime and Skype, and more recently, most have been able to join our Zoom conversations during the pandemic, though tropical storms have interfered.

The video *Who will feed us? The farm labour crisis meets the climate crisis* focuses on the challenge of securing farm labour both in terms of young peoples' interest and in the broader context of climate change and migration (Earth to Tables, n.d.). We consider the intergenerational relationships between Dianne and her son Dan who will inherit the farm in Ontario. In the Mexican context, we hear from Fulvio Gioanetto as well as his daughter Serena and son-in-law Miguel who learned agroecology from him in Mexico, and then came to Canada to share organic agricultural practices and to learn market gardening with Dianne.

Dan asked us to film him walking through the old barn sharing his dream for the farm. This was before he even told his mom, a day before we brought them together to talk about the future of the farm. So, the camera mediated their conversation.

The project became an instrument for them to negotiate their different visions: Dan wants a more efficient farm that can become a community centre; Dianne is most concerned with the ongoing stewardship of the land, the animals, and the production process. She wants to ensure that it doesn't get sold to someone who wouldn't care for it in the same way.

Meanwhile, in Mexico, Fulvio and Maria created an organic fertilizer business, and hoped it would keep their children working at home, and not migrating north. However, Serena and Miguel chose to combine work in Mexico half the year with farm work in Canada the other half, in part to finance their own farm in Mexico. When Fulvio visited them in Canada, and saw them on the videos, he appreciated their work in a new way. Now, stuck in Mexico with COVID-19, they are bringing back some of the organic agricultural skills they learned abroad.

There is also a digital gap in these parent-offspring relationships. Dan manages the Zoom conversations that involve his mom, Dianne. Fulvio is quite tech savvy for an elder, and has been using *The alchemy of agroecology* in agroecological workshops around Mexico (Earth to Tables, n.d.). Now that the pandemic has kept him home, he has been reviving a family garden while Serena and her brother Bryan film this resurgence of local production on their cell phones.

global North/global South

With Indigenous and non-Indigenous collaborators from three different communities in Mexico, we also represent an exchange between what is sometimes labelled the global South and the global North. To further complicate these identities, we realize that these categories are meant to distinguish not just geopolitical but also class, race, and rural-urban differences, and so there is global South in the North, and vice versa. One of the ways this affected our exchange is the differing access to technology and communications networks. Those of us who live in cities, whether in the South or North, had better internet access, while it tended to be spotty not only in rural Yucatan and Michoacán but also in rural Québec and at Six Nations is rural Ontario. Cell phones and their cameras have democratized communications and video production, so most partners are now able to film their own food activities, though they may need some training in their effective use.

Choice and use of mediums: visual stories

We recognize that our project is part of a broader movement of non-fiction community-based new media projects, as a vital part of the digital sphere creation, uses participatory modalities presenting projects from physical encounters, screen interactions, and interventions

(Zimmermann, 2018; Auguiste et al., 2020). We identify with scholars working and thinking on different affordances of storytelling and the co-creation in documentary as in the case of Ecocinema, interactive documentary (i-docs, web docs, database docs, non-linear stories, procedural narratives and more documentary oriented new media forms), and the ways in which digital media technologies and cultures are shaping (and are shaped by) documentary practices (Ivakhiv, 2013; Nash et al., 2014; Aston et al., 2017). Research creation is also a site of ongoing experimentation, as innovative knowledge-making is informed by gender and feminist studies, Indigenous practices, and new materialism—a meeting place of academia, artistic creation, and the wider audience.

We locate our collaborative process within the field of arts-based research and research creation, an approach that honours other ways of knowing, artistic modes of inquiry, and alternative forms of cultural expression (Finley, 2008; Loveless, 2020). Central to all artistic expression is story—all of the pieces of the online platform are drawn from oral sources: people telling their food stories grounded in their own contexts. As Mexican-based collaborator Fulvio concluded: "This is the strength of the Legacies project—gathering life histories of real people in specific places and in the sound of their own voices."

Photography and video were key tools in documenting the activities of our storytellers, and feeding back to them their ideas and practices in edited form, as videos and photo essays. Some commented that it helped them understand their work in a new way and they felt their knowledge and experience valued.

The camera could both enable and inhibit communication, depending on the circumstances. The set up and testing of multiple cameras and mics required time and patience. Some, like Dianne, became so accustomed to the filming that she would stop us when a passing train threatened a good sound recording, or call us to document her experiment of growing mycelium to regenerate the soil on her farm.

As mentioned earlier, we hired a Haudenosaunee videographer to film *The Thanksgiving Address* and contracted Red Door Productions at Six Nations to edit all Haudenosaunee videos. As well the videos of *Black Creek community farm* involved racialized filmmakers in documenting the multiracial project (Earth to Tables, n.d.). All videos and photo essays were vetted with the people appearing within them, before going public.

In two cases, we gave cameras or microphones to young participants and instructed them to film relevant activities in their communities. Often the young people made their own videos with cell phone technology; Chandra and Rick's daughter Olivia, for example, produced a short video of the corn processing workshop Chandra offered to Dianne in her kitchen, and presented it to us at the end of the day. In Mexico Fulvio and his sons got so used to the cameras and the visual methodology that now they are developing their own series of educational videos around medicinal plants in Spanish. This is one way that our process continues, especially as we are now creating a new piece based on the coronavirus pandemic. These local productions are shaped by monthly Zoom conversations of all partners, with Alexandra offering online technical support.

The multimedia package privileges the visual and digital—video and photographs allowing us to tell stories in ways not limited to words. Even the photo essays that are two dimensional constructions with still photos are made more dynamic by the use of hyperlinks, which the non-linear technology makes possible. They act as "visual footnotes" or references, to expand on the text. For example, in the photo essay *The animal food cycle*, you not only read about Gaspé-based Adam and Anna and their children's relationships with the bull, pigs, turkeys, goats, and kittens. When you click on a highlighted phrase, short videos are activated to bring these animals alive. You can *hear* Adam milking the goats, you can *see how* Anna makes cheese from the goat's milk, you can follow four-year-old Katherine running with the goats, snuggling with their kitten, and laughing with her two-year-old brother at the pig pooing and peeing.

For younger people, the multiple digital forms speak in a language that many already dominate. But we are also challenged to "decolonize the digital" by offering frameworks and promoting processes that challenge dominant knowledge systems, and honour Indigenous and other non-western ways of knowing. Linda Tuhiwai Smith's classic *Decolonizing Methodologies* (2012) lists methodologies that can offer a framework for how online Indigenous knowledges can contribute to Indigenous resurgence (Wemigwans, 2018). They speak to the kind of process that went into creating Earth to Tables Legacies' digital pieces as well as how we hope they will be used: from "reframing" to "connecting" and from "negotiating" to "envisioning."

There are many examples of digital technology feeding cultural renewal and education, multiplying voices of Indigenous peoples, marginalized communities, and food activists of all

ages. But there is also a risk of becoming more disconnected from and destructive toward physical environments. Starblanket and Kiiwetinepinesiik Stark (2018) warn that "these technologies are transforming our approach to living in-relation…and we forget the unique benefits of being situated physically in relationships (pp. 198)." This contradiction in the use of online tools has been accentuated by the coronavirus pandemic, with self-isolation and physical distancing pushing many to revert to creating and communicating through digital web-based software.

We hope that our multimedia website can be a resource for teachers seeking online resources in this pandemic era of internet-based education. But we also have integrated into the facilitator's guides ways that the videos and photo essays can be mere catalysts for critical and collective discussion, and have suggested hands-on activities, where relevant to the topic. For example, while the video *The soil is alive* (Earth to Tables, n.d.) may show Dianne in Ontario and Fernando in Mexico with their hands in the soil, the computer screen cannot give students the sensation of putting their own hands in the soil, or testing soil quality, which are activities proposed in the facilitator's guide.

Walking the talk: Critical, collective, and creative use of website

From the start, we wanted our multimedia material to be used in schools and communities, and to be engaged critically, collectively, and creatively. As in popular education, an ultimate goal was to get people to move toward taking action. In the fall of 2020, we launched the interactive website, in part to get this online educational package to teachers for their fall classes. Since then, we've gathered feedback on what works and what doesn't work, and received suggestions about how to make the site easier to navigate—for different ages, for people who prefer linear to non-linear paths, etc.

In working with Helios Design Labs to create the interactive site, it was important to emphasize our primary pedagogical purposes. Thus, when each video or photo essay appears on the screen, the viewer will find three icons to the left:

"Digging In" offers key terms and concepts, decoding questions, specific questions, hands-on activities, prompts for intergenerational and intercultural dialogue, and suggestions for individual and collective action.

"Continuing the Conversation" includes commentary on the specific video or essay by an academic expert in the field or an activist immersed in the issue. This broadens the perspectives beyond our small group of thirteen collaborators, limited in terms of identities, geographic and cultural contexts.

In “Digging Deeper” we offer resources for further research and action, including other videos and websites, articles and books, organizations, and even relevant music.

This is what distinguishes our multimedia package from other websites; the videos and photo essays are not meant to be definitive or to stand alone. Rather they are to be used as catalysts to encourage diverse viewers and users to explore their own specific contexts and practices. Already we are hearing from teachers and activists who will offer short videos about how they are using the material—this is the real test.

Finally, we recognize that the material is primarily coming from a North American (read: white) framework. It needs to be translated, not only in terms of language (into Spanish, French and Indigenous languages) but most importantly in terms of cultural and political context. If it is to be useful in other places, whether Indigenous communities in the North, Mexican schools, or social movement organizations, we must continue pollinating across these differences both within Canada, within the hemisphere, and perhaps with food sovereignty activists globally.

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Original Research Article

Agrifood systems and food literacy: Insights from two high schools' programs in Ontario

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Abstract

Following the increased industrialization and globalization of the prevailing agrifood system, researchers and practitioners have highlighted the detrimental impacts of this model on human health, food security, and the environment. As such, experts and citizens are calling for an increased awareness, through food literacy (FL), to improve health and justice and to transition towards sustainable agrifood systems. Building on field research, critical pedagogy, and existing FL analyses, we argue for incorporating both health and well-being, and agrifood systems dimensions into FL programming. By doing so, FL can contribute to promote individual health, as well as more sustainable agrifood systems policies and practices based on the principles of food sovereignty. Through qualitative research with students and teachers in two Ontario high schools, we explore the content and approaches taken in food-related programming. Aspects of FL among students are also explored in order to highlight their strengths and limitations. Further, we point to the challenges faced by teachers in delivering food-related courses. We propose a conceptual framework that highlights the benefits of including the multiple dimensions of FL as a way to test and improve existing FL programs, and eventually train future generations of teachers, students, and citizens.

Keywords: Food literacy; sustainable agrifood systems; Ontario high school students; food sovereignty; critical pedagogy

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Introduction

Numerous studies have demonstrated that agriculture and agrifood systems[1] are key contributors to environmental protection or degradation and anthropogenic climate change (Gliessman, 2018; Anderson et al., 2021). This is especially evident since the late 1980s, with the globalizing corporate food regime that spread from Europe and the United States to most parts of the world (Andrée et al., 2014; Friedman & McMichael, 1989; Rose & Lourival, 2019). This corporate regime has the set of norms and rules that govern today's dominant agrifood system, which is based on the expansion of large-scale, capital, and energy intensive agricultural production (i.e., fertilizers, pesticides, water). During this period, we have witnessed the concentration of corporate control over food discourses (Kimura, 2011) and the food supply chain (Clapp & Purugganan, 2020). These changes led to heightened inequalities, health problems, ecological harm, and social malpractices, such as soil and water contamination, hunger, food price volatility, farm crisis, food insecurity, and labour exploitation (Magnan, 2016; Willett et al., 2019). The Nutrition Transition, resulting from changes in food environments, also contributed to an impoverished diet, based on an increasing intake of processed and ultra-processed food items, which are often sweeter, saltier, and more energy dense (Popkin, 2001). Studies have also highlighted a considerable degree of "deskilling" for consumers (Slater, 2013), farmers, and those who traditionally engage in hunting, fishing, and gathering practices. This "deskilling" particularly affects low-income households, including small-scale farmers and peasants, as well as Indigenous communities, in many regions of the world (Morrison, 2011).

In Canada and globally, a growing number of citizens and social movements are questioning the consequences of today's prevailing agrifood system, which are especially alarming considering the crucial role of food for social reproduction and for the wellness of human and non-human beings. Food literacy (FL) is therefore more essential now than ever to equip citizens to critically assess the systemic barriers to actualization of personal, community, and ecological health at micro- (individual, household, community) and macro-levels (global food governance, environmental and cultural change, national and international trade, and health policies) (Rose & Lourival, 2019; Weiler et al., 2014, p. 1082; Sumner, 2013). With increased awareness, people are calling for socio-ecological alternatives by "voting with their dollars" (Bloomfield, 2014), or are engaging in collective action, advocating for institutional and policy changes, and food sovereignty (Blay-Palmer et al., 2015).

In this context, a comprehensive conceptualization of FL, incorporating health and agrifood systems dimensions, can develop the critical skills of learners to think about food and

[1]Agrifood systems, as defined by Lamine (2015) are "socio-technical systems composed of the main social actors and institutions involved in food production, transformation, distribution, consumption [and waste] (farmers, intermediaries, processors, CSOs, agricultural institutions, public policies, etc.) and of the rules and modes of coordination which link them. They can be considered on a local scale (such as in the case of alternative food systems) or on a larger scale" (Lamine, 2015, p. 56).

agrifood systems more broadly. It can allow individuals and citizens' organizations to participate in transforming today's agrifood systems (Sumner, 2013; Classens & Sytsma, 2020). Interdisciplinary approaches to food-related education, incorporating critical pedagogy, can contribute to demystifying the functioning and consequences of the globalizing corporate food regime. In a similar way, Sumner (2013) argues that conceptualizations of FL "must move beyond individualized prescriptions and notions of blame to become a concept that can analyze current foodscapes and model sustainable alternatives" (p. 84). Furthermore, the EAT Lancet report on *Food in the Anthropocene* emphasizes the interdependent nature of human and planetary health, while also highlighting that most agrifood systems today are not promoting food security or human health (Willett et al., 2019). This is not resulting from individuals' decision making, but structural problems within national and global agrifood systems. To address such problems, we argue that FL incorporating an agrifood systems dimension could deepen the understanding and engagement of citizens to call for alternative policies and practices that are just, healthier, and more sustainable. Starting from these broad assessments, this article draws from field research exploring grade nine (G9) and grade ten (G10) students' FL through semi-structured interviews in two Ontario high schools. We explore the following questions: How do teachers approach food-related education programs in Ontario high schools, especially as it relates to the health, well-being, and agrifood systems dimensions of FL? Second, where is the food literacy of Ontario high school students situated (i.e., does it reflect the health and well-being dimension and/or agrifood systems)? Third, what are the main challenges to improve students' FL in these multiple dimensions?

The article begins with a review of the literature on food literacies, providing a broad picture of the status of FL in Canada and Ontario and fostering connections between FL, critical pedagogy, and the food sovereignty movement in Canada. This is followed by describing a conceptual framework which offers a comprehensive explanation of FL, incorporating dimensions of agrifood systems and health and well-being. The third section presents the methods used for examining the two food programs and students' FL, ending with a discussion of the results and lessons that emerged from this exploratory research. Therefore, the objectives of this paper are twofold: 1) to contribute to the debate on the comprehensiveness of FL, and 2) to provide empirical insights in order to address the questions outlined above.

A growing interest for food literacies

Food literacy (FL), as a concept and field of study, has gained significant momentum throughout the last decade. It is also increasingly accepted that this concept consists of multiple dimensions, which is why some authors refer to multiple literacies for overall food literacy (Hernandez, 2019). A scoping review and conceptual analysis by Cullen et al. (2015) found that definitions of FL mostly included food skills or nutrition but often lacked a social or ecological context.

Meanwhile in a more recent review, Truman and colleagues (2017) noted that the socio-ecological aspect was increasingly emphasized, but a common definition of the concept is still lacking. Cullen et al. (2015) offer a broad conceptualization of FL which incorporates elements of community food security, while insisting on the central role of pedagogy and knowledge production toward sustainable agrifood systems and personal health. They define FL as:

> the ability of an individual to understand food in a way that they develop a positive relationship with it, including food skills and practices across the lifespan in order to navigate, engage, and participate within a complex food system. It's the ability to make decisions to support the achievement of personal health and a sustainable food system considering environmental, social, economic, cultural, and political components (Cullen et al., 2015, p. 143).

Regardless of the broadness in scope, most scholars still tend to emphasize aspects of FL related to their expertise or areas where they would like to see improvements, rather than looking at it from a multidimensional and interdisciplinary perspective (Hernandez, 2019). For example, dietitians and health experts tend to focus on nutrition literacy and individuals' food skills (Poelman et al., 2018; Thomas & Irwin, 2011; Vidgen & Gallegos, 2014). Social scientists and agronomists favour an agricultural (Frick et al., 1992; Judd-Murray, 2019), ecological (Cullen et al., 2015), or critical literacy approach with a focus on agrifood systems change, often incorporating principles associated with food sovereignty (Anderson et al., 2018; Meek & Tarlau, 2016; Sumner, 2013; Valley et al., 2017). To date, the evaluation of food-related literacies has fallen into this siloed pattern. Meanwhile, health-related guidance for policies and practitioners increasingly recognizes the interconnectedness of systems and their impact on health, which calls for more policy coherent approaches (Hawkes et al., 2013; Ingram et al., 2020).

The status of food literacy (FL) in Canada and Ontario

In recent years, governments and organizations have also shown increasing interest in FL and Canadian's food-related knowledge more broadly. In 2013, the Conference Board of Canada released a report called *What's to eat? Improving Food Literacy in Canada*, which highlighted that Canadians "have a good general understanding of food, nutrition, and health, but may lack a thorough understanding of the details of how they are connected" (Brichta & Howard, 2013, p. ii) and some of their weaknesses are in terms of food systems and farming practices (pp. 12-13). The Canadian Centre for Food Integrity (CCFI) noted that 91 percent of Canadians self-identified that they know little, very little or nothing about modern farming practices (2019, p. 8). Since 2016, these results have been practically unchanged. However, 60 percent of Canadians indicated that they are interested in learning more about agriculture (CCFI, 2019, p. 8).

Countless academics, non-governmental, and governmental organizations have sounded the alarm regarding "unhealthy" food-related behaviours and health outcomes, some of which can be attributed to decaying FL and skills. Slater (2013) argues that food skills are not being transferred in the household as much as they were in the past. This is especially concerning since the home is the main place for children and youth to learn about food and food preparation (Desjardins et al., 2013). Moreover, young people are a population that has concerningly low FL levels, especially in regard to practical skills and knowledge of "the broader socioecological and political aspects of their food systems" (Ronto et al., 2016, p. 13).

The government of Ontario has responded to these concerns with policies that touch directly on FL. In 2013, they released the Local Food Act, which aims to "Improve food literacy in respect of local food" and to build resilience in food systems (Local Food Act, 2013, p. 3). In the fall of 2020, a private member's bill was proposed: *Food Literacy for Students Act, 2020*. If ratified as written, this bill would require amendments to the Education Act to make experiential FL mandatory in curriculum guidelines, from grades one to twelve (Food Literacy for Students Act, 2020).

The Ontario Ministry of Education also released the *Policy Framework for Environmental Education* in 2009 that aims to instill critical thinking and awareness. The Ministry of Education insisted on the importance of developing students' "knowledge, skills, perspectives and practices that they need to be environmentally responsible citizens" and that they "will understand our fundamental connections to each other and the world around us through our relationship to food, water, energy, air, and land, and our interaction with all living things" (Ontario Ministry of Education, 2009, p. 6). The report further emphasized that "schools have a vital role to play in preparing our young people to take their place as informed, engaged, and empowered citizens, who will be pivotal in shaping the future of our communities…and our global environment" (Ontario Ministry of Education, 2009, p. 2). The above reports and policies show that think tanks and governments seek to address the concerns raised by academics and other stakeholders, such as Food Secure Canada and Farm to School Canada. However, when it comes to implementing FL programs, the federal and provincial governments are still lacking a broad policy coherent approach, and evidence-based evaluation of their effectiveness (Martin, 2018).

Critical pedagogy and food literacy towards food sovereignty

As critical pedagogy scholars such as Henry Giroux (2020), Paulo Freire (1972), and bell hooks (1994) have emphasized, knowledge is power. Knowledge allows domination and resistance. Knowledge is crucial to understanding but also challenging dominant power dynamics, and in turn, to envisioning strategies to create a better world. According to Sumner (2013), "food literacy aims for individual and social change by encouraging people to read the world in terms of food" (p. 87).

Recognizing the power inequalities within historical and contemporary agrifood regimes, FL is a form of knowledge that can "help dismantle the limits placed on the practice of the possible and move beyond neoliberal subjectivities to more holistic ones" (Sumner, 2013, p. 87). As such, in this study, agrifood systems literacy (AFSL) is the desired outcome of a pedagogical project which promotes the development of knowledge and skills to participate within complex agrifood systems. As a critical pedagogy, it acknowledges that education is always political. AFSL is a foundation for critical conscious raising among citizens, enabling them to demand sustainable agrifood systems that respond to peoples' needs in specific contexts, fight injustices, and respect ecosystems.

The above definition of AFSL aligns well with the principles and objectives of food sovereignty advocates. Indeed, since the early 2000s, there has been a growing sense of urgency for improving FL to understand the multiple political, economic, and socioecological dimensions of the corporate agrifood system, its problems, and potential alternatives (Meek & Tarlau, 2016, p. 237). The pressure for AFSL comes from concerns for human and environmental health, but also from increasingly active and thriving food justice movements. These movements are building local and transnational networks and promoting food sovereignty,[2] that is, a set of policies and practices promoting just and sustainable agrifood systems, away from the detrimental effects of the neoliberal agrifood system on the health and well-being of households, food producers, and ecosystems alike (Edelman et al., 2014). Neoliberal advocates count on "the market as the final arbiter of efficient economic policy...walling off powerful economic actors and industrial forces from popular accountability and local responsibility" (Andrée et al., 2014, p. 11). Meanwhile, food sovereignty advocates call for a reorganizing of food production, distribution, and consumption patterns that contests the common understanding that large-scale agriculture is better and more efficient than small-scale farming (Massicotte, 2014; Meek & Tarlau, 2016; Rose & Lourival, 2019). In Canada, food sovereignty activists, including members of the National Farmers Union, emphasize the productive and reproductive roles of food producers who contribute and seek innovative methods to maintain and/or promote agroecological practices. They insist on their capacity and responsibility to provide healthy food and participate in governing agrifood systems, as experts of the soil and ecosystems in which they live (Desmarais & Wittman, 2014).

Through a food sovereignty lens, and building on Rose and Lourival (2019), we contend that a more comprehensive FL allows for the integration of individual health and food skills with a vision of empowered communities working to transform agrifood systems. As such, AFSL becomes a foundation for students to work in partnership with food sovereignty movements and governmental institutions to promote healthy food choices and sustainable agrifood systems.

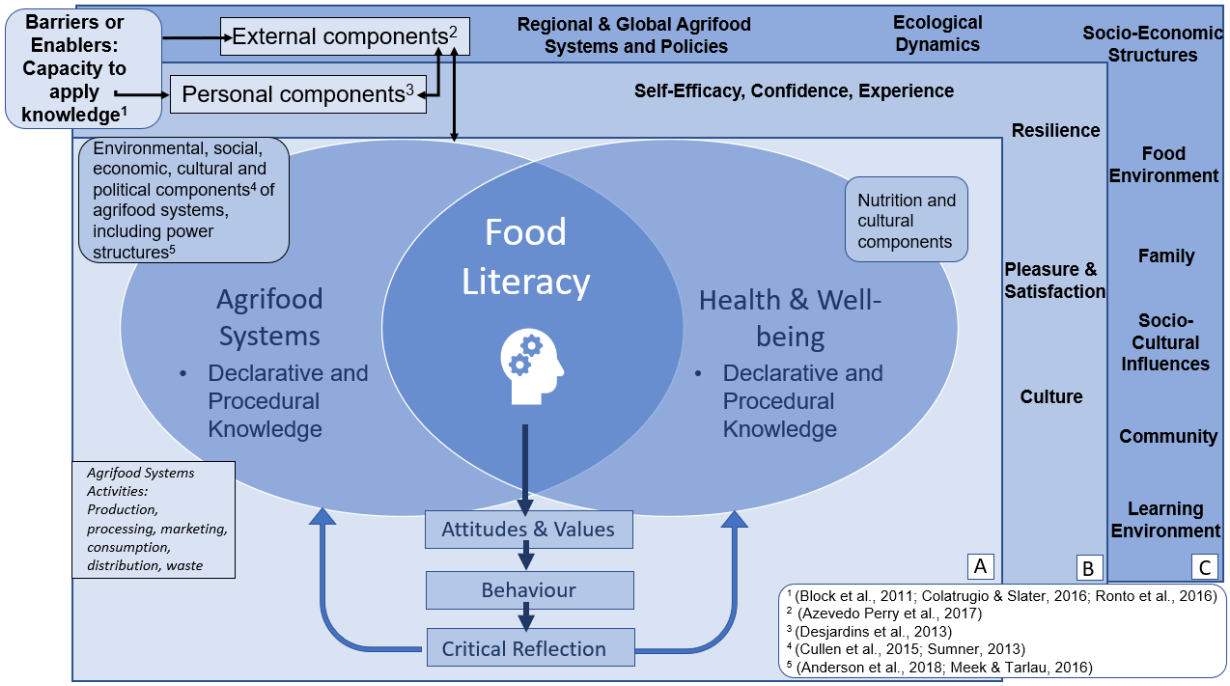
[2] Depending on the context and analytical lens, the notions of food justice or food democracy are preferred to food sovereignty. The latter generally includes the democratization of food systems to foster greater social, environmental, and gender justice as key principles, and it contests the corporate, or neoliberal, agrifood system (Andrée et al., 2014).

This is especially relevant for youth who will play a central role in shaping and improving tomorrow's agrifood systems and public policies.

Conceptual framework

Figure 1 helps to illustrate the multiple and interrelated elements of FL through a conceptual framework. Here we refer to two core dimensions of FL: agrifood systems and health and well-being. It is organized into layers with key concepts and components for an individual's FL in the main layer A (as labelled in the bottom right corner of the framework). Layers B and C respectively represent the barriers or enablers (personal and external components) that affect citizens' capacity to apply knowledge. This framework builds on recent work and developments in the field (Classens & Sytsma, 2020; Cullen et al., 2015; Hernandez, 2019; Palumbo, 2016), by insisting on the idea that FL must go beyond food skills and nutritional knowledge to incorporate socioeconomic, environmental, and other dimensions.

Figure 1: Conceptual framework of food literacy from a systems-based perspective



Source: (modified from Martin, 2018)

Food literacy includes two types of knowledge—procedural and declarative—in line with Block and colleagues (2011). Procedural knowledge refers to the "know-how," or practical and hands-on skills, whereas declarative, or factual knowledge is "knowing of/about" something. For example, procedural knowledge could include food skills like shopping for groceries, cooking, preparing meals, and gardening, or how to collectively organize and advocate for change.

Meanwhile, declarative knowledge could include facts about nutrition or the functioning of global agrifood systems.

With this framework, FL is action-oriented; it consists of applying declarative and procedural knowledge, thus inviting citizens/students to act on and adopt behaviours based on their knowledge, if they are able. Furthermore, food-related behaviours are often shaped by "one's class position, gender stereotypes, social infrastructure, and the macrostructure of food and agricultural systems" (Kimura, 2011, p. 479-480). These points are especially salient given that choice and health equity are not simply enabled by individual decision making but also by institutional norms and policies (Weiler et al., 2014). Hence, our proposed framework recognizes the importance of individual knowledge and behaviours, as well as the key role of institutional and structural barriers/enablers reflected in layers B and C. The external components are extrinsic or "beyond self" and can include sociocultural influences (i.e., emotional support), food environment and facilities (e.g., a kitchen), agrifood and other systems (Azevedo Perry et al., 2017), and the learning environment (Desjardins et al., 2013). These elements influence the psychosocial factors, which primarily make up the personal components such as self-efficacy, confidence, and pleasure, (Desjardins et al., 2013) and feed into the "motivation to use that knowledge" (Block et al., 2011, p. 7).

Motivation is essential to FL behaviours and aligns with the theory of planned behaviour, which emphasizes that attitudes and values connect knowledge to behaviour (Vermeir & Verbeke, 2008). From a critical pedagogy perspective, self-reflection follows behaviour which then feeds back into FL (see arrows in Figure 1) and can in turn lead to changing behaviours. This understanding of knowledge aligns with Freire's concept of "praxis" that links theory and practice for transforming society (1972). It invites individuals to think critically about their food practices and their impact in a constant loop of self-reflection-action-self-reflection.

Our framework also aligns with the work of food sovereignty (Anderson et al., 2018; Meek & Tarlau, 2016) and critical pedagogy scholars who insist on the need to start from the experience of participants to nurture social justice and change. The incorporation of the AFSL dimension highlights the central role of non-farming and farming people, through individual participation (i.e., purchasing behaviours) and collective action for broader systemic change. By promoting food sovereignty through AFSL, students would be better equipped to "analyze their world of food production and access and take actions to change these systems" (Meek & Tarlau, 2016, p. 243). This conceptual framework demonstrates the multifaceted aspects of food and AFSL, which consists of knowledge and action. The actualization of personal health and well-being depends on structural factors and the capacity to implement sustainable and just practices, which derives from a deeper understanding of the multiple dimensions and diversity of agrifood systems. The framework thus highlights the importance of active participation of food literate citizens, as learners, teachers, farmers, and eaters, in shaping and improving agrifood systems and people's well-being. This opens up space for the principles of food sovereignty to be acted upon, if the knowledge, capacity, and desire to engage in agrifood systems are there in the first place.

Methods

This exploratory study draws from fieldwork that took place between January and March 2017 in two Ontario high schools including one suburban neighbourhood school (SNS) outlying a large city, and one rural school (RS), approximately fifteen kilometers from the nearest small city. These schools represent a convenience sample as a result of preexisting relationships that helped to gain access and complete the research in a timely manner. These choices allowed for a comparison of community settings and the different types of food-related courses in Ontario: Hospitality and Tourism (Technical Education Curriculum), Exploring Family Studies, and Food and Nutrition (Social Sciences and Humanities Curriculum). These were elective courses with a mix of students from academic (university bound) and applied (college bound) streams.

The research is based on qualitative data analysis from twelve semi-structured interviews, including eight interviews with randomly selected students from grade nine (G9) and ten (G10), and the four teachers of the food-related courses in the two schools (see Appendix A and B for a sample of interview questions). The qualitative data were analyzed to draw out the main themes around our research questions. The interviews allowed for a better understanding of the content and main objectives of the courses as well as the general situation (i.e., health and well-being, or agrifood systems) of students' food literacy through both teacher and student responses. Student interviews varied from 15 to 45 minutes, while teachers' interviews varied from one to two hours in length. All interviews were recorded and transcribed verbatim to help with coding for common themes as presented in the results. The University of Ottawa Research Board of Ethics and two Ontario School Boards approved this research; consent was obtained from high school principals, teachers, parents/guardians, and students.

As Table 1 shows, four of the students interviewed completed a food-related course (S1-S4, intervention group) and another four students (S5-S8, control group) did not since they opted for non-food related elective courses. The students were from grades nine and ten (ages fourteen to fifteen), four from each school (SNS and RS). In total, two teachers from each school participated (see Table 2). All of the teachers had a Bachelor of Arts or Science degree and Bachelor of Education degrees. Teacher 3 (T3) and Teacher 4 (T4) also had formal training and extensive experience as chefs, which allowed them to work within the Technical Education stream. Teacher 1 (T1) and Teacher 2 (T2) had an Honours Specialist in Families Studies, an additional qualification course, to be able to teach food-related courses from the Family Studies curriculum.

Table 1: Student demographics

Group	Student	Self-identified gender	Grade	School	Course	Country where student grew up
Intervention (food-related course)	Student 1 (S1)	Male	10	SNS	Hospitality and Tourism	USA
	Student 2 (S2)	Female	9	SNS	Hospitality and Tourism	Canada
	Student 3 (S3)	Female	9	RS	Exploring Family Studies	Canada
	Student 4 (S4)	Female	10	RS	Food and Nutrition	Canada
Control (no food-related course)	Student 5 (S5)	Female	10	SNS	Computer Studies	China
	Student 6 (S6)	Female	10	RS	Music	Canada
	Student 7 (S7)	Male	9	RS	Computer Studies	Canada
	Student 8 (S8)	Female	9	SNS	Visual Arts	Canada

Table 2*:* Teacher demographics

Teacher	Self-identified gender	School	Course in study
Teacher 1 (T1)	Male	RS	Food and Nutrition
Teacher 2 (T2)	Female	RS	Exploring Family Studies
Teacher 3 (T3)	Male	SNS	Hospitality and Tourism
Teacher 4 (T4)	Male	SNS	Hospitality and Tourism

Results

To address the research questions, the interview findings are organized to highlight the content and focus of the courses. We also explore the dimensions of students' FL through their own and teachers' discourses. This section concludes with teachers' accounts of key obstacles and challenges they encounter. The sample in this study was insufficient to identify differences between SNS and RS students' FL, but we keep this distinction as an interesting element to investigate further.

Teachers' descriptions of food-related courses

At the rural town school (RS), the food-related programming was based on the Social Sciences and Humanities, and Family Studies curriculum, with courses offered from grades nine to twelve. The G10 Food and Nutrition course focused on nutrition, while the G9 Exploring Family Studies course was an introduction to "cooking and life skills" (T2). The Food and Nutrition course addressed "micro- and macronutrients, reading labels, basic marketing, and advertising techniques" (T1). T1 noted that food marketing was important since he wanted his students "to have a very healthy dose of skepticism, and they need to understand basic nutrition and how to read labels in order to cut through the crap". In the Exploring Family Studies course, the students worked on "cooking techniques and preparing foods and…meals and just basic baking," in addition to learning about "skills like laundry and shopping and meals on a budget" (T2). Students cooked once every week or week and a half at this school.

At the SNS, the programming was mostly based on the Technical Education curriculum with Hospitality and Tourism courses from grades nine to twelve. Some Family Studies courses were also offered. In this school, teachers used "benchmarks" with "basic [food] skills" in mind in case the students "never [take] another cooking class" so that they will "at least be able to… put some food on the table" (T3). The teachers at SNS designed the G9 course using the G10 Hospitality and Tourism curriculum as a foundation for ministry expectations. These courses had similar expectations across grades with knowledge and skill levels advancing each year. Furthermore, teachers insisted on integrating elements of sustainability in their programming through food procurement, "local, organic and ethical where possible," (T3, SNS) and teaching students about gardening and preserving.

General discussions of food in school

All students, from intervention and control groups, indicated that food was discussed at some point in school, mostly in terms of nutrition and health. A participant in the SNS explicitly noted that these discussions were very "general," introducing "healthy eating" principles usually learned as a child (S8). Student 2 (SNS) echoed this, mentioning "the food guide" and "portions" but added that she read an article in Geography about "food systems" and "how the stuff they use aren't good for the environment". Another student (S6, RS) highlighted that health classes were not compulsory courses like "language or math", implying food was not discussed often. Most significantly for this study, with the exception of S2 (SNS), the students did not refer to agrifood systems, production, or agriculture as subjects of discussion in school, even in food-related courses.

Students' key takeaways from food-related courses

The students involved in a food-related course highlighted the benefits of the practical skills they acquired, such as hands-on cooking and safe handling of food, especially if such skills were not developed at home. Teachers echoed this outcome, as T3 (SNS) emphasized the importance of "practical skill building" and "demystifying" foods in their programming that are commonly available in households (i.e., eggs, meats, flour for breads and baking, etc.) to build resilience to cook, while T1 (RS) argued that the most important outcomes of the course were "just getting them to cook" and build "self-confidence to get into the kitchen". T2 (RS) also explained "they definitely walk away with more cooking experience than they came in with".

In addition to the practical skills, T3 and T4 (SNS) also recognized the importance of teaching about food systems and how citizens participate in shaping these systems. For example, T3 attended an international food symposium where attendees were asked whether one can "be food literate without having any cooking skills". During his interview he reflected on this experience and explained that students should have both "food" and "kitchen" literacies:

> You know all the right things to do...to compost and to shop locally and to buy organically wherever possible and to get your ingredients from the best suppliers.... But [if] you don't actually know how to put the food together, are you still food literate?.... We would like our students to leave with…a *little bit* of FL and the understanding of consciously thinking about the foods that they're buying, where they're getting them from, where they're sourcing them, who's producing them, and on what scale…. We want them to have *solid*, basic cooking knowledge, and…*moderate* food literate understanding of how to make good food choices (SNS; emphasis added).

Hence, based on student and teacher responses, the pedagogical emphasis is mostly on individual, hands-on skills (i.e., procedural knowledge), with some declarative (factual) knowledge aspects of FL, with a predominant focus on the health and well-being dimension. Nonetheless, teachers from SNS also emphasized the importance of the agrifood systems dimension. T2 (RS) also noted that her optional grade eleven and twelve courses cover more of the agrifood systems aspects, such as global food supply, food insecurity, genetically modified foods, and sustainable agriculture, but these students did not participate in this study.

Students' food literacy

To explore the knowledge and key dimensions of students' FL, interview discussions touched on topics such as "the most important factors" when purchasing foods (intervention and control), and their explanation of what "better food choices" (intervention only) and food systems signify (see Appendix A). When students' knowledge could have touched on one or the

other key dimension of FL, responses tended toward health and well-being, although some also addressed elements related to agrifood systems. Students mentioned factors such as quality or freshness, price, nutritional value, organic, size, and food staples when reflecting on what was "most important" in purchasing foods. S4 (RS, intervention) also noted that her mother prefers to buy local products when possible. When elaborating further in a conversation about where food comes from and whether this is something we should consider, a student stated: "I don't know where it's coming from and I don't really care" (S8, SNS, control). A student who grew up and worked on a farm (S7, RS, control) noted the "size" or quantity of food, given that he comes from a family of nine. When being probed further, he could not think of other important factors in purchasing food, apart from avoiding "too much junk."

Furthermore, students who completed a food-related course (intervention group) were asked if they felt prepared to make "better food choices" and were asked to define what this meant. Their responses mostly focused on individual health and well-being, mentioning for instance, "healthier diet" (S1, SNS), "healthy" food (S2, SNS; S4, RS), and "food habits" in relation to cooking from scratch rather than ready-made foods (S3, RS). Only one student noted "the process behind [foods] and what they go through" and elaborated to say, "in the future when I could buy my own food, I would like healthier choices and also like again buy from local sources" (S2, SNS).

Teachers' thoughts on students' overall FL showed that knowledge and skillsets were "widely diverse" with "some kids who are making dinner every day" and others who are "lucky if they can make Cheerios" (T1, RS). T4 (SNS) echoed this sentiment, noting that some students "cook for their home, three, four, five days a week and [others] don't know how to hold a spoon". All of the teachers agreed that the students' home environment contributed to nurturing (or not) their knowledge and skills. For example, T2 (RS) noted that students "know what their parents teach them". T3 (SNS) also mentioned that some students have "families [that] are big foodies…whose parents cook all the time" while others "come in with absolutely no sense of…where [food] comes from and how it should be cooked". By the end of the classes however, all of the teachers mentioned that students' procedural or hands-on FL improved. T3 (SNS) noted that some students struggled at first "because they're not comfortable in the kitchen, and then, by the end [they] can make that plate of food...some of them...are really keen and enthusiastic and very skilled".

To explore students' AFSL, they were also asked to define agrifood systems, and discuss their sustainability and related food issues. Students were able to identify some of the basic activities of agrifood systems, yet their knowledge in this dimension was rather limited and lacked critical awareness. Indeed, considerable prompting from the interviewer was required, and even after the concept was defined for them, they were often unable to elaborate on these topics. For example, some students' responses included the "life cycle" of a cow eating grass before going "to the slaughterhouse where it becomes meat" (S1, SNS, intervention), or "how food is made" and the process behind meat production before it reaches "the shelf" (S4, RS, intervention). One student thought mainly of food production as "agriculture" or "growing" with

"big farming operations" and "giant machinery" (S3, RS, intervention). Others mentioned agrifood systems activities including growing, picking, transporting, and selling food (S5, SNS, control; S8, SNS, control) with one adding "picking" to this list (S2, SNS, intervention) and another adding consumption or "to table" (S6, RS, control). One student who lived and worked on a farm failed to come up with a response at all related to defining agrifood systems, even after a lot of prompting, stating "the food table thing" (S7, RS, control) meaning Canada's Food Guide. Later on, in iterating whether or not food issues or troubles on the farm were discussed at home, S7 (RS, control) stated his parents "don't talk about any of that stuff".

The majority of students also claimed that the dominant food system was sustainable and able to meet food demands. The exception to this was S2 (SNS, intervention) and S6 (RS, control) who explained that there were environmental issues (i.e., use of pesticides) and concerns for future food production because of practices which degrade soil. In their words, "I think that some things should be changed like how much pesticides we need because that doesn't work well with our environment and stuff around it" (S2, SNS, intervention) and "I feel like our system isn't sustainable…we're not really thinking about how long-term our soil might not be as good as it is now…I don't know a lot on this topic, but I feel like we're not so focused on the future and how we're going to keep the soil good" (S6, RS, control).

Even after taking a food-related course, most students had difficulty discussing agrifood systems and associated ecological issues, except one who was well-informed. She indirectly acknowledged the importance of knowledge and awareness about agrifood systems and industries, noting, "I think we'd have to talk about it more 'cause food industries and stuff are not…a big thing we talk about in the news. We'd have to get some people to actually start talking about it and then people will probably notice the problem and then we'd start fixing it" (S2, SNS, intervention). Generally, those who never took a food-related course seemed to have a less developed AFSL, with the exception of one student who regularly discussed food issues like viruses in banana plantations with her parents during "car rides [and] dinner conversations" (S6, RS, control).

Teachers' perception of students' AFSL was rather negative, arguing that most students' lack knowledge in this area. Nonetheless, T1 (RS) noted students living in a rural area "have an idea of where food comes from". T4 (SNS) was very skeptical about the AFSL of his suburban students and of citizens in general stating "most people don't have a clue [about agrifood systems]…these are really complex questions." However, he felt that food-related courses contributed to increasing students' awareness about agrifood systems and that such learning continues across the lifespan. T4 (SNS) also insisted that FL should integrate health, well-being and an agrifood system-based understanding of food. He noted the "political role" of food and individuals in society:

> You can't intersect in the world without eating…how are people supposed to make informed, interesting, and relevant choices that are meaningful for them and the world if they don't have any grounding in

> it?…everything that you intersect with, in an economical way, is a political act…if you're not informed, you're just going through life blindly! I'm not saying that the students need my political agenda, but they need to have their own political agenda. They need to make up their own value system…. And how do you do that without having some sort of understanding of the cycle and being able to engage in the cycle. Skills, right? To feed yourself...*that is empowering if you know about it, and you make that choice*…. If you're going to engage in this world meaningfully you need to be armed…and that's not happening…. Teachers don't wanna go there. (T4, SNS; emphasis added).

Barriers and challenges to teaching food-related courses

The teachers' backgrounds, values, and knowledge influenced their choices about what to emphasize from the curricula in their course delivery. The teachers argued that, because of time limitations and/or inadequate training, it is difficult to cover all of the curriculum expectations. In this respect, T1 (RS) mentioned that "local versus global" is "not the emphasis of the course" although "there are a few [curriculum] expectations that deal with it". Therefore, "different teachers accentuate different aspects" (T1, RS); and ultimately, teachers decide how they allot time (T2, RS). T2 (RS) further explains:

> You can take a whole lot of time with one thing, or a little bit…. So, if I decide "Oh! The kids need to learn about Canada's Food Guide," then I'm gunna take…a week. They're gunna look at other food guides, compare them, and then they're gunna do a food guide assignment to do with their own meal planning. If I want to teach them about…sustainable agriculture, I could take half a period and be done with it…but I've touched on that. So, the breadth and depth of the curriculum is based on the teacher who has developed the course.

T4 (SNS) also highlighted challenges around time management stating that "there's only so much you can do." He further said that "the culinary tech program is a little bit too wide" in regard to expectations which often leads to "paying lip service to some aspects to fulfill the ministry requirements" (T4, SNS).

T3 (SNS) identified teachers' professional development (PD) days as an opportunity to consolidate teachers' skills and knowledge. However, there were very few opportunities to "meet and discuss things...with colleagues who all teach the same subject" (T3, SNS). As a result, T3 and T4 (SNS) were trying to coordinate a PD-day to bring together Family Studies, and Hospitality and Tourism teachers to foster connections across curricula. Furthermore, when discussing the additional qualifications necessary to teach Family Studies courses (Honours Specialist in Family Studies), T2 (RS) lamented that this course "doesn't teach you any practical skills about cooking".

Moreover, teachers from both schools noted that they have high enrolment in food-related courses. The program at the SNS, which had new kitchen facilities, had a waiting list but couldn't offer additional courses because of the limited equipment and space for practical skill building. The infrastructural challenges were even more acute in the RS, where the kitchens desperately needed renovations. Throughout the interviews, it became clear that for these courses to be run in a meaningful way, it required teachers who are champions for their program. This meant that the teachers (SNS) were volunteering on evenings and weekends to raise funds in order to purchase high quality ingredients, while T2 (RS) promoted the program to incoming high school students and lobbied the principal for funds. Additional time was also allotted for purchasing food, cleaning, and careful budgeting of resources to ensure that they last throughout the semester.

When teachers were asked about the changes that they would make to the curriculum and food-related programming, they highlighted training for teachers (T1, RS; T3 and T4, SNS) and the inclusion of "more hands-on" skills, as well as "food systems and food security" components (T3, SNS). T3 (SNS) further explained, "The nature of our world is changing...and the impact that food and food production have on the environment has changed dramatically even in the last however many years. As far as an expectation, and how you do that…I'm not exactly sure, but I think it's important that the kids…demonstrate an understanding of really where food comes from, its environmental impact." Sustainable funding to run these programs, especially when they have practical skill building components, was also emphasized.

Discussion and recommendations

Despite the context-specific and exploratory nature of this study, the interview findings show that the high school students who took a food-related course had enhanced their food skills or hands-on, procedural knowledge, which was the main objective identified by teachers. The findings further highlight that, in these two schools, students' FL was more developed in the health and well-being than in the agrifood systems dimension. By exploring the content of the courses and the capacity of students to discuss the different dimensions of FL, our findings also underline that teachers' training, knowledge, and priorities shape the focus (i.e., hands-on skills/procedural knowledge, or agrifood systems or health and well-being/declarative knowledge) of the courses, and in turn, the FL dimensions that students develop, or not. The results also inevitably stress that the content depends on the curriculum from which the course was taught (i.e., Hospitality and Tourism, or Family Studies). Hence, at the rural school (RS), students' learning focused mostly on nutrition, health, and practical skills. AFSL was barely covered at the RS, although more extensive research is necessary since these themes are explored in G11 to G12 courses, if students opt for more food-related courses. At the SNS, teachers explained that they made explicit efforts to cover some aspects of agrifood systems and sustainability. Moreover, teachers had different perceptions on how best to prepare students to

apply critical thinking skills in their own lives. The SNS teachers for instance insisted on going beyond health, nutrition, and the practical skills, by encouraging students to think critically about food sourcing and agrifood systems. This objective was seen as an outcome in S2's (SNS, intervention) food literacy, as she demonstrated the beginnings of critical AFSL in her interview.

Although T1 (RS) noted that he believed his rural students were more informed about agrifood systems resulting from their exposure and proximity to farming and food production, there is not enough evidence in our results to prove this. In fact, our research shows that the home environment may be more influential than the surrounding environment in developing critical awareness of agrifood systems. This was seen with the student who lived on a farm (S7, RS, control group) but was unable to define or explain agrifood systems during the interview, claiming that such discussions don't occur at home. By contrast, another student from the RS (S6, control) was very informed about agrifood systems and issues, noting that these discussions were a part of regular conversations in her household. The influence of the home environment is important to highlight since students who are more exposed to food and farming because of their rural location may still lack a critical awareness of the broader agrifood systems when these issues are not discussed at home. This points to a need to consider mandatory multidimensional FL education in both urban and rural areas.

In this context, and although this research cannot make conclusions about the FL levels of high school students, nor make distinctions between rural and suburban students, this study points to an important research gap—the comprehensive evaluation of FL. Recent studies have highlighted a need for tools to measure food literacy (Krause et al., 2018b; Thomas et al., 2019). Some have made strides to develop short FL questionnaires (Krause et al., 2018a) or scales for self-perceived FL (Poelman et al., 2018). These tools, however, are being developed based on frameworks (Slater, 2013; Vidgen & Gallegoes, 2014) that would benefit from a stronger incorporation of the AFSL dimension. Indeed, based on our interviews, the absence of references to agrifood systems dimensions and a general difficulty to expand on the subject, when prompted and defined for them, reinforces this claim. We thus argue that measurement tools and a comprehensive framework should develop a more balanced approach by incorporating elements for sustainable agrifood systems, in addition to nutrition and healthy eating, in all levels of FL. This is especially important given that sustainable agrifood systems are essential to health outcomes (Willett et al., 2019). As this research demonstrates, this also requires citizens to deepen their systems thinking and challenge structural barriers, as highlighted by critical pedagogy scholars and food sovereignty advocates.

Our exploratory study therefore supports the development and adoption of a broader, multidimensional FL framework (see Figure 1). This framework highlights the potential power of cultivating a more comprehensive and critical FL in an increasingly globalizing and complex agrifood environment. As such, we call for practitioners and researchers from various disciplines to collaborate and expand their FL approach and measurement tools to thoroughly incorporate the AFSL dimension. Slater (2013) proposes a FL framework, anchored in health literacy, which is widely adopted. It identifies three FL levels, which are functional, interactive, and critical.

Nonetheless, Slater's framework still focuses primarily on health outcomes, including in the critical FL level, where she notes that changes to personal and family health can occur through advocating for community changes to improve nutritional health. Given the uptake and use of Slater's framework, we therefore suggest, in Table 3, a modified framework to equally emphasize health and sustainable agrifood systems, oriented towards achieving planetary and human health and well-being. This is crucial given that even with the best intentions, a good understanding of healthy eating patterns and sustainable agriculture, many households face extreme difficulties to feed and care for themselves. It is in this sense that a critical level of FL, including an agrifood systems dimension, is crucial to empower students. This would help to give them the capacity to become active and informed citizens who are able to organize collectively and shape tomorrow's agrifood systems in Canada and beyond.

Table 3: A framework toward measuring FL

Functional food literacy	Basic knowledge and communication of credible, evidence-based nutrition, food, and agrifood systems information, involving accessing, understanding, and evaluating information.
Interactive food literacy	Development of personal skills (i.e., cooking, farming/growing, harvesting, etc.) regarding food and nutrition issues, and agrifood systems, involving informed decision making, goal setting and practices to enhance nutritional health and well-being and agrifood systems sustainability.
Critical food literacy	Respect for different cultural, family, and religious beliefs in terms of food and nutrition. Understanding the wider context of agrifood systems (production, processing, distribution, consumption, and waste) and nutritional health, and advocating for individual, community and institutional changes that enhance nutritional and agrifood systems health at the local, regional, national and global scales.

Source: Adapted from Slater (2013, p. 623)

The interviews with teachers demonstrate that the key challenges they face are related to a lack of time, resources, and training. Indeed, when teachers do not have sufficient time, they tend to "pay lip service" (T3, SNS) to some aspects of the curriculum because it was nearly impossible to meet all of the expectations in a single course. Hence, regardless of the comprehensiveness of the curriculum, course objectives and content will depend largely on the teachers' particular knowledge, capacity, and interests. Limited and inadequate infrastructure was also noted as a barrier, given that a relatively small number of students can be in a kitchen/classroom at a time, yet this space is essential to develop procedural knowledge (i.e., experiential learning such as cooking and gardening skills). These infrastructural resources will be crucial moving forward to be able to reach more students. Furthermore, our study highlights a lack of training for teachers in the Family Studies stream, especially in regard to their procedural knowledge. T2 (RS) and T4 (SNS) stressed that currently, teachers are not learning food skills in their additional qualification courses which enable them to teach from the Family Studies curriculum. Professional development would also contribute to expanding teachers' declarative knowledge to help them to feel confident in delivering key curriculum expectations. Such knowledge would contribute to better covering both the health and well-being, and agrifood

systems dimensions. These challenges are therefore essential to consider providing a well-rounded and effective development of students' FL.

This is a timely moment to rethink the pedagogical approach of FL and to develop new measurement tools since the Government of Ontario is considering the adoption of a *Food Literacy for Students Act*, *2020*. With this proposed Bill, there is acknowledgement of the need for mandatory food literacy from grades one to twelve, "including experiential or hands-on skills learned in gardens and kitchens" as it is "critical for making healthy food choices that enable self-reliance and improve human health" (Food Literacy for Students Act, 2020). If passed, this initiative could provide essential life skills to all students in Ontario, and future generations of leaders. We believe that mandatory courses would be especially beneficial for students whose families are not "foodies" and thus do not get hands-on/procedural training, nor exposure to discussions about agrifood systems at home. If the *Food Literacy for Students Act* is to be effective, it will require sufficient funding and updates to infrastructure, likely including pop-up kitchen facilities to accommodate experiential learning. As many of the details of the Act have yet to be finalized, it is important that the Ministry of Education also consider how changes to the curricula could help to facilitate expectations to be met over years, rather than a singular course. This would address the concerns raised by teachers in this study about the lack of time to effectively teach students about key topics in each dimension of FL. Curricula updates are also needed since "a learning-by-doing approach by itself does not necessarily guarantee the development of critical thinking about food systems" (Yamashita & Robinson, 2016, p. 271). Hence, a multidimensional FL approach integrating declarative and procedural knowledge would support the most comprehensive FL outcomes. In this context, every student would acquire essential skills and knowledge to be healthy and become engaged citizens.

Conclusion

This research explored what is presently offered in food-related programs in two Ontario high schools and pointed to difficulties in providing students with a comprehensive food literacy, especially the difficulties faced by the teachers of these courses. We therefore propose a conceptual framework for FL programs and evaluations which can guide future policy recommendations and initiatives. FL is an excellent pedagogical field to encourage critical thinking and hands-on, experiential learning. Indeed, food is central to our daily routines and essential to sustain ourselves, which reminds us that every human being is connected to land and dependent on ecosystems. A growing number of food activists and scientists from various disciplines stress the fact that the dominant agrifood system is not sustainable, nor providing food security. Hence, based on our findings and existing literature, we argue for a broader conceptualization of FL, incorporating its multiple and interconnected dimensions, which cuts across ecological, sociopolitical, and economic aspects of our collective livelihood. FL incorporating an agrifood systems dimension can help in developing policy coherence and

strategies that work horizontally across governmental departments, addressing objectives such as health, agricultural production, education, and environmental sustainability. Interdisciplinary collaboration between scholars, community organizations, the agrifood industry, and food sovereignty activists is crucial to effectively implement this broader, multidimensional understanding of FL.

Based on this study, we propose that a comprehensive FL has the potential to empower citizens, enabling them to create new opportunities to increase the overall sustainability and diversity of agrifood systems, while actualizing their personal health and well-being. By consolidating FL among high school students, we would enhance their essential life skills and knowledge just before they enter postsecondary education or the workforce. Governmental initiatives to improve FL seem especially urgent and strategic in these times of interconnected crises, including food, health, climate, and energy, which became more acute and visible during the COVID-19 pandemic.

Despite the exploratory nature and context-specific aspect of this research, the findings nonetheless provide significant insights calling for more extensive and in-depth analyses. Further qualitative and quantitative research is necessary to develop benchmarks for FL, including the agrifood systems dimension, to orient future program development and evaluation. We hope that this contribution will nurture more extensive research regarding high school students' FL levels and the content and outcomes of existing programs. This is crucial in order to equip students to make informed choices and become engaged citizens to promote not only individual health and well-being, but also just and sustainable agrifood systems. Given the possibility of a *Food Literacy for Students Act, 2020* in Ontario*,* it is excellent timing to expand on the findings in this study and to proceed to more in-depth research. Such studies could contribute to revising current and future policies and learning objectives, as well as reimagining the role of pedagogy, environmental and food policy initiatives.

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Appendix A: Sample of student interview questions

Question theme	Group	Example questions
Discussions of food in school	Intervention and control	● Have any of your (other) classes talked about food or been related to food?
Values related to food	Intervention and control	● What do you think is the most important factor when you are purchasing foods or eventually when you will do so?
Question about agrifood systems	Intervention and control	● If I say "food systems" or "agrifood systems" what comes to your mind? ● Can you define it in your own words? [Interviewer provided a basic agrifood systems definition] ● Do you think that the food systems that we have here are generally sustainable?
Impacts from food-related course	Intervention only	● Do you believe that this course has changed your food habits and/or your knowledge about food and food systems?
Making better food choices—agrifood systems or health and well-being	Intervention and control	● Do you think that this course has contributed to preparing you to make "better food choices" now and in the future, when possible? Please explain what you think I mean by "better food choices."
Agrifood systems issues	Intervention and control	● Can you give me an example of a food issue, or issues related to agrifood systems that you know of and that you find interesting or problematic?

Appendix B: Sample of teacher interview questions

● What are the topics covered in your food-related courses and overall program?
● What are the topics covered in your overall program?
● What do students know about food and nutrition?
● What do students know about food and food systems?
● Do you talk about food systems or agrifood systems in your classes? If so, please explain.
● Do you believe that a food-related course should be mandatory?
● What are some challenges in teaching food-related courses?
● Do you have any recommendations for changes to food-related courses going forward?

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Research Article

Understanding and developing food pedagogies in Ontario pre-service education

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Abstract

Policy documents implore Ontario teachers to integrate environmental education (EE) in the curriculum. Evidence of significant barriers such as lack of time, resources and knowledge, and lack of preparation at the Bachelor of Education level to teaching EE is well documented (Barrett, 2007, 2013; Stevenson, 2007; Thompson, 2004). Food literacy (FL) is often considered a framework from which to understand environmental issues, thus the authors sought to consider its' usefulness in aiding integration of EE curricula. Using a 'theory into practice' approach we asked: Can food literacy be used to make environmental issues more relevant and accessible, thus diminishing the barriers to teaching EE? How do pre-service teachers define FL and do they know enough to use this framework? Qualitative interviews were conducted with thirteen Ontario pre-service teachers to determine their understanding of FL. Findings included a lack of exposure to FL concepts, however, there was an interest to using FL to help teach EE. Some suggestions to improve food pedagogy in the pre-service program and placements included: curriculum changes that made explicit connection to food; clear linkages between environmental issues and food; empowering students to do projects, debates and assignments on food, and experiential learning. Ultimately, there was interest and promise of utilizing FL to integrate EE, but a change of culture at the pre-service level is needed for it to be supported.

Keywords: Food literacy; Ontario education; food pedagogy

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Introduction and Background

In this qualitative study, we consider how thirteen pre-service teachers in Ontario understand food literacy (FL) and its' relationship to environmental education (EE). This study also describes, from interviews with the pre-service teachers, their experiences with FL and EE in schools where they practice teach as part of their university program. Lastly, we discuss the possibility and effectiveness of FL as a tool to integrate EE into the curriculum as outlined as a goal in Ontario documents. The following sections provide an overview of food literacy literature, including the definitions and tensions of the term. We will place these terms and understandings in the context of education and how theoretical contexts impact practical nuances in pedagogy.

Food literacy

While food literacy remains "a concept under construction" (Sumner, 2013, p. 82) the interdisciplinary nature of food affords educators a variety of avenues to explore and make relevant linkages to the environment for their students (Valley et al., 2017). FL emphasizes the acquisition of knowledge related to food and includes six themes: skills and behaviours, food/health choices, culture, knowledge, emotions, and food systems (Truman et al., 2017). Food literacy considers many aspects of food from farm to table including cooking, eating healthy, knowledge, empowerment, engagement, culture, food security, and fun (Anderson, 2007). An important aspect of FL is recognizing the disconnect in our relationship with food and the resulting lack of nutritional knowledge, interest, and ability to prepare food (Lang & Caraher, 2001; Short, 2003). The concept of literacies, in general, goes beyond language and includes a focus on context and situated knowledge (Frisch et al., 2012). Classens and Sytsma (2020) expand upon this idea of FL being both everyday and common, and with politically relevant connections to broader systemic issues that can be used to promote change within the food system. It is the interrogation of our relationship in choosing, preparing, and eating food that we can begin to unravel the literacies and hidden contexts behind food situated in environmental knowledge and education.

The complex nature of food systems suggests that without a critical approach to food pedagogy, it may be difficult to interrogate both ecological and social injustices (Flowers & Swan, 2012; Jordan et al., 2014). Food, with its multidimensional nature and diverse conceptualizations, provides many avenues for a curriculum which integrates EE. Food intersects with several activist areas such as poverty, women's rights, and community organizing. Environmental educators engage with multiple issues, including social justice, as well as sociopolitical and economic factors, and sustainability thus linking to food pedagogy in many ways (Haugen, 2010). The interconnectedness of FL and EE allows students to explore real-world examples, such as poverty, racism, the environmental and social impact of factory farming, city planning that lacks affordable transportation and creates food deserts, and the

community and social impact of cooking and gardening. As such, food is the "quintessential interdisciplinary subject" and an "entry point" into other disciplines (Barndt, 2012, p 70). Those engaging in food pedagogy can encounter and enhance their learning in areas including knowledge and skills in agricultural production, distribution, nutrition, and disposal of food waste, and in turn, understand the complex relationships between food safety and security, sustainability, and food sovereignty (Valley et al., 2017). Indeed, since every student has experience with food through eating habits, culture, and celebration, emphasizing FL in the classroom provides a platform to uncover the social justice, sociopolitical, and economic barriers to food access.

The classroom has been identified as an important locus of environmental learning (Russell & Burton, 2000). There are multiple approaches and goals to EE, ranging from a focus on the skills necessary to understand the relationship between human and non-human animals, decision making, interdisciplinarity, informal education, varying scales from local place-based education to global environmental issues, food security, conservation and more (Stevenson, 2007). Studies have found that many pre-service teachers define EE as education *about* the environment (Evans et al., 2012) this view is often conservative (Fien, 2004) and technocratic (Robottom, 1987), labelling the environment as something "out there" that humans can manipulate and control.

Pre-service teachers may be exposed to EE in various capacities. In their own education prior to entering the education department many elementary and secondary schools in Ontario take part in Ontario EcoSchools "a certification program for grades K-12 that helps school communities develop both ecological literacy and environmental practices, to become environmentally responsible citizens and reduce the environmental footprint of schools" (Ontario EcoSchools, 2019). EcoSchools often have an EcoTeam that focuses on activities based learning and physical changes such as "greening" the school (Ontario EcoSchools, 2019). The effectiveness of such interventions at transforming environmental attitudes, and the overall value of introducing EE is still being questioned (Brodie, 2017). Additional exposure may be through the Ontario government implemented Environmental Studies Programs (ESPs) which started in 2002 and provides specialized environmentally-focused student curriculum in Ontario public schools (Breunig et al., 2014). The pre-service curriculum aims to integrate policy documents including those pertaining to environmental education; there is also some mention of practicum reflection in relation to Indigenous Education and environmental concerns such as health (OCT, 2017). It is the goal that pre-service teachers leave the education program "advancing social responsibility and environmental citizenship" (OCT, 2017, p.35). School specific curriculum may include special topics courses around environmental education principles or certificate programs such incorporating sustainability education alongside an education degree (York University, 2021; OCT, 2017).

Lastly, there are various policies and curricula exist providing support for integrating EE (Ontario Ministry of Education, 2007, 2009). Integration is useful because it includes real-world experiences that make learning authentic to students' lives and links subject matter across the

curriculum (Breunig & O'Connell, 2008). While teachers support the effort to integrate and teach EE, they face barriers to successfully doing so, such as a lack of time to adequately address the subject appropriately even with its interdisciplinary qualities (Barrett, 2007; Barrett, 2013; Stevenson, 2007; Thompson, 2004). Research suggests that in the absence of specialized EE training, which is the present situation in Ontario, teachers and pre-service teachers lack confidence to provide environmental education and take appropriate action in their pedagogy (Rogan, 1999; Stir, 2006; Tuncer et al., 2009). Here, we focus on the relationship between EE and FL as a pedagogical tool to help with integration of EE curriculum (Barrett, 2017; Campigotto & Barrett, 2017; Stevenson, 2007).

Food and education

Using food as a window into environmental issues (Barndt, 2012) may provide an opportunity to integrate EE. Placing FL in education calls for a situated definition, within an environmental context, with cross-relationships to sociocultural factors, food security, food skills and health (Cullen et al., 2015). The authors consider this wider scope to make connections for developing teachers in an integrated curriculum. Sumner's (2013) work resonated specifically with our exploration of food literacy in education—the concept of "reading the world through eating". We see food as a pedagogical act that encompasses social and environmental aspects, starting from growth, to processing, to consumption but also includes what we learn from the act of eating (Sumner, 2013). It places a personal connection to one's own eating habits, education and learning processes, as well as expands the idea of learning about, in, and through what we eat daily.

Unfortunately, pre-service teachers' understanding of FL is currently underexplored. There is some research, especially in Australia, that considers food education as part of pre-service education, however, like Canada, there have been no large-scale studies to investigate FL in this area (Elsden-Clifton & Futter-Puati, 2015). A study of 126 pre-service student teachers considered knowledge of food in relation to spaces: health, sustainability, and a combined health/food education. Despite making the connection between food and sustainability clear in the health curriculum, pre-service teachers continued to focus on health-only aspects of food, such as obesity, and rhetoric of good and bad food choices and struggled to expand their reflections to link sustainable practices and well-being (i.e., recycling, cleaner air), and cultural practices of food within families (Elsden-Clifton & Futter-Puati, 2015). In a classroom, teachers can help create a positive food environment through cooking and gardening, which often improves fruit and vegetable consumption, and food knowledge (Brown & Hermann, 2005; Cutter & Smith, 2001; Gray, & Goodell, 2015; Meehan et al., 2008; Mita et al.). In the Ontario education system, the topic of food tends to be approached through the lens of eating and preparation, with a strong emphasis on breakfast programs and healthy lunch initiatives (Sustain Ontario, 2013; Ontario Student Nutrition Program, 2016). One of the challenges of implementing

FL is a teacher's willingness to explore food related topics, such as agriculture. For example, Knobloch (2008) found that teachers would explore food through the areas of agriculture and sustainability if they could see the value to, and the fit with their curriculum. Another study evaluated the implementation of food literacy curriculum, and found that while teachers were enthusiastic and willing, they lacked confidence and needed more awareness and resources (Nanayakkara et al., 2018).

By using concepts of FL as a window into environmental issues (Barndt, 2012), we seek to explore the possibility of harmonizing FL and EE at the pre-service stage. We aim to answer the following questions: Can food literacy be used to make environmental issues more relevant and accessible, thus diminishing the barriers to teaching EE? Do pre-service teachers know enough about food literacy to use this framework the literature supports? How do they define FL? And how can the pre-service program support them?

Methodology

We chose to focus on the experiences of pre-service teachers in their own words using a social constructivist approach, based on Creswell and Miller's (2000) guiding framework, to gain insight into how pre-service teachers make sense of their teacher education experiences. Following Creswell's (2013) model, the authors honoured the participants' views as complex and authentic, informed by places and experiences they encountered during their education and activism, either currently or historically. Participants were recruited through email, class visits, and social media. Two participants, as disclosed on the ethics report, were former students of one researcher. To be included in the study individuals must be enrolled in the education department at any level, and have a background, passion, or interest in environmental issues. These teacher candidates were sought because they had some knowledge or interest in the area. We aimed to discover if this starting point was being fostered and utilized within the program. Below is a summary of participant information:

Table 1: Participant Demographic Information, Education and Activism Details

Participant ID	Age	Sex	Level of Certification	Stream	Activist Identification		Teachable Subject
					Environment	Food	
Alex	19	F	I/S	Concurrent	Y	N	History
Thea	19	F	P/J	Concurrent	N	N	n/a
Casey	28	F	P/J	Consecutive	Y	Y	n/a
Diana	20	F	J/I	Concurrent	Y	N	English
Ella	20	F	I/S	Concurrent	Y	N	Environment/French
Finn	28	F	I/S	Consecutive	N	N	Geography/ Environmental
Grace	27	F	I/S	Consecutive	N	Y	French/German
Holly	43	F	P/J	Concurrent	N	N	n/a
Isabelle	23	F	P/J	Consecutive	N	N	n/a
Sam	X[1]	F	P/J	Consecutive	Y	N	n/a
Smith	24	M	I/S	Concurrent	Y	N	Drama/History
Kim	1	F	I/S	Concurrent	Y	N	Geography/English
Beth	0	F	P/J	Consecutive	N	N	n/a

After the demographic information, each participant took part in two semi-structured interviews that lasted thirty to sixty minutes.

Pre-service teachers were asked questions in three areas: activism, environmental education, and food literacy. Questions revolved around definitions and understandings of these terms, in relation to teacher identity and pedagogy. Food literacy questions were as follows:

1) What role does food play in your pedagogy? Have you been involved in food education or related projects?
2) How do you define Food Literacy? Have you heard of this term, if so, where?
3) What is your experience in the pre-service program in relation to food literacy?
4) What is the relationship between food and environmental issues?

[1] Participant did not provide age

5) Are you aware of the policy to integrate environmental education within your curriculum?
6) What barriers or opportunities do you see using food literacy within environmental education to aid in this integration?

The researcher audiotaped and fully transcribed each interview. NVivo, qualitative data analysis software, was used to code the emergent themes. After many readings, a list of non-repetitive and non-overlapping significant statements was coded from the transcripts (Holstein & Gubrium, 1995). Themes within significant statements were then coded in NVivo. An example of a theme would be a mention of environmental education, under that term significant statements, including phrases such as interdisciplinary, were coded. Themes that were common among participants were grouped, allowing patterns to emerge, and each theme was considered individually. We then developed a written description of participants, including verbatim examples from the transcripts (Campigotto & Barrett, 2017). As data analysis was ongoing, we continued to recruit participants until data saturation was reached. Validity was established by: providing transcripts and researcher notes to participants; allowing them to verify the text and clarify the meanings of their experiences; and having multiple sources for the same concept.

Findings

The following explores the findings of the study, including how pre-service teachers define and understand the concept of FL. Additionally, it suggests how they see relationships and connections between FL and EE and what suggestions they offer to improve and support their experiences of engaging in food pedagogy.

Perspectives on food literacy

Participants were asked to define the term Food Literacy, which was generally unfamiliar to pre-service teachers (see Table 2). Four individuals could not define it. The other nine individuals had a range of understanding, most of which was limited to nutritional and consumption aspects. A few pre-service teachers could make more robust connections between food and environment, as well as social issues.

Specifically, most of the pre-service teachers interviewed (Casey, Diana, Ella, Sam, Grace, Holly, and Smith) included health and nutrition in their definitions. For example, Smith describes FL, in part, as “understanding food, what you are eating, what it is made of, what it is doing to your body.” Casey, Ella, and Diane included field to table in their definitions. Casey noted that food literacy involved “being able to talk about food in a multifaceted way…have the language and a bit of an understanding that food just doesn’t appear.”

Thea, Sam, Grace, and Holly connected FL to society and culture. Thea put it best saying that food is "a time where we all share things and talk…it is important because people spend a lot of time eating dinner and they converse during that time and conversations can be useful."

Only Thea, Casey, Ella, Grace, and Kim linked FL to environmental issues. Ella stated that "food issues and environmental issues go hand in hand." They related it to "different food issues like GMOs and factory farming". The fact that most participants did not link their definitions of FL to environmental issues is significant.

Indeed, based on the comprehensiveness of their definitions, Grace, Holly, Casey, and Sam seemed to have the most robust definitions of food literacy. Sam said that "it is about thinking about more…a bigger issue".

Table 2: Evidence of how teacher candidates define and understand the term Food Literacy

Participant Name	Evidence of interdisciplinary connection					
	Field to table	Environment	Social/Cultural	Equity/Social justice	Health/nutrition	Unable to define
Alex, Isabelle, Finn, Beth						Could not define
Thea		"I think the food you eat and the choices that you make have an impact on things in the environment"	Food is "a time where we all share things and talk…it is important because people spend a lot of time eating dinner and they converse during that time and conversations can be useful"			
Casey	"…being able to talk about food in a multifaceted way… have the language and a bit of an understanding that food just doesn't appear"	Food waste as environmental issue: "we were able to go through the garbage and see ok how much of this, like most of it was food waste…then we created compost bins"			FL is "the food we need, what is good for us"	

Diana	"where it comes from, where it is going, how it is made, and who made it"				FL involves "reading food labels"	
Ella	"being able to understand and be aware of where your food is coming from"	"food issues and environmental issues go hand in hand" Relates to "different food issues like GMOs and factory farming"			"what healthy choices you have"	
Sam			Retold experience of helping new immigrants access food and poverty associated with immigration	FL, immigration, and food access "it is about thinking about more…a bigger issue"	Observed that emergency food is often the food people don't want, and is not healthy. "I often feel it is a form of exploitation and I feel guilty about it"	
Grace		"If we can create these (fake meat) why in the world are we using so much CO2? or losing out on so much space; we could be making crops for other areas that have no access good soil for producing agriculture"	"food is wrapped up in it, because as I said, culture has so much to do with the daily life and with daily life comes food practices"	"we can bring in these great issues that are facing every aspect of people"	"Essentially reading a label, like how many carbs are in here, how many fats"	

Holly			school poverty… "prompted us to do a culturally aware food bank"	"Food equity is critically important to me...So that question or conversation of food issues food equity and global issues"	Introduced to it in Physical Education/Health	
Smith					"understanding food, what you are eating, what it is made of what it is doing to your body"	
Kim		"I got a chance to explore it and what it might look like and feel like to do gorilla gardening…I am also interested in sustainable food and global food system."		Has researched "food justice" Understands the link between "Indigenous rights or Indigenous forms of education as environmental education" and "social justice"		

Some participants seemed interested in learning how to utilize food as a connecting concept in environmental issues, such as Grace who chose to do a project on culture and food, incorporating the idea of creating "fake" meat from stem cells and the resulting impact on food, culture and agriculture, or Finn who led a discussion on wasting water and its' environmental impact. Most pre-service teachers felt that the information was not available to support their learning on food. Ella explained that "education [courses] has not covered food at all". This finding mirrored a study implementing food literacy in Australia, where the majority of teachers appreciated the inclusion of food literacy and nutrition concepts in the new curriculum but doubted their ability to teach it without more training and resources (Nanayakkara et al., 2018).

The literature suggests that the school environment is only a minimal source of support for FL and focuses on cooking and food knowledge, often from personal endeavours and the family home (Colatruglio & Slater, 2016). Ideally, FL needs to highlight a variety of skills and behaviours to "manage, select, prepare and eat foods to meet needs" and is used to empower communities (Vidgen & Gallegos, 2014, p. 54). Only three individuals understood food as an interdisciplinary tool with some connection to environmental issues via culture, justice, and equity. They were able to share this knowledge in their teaching practicums. Ultimately, because of the teachers they were placed with, the placements in elementary and secondary schools

viewed food in a charitable lens, which while necessary, did not include a discussion around the power and politics of why food charity is needed.

As shown in Table 2, pre-service teachers are seeking more connections and understanding within food literacy. Some were unable to define it, while others limited their definition to labels and healthy food. A few were able to make direct linkages to other environmental areas. Sam and Ella noted the connection they could make to gardening, activism, and food justice. One of the struggles for most educators is taking the theoretical knowledge, in this case using food as a window into environmental issues (Barndt, 2007), and putting it into practice. This is an area where the participants in this study felt they needed more exposure, resources, and support. The following discussion will explore the pedagogical lenses through which pre-service teachers encounter FL and how that affects their meaning-making development between FL and EE.

Relationship between food literacy and environmental education

As the literature suggests, there are numerous connections between food and the environment, and an understanding of such interconnectivity may provide a way to link curricular areas (Barndt, 2012; Johnston, 2008; Levkoe, 2006; Fawcett et al., 2002). While some pre-service teachers made connections between FL and EE there was some reluctance to name the two as interrelated (Grace, Isabelle). Pre-service teachers needed this connection elucidated regardless of how comfortable they were with food pedagogy. Isabelle noted, “Food is a part of it [environmental education] but it is not something that I think about all the time…. When I think about it [environment] I don’t think of food first. It is kind of more separate in my mind. I definitely see and understand the connection between the two, but it is more something separate that I think about.”

Likewise, Grace saw some connection between EE and FL but maintained the subjects as separate rather than integrated, “I think they are intrinsically linked, but I just think of them in a broader spectrum as being separate entities from which you can get to the same point. So, I would say yes, they are different focal points but of course there is a link. But in my experience, they are still separate.”

This may be explained by educators’ tendency to define or restrict certain ideas in separate subjects. A better understanding of food literacy and its role within environmental education may help break down some of those barriers making cross-curricular linkages and integration more seamless.

Food literacy in schools

The participants experience with food in their practicum placements varied but many reported an absence of food literacy in the curriculum and discussion with mentor teachers. When food was mentioned, it was through the lens of deficiency and charity via breakfast and snack programs. In other words, food literacy tended to be defined through health and hunger. For example, Beth had no exposure to food literacy, or food in general. Casey took part in composting food waste at her practicum. On the other hand, Smith explained that he learned something new from his students about food. He recounted that while "we don't talk about food other than healthy food", he had a debate with students about organic versus non-organic. He said, "I learned something from the studies the students were bringing up. I have always been a huge pusher of organic but there was this study that one of the kids found on non-organic but still not processed. It was very interesting" (Smith).

In practicum, food was viewed primarily as a hunger issue. Pre-service teachers understood the need for breakfast or snack programs, but some realized that *providing* food was their only focus. A report by Sustain Ontario (2013) noted that students consume one third of their calories at school; thus, Sustain Ontario suggest schools should provide not only the opportunity to access healthy food but help students to develop knowledge and skills to learn about food in various capacities. Holly, at several points in the interviews, pointed out the lack of discussion regarding poverty and hunger, "There is no conversation. The school that I am in now…we have a women's shelter attached to the property. We have a lot of kids who are struggling but we don't even have a snack program. Which should be at the school, but it is not there."

She was quite upset that some kids had personal snacks "taken away" if they were "not considered healthy." This practice seemed to ignore the equity issues of poverty and hunger, since oftentimes unhealthy food is cheaper. Isabelle commented on the process of developing a snack program, referencing the Learning Opportunities Index (LOI) which ranks schools on factors such as family income and education (TDSB, 2020). She explained that,

> My Mentor teacher was telling me about the rating scale they have for [school board] and it is out of 500 schools and if you are 1 it is the lowest [Learning Opportunity index] The school I am at right now is 56. So, they are at the low end. So, that is why they get a lot of extra programs [breakfast club and funding for food]. Another food related one is blessings in a bag. They have backpacks and families can sign up and you can get a bunch of food items in a bag. Each family gets a new one a week. I think it is so different from school to school, and school board to school board. (Holly)

Not only is it important for students to get adequate nutrition, but it is also important for them to understand the reasons behind the lack of access, the complexity of food from field to table, and the knowledge they need to make informed decisions about food (Jones, 2012).

Isabelle explained that she had "personally only seen [these programs] happening and not talked about… They might have had an introduction about it, or newsletter, but I am not sure how much the children understand about what is going on."

Food literacy could have an enriching effect on the breakfast, snack, and backpack programs. The literature reports that student nutrition programs and food literacy, including food access programs and school gardens, have resulted in healthier eating, increasing knowledge of harvesting and preparing food, making positive lifestyle changes, and having better attitudes towards food (Anupama et al., 2008; Wittman et al., 2011). Diana believed that food access in schools was limited to "just distributing" the food and learning opportunities were lost by failing to discuss the need for it. As shown above, these programs can have an impact, but merely distributing food to students is not realizing the full potential of these initiatives.

Pre-service teachers provided some thoughts on how to expand the dialogue of food programs. Many focused on making explicit connections between existing curriculum and food issues. Finn and Smith discussed their personal desire to do food-related projects such as gardening, thus making a potential link to environmental education. Smith and Grace saw the possibility to connect food, geography, culture, and social justice in their teachable areas. Smith thought that "the easiest thing would be to do it in geography...there are whole sections in there about how we treat the environment and local resources and food and water." Grace made connections between food and culture that could be part of her French classes. She explained to me that "food is wrapped up in it, because as I said, culture has so much to do with the daily life and with daily life comes food practices." Grace also made connections to social justice. She explained, "If we are talking about social justice which we would do in an upper year class with French, then we can bring in these great issues that are facing every aspect of people. There doesn't have to be a limit when it comes to food. Everyone has to eat. How they eat, what they eat when they eat, all of these questions are fascinating, and people take it [the differences] for granted." (Grace)

Creating a conversation about food issues between students, teachers, and professors was viewed as a productive way to incorporate food into pedagogy. Drawing from an environmental science course, Thea thought a debate format would be useful. She explained that her class debated GMO foods,

> "Where each person was designated a role, so one person was Monsanto, one group was farmers, some were the community. So, that was something that definitely brought my attention to food literacy, to see how it affected different parties and how different stakeholders are interested in the issues."

This conversation introduced the class to a variety of stakeholders and their concerns and possible actions.

Another way to incorporate food literacy was to increase exposure to situations and conversations involving food, rather than just engaging with food related projects. Holly believed teachers should see students at lunch time to facilitate discussion of healthy and appropriate food. Holly believed that because teachers do not see their primary students at lunch, "there is less of a conversation about what they are eating and the impacts." She also believed that, while having a food drive was positive, her school was missing an opportunity to discuss other aspects. She explained, "Most schools do a food drive, you bring in whatever you want, and it goes to a food bank. So, we turned that around and talked about the community and how they need food and what their culture is in that area. So, we wanted to bring in specifics that they need." (Holly) Holly sought to meet the needs of the community and use it as a learning opportunity to make connections between why people needed these items and not just which ones.

Taking part in food preparation was also suggested. Grace believes food can be an "extracurricular" through "funding their own kitchen or nutrition class" … "it just seems silly in this day and age, when we have that term…food literacy, why aren't we literate in our own high schools? Where great minds are starting to develop?" Lastly, Isabelle highlighted how play provided an opportunity for primary students to learn about health, "When they were playing with the food items in the kitchen centre one of the kids…the mentor teacher was like 'oh I am only going to eat the healthy one's what should I eat? [the teacher] makes it a teachable moment any time." (Isabelle)

Through the exploration of these experiences and ideas we can see that there lies some interest in FL. These discussions also highlight some connections to environmental education, such as justice, GMO's, cooking, and agriculture, although the pre-service teachers make the link explicitly. Interest exists in integrating food pedagogy as an experiential way of expanding the discussion on food programs and making connections to environmental issues within the curriculum. The interest and desire are present, but more support is needed from practicum schools and mentor teachers.

EcoSchools

Pre-service teachers felt that their exposure to EE was limited (Campigotto & Barrett, 2017). The focus was typically on waste and recycling, the green movement and role of humans, and use of the outdoors. These were small initiatives within the school, with a wide range of acceptance and exposure to EE. Only one pre-service teacher felt they had a placement that connected EE with food via garden curriculum. The program teaches about "migration, habitat, hibernation" and Ella had the opportunity to take students "outside along the gardens so they can look at the shelter walk" and do some "place-based education."

EcoSchools seemed to be the main area pre-service teachers were offered an opportunity to work with EE and FL from a skill, preparation, and waste standpoint. Casey, Isabelle and Sam were all part of the EcoClub, and Holly, Smith, and Kim were at practicums with EcoSchools

initiatives but were not part of the EcoClub; Thea attended a high school the previous year that had EcoSchools initiatives and took part in the EcoClub as a student.

In terms of EcoClub, supporting food pedagogy, one example is Casey, who with five students conducted a waste audit as part of the EcoClub. She explained, "we went through the school's garbage for a day...I think it was a valuable learning experience." She probed her students, asking "them what they noticed, and they said, the first thing was that there was a lot of food waste. Not only that, but there were things that were still in a package." The EcoClub provided this connection to students and was a platform for brainstorming solutions.
She explained that this exercise,

> Started a conversation, the kids thought they should tell parents that the [daycare children] should have more say in what they are eating, so that they would be more willing to eat their food. And I mentioned a rule that we had at my camp, 'take what you eat and eat what you take.' So, trying to think of ways we could reduce food waste. Maybe weighing the amount of food that is thrown away every day and having a prize for who lowers it... I know that they were getting compost bins when I was leaving. They didn't have enough for the entire school, but there would be some composting just not necessarily throughout. That was something they were starting. (Casey)

Waste was a running theme for pre-service teachers involved in the EcoClub. Sam explained that her role involved helping teachers run a contest, where the winning class would reduce their waste the most and receive a trophy. She recounted that the "entire school is getting involved" and "advocates go around once a week" to keep track of progress. She felt that "a lot is going on" in terms of EE and did not find it as limited in scope as Holly. Thea had experienced the EcoClub as a student in high school the year prior to her concurrent education degree. She explained that most initiatives focussed on "the amount of waste from the school" though she did describe that their students acted as advocates and did environmental presentations to elementary schools. Holly's criticism of the EcoSchool initiative coincided with her overall experience of EE in the classroom, which was negative in part due to a lack of support, in part because what was offered to students lacked depth. She believed teachers underestimated what students could understand, and limited conversation about food initiatives, for example, why there was limited culturally appropriate food collected in the food drives.

The biggest criticism of the EcoSchools initiatives was the limited conception displayed of EE and a frequent focus on making changes to the *building*, rather than the *attitudes* and *values* of administrators, teachers, and students. Sam valued the awareness raised with regular PA announcements and the involvement of the entire school, whereas Holly felt the teachers kept environmental discussion at a surface level. This latter critique was echoed in a study concluding that EcoSchools had no effect on students' environmental behaviors.
Students showed "lower utilization values," but without impact on preservation values which are responsible for changing environmental behaviors (Boeve-de Pauw & Van Petegem, 2013). The

experience of pre-service teachers in this study engages with similar themes regarding the lack of lasting change.

While the EcoClub served as a way for Casey to share her knowledge and passion with students, she felt these conversations "did not go beyond the doors of the EcoClub." Likewise, Holly noted that the EcoSchools program did not delve into issues effectively. The emphasis seemed to be on waste management and energy efficiency. She explained that "even with the schools that are gold certified or platinum level, it is only about the school. There may be touches of 'why do we recycle?' but not much else." This lack of connection to systemic issues mirrors what doesn't happen in food programming, the failure to embrace food literacy strategies to complement food provision in the schools.

Discussion

The goal of this study was to explore the contexts and supports needed for pre-service teachers to effectively teach food literacy and utilize the connection between EE and FL in their pedagogy and learning. To expand the connection between environment and food, the experiences of pre-service teachers were explored. We found that while there was a high interest in the relationship between food and the environment, an overall lack of opportunity in both areas left a lot of room for improvement. This study focussed on relaying the authentic experience of its' participants, so the conclusions are drawn directly from pre-service teachers. Ultimately, pre-service teachers suggested improvements in the following areas: increased support in integrating personal experiences into the B.Ed. curriculum; providing opportunities to interact with food issues within the curriculum (i.e., courses, projects, concrete knowledge) and practicum placements; and expanding the way food is addressed in placement initiatives such as breakfast and snack programs and EcoSchools/EcoClub.

Pre-service teachers indicated a need for integrating personal passions, environmental education, and food literacy. Pre-service teachers value their experiences and are already reflecting on how these experiences can be incorporated into the classroom but need further direction and support from their educators and mentors. One recommendation was changes to curriculum and spaces for communication and exploration. What pre-service teachers wanted was the creation of a community of practice, with avenues to talk about personal experiences, share resources about food literacy, evaluate policies within the classroom and develop strategies to address them (Daniel et al., 2013). They wanted a hands-on, minds-on approach to explore, much like they would implement with their own students. As some noted, being given the authority and choice to focus on environmental topics, including food, for presentations was a small step; other studies have also found this to be a successful strategy, especially when pre-service teachers were given resources applicable to their subject matter (Buchanan, 2012).

The importance of reviewing the pre-service curriculum is important due to the potential of a multiplier effect, as what pre-service teachers learn and are encouraged to learn may trickle

down to their own students. Likewise, teacher education can influence several pre-service teachers, in turn changing the resulting pedagogy in the classroom (Powers, 2004). An integrated curriculum for pre-service teachers moves away from education strategies confined to subjects, helps new teachers enrich their teaching philosophy, and prevents the "tack it on approach" that environmental issues are saddled with in the curriculum; EE can then be rooted in local places with long term goals thus illuminating the benefits of using food as a lens to approach EE (Powers, 2004). There is some support for an integrated curriculum to teach EE, the benefits of which include authentic learning, applicable "real world" links between the curriculum and students' lives—which provide a rich connection to food and eating, promotion of community and collaboration, and improved relationships between teaches and students—and increased success in subject areas such as math and literacy (Lieberman & Hoody, 1998; Bozzelli, 1999).

Lastly, most of the experiences with FL came from school initiatives such as breakfast programs and EcoSchool initiatives such as the EcoClub. These programs were accessible to pre-service teachers since they were often recruited to volunteer, and it is a familiar program from their own schooling. As noted, Casey, Isabelle and Sam were all part of the EcoClub and Holly, Smith, and Kim were at practicums with EcoSchools initiatives but were not personally involved. For this study, that accounts for half of the pre-service teachers. The effectiveness of EcoSchools were criticized by participants. EcoSchools focus on goals that are attainable in each context, such as recycling but often limit the discussion of food to "waste management" , like compost and not wasting food from lunch. The program could make a connection to the document "Acting Today, Shaping Tomorrow" and fulfill the goal of linking with community organizations to expand and enrich EE and FL in the classroom (Ontario Ministry of Education, 2009). Providing pre-service teachers with the materials and knowledge to expand discussions about systemic issues of *why* food should not be wasted, and why food is provided via a breakfast program would be more beneficial. Ultimately, while some pre-service teachers had knowledge in food pedagogy, they lacked the support needed to integrate it into their teaching. Implementation of their suggestions may capitalize on their interest and help solidify connections in learning to realize these connections in practice.

Conclusion

This study asked, can FL be used as an integrative tool for EE and if so, what supports are needed for pre-service teachers? What is the relationship between EE and FL? There seemed to be interest in learning how to utilize food to connect environmental issues, but unfortunately pre-service teachers were generally unable to implement this without further support. FL was generally an unfamiliar or limited term to pre-service teachers.

Overall, a limited exposure to FL was found in the B.Ed. program and during practice teaching, food was explored minimally through food waste in the EcoClub or within snack programs. There was a high interest to include EE and FL, but even with previous experiences and passions

in this area support was still needed. This study was limited to the perceptions of pre-service teachers. This point in a teachers' learning journey serves as an opportunity for intervention to help foster more understanding, theoretical study, and practical implementation of FL ideas in the classroom. While these data were viewed as authentic experiences between the researcher and the participants it is still self-reported. Further studies that evaluate the effectiveness and impact of courses that focus on FL and EE at the pre-service level should be conducted. To "deepen" the conversation with pre-service teachers and to address EE and FL in schools, it is imperative to continue the conversation with new voices and experiences (Hart, 2003). This could include a study with professors of education, practicing teachers and those who create curriculum. This study does provide authentic voices and can be used to expand on studies of curriculum assessment such as the data found in Buchanan (2012). A large-scale study could ensure the sharing of voices and beliefs of pre-service teachers, teachers, professors in education through a qualitative lens.

Utilizing the suggestions for support made by pre-service teachers in this study, a variety of avenues can be explored and evaluated for their effectiveness in terms of creating a community of practice for pre-service environmental educators (Daniel et al., 2013). Ultimately, the pre-service program could capitalize on the general knowledge of EE and FL and help create knowledge sharing communities via forums, events, and project-based learning. The curriculum at the B.Ed. level could also mirror the intentions of policies to integrate EE. As pre-service teachers in this study noted, authentic hands-on and "experiential experiences" were lasting and made an impact (Alex, Smith, Thea). Spaces to explore EE could also be extracurricular, though one study found this approach to have a low level of participation among Ontario pre-service teachers at one site due to the connection between "average" environmental knowledge and "average" desire to actively participate in environmental initiatives (Gwekwerere, 2014). A focus on action is often needed to make lasting connections (Gwekwerere, 2014) that empowers both students and teachers, which could include the uptake of environmental projects in their practice teaching, or a closer exploration of the interconnections between EE and FL within existing curriculum. Such innovations, platforms and curricula could help fill the gaps for those educators interested in upholding the EE integration policy and use FL as a tool to make these connections.

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Original Research Article

Kitchen wizards: Community-engaged learning at The Wolfville Farmers' Market

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Abstract

This article tells the story of an introductory, undergraduate required course with a significant community service-learning project developed in partnership between the School of Nutrition and Dietetics at Acadia University and the Wolfville Farmers' Market. This partnership began in 2009, with the vision of putting food and community at the centre of the School's pedagogy. After two years of developing a trusting relationship between the partners with the integration of focused assignments, a community-service learning initiative called Kitchen Wizards was created. Kitchen Wizards, now in its 10th year, engages 50 to 80 first-year School of Nutrition and Dietetics' students with the community each fall semester through a Food Commodities course. The initiative introduces 6 to 12-year-old children to in-season local vegetables through a taste-testing experience centered around a simple, healthy recipe made from local produce at the Farmer's Market, which gives the children purchasing power to buy a vegetable with a three-dollar voucher after participating in the tasting. This Kitchen Wizard's story was developed from an action research case study, grounded in a constructivist paradigm, which explored the community-valued outcomes of this program over a three-year period, as well as the student and institutional benefits. This study was conducted by a team that included the Wolfville Farmers' Market Coordinator and the Director of the School of Nutrition and Dietetics who teaches the Food Commodities course.

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Through observation, dialogue and in-depth interviews conducted with students, teaching assistants, community members, Market staff, faculty, and university administration, insights were derived that illuminate community engaged learning as a key strategy for teaching about local food systems that puts both food and community at the centre.

Keywords: Community service-learning; undergraduate food studies; sustainable food systems education; community-university partnerships

Introduction

There is growing interest in integrating community service-learning (CSL) into undergraduate food studies programs, which puts food and community at the centre of learning experiences (Andrée et al., 2014; Galt et al., 2012). At the same time, local food initiatives for consumers, such as farmers' markets, are becoming staples in both rural and urban communities across Canada (McIntyre & Rondeau, 2011), providing an ideal location for sustainable food systems education. These trends support food studies programs to value food in a holistic and interdisciplinary sense, connect students to where their food comes from, and engage students in their community using food as a vehicle.

Despite recent advances in understanding how community-engaged scholars can effectively undertake food systems education with community partners, more research is needed on effective CSL initiatives to advance our practices and deepen our learning as community-engaged scholar-practitioners (Andrée et al., 2014; Levkoe, et al., 2019). This paper focuses on the role that CSL can play in educating students and community about local food systems and tells the story of Kitchen Wizards (KW). This was a community service-learning initiative in a first-year, fall semester, required course in the School of Nutrition and Dietetics at Acadia University in Wolfville, Nova Scotia, which was developed in partnership with the Wolfville Farmers' Market. The purpose of this action research case study was to explore the multiple perspectives and intersections of KW to advance our understanding of KW specifically, and the potential of CSL initiatives as a pedagogical approach to advance food system knowledge and enhance the wellbeing of our communities. As a team of scholar-practitioners, we engaged in this work to learn about our community engagement practices as educators, community leaders, and environmental/social advocates. We believe that what we learned through this partnership and its processes can be valuable to others in developing CSL initiatives where students are educated on local food systems and learn about collaborative practices, while contributing to a community organization's vision and practice.

We present our analysis of the KW CSL initiative and its lessons as follows. First, relevant community service-learning literature is reviewed, which is followed by the methods section. The methods section details the interviews, observations and document analysis that were conducted during this three-year action research case study. Next, we provide the story of

KW, a vignette which describes the essence and practice of the CSL initiative from different perspectives. This is followed by a discussion comparing post-secondary community engagement literature to two key interconnected conditions of the KW CSL initiative that were identified in the analysis as significantly contributing to student community engagement and learning, as well as to the vision and programming of the Wolfville Farmers' Market. A relationship-driven partnership is the first condition and the foundation for the CSL initiative. This partnership is built on reciprocity and commitment, and each of these are explored as subthemes. The second major condition is the implementation of a scaffolded, experiential learning environment. The article concludes with implications for future research and practice.

Community service-learning in food systems education

This literature review begins with an overview of community service-learning as a pedagogical approach in post-secondary institutions, followed by a brief review of the tenets that make for effective CSL in general, and specifically in the field of food studies.

Community First: Impacts of Community Engagement (2018), defines CSL as "a form of education in which students learn through the act of community service" (para.1). Chambers, (2009) further explains that within the context of post-secondary institutions, CSL programs typically integrate the academic subject matter with an applied experience in the community, creating opportunities for students to critically reflect on the applied experience. Briggs (2018) expands on this definition, describing the CSL approach as "an educational philosophy which believes in experiential learning that contributes to society as a whole and acknowledges that everyone should be able to contribute, everyone should benefit, and everyone has something to learn and to teach" (p. 228). Chupp and Joseph (2010) identify benefits for the community, explaining that through engaging in experiential activities in the community, CSL programs provide an avenue for students to not only learn about, but also to address complex community issues. A central tenet of CSL, therefore, is that both students and the community should benefit from the experience (Briggs, 2018; Gazley et al., 2013; Sweatman & Warner, 2020). It is well established that students and universities prosper from community engagement scholarship, including CSL initiatives (Astin et al., 2000; Chupp & Joseph, 2010; Kearney, 2013). Student participation in CSL opportunities has a positive effect on student learning and academic performance, as well as helps students to gain leadership, critical thinking, and other important skills (Astin et al., 2000; Chupp & Joseph, 2010; Kearney, 2013). More recently, a focus has been on the benefits of CSL initiatives to community partners, such as increasing their access to university resources (Fullerton, 2015), and strengthening community pride and empowerment (Pillard Reynolds, 2014).

Janke and Clayton (2012) identify that community engagement must be grounded in reciprocal processes, where all partners work towards "recognizing, respecting, and valuing the knowledge, perspective, and resources that each partner contributes to the collaboration among

partners" (p. 3). Additionally, Janke and Clayton (2012) highlight the importance of public purposes when engaging with the community, meaning that "the capacity of each of the individuals, groups, and organizations involved [is built] to understand and collaboratively address issues of public concern" (p. 3). Therefore, the focus of community engagement for authentic student learning should focus on processes and purposes, and not activities and outcomes (Janke & Clayton, 2012). Community engagement that is grounded in reciprocity and public purpose relates to the concept of democratic community engagement defined by asset-based, collaborative relationships that co-create knowledge for community change (Saltmarsh et al., 2009).

When implemented effectively, CSL projects relate to a variety of topics, including sustainable food systems, which can benefit students, the community, and the local food system (Andrée et al., 2014; Levkoe et al., 2019). CSL can enhance students' learning about food systems by integrating theoretical concepts taught in class with practical action in working with community partners, allowing students to gain a deeper, more enhanced learning experience (Levkoe et al., 2019; Self et al., 2012). CSL opportunities provide students with the opportunity to work directly with those who are actively involved with food systems, therefore learning "from the perspective of those who work in them and are nourished by them" (Andrée et al., 2016, p. 140). Self et al. (2016) reported that students who participated in a food system related CSL initiative found that the experiences encouraged them to think critically about the complexities and challenges surrounding food systems.

Not only do food systems CSL initiatives have a beneficial effect on student learning, but as Levkoe et al. (2019) explain, "collaborations among students, faculty, and community practitioners provide an important leverage point for building healthy, equitable, and sustainable food systems" (p. 72), including that these collaborations have the potential to help food movements grow and thrive in social, ecological, and economic contexts. Self et al. (2012) add that similar collaborations have "[expanded students'] body of knowledge relating to local food systems [and helped] support the development of a healthier, more sustainable food environment" (p. 126). Additionally, students who participate in food systems related CSL initiatives often report that they have undertaken related volunteer or paid work in this field because of their involvement with the CSL initiative, and that these experiences contribute to "empowering students to be informed and engaged citizens" (Self et al., 2016, p. 124).

Although research is limited on specific CSL initiatives related to food studies, there is evidence that integrating the benefits of food systems in a CSL initiative enhances student learning and skill development, benefitting both the community and food system (Andrée et al., 2014; Levkoe et al., 2019). However, the CSL initiative must be grounded in reciprocal processes and public purposes for these benefits to be realized (Janke & Clayton, 2012; Sweatman & Warner, 2020). There is a need to continue to study effective CSL initiatives involving food and food studies in order to provide additional examples of creating a deeper learning experience for students, while helping community food systems to thrive (Levkoe et al., 2019; Self et al., 2012). Considering this, the purpose of this current case study is to examine a

CSL initiative embedded in a community-university partnership involving community food systems from multiple angles. It tells the story as a piece of research, and then compares the story to relevant community engagement literature to identify conditions of CSL initiatives involving local food systems that may facilitate success for others working in the field.

Methodology and story development

Using a constructivist paradigm (Lauckner et al., 2012; Merriam, 2007; Stake, 1995), the focus of this study was both on describing the KW program and illustrating the significant components of the partnership between the Wolfville Farmers' Market and the School of Nutrition and Dietetics that could be helpful in developing other CSL initiatives. This case study was part of a larger action research case study on the community-valued outcomes of CSL initiatives embedded in long-term community-university partnerships (Sweatman & Warner, 2020). Using action research case study as a methodological framework allows for an action-oriented approach incorporating both academic rigour and practical relevance (McManners, 2016; Merriam, 2007; Stake, 1995). It is a collaborative methodology, bringing researchers and members of organizations together as scholar-practitioners in order to learn, improve, and refine systems and practices (Herr & Anderson, 2015).

This study took place over a three-year period and involved an in-depth interview process among three of the authors of this article: Mary Sweatman (MS) as the interviewer and lead researcher; Kelly Marie Redcliffe (KMR) as the Wolfville Farmers' Market Manager (the community partner); and Barb Anderson (BA) as the Director of the School of Nutrition and Dietetics and professor of the introductory food-learning course that includes KW (the academic partner). This process involved interviewing the principal partners separately and then together, with each interview lasting approximately two hours. The principal partners were given the opportunity to review a summary of their individual interview as well as their partner's interview, which enriched the group dialogue that followed. In addition to this in-depth interview process between the partners, thirteen interviews that inform this story were held with the Market Volunteer Coordinator, three families whose children participated in KW, one staff member from the local after-school program whose children attended KW, two parents of children in the after-school program, four participating students in the undergraduate nutrition program, two teaching assistants (TAs) for the course, and three senior administrators at the University. Data analysis also included observations at the Market, and a review of course materials and student evaluations for the initiative.

To extract meaning from the interviews, ATLAS-ti's software was used to group codes together under themes, making word clusters (Krueger & Casey, 2014; Merriam, 2007). The researcher and partners also engaged in a story writing process, which aligns with action research case study and collaborative writing processes (Herr & Anderson, 2015; Wyatt et al., 2018). This involved listening to and reading the interview transcripts, while writing a detailed account of the

development, processes, and outcomes of the CSL. The story was written by MS using the raw data collected, and then cross-referenced with the codes that emerged from the coding process, reflecting a narrative approach. BA and KMR provided multiple rounds of feedback on their story and approved the final version, which increased the study's validity (Merriam, 1990). Collaboration through storying increases the catalytic validity of the study, allowing for deep problematizing of personal and professional experience (Herr & Anderson, 2015). Although narrative is a methodology of its own, using stories to create a vicarious experience for the reader is an important outcome of case study and action research, leading to personal understanding, internal conviction, and action (Herr & Anderson, 2015; Stake, 2006). Below is the story of KW, generated through the research process, including the community-university partners' experience, the student experience, and finally, the community experience.

The story of KW

KW engages between 50 and 80 first-year School of Nutrition and Dietetics' students in a fall semester food commodities course. The initiative is a CSL component of this course, worth 30% of the total grade. The goals of KW are to 1) offer children a positive and welcoming experience at the Market, 2) give students the opportunity to effectively communicate messages about food commodities to the public, 3) increase university student participation at the Market, and 4) provide students with the opportunity to be connected to food systems and engaged in the community in their first year so as to frame the degree as one that is experiential and community-focused. These co-created goals are mutually beneficial: the first goal relates to KM and BA's commitment to the Market's vision to contribute to the health and vibrance of the community; the second relates directly to a course objective; the third relates to the Market's need to increase market consumers by engaging the relatively untapped Acadia student population; and the fourth addresses the broader objectives of the School of Nutrition and Dietetics. The first goal is achieved by introducing children to in-season local fruits and vegetables through a taste-testing experience and giving them the purchasing power to buy a local fruit or vegetable with a three-dollar voucher after participating in the tasting. The second and third goals are achieved through the interaction and sense of ownership the Acadia students develop with the Market through creating an original taste-testing recipe that includes Market ingredients, making 100 to 200 samples from their taste-testing recipe, and offering this to Market-goers either at the Wednesday evening or Saturday morning Market. Part of handing out the taste-testers is communicating to the public the importance of eating healthy, local foods. By the end of the semester, students have visited the Market two or three times, and have spent a minimum of 12 hours on this project. The fourth goal is achieved by engaging the students in a scaffolded learning experience that is based on an experiential learning model of engagement in this first-year course.

The partners' experience

This community food systems CSL project has required a long-term partnership between KMR and BA. Both believe that the key characteristics of their partnership are respect, trust, and passion for sustainable food systems and community health. Nimbleness has also been key, which they referred to as being in a rhythm that is open, with a willingness to change as the dynamic of the partnership evolves. This nimbleness also requires a balance between process and action, action and reflection, and theory and practice; being open to change also requires being open to learning. Both KMR and BA see themselves as lifelong learners, and express characteristics such as humility and gratitude in their positions and within their partnership.

This partnership started in 2009 when BA began her appointment at Acadia as the Director of the School of Nutrition and Dietetics. She brought an asset-based community development philosophy, working with the faculty in her unit to create a new vision for the school that put food and community at the centre of its pedagogy. Early on she learned that the relationship between the School and the Market had been negligible. In fact, the Market had reached out to the School on multiple occasions with little response. BA prioritized building this relationship and went to the Market seeking a conversation about potential partnership opportunities between the two organizations. BA knew KMR, the Market Manager, as they had met 15 years previously at an asset-based community development workshop that BA had co-facilitated in a prior work role. Although both were in different positions now, their commitment to the wellbeing of their community remained, and they quickly became allies. After two years of developing a trusting and reciprocal relationship through initiatives that included student engagement at the Market, KW was created.

This is a long-term, sustainable partnership that will continue to develop and evolve, as long as the main partners remain in their roles. Sustaining the partnership without them in their leadership roles is a concern for both of them and raises questions around the need to formalize the partnership between their organizations. For example, when BA was on sabbatical in 2016, KW did not run, as it was too much to ask another faculty member teaching the course to take over this complex CSL component. The Market's Board of Directors and the School of Nutrition and Dietetics have been supportive of KW. KMR is given a great deal of autonomy and trust by her board, which supports the vision of the initiative, and BA has the trust and support of her School, which has a lot of respect for her as the Director and sees the Market as a key partner. Despite this, KMR and BA recognize the need to deepen the conversation with their organizations and each other to determine if and how to formalize the partnership, perhaps through a memorandum of understanding so that the School is accountable to the non-profit, regardless of who is in the leadership positions.

In addition to board and faculty support, this complex project requires a network of supporters. In the development stage, KMR had a co-op student work on the program development with her team and had their graphic designer develop required materials, which cost

the Market $500. BA recognized from the beginning that this initiative would require teaching assistants (TAs), and was able to secure two positions, each at six hours per week, a significant opportunity for senior students. The TAs take on major responsibilities, including liaising with students, the Market staff, and volunteers in the taste-testing preparation phase and the program days. The Market staff also work with KW and directly communicate with the TAs and vendors to purchase food supplies, which requires flexibility and organization. The Market staff and volunteers believe deeply in the Market's values, are committed to contributing to a healthy and vibrant community and increasing revenue for vendors. The staff recognize that the KW's outcomes are appreciated by the community and the initiative is in line with the Market's goals. However, working with the KW students on Market days can add stress to their work at times. This stress has been minimized over the years by ensuring the TAs are there to support students and act as liaisons between the students and staff. When an issue does arise, BA and KMR quickly circle up with those involved and work towards a solution. For example, on one Saturday near Halloween, students encouraged kids to spend their $3 KW voucher on prepared candy apples from a food vendor, instead of fresh fruits and vegetables from farm vendors. In this case, a long-term solution for this issue was to have signs on the tables of vendors that accept KW vouchers and a poster on the KW table reminding everyone that the voucher is for fresh fruit and vegetables, and to look for the KW signs on vendor tables.

The student experience

From the students' perspective, the KW project has been identified as a challenging and rewarding scaffolded experiential learning project, which has been carefully designed to guide the student through the development, preparation, delivery, and reflection processes. The scaffolding begins with three introductory experiences: 1) a visit to the Market before their group's tasting is held, which involves getting a signature from the Market information booth volunteer and completing a small focused reflection assignment; 2) participating in a team-building workshop to encourage cohesion among each small working group (4 to 6 students), including the writing of a Team Accord (Brady et al., n.d): and 3) attending a class with a presentation by KMR that sets up the project from the Market's perspective. The next stage of the project is recipe development, which involves each small group creating or adapting a simple, healthy recipe, meeting with the TAs, selecting a taste-testing date, and handing in a project proposal that includes the recipe and its ingredients. The Market covers both the cost of the food obtained from the Market and the three-dollar vouchers for the participating children, usually totaling $100 per week, and approximately $1000 per program year. Those ingredients supplied by the Market are gathered by the TAs, aided by the Market staff. The other food costs, as well as the TA salaries, are covered by the School of Nutrition and Dietetics in the instructional supply budget.

Food preparation starts the day before or the morning of the taste-testing in the School of Nutrition and Dietetics Food Lab, supervised by a TA to ensure adherence to food safety

practice. On the day of the tasting, a TA helps the student group set up and takedown, and if required will stay for the duration of the tasting. Following a schedule submitted with their KW proposal, the group of four to five students take turns handing out samples and recipe cards during the Market. At the end of the semester, each team presents reflections and insights on their food commodity and their overall KW experience to the class and compiles a final group report. Each team member also writes an individual reflection on the entire project. It is significant that this initiative is designed for first-year students, and that they are given this level of responsibility and exposed to this type of learning in the first semester of their first year. Students often share in their reflections that the initiative was meaningful for them, as it gave them an opportunity to learn about the town, gain interpersonal and professional skills from interacting with the community, and immediately begin practicing their food skills in a practical setting. One student wrote in their reflection:

> The KW program bridges the gap between our classroom learning objectives and how we can apply these to real world situations. A great way to put our learning into action. Through participation in this program, I was able to network with community members and convey nutritional information in an easy-to-understand way.

The course is demanding and working in a large group can be challenging. For some, the hardest part of the project was donning a wizard costume and engaging with the community at the Market. Students often wrote in their reflections about how anxious they were about interacting with the public before their tasting day, and then how interacting with the public was the most rewarding, yet still challenging, part of the experience. Despite these challenges, the students appreciated the opportunity to take this initiative on in their first year and reported developing significant teamwork and leadership skills, plus an appreciation for local food systems. One student reflected, “This project helped me understand the importance of promoting local foods and supporting local farmers, a concept that benefits everyone involved.”

After the course, the students often find themselves back at the Market as customers and/or volunteers for another popular Wolfville Farmer’s Market event, the Wednesday Night Community Supper, which is run by upper year School of Nutrition and Dietetics student volunteers. The students also revisit their KW experience and learnings in their third year, in a Community Nutrition course that BA teaches. She has students reflect on their KW experience and how it connects to community food systems and the social determinants of health. Students believe the program is having an impact on the children and families that participate. One student noted, “It is exciting to see the kids try something new. There was one kid who bought sprouts with his money, and he was so excited, and we were so excited, he loved them!”

The students appreciated being involved in the Wolfville community, as it gave them the opportunity to get off campus and out of the ‘Acadia Bubble.’ One TA believed that the experience also enriched the students’ connection to local food systems:

> We always encourage the students to talk to the famer that produced the vegetable that they used (in their recipe), so they can say I know the famer that grew my food, and they learn how it was grown and they get to experience serving that food to the community, and see people enjoy their product. It is pretty powerful for students to experience this.

Students felt positive about engaging with the community and believed their participation contributed to the vision of the Market and the health and vibrancy of the community. A limitation of KW could be the limited time that each student spends at the Market, affecting their ability to form relationships with community members and the community organization. In other CSL literature, the duration and intensity of the CSL are significant factors for student development (Kiely 2005; Ngai 2009). What is apparent, however, is that students from the KW program frequently volunteer at the WFM, and KMR has identified that the majority of volunteers are from Acadia's School of Nutrition and Dietetics.

The community experience

The families that participate in the program think it is a fun and educational way to engage children with local foods. Parents view the opportunity for their child to have the decision-making power to purchase three dollars' worth of produce as enlightening, as it usually results in the child interacting with a local farmer, which connects them directly to their food. One parent stated, "It is great to have this weekly interaction with a student for my kids, it connects them to the Market and gets them to try new foods...they look forward to it, especially the three dollars to buy veggies*."*

This interaction is an impactful moment for the farm vendor as well, as they enjoy engaging in conversation with the children and discussing all aspects of their produce. The relationship between farmer and consumer is enhanced by having the same children and their families come back every week to learn about new fruits and vegetables. When a parent is committed to their child's participation in the program on a weekly basis, they can clearly articulate the benefits and the joy of eating in-season foods from their community. Families who do participate weekly are more likely to have already committed to local, sustainable food options; the challenge is reaching families who cannot commit to a weekly Market visit. BA and KMR recognized that this initiative would need an enhanced approach to address local systemic food security issues. One relationship that supports a move in this direction is a partnership formed between KW and a local non-profit childcare centre, in a planned approach to bring in more children whose families are not generally Market-goers.

During the Wednesday Market, the childcare centre's after-school program brings up to 12 school-aged children from diverse cultural and socio-economic backgrounds to the Market to participate in the KW program. The children's reaction to tasting the samples together is very positive and they take their decision-making about their food purchases very seriously. The leaders have observed the children becoming accustomed to the taste-testing process, which has

impacted the children's willingness to try new things at the after-school program and at home. The leaders have also learned more about the children by watching what they purchase with their three dollars. For example, a couple of children who they thought were picky eaters, purchased onions and garlic for their favourite curries at home. This initiated a conversation with parents and consequently diversified food options for the children at the after-school program. It is a challenge for some of the parents to know how to prepare the produce that is brought home, but it is appreciated, and the kids are excited to eat it. This was expressed by one single mom with two kids in the program when she said:

> I used to go to the Market but I haven't gone in a while, because of time, energy and money. Sometimes I felt segregated or watched, like a spectacle when kids complained or because of being a single parent, or the pressure to buy. But I appreciated the veggies that the kids brought home on Wednesdays. Most of the time the food was used, and the kids were more excited to try the food. Sometimes they would bring home a different variety, which was exciting, like purple carrots. I would often do the same thing with them, boil the carrots or roast the potatoes for example. For some things I had no idea how to cook them.

More could be done to strengthen this aspect of the program and both the School of Nutrition and Dietetics and the Wolfville Farmers' Market are open to considering opportunities. However, both partners are involved in other food security initiatives and recognize that focusing more on this aspect would introduce significant challenges and a reframing of the initiative's goals and processes. KW takes place in a first-year course, and the main objectives relate to exposing students to the Market and developing a relationship so they can step into other pieces of work as the degree program continues. This experience supports iterative learning by building to broader knowledge in upper-level courses where students are able to expand their ability to work with the community to address food insecurity.

Discussion

The KW story describes a CSL initiative that connects students to their local community while contributing to a sustainable food environment. It is embedded in a long-term partnership, which is committed to contributing to the vision of the Farmers' Market and engaging students with local food systems. Two themes arose from the case study analysis as key contributors to effective CSL initiatives: 1) a relationship-driven partnership, with reciprocity and commitment as key sub-themes; and 2) a scaffolded experiential learning environment for students that involves guided instruction. These themes are discussed in terms of their significance to KW and their relevance to the post-secondary community-engagement literature.

Relationship-driven partnerships

KMR and BA both agree that the success of the KW CSL initiative is rooted in their relationship-driven partnership. Community-university partnerships that are relationship-driven will naturally engage in the co-creation of initiatives because the focus is on processes and purposes, and not activities and outcomes (Janke & Clayton, 2012; Saltmarsh et al., 2009; Sweatman & Warner, 2020). In the community-engagement literature, the most prominent condition for a successful CSL initiative was developing a community-university partnership (Davidson et al., 2010; Kreulen et al., 2008; Oberg De La Garza & Moreno Kuri, 2014; Rosing & Hofman, 2010). Bringle et al. (2009) define successful partnerships within CSL initiatives as relationships in which the interactions possess closeness, equity, and integrity. KMR and BA spent two years working together and organizing less complex student experiences before they co-created this enhanced and sustainable student experience. They both attest to this time as a significant factor in the KW's success, as they developed trust and respect that could withstand challenges that arose from the CSL initiative. The value of dedicating time to building a community-university partnership that focuses on equity and trust is also supported by Austin(2010) and Oberg De La Garza & Morno Kuri (2014). Research indicates that planning must happen together, and must incorporate the missions, goals, and capacities of both organizations, recognizing the potential differences in priorities between the university and the community-based organization (Gazley et al., 2013; Kreulen et al., 2008). This aligns with KMR and BA's relationship and process.

It is essential that the partners reflect on their positionality, maintaining a constant vigilance regarding power dynamics through ongoing dialogue and respect for diverse views (Hlalele et al., 2015). KMR and BA spoke about their awareness of how power imbalances can impact partnerships, and each felt confident that their relationship was equitable because of the trust cultivated between them over the years. In their individual interviews, they both discussed the practical application of their commitment, which involved staying connected throughout the fall semester by touching base in-person weekly when BA visits the Market to check in with the students and pick up her produce. They troubleshoot over email and share information on a shared drive. Most importantly, they both spoke about make time for connection over coffee or lunch throughout the year to care for their partnership. This commitment to relationship comes from BA's strong background in asset-based community development (ABCD), which guides her engagement and her partnership with KMR, the Market, and her students. ABCD is an approach to community development that focuses on discovering and mobilizing the assets, gifts, and resources that are already present in a community for the development and benefit of that community (Green et al., 2011). KMR's leadership model also reflects an asset-based approach, as she is dedicated to relationship building and generating connections between individuals and community associations, organizations, and institutions to mobilize existing assets in the community. KMR saw one of BA's roles as leading the initiative through a collaborative and

reflective practice, and her own role as one of balancing process and action. This type of co-created process honours "local community knowledge and academic knowledge, which leads to collaborative knowledge construction" (Saltmarsh et al., 2009, p. 9). This dedication to the relationship models community engagement principles for the students, in particular the teaching assistants who are tasked with the day-to-day engagement that is required with market volunteers, employees and vendors. One TA interviewed noted, that "the (KW) experience solidifies the importance of the Market to our program, and many of us go on to volunteer at the Market suppers throughout our degree, I know it did for me."

The TAs contribute to the continued success of the relationship between the Market and the university. BA dedicates a lot of time to mentoring the TAs for this role, which is considered a coveted TA position by the Nutrition and Dietetic students. The TAs are carefully selected, as BA understands the importance of this role within the community-university partnership and the success of the Kitchen Wizards program.

Reciprocity in the relationship

KMR and BA spoke extensively about the benefits and reciprocity that the KW CSL initiative affords their organizations, and the organizations' beneficiaries, including students and Market customers. Mutual benefit, a condition of successful CSL initiatives, as defined by Janke (2013) as "a win-win relationship, [that] suggests equity – that partners achieve the outcomes that are just and meaningful to them" (p. 4) is pervasive in the literature (Andrée et al., 2014; Gazley et al., 2013; Kreulen et al., 2008; Marullo et al., 2009; Oberg De La Garza & Moreno Kuri, 2014; Valaitis et al., 2016). If the CSL initiative is based on a community-university partnership that cultivates mutual benefit, there is more potential for this pedagogical method to foster social transformation (Chupp & Joseph, 2010; Davidson et al., 2010; Maistry, 2014; Rutherford et al., 2011). Most of the evidence links mutually beneficial outcomes with a reciprocal process, which is "the recognition, respect, and valuing of the knowledge, perspective, and resources that each partner contributes to the collaboration" (Janke & Clayton, 2012, p. 3). Reciprocity goes beyond mutual benefit as it repositions power based on more equitable relationships. It "is grounded in explicitly democratic values of sharing previously academic tasks with non-academics and encouraging the participation of non-academics in ways that enhance and enable broader engagement and deliberation about major social issues inside and outside the university" (Saltmarsh et al., 2009, p. 9).

Philosophically, KMR and BA are oriented towards reciprocal processes, which is particularly shown through their nimbleness, collaborative decision-making, and mutual problem-solving. This partnership is about reciprocity, not charity, as it goes beyond the CSL initiative. KW has become one of many ways that KMR and BA, and their organizations work together. For example, BA co-chaired the Market's Good Food Hub Advisory Committee and KMR often employs Nutrition students in various student positions, both paid and volunteer. As

a direct result of their involvement in KW, Nutrition students also run a weekly initiative, Wednesday Night Market Suppers, which has increased the customer base forMarket vendors. In general, KRM has seen an increase in students both as volunteers and customers at the Market as a result of KW. BA has written letters in support of funding for Market projects and KMR writes reference letters for students. These examples of reciprocity are fundamental components of a CSL initiative embedded in a relationship-driven partnership (Sweatman & Warner, 2020). KMR and BA model a reciprocal process to the teaching assistants, students, Market staff, and volunteers by demonstrating their commitment to the initiative and each other, which leads into the second core aspect of a relationship-driven process.

Commitment to the Relationship

Commitment in the context of a relationship-driven CSL initiative is multi-faceted. For KMR and BA, their partnership began with their mutual commitment to a healthy, vibrant community within a sustainable food system context. This led first to a commitment to each other as individual community leaders and to each other's organization, and finally to their commitment to the co-created KW program, including student learning. The commitment to a public purpose, such as the health and vibrancy of the local community, is described by Gazley et al. (2012), who express this commitment as partners' being accountable for improving community welfare. Similarly, Rutherford et al. (2011) describe their partners as having a shared vision for social justice, and Wills et al. (2010) describe it as a shared commitment to addressing poor nutrition in the partners' shared community. Andrée et al. (2014) call for relationships to be established around a shared vision, and finally, Sweatman & Warner (2020) describe a societal commitment to a shared domain, which is the common concern or passion that brings the partnership together, guiding learning and giving meaning to actions (Wenger, 1998).

In this case study, commitment to the relationship is demonstrated by KMR and BA by open, honest, clear, ongoing, and objective communication, which nurtures the partnership. Such communication comes easily to both KMR and BA because they are passionate about the issues, genuinely enjoy each other's company, and are invested in each other's wellbeing outside of their working relationship. Their commitment to communication involves stressing the importance of reflective dialogue with each other, their community, the Market, and the students. Reflection is prioritized and is a natural part of BA and KMR's process and commitment to learning. They allow time for personal reflection and group debriefing, both with each other and their leadership teams, and make time throughout the semester to catch up with each other and check in about the program. These are casual, but intentional and reflective discussions. KMR engages in a reflective process with her team throughout the semester during staff meetings, which involves asking for feedback and insights on how the program is being managed and how Market customers and vendors are perceiving the program. BA engages in a semester-long

reflective process with the TAs and students as a component of the scaffolded, experiential learning assignments designed to complement the KW experience.

Finally, the commitment to the initiative by both the community-based organization and the faculty/institution is a key indicator of success (Kreulen et al., 2008). KMR and BA demonstrate this commitment through their dedication of time and organizational resources. Beyond these particular individuals, a relationship-driven process faces significant challenges in the face of academic pressures for faculty researchers to push out publications rapidly. In turn, Farmers Markets do not necessarily see a short-term boost in usage or sales by working with students. Relationship development takes time, and this means that the partner organizations need to provide their leaders with the ability to engage in these processes.

There is evidence in the literature that reflects the importance of organizational commitment from partners to an initiative. For example, resources should not just flow one-way; true partnerships require a mutual sharing of physical and human resources (Austin, 2010; Marullo et al., 2009; Naidoo & Devnarain, 2009). Examples of how the institution can show its endorsement of CSL initiatives include allowing time for scholars to develop a well-functioning team, preferably across disciplines and sectors (Lambert-Pennington et al.,2011; Porter et al., 2008; Rosing & Hofman, 2010); tenure and promotional policies that reflect community service (Naidoo & Devarain, 2009); an investment in training, screening, and preparation of faculty and students (Gazley et al., 2013); and reorganization of course schedules to enable sustained faculty and student involvement (Lambert-Pennington et al., 2011).

In the case study context, both BA and KMR have decision-making roles that allow them to commit organizational resources to the endeavor based on their positional authority. Every university partner in a CSL initiative is not necessarily a program director or department head, and every community partner is not necessarily the manager of the organization. Both BA and KMR see the merit of more formal organization links beyond their relationship, but it is challenging and time-consuming work to get broader commitments from higher level executives or boards of directors who do not necessarily share the leaders' passions. However, a long term, sustainable partnership should outlive the two individual founders, and this requires a broader commitment in organizational cultures.

Although there is more literature on the importance of a university's commitment to the partnership, all partners need to be accountable for improving community welfare (Gazley et al., 2013), and have a long-term vision that includes sustainable commitments among partners (Carney et al., 2011; Klein et al., 2011).

Scaffolded experiential learning environment

Embedded within the CSL initiative that was co-created from the relationship-driven partnership is a scaffolded experiential learning environment that involves guidance and mentorship throughout the semester-long project. Practically, this is a significant component for the success

of KW, as students play a significant role in delivering the program, and they must be well prepared for this role, especially given they are first year students and most often have limited experience. This component is also significant as it a distinguishing factor of whether the CSL experience will have transformative potential for student and community learning.

A scaffolded learning model increases the students' engagement and ownership of the project as they move through the assignments, cultivating self-regulation and motivation (Wilkinson & Jones, 2017). This process is broadly based on Kolb's (1984) experiential learning model involving four distinct phases: concrete experience, reflection and observation, abstract conceptualization, and active experimentation. "Concrete experiences form the basis of observation and reflection; in turn, these observations are used to develop one's ideas, including generalizations and theories, and from this development of ideas, new implications for action can be discerned" (Chambers, 2009, p. 81). In the KW initiative, the scaffolded experiential learning environment involves a five-part assignment with multiple touchpoints with BA and the teaching assistants for feedback and critical reflection. Many students reflected on significant learning and the activities around team building and leadership. For example:

> It helped me grow and become a better team member by showing me the challenges you may face in a team and how to overcome them (Student reflection)

> I learnt how important communication is while working in a team and being sure everyone is aware and clear about what their tasks are. It made the project go much more smoothly (Student reflection)

These experiences allow students to compare theory and practice, and reflect on their roles as both a team member and an engaged citizen in the community and local food system. The following quote captures one student's new understanding of the KW initiative, facilitated through the scaffolded assignments:

> Everything I've done this semester, every part I've finished has taught me something and each is very different than the others. During this project I learnt how important the Farmers' Market is to the people and the local businesses. The Farmers Market draws people in from all over town and the outlying region. It creates a big sense of community in a small town and promotes healthy living and eating. Especially with the local produce and businesses, you really feel like you're giving back to the community when you support locals and not commercially made products. It's like a big circle, helping the community thrive and give back to itself.

The design of and commitment to a scaffolded process that benefits students and community is challenging and time consuming. Insufficient student training and and/or skill development to engage in community settings are often cited as barriers to effective CSL (Sandy & Holland, 2006), as is lack of faculty commitment or communication to the community partner

and the initiative (Schaffer et al., 2015; Shalabi, 2013). Faculty cannot expect the experience in the community to be the learning in and of itself, and mustbe committed to the experiential learning cycle (Felten & Clayton, 2011). KMR did not speak of these types of acute issues with BA or students; however, she and BA discussed their 'evolution of processes' that referred to the iterative learning that they go through, and modified processes as a result. A simple example is a checklist that was developed by the teaching assistants for the student teams. Each year, there are minor tweaks added by the TAs and Market staff to make each Market day with new student teams smoother and more effective for Market staff, vendors, and customers. Often, these modifications came from issues that arose from student behaviour or misunderstandings about their role at the market, such as being on their phone during their shift or arriving late.

By focusing on a scaffolded process and devoting a tremendous amount of time to preparing students, BA has curtailed student issues that could overburden KMR or the Market staff. Although KMR is dedicated to student growth and is a mentor to many Acadia student volunteers, both BA and KMR agree it is not her responsibility to take on the direct supervision or education of the students. KMR does take the time to co-teach a class with BA at the beginning of the semester and is involved with the debriefing at the end of the term, as she feels this is beneficial to her learning and process, and she enjoys this time with the students. Inviting community leaders into the classroom allows for the exchange of ideas, relationship building, and the integration of community members into the university setting, which can enable more equitable relationships among community partners, faculty, and students (Martinez et al., 2012; Valaitis et al., 2016). There is a balance to be struck; faculty cannot expect the community partner to take on the role of educator or mentor unless that is explicitly agreed to as a value-added component for the community partner organization (Clayton et al.,2010; Sandy & Holland, 2006).

KMR and BA both feel a tremendous amount of gratitude toward the other and speak passionately about the Wolfville Farmers' Market being a hub for experiential food education for students and community. The scaffolded experiential learning environment that they created was fueled by their commitment and reciprocal processes within a relationship-driven community-university partnership.

Conclusion

It is challenging to identify a list of general conditions that foster successful CSL initiatives in food studies, given the complexity and idiosyncrasies of each initiative. The conditions that work best for one initiative may be counterintuitive for another. Regardless, through analyzing the KW CSL initiative and comparing it to relevant post-secondary community engagement literature, we derive two significant factors. The first factor is that CSL initiatives should be embedded in a relationship-driven partnership built and sustained on reciprocity and commitment. The second factor requires the CSL initiative to guide students through a scaffolded, experiential learning

environment that has many touch points with faculty and teaching assistants. Although these themes are discussed separately above, they are interconnected, as the scaffolded, experiential learning environment is developed from a co-created CSL initiative that is embedded in a committed and reciprocal relationship-driven partnership. These themes and their interconnections could be explored further by studying similar CSL initiatives. It would also be beneficial to explore in more depth the institutional, organizational, and societal impacts on CSL initiatives and the partnerships which house them, in order to discern external key conditions that foster successful CSL initiatives in food studies.

Another important aspect of this study that can be transferable is the use of an action research case study. This research process has not only taught us about the KW's initiative, it has also created a community of practice[1] among us (the authors) and others on campus, who are invested in experiential food education. This resulted in the development of another on-going CSL initiative between the Farmers' Market and the Department of Community Development that reflects the KW process and key components, but focuses on environmental education. This method of inquiry has been enriching for us as a research team of community-engagement scholar-practitioners. It would be valuable to explore other CSL initiatives within local food initiatives, and food related community-campus engagement communities of practices, using action research case study.

In summary, effective CSL initiatives, including those related to food systems, should be driven by relationships, not merely by institutional or organizational agendas. They require reciprocity, commitment, thoughtful student engagement, and a significant amount of time, but they are also incredibly rewarding and even fun, as KMR so eloquently said about her partnership with BA:

> You need to care about the person that you are connecting with, so you are willing to work through things…If you are willing to give a lot, you will get a lot back. While respecting our work responsibilities, we collaborate under an umbrella that fits into the vision of vibrant, healthy communities, and working with someone that you like, well this work can be a lot of fun!

[1] A community of practice "is a group of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly" (Wenger, 1998, p. 1). The principles of a community of practice are a commitment to a shared domain, regular and long-term interactions with one another and a commitment to learning and developing together to better serve their community.

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Original Research Article

Preserving stories, preserving food: Intergenerational and multicultural pedagogies for food preservation and food waste reduction from Pakistan, China, and Canada

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Abstract

Worldviews, cultures, spirituality, and history not only influence how societies define "food" and "waste", they also shape how we consume food and the relationship we have with the broader food system. While food waste has emerged as a global concern and a complex "wicked problem" that impacts stakeholders at all scales of operations, the issue is often framed as an environmental and economic problem, and less so as a social problem. As the food waste literature expands at a rapid pace, there is still a dearth of studies that focus on cultural and intergenerational approaches to food preservation and food waste reduction. This exploratory study emerged from an upper-year research-based course entitled Building Sustainable Food Systems (REM 363- now REM 357) at Simon Fraser University and offers three vignettes through intergenerational and multicultural interviews from Siksika First Nation (Canada), Pakistan and China. Students from the class explored the roles of intergenerational storytelling and informal learning by conducting key informant interviews with close relatives to document traditional food preservation techniques. This study created a transformative intergenerational and multicultural bonding opportunity, which allowed students to better understand their relationships to food, culture, and their relatives. The students also documented how the relationship to food has changed over time. Findings from the study suggest that intergenerational storytelling can help reduce food waste by increasing food literacy, improving

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cultural connections, and raising awareness about alternative worldviews that challenge the commoditization of food.

Keywords: Food waste; storytelling; food preservation; transformative pedagogy; intergenerational learning; spirituality

Introduction

Globally, a study by the United Nations Environmental Programme (UNEP) estimates that 931 million tonnes of food waste was generated in 2019 (UNEP, 2021). In Canada, nearly 60 percent of all food produced, or an estimated $49 billion dollars' worth of food is wasted annually (Nikkel et al., 2019). This estimate is conservative considering the additional water, energy, inputs, and labour used to produce that food. Food waste emerges as a result of a complex, dynamic system with numerous influential interdependent and sometimes competing drivers (Hebrok and Boks, 2017, Aschemann-Witzel et al., 2018). While food waste occurs across the food supply chain and may be defined in different ways, there are generally two common terminologies: food loss and food waste. Food waste occurs at the retail level and at the consumption level (FAO, 2019). Food waste can be further categorized into "non-avoidable food waste," "potentially avoidable food waste," and "avoidable food waste" (WRAP, 2009). Food that was once edible prior to disposal is "avoidable waste." "Unavoidable food waste" refers to the inedible parts of food, such as avocado seeds or pineapple skin. The more "grey area" of food waste is the "potentially avoidable" category, which is food that some people eat but others do not, or food that can be eaten if prepared appropriately (e.g., candied orange peels). This research will primarily focus on the "potentially avoidable food waste" category to contribute to the larger body of food waste studies, by identifying solutions, such as learning about diverse cultural knowledge, that can expand the repertoire of possibilities for utilizing potentially avoidable food waste.

Due to the systemic nature of this issue, reducing wasted food at the consumer level has proven to be a challenge, despite the substantial attention focused on solutions and interventions to address this problem (Reynolds et al., 2019; Soma et al., 2020b; De Laurentiis et al., 2020). Scholars such as Cloke (2013) noted that we are currently embedded in a vastogenic system, which is a waste-producing, waste-dominated system that profits from the creation of waste in the economy. Giles argues that when goods are produced in excess, and demand is produced through scarcity or rarefication, the two strategies naturally lead to waste (2013). In a system built inherently in linearity and the generation of waste, as Gille (2012) noted, applying technological solutions or innovations in a few sites or even in a few countries to address this issue will likely exacerbate existing inequalities. Currently, solutions to reduce and prevent food loss and waste in Canada have largely focused on charitable efforts, such as donation tax incentives (Kinach et al., 2019), food recoveries (Millar et al., 2020), and educational efforts through awareness, or information campaigns (van der Werf et al., 2019; Soma et al., 2020b; also see

lovefoodhatewaste.ca). Beyond formal government-led awareness campaigns, a less-known educational solution to food waste may involve intergenerational learning from family members and knowledge transmission through storytelling, which is common in many cultures and occurs particularly within the home or in the community (Soma, 2016). As our worldviews, cultures, geographies, and histories influence what is categorized as food and what is categorized as waste (Coles and Hallett IV, 2012; Soma, 2017), our paper will focus on exploring how intergenerational cultural knowledge can be used as a form of food systems pedagogy that can be mobilized to help improve youth food literacy and cultural connections, and raise awareness on alternative worldviews that can help prevent and reduce food waste. Food systems pedagogy is an interdisciplinary approach to teaching and learning about food to promote a more just and sustainable food system that counters an industrial one (Classens and Sytsma, 2020; Flowers and Swan, 2012). Sumner (2016) has argued for the need to teach critical food pedagogy with Galt et al. (2012), noting the importance of a values-based approach that challenges the systemic injustice in the food system. This study highlights the findings from such a food systems pedagogy through REM 363 (now REM 357) "Building Sustainable Food Systems," a course taught in the Fall of 2019 by the main author. The course assigned an intergenerational storytelling and interview project, called "Preserving Stories Preserving Food," completed by three of the co-authors who were undergraduate students at Simon Fraser University. The students took part in what Gabbacia et al. (2019) identified as "preservation pedagogy," or education and re-skilling, to help students understand how to preserve food (6). The findings from the study will be discussed through three intergenerational vignettes between students and their three relatives. Beyond the findings from the interview, this paper will describe the overall transformative opportunities offered through these types of course-based intergenerational food projects. Through the interviews and intergenerational learning, students learn from their relatives about traditional food preservation techniques (focusing on meat consumption), and about cultural relationships and worldviews on food. We argue that intergenerational storytelling is a form of "preservation pedagogy" and can help raise awareness about how to reduce food waste by increased food competency, established cultural connections, and heightened understanding of the origins or deeper meaning of food. Several themes emerged through our research, including the valorization of food through alternative worldviews, and the expansion of the boundaries of what is categorized as "food" and what is "waste" in non-Western cultures. These findings include the importance of cultural cautionary tales (stories), traditional food knowledge (growing, processing, cooking), and religion/spirituality in framing food cultures.

This study fills a knowledge gap in food studies literature about how diverse cultural and traditional food knowledge may be applied to reducing food waste, and between cultures that value food waste avoidance and embed spiritual values in food, and an industrial culture premised on the commodification of food and the push for overconsumption. This paper argues that traditional food preservation and knowledge practices may help mitigate food waste, and may be continued through intergenerational storytelling, playing a vital role in maintaining cultural identity. Within the context of intergenerational knowledge sharing and alternative food

pedagogies, re-engaging with traditional approaches to processing food may also help youth reconnect with their elders. In our case, our efforts to preserve food and reduce food waste started with the preservation of these stories.

Literature review

Formal food learning: institutional approaches

There are a significant number of papers that have outlined the potential transformational impacts of food-related formal educational programs at schools and formal academic institutions (Koch, 2016). Some of these educational initiatives such as the "Farm to School" [F2S] program may offer numerous benefits including improvements in nutrition and environmental awareness. For example, using the Healthy Eating Index (HEI) to quantify dietary quality, Smith (2017) found that students in participating F2S schools showed improvements on all its indicators. Another study found that students in participating Farm to School programs consumed significantly more fruits and vegetables than students in non-participating schools in the same area (Jones et al 2015). Students in participating schools were also more likely to ask for, and consume, fruits and vegetables at home (Jones et al 2015). At the university level, engaged pedagogy through service-learning opportunities or community campus engagements has been identified as a way to strengthen food sovereignty and move theory into practice (Levkoe et al., 2014; Andrée et al., 2016). As it pertains to food waste reduction, a number of organizations have offered curriculum or activities tailored for youth, ranging from the kindergarten-level to universities. An example of this is the *Food Matters: Action Kit* developed by the Commission on Environmental Cooperation (CEC, 2019). In the U.K., academic institutions are not only sites of formal learning; in fact, they can offer spaces of innovation and opportunities for unique interventions. For example, Lazell (2016) evaluated the impact of a social media-based intervention to promote food sharing at a university. Other scholars focus more on awareness interventions conducted in universities, with simple messaging in all-you-can-eat dining services, helping to stimulate a 15 percent reduction in food waste (Whitehair et al., 2013). Another formal approach to learning is through awareness campaigns designed and promoted by municipalities to influence and educate consumers (NZWC, 2018). These awareness campaigns may include social media tools, recipes, and multi-media approaches, such as "how-to" videos (see: lovefoodhatewaste.ca). A substantial number of studies have focused on the determinants of household food waste and explored diverse interventions to reduce it (Reynolds et al., 2019), ranging from plate-size interventions, information campaigns, and technological innovations, such as fridge cameras to track consumption (Ganglbauer et al., 2013). However, many of the studies highlighting household interventions in food waste studies are derived from European or Western experiences (Evans, 2014). While the number of food waste studies covering the

baseline on consumer food waste outside Europe and North America is indeed growing (Sahakian et al., 2020), very little is known of intergenerational, informal, and cultural food pedagogy to prevent and reduce food waste at home, or at the community level, particularly from a non-Eurocentric perspective.

Alternative food pedagogies: Cultural approaches to food waste prevention and reduction

There is a substantial body of literature examining the cultural dimensions of food and food literacy through the framework of traditional ecological knowledge from around the world (Hansen et al. 2020). This paper is particularly interested in the cultural dimensions of food preservation, both in terms of actual preservation practices, as well as waste minimization in general. Wane (2003) wrote about the traditional food preservation of the Embu women in Kenya, utilizing different local preservatives, including marigolds, hot peppers, onions, and herbs. However, she found that the older generation of Embu women are more comfortable with Indigenous practices, while younger Embu women find some of these food practices time consuming and tedious (Wane, 2003). In African countries, fishers use various traditional methods to preserve fish for consumption and storage, including smoking, drying, salting, frying, and fermenting (Adeyeye and Oyewole, 2016). These methods of food preservation, particularly drying and smoking meats are also commonly applied in Indigenous communities in Canada, such as with the Denedeh peoples in the Northwest Territories and Yukon (Batal et al., 2005). For the Haisla Peoples, preserving oolichan fish requires patience and skill; like other examples of preservation methods, the fish is also salted or dried (Kundoque, 2008). Other practices to save food and reduce food waste may also include expanding the boundaries of what is food and what is waste.

In China's industrial food processing factories, industry produces substantial animal by-products every year, such as skin, bones, and fat, most of which are wasted. Animal by-products are rich in nutrition and, depending on the source and type, it may be possible to upcycle such by-products into more valuable ones (Shen et al, 2018). There have been many scientific research and technological innovations contributing to the utilization of animal by-products, further reducing the waste of resources. However, in cultures that do not consume animal by-products, the latter may not find a market and can result in more waste. In their study, Coles and Hallett IV (2012) explored where and how societies draw the line between foodstuff and food waste. They found that food and waste are not just tied to materiality, but also connect to place making and geography. Salmon heads are binned in the U.K's Birmingham market, but are sought after by individuals from the Caribbean diaspora, who consider them a delicacy (Coles and Hallett IV, 2012). Carolan (2017) noted how unwanted turkey tails from the United States were shipped to Samoa, and, as a source of cheap meat, the turkey tails became a common dish that replaced traditional foods. The turkey tail example highlights how something considered to be "waste" in one context may become a popular food elsewhere. In a study of twenty-eight households in Saudi Arabia, despite religious

guidance prohibiting wasting food, rising affluence has led to wealthy households rejecting leftovers, giving way to the preference of eating everything "fresh" (Aleshaiwi and Harries, 2021). The Saudi Arabia example echoed the findings from a household study in Indonesia, where the wealthy would often give their leftover foods to domestic helpers (Soma, 2017). All of the examples highlight the complex cultural, class, geographical, and income-related factors that influence what is defined as "food" and "waste."

Preservation of cultural knowledge is also reflected in the literature around home cooking, health, and well-being (Jones et al, 2014; Mclaughlin, 2003, Simmons & Chapman, 2012). In addition to cultural knowledge, there is a handful of literature focusing on pedagogies of food waste reduction from spiritual or religious perspectives (Yoreh and Scharper, 2020; Soma, 2016). In Indonesia, for example, practices around sharing cultural folktales ("The Tale of the Crying Rice") and household intergenerational learning using Quranic injunction highlights that learning and maintaining a connection to food literacy and skills allows for the preservation of techniques and competencies that can support a reduction in food waste (Soma, 2016). The incorporation of origin stories associated with food management and systems that instill morals and values into future generations, such as resource recycling and closed loop system practices, also offers alternative pedagogies. The Indigenous teachings of "All My Relations" are particularly important in challenging the worldviews that commoditize food, while creation stories may also set the stage for a paradigm that promotes interconnectivity and respect between humans and other relations, such as plants and animals (Kundoque, 2008; see vignette by Indigenous scholar Adrianne Lickers in Soma et al., 2020a; Horn-Miller, 2016).

While there is considerable literature on food preservation techniques, as well as historical and traditional preservation methods from a culinary perspective, the connection to food waste literature may not be explicit. Recently, the Fall 2019 issue of *Gastronomica: The Journal of Critical Food Studies* focused on the topic of food preservation from around the world. Gabbacia et al., (2019), in their article entitled "Preservation Pedagogy," noted that there is a tendency of deskilling in food where an increasing number of individuals, particularly in Western societies, do not know how to pickle, dry, or preserve foods at home. Through a food course offered at the University of Toronto, Gabbacia gave students an assignment to learn how to pickle and make a fruit preserve (Gabbacia et al., 2019). Following the assignments by Gabbacia, students and co-authors Frimpong and MacCulloch reflected on their experiences, noting how the assignment not only improved their skills, it also helped them improve their appreciation around food-related labour (Gabbacia et al., 2019). The potential for positive transformation through experiential learning opportunities highlights the need for more research on how students or youth of varying cultures may tap into intergenerational knowledge, as well as alternative and traditional methods of food preservation, such as a food loss and waste strategy. In this paper, this learning journey starts with an assignment in a food course offered at Simon Fraser University.

Methodology

Students in the REM 363 special temporary topics course entitled "Building Sustainable Food Systems" [now a permanent course REM 357- Planning for Sustainable Food Systems] worked on diverse group projects as part of a partnership with an innovation hub called City Studio, based in Vancouver. The experiential learning approach afforded the students an opportunity to conduct preliminary research on various aspects of food waste prevention and reduction. One of the group assignments asked students to explore diverse and intergenerational cultural approaches to food preservation. The assignment was inspired by Gabbacia et al.'s (2019) article on preservation pedagogy, and a CEC Food Matters Action Kit youth activity to reduce food waste, called "Sharing Stories Preserving Food" (CEC, 2019, 39). In the Action Kit, the task asks youth to interview their elders or family members to learn tips, recipes, and historical or cultural practices to preserve food that may also reduce food waste. REM 363 gained course-based ethics approval through Simon Fraser University's Research Ethics Board. The students in this group conducted three intergenerational semi-structured interviews with their relatives. The interviewees come from three different cultural backgrounds: Siksika Nation in Alberta, Canada; the village of Narowal in the region of Punjab, Pakistan; and the city of Jiangyin in Jiangsu province, China. The interviews had to be intergenerational, which meant that the interviewees had to be at least one generation older than the interviewers. The interviews were then transcribed and coded manually. Due to the small number of interviewees, it is not the purpose of this paper to generalize the findings. Rather, the findings highlight diverse approaches to saving, valuing, and managing food with which the students were not familiar until they conducted the interviews. We will showcase the findings using a food vignette approach (Barndt, 2001). This approach involves short stories and descriptions of events, which may be paired with interviews to help strengthen the method (Schoenberg and Ravdal, 2000; Jackson et al., 2015). Relevant to this paper, vignettes are particularly useful in the study of cultural norms (Barter and Renold, 2000). In embedding interviews within a vignette framework, it can help facilitate the co-construction of meaning by the researcher and participant through guided conversations (Crist & Tanner, 2003; Jackson et al., 2015).

Findings and Discussion

Jayda Wilson, Vignette (Siksika Nation)

My grandmother, my *na'ahksis, Natokiokiyayaki* (Two Bear Woman) radiates matriarchal strength with her every action. She is one of those people you avoid relaxing next to, because she will always put you to work. When choosing the best representative of my family's preservation of food and preservation of stories, there was no doubt in my mind that she was who I needed to

turn to, although I knew this would be no easy task. Of course, I was right, as I successfully transcribed and coded 8 pages of information pertaining to her relationship with traditional Blackfoot preserving methods, her relationship to food and the connection it holds to her identity as a Blackfoot woman. When asked "Does food reflect your identity?" she answered with,

> In order for you to understand what I'm going to talk about [...] you first need to understand the world around us."

Using a cyclical nature of storytelling initially felt like a nightmare to code, but this became more important as this approach encompassed the interconnectivity of her responses. The stories she told me about how the buffalo came to the Blackfoot people explains the reasons behind the interconnectivity and the need to respect the Buffalo in all stages of food preparation. This respect is said to be shown in the form of reciprocity in the natural environment, the respect given by the Blackfoot when harvesting the Buffalo (a quick and skilled kill), down to the snout-to-tail processing and the ceremonies that take place to show respect for the animal's life.

My grandmother stated that our survival as a people is dependent on the full use of the animal. We can use the bones for utensils and needles, the hide to stay warm in the winter or cool in the summer, and the fat to make pemmican and sinew. One surprising detail pertained to the utilization of the dried stomach lining (also referred to as parfleche or rawhide) to line dug out "pit cooks" in the ground that were used for boiling food and, when not used for cooking, these were used for storing food, in lieu of a fridge. By placing rocks from the fire into the water and dried meat, vegetables and even berries, preparation time was also much faster this way. To preserve the Buffalo meat, the meat is cut into thin pieces and is dried in the summer months or is smoked if the sun is not out. While drying the meat, my grandma would also be scraping the hide, to make into leather or parfleche which serves many purposes. When asked how these methods have changed over time, my grandma responded with "I am proud and honoured to say I still do that." She did comment that the river they used to fish out of (the Bow river) is now too polluted to eat fish out of, that they don't trust the health of the deer around and buffalo are almost nowhere to be found. Something to consider is that these teachings have been fairly dormant and have significantly decreased in accessibility as a visible repercussion of settler colonialism, urbanization, and the climate change experienced during my grandmother's lifetime.

Residential schools, the Sixties Scoop, treaties, separating families from their children, and removing nations from their traditional territories, which made up a majority of their harvesting grounds for berries, wild game, fish, and water created a violent gap in the transfer of knowledge from a young age. "I was privileged. I grew up with my grandparents," my grandma stated. Despite the availability of knowledge, accessibility to food is still an issue for the nation. Siksika Nation is located 30 minutes away from the next town and grocery store. Food deserts are a problem within the reserve itself (you will find corner stores and a gas station or two). This makes accessibility to fresh vegetables and meats much harder, especially if you do not have a vehicle. My grandmother gave me advice during the interview: "You need to go to your elders to ask

questions. Don't expect them to come to you all the time." Most residential school survivors were taught that speaking their language was wrong, and that their way of life was forbidden. This is an important recommendation to the youth of today: to ask questions. Spend time with your loved ones and make a traditional meal together. What you will find is much more than a cooking lesson, but life lessons rooted in a taste of home.

Molly Mackay Vignette (Narowal, Pakistan)

> It is He Who has brought into being gardens, the cultivated and the wild, and date-palms, and fields with produce of all kinds, and olives and pomegranates, similar (in kind) and variegated. Eat of their fruit in season but give (the poor) their due on harvest day. And do not waste, for Allah does not love the wasteful. [Holy Quran 6:141]

I made myself comfortable on the worn couch and stared at the familiar floor. I was more nervous than I thought I would be, given the circumstances. After all, the interview that was about to take place was full of possibilities. While a strong comradery had been forged between my boyfriend and me, built up through three years of trust, the truth of the matter was that I wished so deeply that the questions I was to ask that day would resonate and reflect my respect for his family (particularly his uncle), who comes from a different culture than mine. So, with such thoughts going through my mind, I sat down with a man, who came halfway around the world from Narowal Pakistan, to talk about food.

The first central theme I so deeply wanted to understand better was the role that food plays in one's identity. Immediately, *Taya Abu* (Uncle) identified that, above all, food is always to be considered a blessing from *Allah* (God in Islam), a vessel in which a higher power connects through provisioning. In the hopes of not sounding naïve, I asked why divinity was the initial reaction to the question. His answer was that, ever since he moved to Canada from Pakistan, he realized that it was a true and blessed luxury to sit around a surface and share food with your loved ones. *Taya Abu* ventured out to Canada on his own and came to the realization that Pakistani comfort food was not readily available and accessing food was a struggle that he had to manoeuvre day in and day out.

What's more, *Taya Abu* discloses that he yearns for the celebrations of Eid-ul-Adha, a holiday in which his family's values around food and the notion of sacrifice first surfaced. This holiday is to commemorate Prophet Ibrahim's (Abraham) devotion to Allah and his readiness to devote himself to his faith by symbolically sacrificing his son, Ismail. At the very point of sacrifice, Allah revealed instead the command to sacrifice a ram, which was to be slaughtered in the place of his son. Livestock often symbolizes wealth, and Eid-ul-Adha is celebrated every year as the festival of sacrifice, because Muslims with the means to do so would sacrifice a ram, a cow, a goat, or other livestock. Every part of the animal is then distributed to feed the community. What is particularly important in the Eid-ul-Adha journey that *Taya Abu* remembers is that, every year, his family collects a goat that they raise for two months. Within those sixty days, the animal is so greatly loved and cherished, and, on the day of its death at the hands of humans, it is still loved, right until its last breath. The particular sacrificing day relates to the sighting of the moon (Muslims use a lunar calendar), and the animal is given water right before killed, a sentiment that

Taya Abu remembers: to be kind even when in a position of power.

From talk of the divine, we then transitioned into the mechanics of food preservation. Specifically, I encouraged *Taya Abu* to distill what preservation and food waste prevention means within the context of Narowal, the small town he calls home. His answer was simple: "*Achaar, Achaar, Achaar*." "Achaar," which means "pickle," is often made from the bounties of the season, and is a way to preserve the harvest of mangoes, carrots, radishes, and other produce. Achaar can be used as a condiment or side dish, in which the flavour is often enhanced by the likes of gooseberry, lemon, lime, and curry. For even greater innovation, he mentioned that Achaar was often blended into the colourful dishes containing raw mango, chickpeas, and lotus stems in Northern Pakistan. *Taya Abu* also disclosed that he remembers his father constructing a stove made entirely of mud when *Taya Abu* was a young boy. For burning fuel, cow dung was gathered, as the farming town had an excess amount. With such a sturdy foundation, everything from livestock to tea was created on the family stove and, to this day, it still sits in the same place, always ready if needed.

With regards to utilizing the entire animal, *Taya Abu* fondly remembers the particular dish of Dihes Balochi Sagi, in which the whole lamb was used: the tongue and brain, every and all parts are cooked on skewers and marinated in salt and green papaya paste and often stuffed with rice. The dish is roasted over coals and served with either roti or naan. The meticulous preparation and overt care for the environment in which the food was prepared prompted *Taya Abu* to share a sacred practice that originated in the Northwestern region of Kyber Paktunkhwa. It is there that "*dum pukht,*" an ancient method of cooking lamb, gained popularity. The practice of *dum pukht* involves the digging of a three-foot hole, which is then filled with coal. Upon the last piece of coal, an entire goat or cow is placed gently into the ground and slow roasted until complete. The entire process can take hours to plan and hours to cook, but *Taya Abu* assures me that some of his fondest memories are derived from waiting for such food to beprepared. I asked *Taya Abu* to leave me with one last thought and, with that, he noted:

> Food is the way in which God bends down from the heavens and offers you a hand.

Indeed, from this interview, I learned that food is the ultimate form of cultural self-expression and spirituality is tied closely to respect for food and to the Islamic injunction not to waste.

Yuting Cao Vignette (Jiangyin, China)

> "If you do not finish up the food in your bowl, the God of Thunder will get mad and strike you."

When I was a child, my mother used to scare me with the God of Thunder story. She heard her mother tell her as a child, "If you do not finish up the food in your bowl, the God of Thunder will get mad and strike you." I remember vividly how quickly I would eat up everything left in my bowl and was terrified of the punishment I could get if I wasted any food. The God of Thunder story has influenced me, reminding me to take food seriously.

When I called my mother to do the interview in the Fall of 2019, it was only two days after

she and my father returned home from their long trip to Xinjiang, the largest province-level division in the northwest China. My parents love travelling and, every year, they take at least five road trips to explore different views and tastes across the country. The constant theme from our interview was that "food is culture." When asked about the meaning of food, my mother said,

> To understand a culture, you have to know the food. I love to try the local dishes wherever I go; the culture and history are all reflected in food.

Then I remembered how excited she was gushing over the delicacies she had in Xinjiang when I Facetimed her a few days prior to the interview. In China, there is an old idiom that has been passed down since the Song dynasty (AD 80), called "民以食为天(mín yǐ shí wéi tiān)." 民(mín) means people, 食(shí) means food, and 天(tiān) means heaven. This expression refers to the most important things or the basic elements that define everything in my Chinese culture. The literal translation for this idiom is "people regard food as heaven." The Ancient Chinese believed that food is the first necessity in human life, and more than seven thousand years of agriculture civilization has bred a great diversity of food cultures. My mother was born in a small village in 1971, while China was still going through a planned economy and the Cultural Revolution had not yet ended. Every household in the village had a certain acreage of private plots allocated by the government. My grandparents were both farmers. They grew rice, wheat, vegetables, and fruit in the private plots. The food they ate everyday was picked fresh from the field. They also raised livestock and poultry, such as pigs, goats, chickens, and ducks. It was a time when food was scarce. A time when everything had to be purchased by coupons, and people could only have meat at festivals. Thus, waste was strictly forbidden, and the preservation of meat had become rather important. In winter, the low temperatures provided the perfect conditions for preservation; but, in hot summers, the meat could easily spoil in hours. My mother would put leftovers in a basket and place them in the well above water, as the cool air of underground water would keep the meat chilled. However, this technique did not guarantee complete freshness, so the meat still needed to be boiled in order to eliminate potential bacteria.

In another case, if a pig was slaughtered, the meat had to be preserved for the more distant future. The climate in Jiangyin is usually rainy in summer and humid in other seasons. Salting and air-drying are relatively appropriate methods to store the meat for months. Apart from pork, almost every part of the pig can be utilized from head to tail. For example, the skin can be made into pig skin jelly; the fat can be refined into lard oil; the blood can be used to make blood tofu; all of the viscera are edible; even the testicles are ingredients in some special dishes.
The "zero waste" concept has been implemented and practiced for thousands of years in China, and the same applies to other livestock as well.

Growing up in Jiangyin, my mother identifies herself a lot with the culture. The advantage of being on the southern bank of lower Yangtze River (the longest river in Asia) made Jiangyin one of the most important transport hubs in China since ancient times. The rich freshwater resource irrigates vast farmlands supporting aquaculture, and the historical economic affluence

compared to other regions allowed greater access to sugar. People gradually developed a sweet tooth and preference for delicate dishes. My mother has a typical Jiangyin taste. Influenced by cultural traditions and family habits for decades, she tends to put sugar more or less in almost every dish she cooks, not necessarily to add sweetness, but to enhance the original flavour of food itself. Also, she goes to the farmers' markets or wet markets much more often than supermarkets, because she still enjoys bargaining and buying fresh food from different vendors rather than stocking up.

As for the traditional preserved food, such as salted meat, the practice is indeed declining. "I don't do that anymore unless I crave that particular food," my mother confessed. With so many choices of food we have today, the traditional approach to preserving food seems more and more neglected by people. Many recipes are already lost, along with ancient techniques and wisdom. It cannot be denied that many of the recipes are lost inevitably due to the changing of time, but more are lost because no one would practice them. Therefore, my mother believes that it is the younger generations' responsibility to learn the virtue of valuing and respecting food to better promote traditional Chinese food preservation techniques.

Conclusion

The concept of "preservation pedagogy" as identified by Gabbacia et al. (2019) highlighted the need for reskilling in the basics of food preservation practices to help promote food resiliency, health, and food literacy. While Gabbacia's course at the University of Toronto offered a cooking workshop to help her students learn the basics of pickling and processing fruits into jams (preserves), there are additional complementary opportunities that can also contribute to reskilling through intergenerational storytelling and learning from different cultures to address the issue of food waste. The food course offered at Simon Fraser University teaches preservation pedagogy through an intergenerational student group project to learn about diverse approaches to food preservation and the ways in which diverse cultures view what is food and what is waste. This paper offered an intergenerational and cross-cultural examination of food and waste, as well as food preservation approaches through the lenses of the Siksika First Nation in Alberta, Canada; the village of Narowal in the region of Punjab, Pakistan; and the city of Jiangyin in Jiangsu province, China. While the foundation for understanding food for students began as a means to an end (i.e. the end being survival), the journey of participating in this project led them to new approaches to food. All three relatives interviewed made it clear that the food they consume is part of a complex relationship tying personal identity, historical context (colonization and residential schools), and spirituality/religion. The stories are also part of a larger narrative that highlights the valuable role of learning from different cultures and generations.

Despite differences in cultures, there were several findings that thread the three stories together. Most relevant to the act of saving and preserving food is the value of utilizing the entire animal after it has been slaughtered. Whether it is the role of the buffalo in the Siksika Nation, the

lamb in Pakistan, or the pork in China, many cultures around the world have a more encompassing view about what part of the animal is considered edible when compared with the typical meat parts commodified in an industrial capitalist context (for example, chicken breast, drumstick, wings). Consumption of these meat parts offal (heart, lungs, liver etc.) is generally stigmatized as the food practices of the poor, particularly in a post-war Western context (Strong, 2006). This makes it often difficult to access these meat parts in mainstream supermarkets. The idea of snout to tail eating or eating the entire animal has been made more popular or re-popularized by celebrity chefs, such as Fergus Henderson in his books, *Whole Beast* and *The Complete Nose to Tail*, under the mantra of rustic thriftiness (Henderson, 2004). In fact, these practices are still commonplace in other countries (Carolan, 2017; Coles and Hallet IV, 2013) and have been the foundation of survival for many cultures around the world. Another thread is the importance of understanding the entire food cycle from growing, to harvesting, to processing and consumption. The acts of growing, tending, and even killing the animals we eat are evident in the examples highlighted in the vignettes but are quite uncommon in urban settings and are not routinely or necessarily practiced by the students. The fact that livestock should be treated with kindness before consumption (as noted in the Eid-ul-Adha example), or that a ceremony is to be held for the animal after its death are also examples of the different ways that animals' lives are respected and valorized.

In reflecting upon their experience of learning from older relatives, the students noted the importance the elders have placed upon them to ask questions, to seek out stories that foster such a connection, and to contribute to shouldering some of the responsibilities for the future continuance of their cultural foods. One approach to increasing more opportunities to reskill and improve tangible experiences around food preservation and food valuation pedagogy is to highlight the role that formal academic spaces of learning can play in providing experiential learning opportunities for what is typically viewed as "informal" learning from home and from family. Food pedagogy can be based on innovative assignments that enable students to delve into cultural learning, when they would otherwise not find an opportunity to do so. Through this intergenerational project, elders shared their knowledge with the youth, and, in the process, students also learned about diverse food practices from their peers. This paper has hopefully elucidated the need to teach not only the "how to" of food preservation, but also the importance of preserving food stories.

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Original Research Article

Eating and learning about food at school and on campus: Farm to Cafeteria Canada (F2CC) in Metro Vancouver

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Abstract

Food is an interdisciplinary topic that transverses different areas of knowledge, allowing it to be used as a pedagogical resource in numerous teaching-learning processes and environments. This paper seeks to contribute to debates on the relationship between public procurement and food pedagogies in schools and universities. I explore the Farm to Cafeteria Canada (F2CC) network in Metro Vancouver, British Columbia, which beyond institutional procurement recognises food as a pedagogical resource at schools and on campus. My research is based on eighteen site visits, qualitative document analysis, and nine semi-structured interviews conducted with institutional administrators associated with F2CC in Metro Vancouver. This paper demonstrates that integrating food into the curriculum informs and legitimizes applied measures, such as food procurement. In this way, students not only learn about food, but also participate *in* and benefit *from* good food practices furthered by Farm to Cafeteria initiatives.

Keywords: Teaching-learning; Farm to Cafeteria Canada; school food; campus food; Metro Vancouver

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Introduction

In recent years, several initiatives carried out by social movements (Desmarais, 2015; Levkoe, 2014), producer and consumer groups (Albrecht & Smithers, 2018; Rosol, 2020; Rosol & Barbosa Jr., 2021), and even progressive governments (Wittman, 2015), have contributed to the expansion of discussions on the relationship between food, sustainability, and social justice. In this context, teaching-learning practices that focus on food gain greater significance, moving towards what has been called the "pedagogical turn" (Flowers & Swan, 2012) in food studies. The "pedagogical turn" seeks to promote food literacy beyond schools, recognising students not only as "food consumers", but also as full-fledged "food citizens" (Classens & Sytsma, 2020). I seek to engage with and contribute to ongoing critical food literacy debates by asking: in what ways and to what extent can school- and university-based food initiatives contribute towards creating effective conditions for student-citizens to engage with food system transformation? I answer this question by assessing the ways in which schools and universities have included food in their curriculum and policies, namely institutional food procurement. Institutional food procurement can contribute to transformations in food systems by determining not only the way in which food is purchased, but also the type of product, producer, and agricultural model that is prioritized (Swensson & Tartanac, 2020). In short, I investigate the relationship between food curriculum and food procurement policy in educational institutions to appraise both applied learning and concrete actions.

I explore the Farm to Cafeteria Canada (F2CC) network in Metro Vancouver, British Columbia, which I argue here, beyond institutional procurement, recognizes food as a pedagogical resource in schools and on campus. F2CC is a pan-Canadian organization that seeks to contribute towards increased consumption of local and healthy food by Canadian public institutions (F2CC, 2018a). Three axes direct F2CC's activities: Farm to School (F2S), Farm to Campus (F2C), and Farm to Healthcare (F2H). These three axes are variations of the Farm to School concept and practice, which seek to build direct, or at least closer, linkages between farms and schools. These three axes occur in Metro Vancouver and all of them directly relate to schools and universities' teaching-learning process. F2S has been developed in dozens of schools through actions that range from practical activities in school gardens to fostering the local economy through institutional procurement. F2C and F2H take place at University of British Columbia's (UBC) campus through UBC Farm.

This article is divided into five parts, in addition to this introduction and the final considerations. First, I review the literature on the relationship between schools, university campuses, and food policies. Second, I present the methodological procedures, outlining the relevance of qualitative research, eighteen site visits, and interviews carried out in Metro Vancouver. Third, I briefly characterize the F2CC network by situating it historically. Fourth, I discuss how Metro Vancouver schools and UBC incorporated the F2CC network. Fifth, and finally, I analyze how the actions developed by the F2CC network in Metro Vancouver can

contribute to discussions on the role of schools and universities in contemporary food policies and food pedagogies.

Teaching-learning practices and food systems transformation

As it is essential to life, food discloses how we organize ourselves in society (Belasco, 2008). "What we eat" and "how we eat" are essential to our ontology. Food guarantees our biological development as individuals, produces and is produced by cultures, has political and economic repercussions, and is linked to the ways in which different groups live alongside ecosystems. Therefore, any teaching-learning process that is based on materiality, should consider food as a powerful pedagogical tool.

The act of eating itself is pedagogical (Sumner, 2008). When educational processes account for food pedagogies, eating can become a transformative experience with the potential to contribute to sustainability and inclusion in formal or informal education. In formal education, food can be incorporated through the curriculum itself, which allows educational institutions to approach food as part of the set of skills that students must develop. In turn, informal education is developed through daily practices such as social movement organizing, work, leisure, and others. In these cases, food—given its importance in the lives of individuals and the societies in which they participate—can also be understood as a resource that helps in the production of "new" knowledge or in the reformulation of "old" knowledge. Reflecting on the relationship between food and formal and informal teaching-learning processes allows us to consider that teachers develop pedagogical activities, but so do politicians, activists, doctors, tourists, athletes, and all those "who think we don't know enough about food and what to do with it" (Swan & Flowers, 2015, p. 148).

In recent years, due to the growing contradictions in food systems (e.g., the paradox between hunger and obesity, high rates of poverty among family farmers, and increasing rural exodus), several initiatives have sought to change the way we relate to food. These initiatives include local farmers' markets, urban gardens, consumer groups, food policy councils, and agrarian reform initiatives. Though these initiatives propose divergent models for society, they all provide opportunities to address food through informal education. Both those who lead and those who benefit from these initiatives participate in a collective process of reflection on food systems.

At the same time, within the scope of formal education, a wide range of proposals have sought to establish new food practices in school and campus communities. In these cases, food is incorporated through specific topics, such as courses and disciplines, as well as, being related to content from different areas of knowledge. These proposals are diverse in terms of their revolutionary or reformist potential (see Holt Giménez & Shattuck, 2011), but they converge on

the objective of working with food as a structural component of curriculum and by questioning the organization of food policies.

An example of a proposal with revolutionary potential is the Schools *of* and *for* the Countryside, implemented in disputed areas (*acampamentos*) or in agrarian reform settlements with the presence of the Landless Workers' Movement (MST) in Brazil (Tarlau, 2013). The Schools *of* and *for* the Countryside criticize the Brazilian school curriculum, regarding it as being excessively based on urban values. For this reason, they work with Education in Countryside, which incorporates both Education *for* the Countryside (traditional perspective of teaching in Brazilian rural schools) and Education *by* the Countryside (the perspective of social movements that positions rural peoples as protagonists of their own learning process) (Barbosa, 2016). In these cases, food is positioned as a pedagogical resource to overcome the "urban bias" of official curriculum, building a teaching-learning process relevant to the people of the countryside (*povos do campo*). The training centres of the Latin American Coordination of Rural Organizations (CLOC), which represents *La Via Campesina* in Latin America (Meek et al., 2019), has a similar revolutionary objective. In these spaces, teaching-learning processes are enacted through disputes over food policies between the agribusiness and peasantry development models (Barbosa Jr., & Coca, 2015).

Among the proposals with potential for reform, one of the actions with the greatest impact has been farm-to-school programs. In the United States the National Farm to School Network was formed in 2007 with the aim of bringing communities fresh and healthy food, supporting local producers by modifying procurement policies, and implementing educational actions in schools and daycare centres. Currently, this network involves 42,587 schools (42 percent of the national total), reaches 23.6 million students, and engages more than 20,000 practitioners and supporters (National Farm to School Network, 2020).

Food is also the main component of some reform actions developed in the so-called global South, where fighting hunger is the primary objective. An example of this is the Nigerian National Home-Grown School Meal Program, launched through a pilot project in 2004 with the purpose of guaranteeing students' access to food, especially local products (Adekunle & Christiana, 2016). According to research by Adekunle and Christiana (2016), in the Nigerian state of Osun, such programs have been important to fight hunger and to improve students' academic performance.

The great diversity of initiatives that seek to modify the way we relate to food through formal education has gained much academic attention in recent years. Through the F2CC network case, I explore how schools and universities can contribute to food systems transformation through changes in thinking (teaching-learning process) and actions (public food purchases). Thus, the F2CC network is evaluated as an example of the confluence between formal and informal education in the search for food systems transformation.

Research design and methodology

This article presents the outcome of research on public institutional food procurement and educational institutions that I have been carrying out since 2013, which has resulted in several works (Coca, 2016; Coca & Barbosa Jr, 2016; 2018). During a one-year internship as a Visiting International Research Student at UBC, from November 2014 to October 2015, I analyzed the role of the F2CC network in increasing the consumption of local foods, with food sovereignty as a theoretical-methodological lens. Through this experience, I was able to better assess the challenges of implementing decentralized food policies, as is characteristic of Canada (self-citation). This research contributed to my doctoral thesis, defended in August 2016 at São Paulo State University (Unesp), Brazil, where I discussed institutional procurement of food from family farming in Brazil and Canada (self-citation).

Two factors led me to choose Metro Vancouver as a research site. First, the Metro Vancouver metropolitan region stands out as one of the most active in the promotion of Farm to Cafeteria activities (Vancity & PHABC, 2013), accounting for all three F2CC operation axes: F2S, F2C and F2H. I believed that by studying this region, I would be able to comprehensively assess the F2CC network's main axis. The second factor was my interest in understanding the role of UBC Farm in promoting sustainable campus food systems, given that my internship took place at the Institute for Resources, Environment, and Sustainability (IRES) (see Coca, 2016; Coca & Barbosa Jr, 2016), which has a close relationship with UBC Farm. Specifically, through UBC Farm I was able to work with the F2C and F2H axes.

My research began by carrying out a comprehensive bibliographic and document review on initiatives that sought to promote healthy eating in the global North. I consulted bibliographic sources in journals listed in the UBC library database, ResearchGate, Google Scholar, and Academia. After an initial literature review, I separated the sources that I considered relevant to the research and filed them in the bibliographic referencing software Mendeley for further analysis. Then, during fieldwork, I carried out eighteen site visits in schools with Farm to Cafeteria activities in the Metro Vancouver school district, as well as at the UBC Farm, community gardens, local farmers' markets, and the headquarters of NGOs linked to the F2CC network. The fieldwork was documented through notes and photographs. During some of these visits, in addition to participant observation, I also conducted semi-structured interviews with institutional representatives responsible for implementing Farm to Cafeteria. There were nine interviews in total, where I addressed topics such as: the organization's objectives, their relationship with the F2CC network, their conception of local food, and their pedagogical strategies. These interviews were transcribed and later analyzed using the ATLAS.ti software.

The F2CC network

The F2CC network emerged in 2011 as a proposal of the McConnell Foundation (2020, first paragraph) a private organization "that develops and applies innovative approaches to social, cultural, economic, and environmental challenges by granting and investing, capacity building, convening, and co-creation with grantees, partners, and the public." The McConnell Foundation seeks to organize several initiatives developed in Canada with the aim of promoting institutional procurement of locally grown food and to subsidize the creation of a network through which these activities could be connected. To this end, in 2011 the McConnell Foundation offered the Public Health Association of British Columbia (PHABC) and the Alberta Public Health Association (APHA) a sum of $175,000,000 to fund the creation of the F2CC network (McConnel Foundation, 2020).

In 2013, as one of F2CC's first activities, the network initiated research using a survey entitled "Local foods: Canadian schools, campuses, and healthcare facilities speak up". This research aimed to identify the benefits, barriers, needs, and strategies associated with Farm to Cafeteria activities in Canada and possible activities that could expand them. We had a total of 239 participants, of which 144 represented schools, 36 represented universities, and 59 represented hospitals. The results showed that: i) local food was an integral part of the menus in 92 percent of universities, 76 percent of schools, and 66 percent of hospitals; ii) educational activities on local food were carried out in 90 percent of schools, 86 percent of academic units, and 38 percent of hospitals; iii) local food policies or contracts existed in 33 percent of hospitals, 29 percent of academic units, and 14 percent of schools; iv) 63 percent of schools, 81 percent of academic units, and 58 percent of hospitals showed interest in expanding their activities to promote local foods (F2CC, 2013).

Informed by the research findings, F2CC (2012, fifth paragraph) prepared the "Strategic Plan (2013 to 2016): a living document", where it defines itself as "a national network that promotes, supports, and links farm to cafeteria programs, policy, and practice from coast to coast to coast. Farm to Cafeteria Canada is comprised of diverse regional and sub-regional agencies who are already working to bridge the gap between farm and tray. Together we have developed a strategy to link and further the Farm to Cafeteria movement in Canada." Furthermore, with the objective of increasing access to healthy, local, and sustainably grown food, the F2CC network established that its mission would unfold in actions that include reducing the distance between the production and consumption of food, prioritizing food produced through sustainable methods, incentivizing public institutions to procure local food, defending and disseminating local food culture, (F2CC, 2012). The document foresaw this happening through the F2S, F2C, and F2H axes.

In under ten years, the F2CC network has become one of the main voices and articulators of movements for change in Canadian food practices. This is exemplified in the way it has financed specific programs. In 2016, F2CC and the Whole Kids Foundation funded actions in fifty schools and four regional training sections in the provinces of British Columbia and

Ontario. In 2018, a new round of funding benefited thirty-three schools and ten regional training sections in the provinces of British Columbia, Ontario, Québec, New Brunswick, and Newfoundland and Labrador (F2CC, 2018b). Healthy eating events are another important F2CC network national articulation strategy. The "Farm to School Month", which takes place in October, aligns with the activities of the US National Farm to School Network. During this month, schools associated with the F2CC network are encouraged to promote activities to celebrate food (F2CC 2020). Another prominent event took place in May 2019, when in partnership with PHABC, the F2CC network held a national conference in Victoria, British Columbia, which was attended by 450 participants (F2CC 2019).

The F2CC network's reach was evident with the launch of the "Canada's School Food Map", in early 2016. This map/repository/database reports Farm to Cafeteria activities in 1244 teaching units, reaching at least 885,349 students (F2CC, 2021). Québec, British Columbia, Alberta, and Manitoba concentrate most of the initiatives in the map (F2CC 2021). In such a way, the F2CC network has consolidated itself as a national leader in the movement to implement food practices aimed at sustainability and social justice, with formal education spaces being one of the principal means for this to occur.

The F2CC network, institutional food procurement and teaching-learning processes in Metro Vancouver

This section presents the results of my research on the F2CC network in Metro Vancouver. First, I highlight some elements of the Metro Vancouver food system, which reinforce the understanding that even in countries with advanced capitalism, such as Canada, there are problems that prevent the convergence between food, sustainability, and social justice. Then, I demonstrate how F2S has developed through efforts that are internal and external to schools, recognizing the teaching units as important elements of the local food system. Lastly, I focus on UBC, where F2C and F2H initiatives are carried out. These examples provide evidence to my argument, which is that the food systems transformation carried out by the F2CC network, although limited to specific realities, considers new ways of thinking and practice.

The Vancouver metropolitan area was created in 1967 and has twenty-three local authorities (twenty-one counties, an Indigenous territory, and an electoral area) over an area of 2,877.36 km² (Metro Vancouver, 2021). Metro Vancouver has the third largest population among Canadian metropolitan regions, with 2,463,431 inhabitants, behind Toronto (5,928,040 inhabitants) and Montréal (4,098,927 inhabitants) (Statista, 2020). Among its administrative authorities, Vancouver has the largest population, with 631,468, followed by Surrey (517,887) and Burnaby (232,755) (Statistics Canada, 2017).

Since 2011, when the F2CC network was formed, Metro Vancouver has actively engaged with a strategy that aims to modify food practices (PHABC, 2012). The first milestone in

PHABC's proposal of incorporating Farm to Cafeteria actions in Metro Vancouver was to implement, from January 2007 to March 2010, the Farm to School Salad Bar program in some communities belonging to northern health area (PHABC 2012). According Interviewee 01 (June 2015, Farm to School BC), the proposal utilized funding from the BC Healthy Living Alliance and was inspired by projects that were being developed in other parts of Canada with the support of FoodShare, a food justice agency based in Toronto. Initially, in 2007, six Farm to School Salad Bar pilot projects were planned to be implemented in schools within the northern health area. However, due to budgetary restrictions, this proposal was only implemented at Dragon Lake Elementary School in Quesnel, reaching about 230 students. After this initial trial, the Farm to School Salad Bar was implemented in sixteen other schools during the 2008 to 2009 school year (PHABC, 2012).

During the period in which the Farm to School Salad Bar was implemented, some factors contributed to the F2S network becoming consolidated in British Columbia, among which are: i) the creation of an advisory committee, formed by representatives of more than thirty governmental and non-governmental entities; ii) the construction of a webpage to publicize the network's activities; iii) promotional actions to publicize the proposal, such as the donation of more than 5,000 packages with materials related to Farm to School British Columbia (F2S BC); iv) the elaboration of the document "A Fresh Crunch in School Lunch: BC's Farm to School Salad Bar Guide", which started to serve as a reference for schools interested in joining this program; ; v) workshops to implement the Farm to School Salad Bar; and vi) the event "Farm To School: growing the next generation", with more than 125 participants. Thus in 2011, PHABC, which had already taken the lead in implementing the F2S BC network, was also charged with organizing the F2CC network on a national scale alongside APHA. Since then, Metro Vancouver has concentrated its actions on the F2CC network's three axes, seeking to enact food systems transformation through the teaching-learning process and institutional food procurement.

F2S: external articulations and internal transformations

Canada is the only G8 member-country that does not have a national school meal program (Hernandez et al., 2018). This dire fact becomes more worrying in the case of British Columbia where in 2019, 19.1 percent of children lived in poverty (First Call: BC Child and Youth Advocacy Coalition, 2020). Metro Vancouver has fifteen school boards that receive annual grants to manage school meal programs from the provincial government through CommunityLINK (Learning Includes Nutrition and Knowledge) (Vancouver School Board, 2018). Even so, in Metro Vancouver, healthy eating practices in schools are limited. In the city of Vancouver alone, it is estimated that more than two thousand elementary school and secondary school students do not have the financial means to eat at school (Bramham, 2015). This makes fostering new food policies and practices in schools even more important. To

contribute towards overcoming this problem, the F2CC network has worked mainly through NGOs in Metro Vancouver schools.

Activities carried out so far bring together other elements of the local food system with projects directly aimed at changing the school community's food practices. Learning Labs, which constitute a "process designed to build or strengthen a community of practice in their efforts to scale up a particular activity" (F2CC, 2014, first paragraph) is one of the means through which the network has sought to articulate schools with other elements of the local agri-food system (Granzow & Beckie, 2019). During fieldwork, I was able to attend a Learning Lab promoted in partnership between F2S BC and the NGO FarmFolk CityFolk, through which proposals were made to the Vancouver School Board. The Learning Labs' objectives included increasing the consumption of local products, developing food guides for schools, and training teams to provide healthy food to the school community.

This Learning Lab sought to decrease dependence on large food supply companies, like Sysco, and the influence they exert in Metro Vancouver schools, or else to create mechanisms that would allows these suppliers to provide more local products. The premise being that large food suppliers have great potential to contribute to institutionalizing Farm to School projects (Izumi et al., 2010). Therefore, this proposal enacts F2CC network's efforts of applying top-down and bottom-up strategies. Interviewee 02 (June 2015, FarmFolk CityFolk), explains that: "from the 'top-down' we have to work within the existing contracts. So, there are large contracts, with large distributors, that will go on for the next five years, so we have to analyze how much of that food coming in is from BC and if there is an opportunity to buy more local. So that means that the schools—and this is from the 'bottom-up'—could buy the food not offered by Sysco, from the local producers". This Learning Lab ended in 2016 and subsequently, FarmFolk CityFolk received funding from the McConnel Foundation and Vancity to implement some of the proposals that were raised by schools and other members of the local agri-food system (Farm Folk City Folk, 2021).

Another way in which the F2CC network is active in schools is through food literacy (Powell & Wittman, 2018). One of the most emblematic examples is Project Chef, which aims to work within the school's curriculum as a possibility to encourage the adoption of healthy eating practices (Powell & Wittman, 2018). As highlighted by the Project Chef founder in an interview, as its main food literacy strategy, the program runs four to five two-hour classes with children from elementary schools in Metro Vancouver over a five-day period (Interviewee 03, July 2015, Project Chef). The main objective is to help students acquire knowledge and skills related to food consumption. For this, schools that host the project are asked to offer a basic structure that contains a sink inside the classroom and easy access to a refrigerator. Seven food preparation stands are set up in each classroom, each with a cook-top, an electric frying pan and a shelf with products. In one of the stands is the head teacher, who first demonstrates how the meal is prepared so that afterwards, the students, divided into six groups, have the opportunity to make the meal themselves. Parents and community members are invited to collaborate as facilitators within the classroom. In the end, students and the school community are encouraged to share and

enjoy the food they have prepared together. In this way, after learning how to cook food, students are also motivated to celebrate food itself. As Interviewee 03 (July 2015, Project Chef), described: "We teach them about where food comes from, what food tastes like—what real food, wholesome food tastes like—how they can prepare it themselves and how to share it around the table. And then beyond that we teach them how to compost, so we look at food education using cooking as the vehicle to teach it. So, we teach knowledge about food, we teach skills about how to prepare it, and clean up".

School gardens are another educational practice that combines food and curriculum in Farm to Cafeteria actions in Metro Vancouver. These spaces contribute to the cognitive, affective, behavioral, and sociable components of the teaching-learning process (Passy et al., 2010). The NGO Fresh Roots, for example, runs gardens in schools like Vancouver Technical Secondary School, David Thompson Secondary School, and Queen Alexandra Elementary School. In addition to the products grown onsite being used in school meals, Fresh Roots also sells gardens products to grocery stores, restaurants, and mobile outlets. School gardens and marketing the resulting products offer educational opportunities through which teachers can teach the curriculum (Coca & Barbosa Jr., 2018; Barbosa Jr. & Coca, in press).

These initiatives indicate how the actions articulated by the F2CC network in Metro Vancouver have contributed to the implementation of Prescribed Learning Outcomes (PLOs), which provide guidelines for teaching in public schools in British Columbia from Kindergarten to Grade twelve. In British Columbia, schools offer students the opportunity to learn all the PLOs content, however, they are given the freedom achieve this goal in different ways. For example, it is possible to relate food to topics such as domestic education, the biological cycle, or agriculture. The way this happens depends on the policies adopted at school and, mainly, on the disposition of educators. Interviewee 04 (August 2015, Teacher and member of the BC Food Systems Network), recounts: "It [food] fits everywhere, right? In British Columbia, teachers have a lot of autonomy. There are learning outcomes that I have to meet, how I meet them is totally up to me. 'What does the plant need?' I can give [the student] a worksheet that tells them 'sun' and 'water'…or I can take them outside in the garden. As a teacher, this is my choice".

Therefore, in Metro Vancouver, F2S actions are structured external and internal to schools. Proposals are developed to strengthen links between the school community with other elements of the local agri-food system, while offering food literacy actions to students. This indicates that schools are seen not only as recipients of food policies, but as active participants in the construction of food pedagogies at the local scale.

For these reasons, the work the F2CC network develops in schools follows a path similar to other F2S policies developed in North America, in articulating food procurement and food literacy (Powell & Wittman, 2017). While aiming to carryout sustainable food procurement practices, they also develop students' knowledge and skills.

F2C and F2H through UBC

Universities and colleges can also contribute to changing food practices through both their purchasing power as well as their teaching, research, and extension activities (Berg et al., 2014). In Metro Vancouver, I observed this through UBC's activities, specifically F2C and F2H initiatives. The UBC Vancouver campus community is made up of 65,658 people, with 44,442 undergraduate students, 9,984 graduate students, 4,975 professors and 9,959 employees (UBC, 2018).

Most of the university's food policies are managed by UBC Food Services. In addition, UBC has some policy provisions that allow the University to procure local products. "UBC's Sustainability Academic Strategy" positions sustainability as an objective for the different types of activities that are developed inside the university's campuses, also highlighting how the production, procurement, and commercialization of food can contribute towards this goal (UBC 2009). More specifically, the "UBC Sustainable Campus Food Guide" provides guidance for students, teachers, and staff to contribute to UBC's production of an agri-food system that meets the needs of the present generation without compromising future generations (UBC, 2013). About 53 percent of the food procured by UBC Food Services is grown or processed within 250 km from campus, and in the last decade there has been a 100 percent increase in the acquisition of organic apples and eggs generated by local cage-free chickens (Young Agrarians, 2014). These factors contributed to UBC being the first university, in 2012, to receive the Golden Carrot award from the F2CC network in recognition of the University's excellence in promoting Farm to Cafeteria actions.

A central element in the promotion of Farm to Cafeteria actions at the University is UBC Farm, a twenty-four hectare farm on campus associated with the Faculty of Land and Food Systems, administered by the Centre for Sustainable Food Systems, and used by multiple UBC programs. In addition to the production of honey, eggs, and animal raising in the open-pasture system, more than 200 species of fruits, vegetables, and herbs are cultivated at UBC Farm through a hands-on-learning model (Young Agrarians, 2014). This experimental farm is considered to be organic, as it develops its production in accordance with the requirements of the British Columbia Certified Organic Management Standards and the North Okanagan Organic Association, in addition to being inspected annually by an Environmental Health Officer (Young Agrarians, 2014).

UBC Farm has been involved in Farm to Cafeteria activities since 2003, selling part of its production to food marketing venders located on UBC's Vancouver campus (Young Agrarians, 2014). Interviewee 05 (June 2015, UBC Farm), explained that the first customer was the Sage Bistro restaurant, which specializes in fine foods. In that first year, approximately $1,100 of UBC Farm products were sold. UBC Farm entered into Farm to Cafeteria actions primarily through the sale of high value products aimed at a limited consumer niche (Young Agrarians, 2014). In 2006, in another one-off action, UBC Farm also started supplying beets and squash for pizzas at the Pie R Squared snack bar, located at the Student Union Building. It was only in 2007

that UBC Farm more closely associated with Farm to Cafeteria, becoming a reference for other Universities in Canada. That year, chef Steve Golob, who oversaw the meals served at Vanier Hall, established a partnership with UBC Farm so that the meals prepared there were composed predominantly of healthy and locally sourced foods (Interviewee 05, June 2015, UBC Farm). As a result, the approximately 2,500 students who ate at Vanier Hall daily, paying C$5.90 per meal on average, started to contribute to the maintenance and expansion of UBC Farm (Young Agrarians, 2014). From then on, UBC Farm underwent a restructuring process in order to expand its production scale to supply not only Farm to Cafeteria projects, but also other marketing channels.

Over time UBC Farm's relationship with the institutional food market has become broader and more complex. Among these changes, I highlight the prioritization of other types of products, in addition to those intended for niche markets and the acquisition of refrigerators to be able to sell products during the off-season. UBC Farm earns $25,000 annually in sales made to UBC Food Services alone. Its customers are comprised of nine restaurants or cafeterias located on-campus and fifteen off-campus (Interviewee 05, June 2015, UBC Farm). As such, the relationship between UBC Farm and Farm to Cafeteria projects began with Farm to Campus activities. Over time, UBC Farm expanded sales to UBC Hospital, which is managed by Vancouver Coastal Health.

Food consumption at UBC Hospital is managed by the multinational company Sodexo, which uses Gordon Food Services as its main source of product acquisition. Through the pilot project "Farm to Healthcare," financed by the bank Vancity, it was established that during the 2015 to 2016 biennium, this distributor would give preference to products grown by UBC Farm as a way to promote the university's agri-food system (Sine et al., 2014). The potential impact of healthy eating on the recovery process of hospital patients was one of the main motivations for F2H initiatives.

However, there are additional challenges to commercializing with hospitals: "it is more challenging in that the food safety standards are more rigorous as well generally hospitals have lower budgets and their food service provision is a lot less flexible" (Interviewee 05, June 2015, UBC Farm). This is because, in Canada, hospitals adopt the Hazard Analysis Critical Control Point (HACCP), which is recommended by the Codex Alimentarius Commission of the United Nations (UN) (Sine et al., 2014). This set of standards refers not only to the final product, but also to its production process. Attending HACCP guidelines has been a major obstacle for UBC Farm to consolidate itself as a supplier of food for UBC Hospital (Sine et al., 2014).

In addition to contributing to the adoption of sustainable food marketing practices, UBC Farm also functions as a space for pedagogical practices. This supports my argument that the F2CC network simultaneously operates through the relationships between food producers and consumers, and in creating educational opportunities based on food policies. The pedagogical activities at UBC Farm include guided tours, collaborative courses, engaged classes, and case studies for the development of critical thinking and food skills. These activities take place through courses at UBC itself (e.g., Introduction to Soil Science, Sustainable Agriculture and

Food Systems, Applied Plant Breeding, Social Entrepreneurship, and Horticultural Techniques) along with other universities and schools in British Columbia (UBC, 2021).

The F2CC network in Metro Vancouver and food pedagogies

The F2CC network in Metro Vancouver uses food as a component of the teaching-learning process in schools and universities. This is done by integrating food into the curriculum and through institutional procurement, which are advanced through a focus on sustainability and social justice.

The evidence that I have provided demonstrates that in Metro Vancouver, the F2CC network carries out activities that involve multiple groups including government, NGOs, teachers, parents, and other civil society groups. In schools, universities, colleges, and hospitals, the F2CC network creates external collaborations, articulations, and internal reorganizations for the implementation of fair and sustainable food policies. Externally, it establishes partnerships with the purpose of increasing the consumption of locally produced food. For this, Learning Labs are the main strategy, however, there are also other types of collaborations with producers or consumers that contribute to Farm to Cafeteria activities. Internally, the school and other academic teaching spaces develop their curriculum through food literacy activities that rely on diverse pedagogical practices aimed at building new food practices such as hands-on-learning. By reflecting on these collective experiences, we can better understand pedagogies through inclusion, complexity, and interdisciplinarity.

In Table 1, I summarize the main findings of my research into F2CC network's initiatives. With this, I exemplify two aspects through which the F2CC network inserts food in the teaching-learning process to contribute towards food systems transformation. The first occurs by directly adding food to the curriculum (i.e., what ought to be addressed in class). The second is indirect, in that it seeks to guide the procurement, in some cases even the production, and the consumption of food in educational units towards social justice and sustainability.
I find that both of F2CC network's efforts offer insights into the actuality and possibilities of food pedagogies.

Table 1: Overview of F2CC network's efforts to inserts of food in teaching-learning process

		Applied learning	**"Concrete actions"**
	Axis	**Changing how we think about food**	**Changing food policies**
Schools	**F2S**	- Integration of food into the curriculum; - School gardens as "open-air laboratories"; - Hands-on-learning resources.	- Learning Labs; - School gardens.
UBC	**F2C**	- Integration of food into the curriculum; - Experimental farm with organic production methods; - Hands-on-learning resources.	- Incentive for snack bars and restaurants located on campuses to make purchases with social and environmental criteria; - Updating of internal regulation, making it possible to increase the consumption of local foods.
	F2H	- Integration of food into the curriculum; - Dialogue with experimental farm activities.	- Attempt to adapt the food produced organically and locally to the Hazard Analysis Critical Control Point; - Seeks to reduce the preponderance of large corporations in the supply of food to hospitals.

The F2CC network case exemplifies the growing use of food as a dynamic part of the teaching-learning process, not only for children but also for teenagers and adults (Flowers & Swan, 2012). Such experiences become prominent when discussing the production of sustainable food systems through the lens of inclusion, ensuring food is accessible in the quantity, quality, and frequency required by a diversity of ethnicities, genders, origins, and generations (Alkon & Guthman, 2017; Kimura, 2011; Sumner, 2008).

Food pedagogies fostered by the F2CC network seek to promote sustainable and healthy food practices, which involves the production and consumption of food. Production is handled especially through hands-on-learning resources, such as school gardens or an experimental farm at UBC. These food production spaces can contribute towards a "pedagogy of autonomy" (Freire, 1996) to the extent that learning experiences stimulate students' curiosity, allowing them to reflect materiality by questioning food practices and in turn, transforming them. In this way, school gardens and UBC's experimental farm allow students to develop new skills and knowledge that leads them to learn how food is produced and question the conditions in which this occurs. To foster a pedagogy that leads to autonomy, food consumption is targeted through spaces and activities such as cooking classes, community kitchens, cafés, and restaurants. The main idea set forth by these examples is that food choices are part of our lives as citizens, generating not only individual but also collective repercussions.

Metro Vancouver's F2CC network's interdisciplinary approach draws attention to the incorporation of food as a pedagogical resource in curriculum activities. Food is one of the elements that allow us to better understand the lives of individuals and societies as they produce and reproduce through the transformation of nature.

Therefore, pedagogical strategies that reflect on people and the world through food practices and policies border different areas of knowledge. As such, food pedagogies inspire the production of integrated knowledge and skills, going beyond the positivist compartmentalization of knowledge. Therefore, although it is not intended to generate structural changes in the organization of agri-food systems, the F2CC network has been a key driver for the adoption of new food consumption habits in public institutions.

Final considerations

In this paper, I highlighted how the combination of applied learning and concrete actions in Metro Vancouver contributed towards food systems transformation. In schools, this is done through the contribution of NGOs that promote actions such as Learning Labs, food literacy, and school gardens. At UBC, the UBC Farm plays a key role, which is a space for hands-on learning, but also has links to other elements of the local agri-food system, especially through the sale of organic food. Irrespective to the diversity in mandates and activities, all the institutions studied produce informal education, given that they develop actions that go beyond the curriculum, especially by integrating other subjects and reaching other institutions in the community.
I conclude by indicating that the F2CC network offers an example of how schools and universities can contribute towards fair and sustainable food systems through didactic activities related to the curriculum and, also, through concrete policy, such as institutional procurement. These two dynamics are informed by each other, in a co-constitutive relation that together shape food pedagogies enacted through shared reflexivity, institutional practice, and an active student body. In drawing attention to this, I point to the fact that students are not only recipients of food policies, but are a concrete part of their production and can contribute to the transformation processes (see Aguayo & Morris, 2020).

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Original Research Article

Digesting performance: an embodied-environmental approach to food pedagogy

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Abstract

Food and food systems are distinct from many other areas of study, in part because of the material, experiential, and affective elements they comprise. Teaching about food can therefore benefit from pedagogical approaches that acknowledge, account for, and activate intersubjectivity, emotions, and relationships to both physical space and food matter. A pedagogy of performance responds to these needs with both theoretical and practical tools, as well as an inherently systems-based perspective and opportunities for experiential, relational, and interdisciplinary learning. This article presents the processes and observed outcomes of an intensive food and performance course taught at Quest University Canada during the fall of 2019. *Performing With(in) Food* brought together critical discussions of food studies and performance texts, analysis of food-related performances and artworks, bodywork and affect exercises, and practical experience in performance creation. The result was an experiment in mixing discursive and embodied learning that raised and examined complex food issues, activated individual investment in these issues, and brought about student success and transformation.

Keywords: Food pedagogy; embodied learning; performance; trust; risk; transdisciplinarity

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Introduction

"We are, it turns out, not billiard balls but tubes or, if you prefer, donuts…"
—Lisa Heldke (2018, p. 248)

As areas of study, food and food systems are distinct from many others, in part because of the material, experiential, and affective elements they comprise. Compounding this, students who select food-related courses and programs do so for diverse and often very personal reasons. Teaching about these subjects can therefore benefit from approaches that acknowledge, account for, and activate the intersubjective and emotional relationships among food, human beings, and the built and biogeophysical environments. Moreover, because food is characterized by pluralistic forms of knowledge, each of which is constructed in different ways, food pedagogy requires multiple modalities and a variety of paces and contexts.

Performance offers a response to these needs, comprising diverse theoretical and practical tools, as well as a coherent framing of the ways in which theory and practice are themselves co-dependent. Performance also embeds an inherently systems-based perspective, opportunities for experiential and relational learning, and a critical stance regarding power, all of which are becoming increasingly central to food study (Stephens, 2021). Taken in a broad sense, performance is "a dynamic relationship between action and the environmental conditions of its enactment" (Pearson, 2006, p. 220), one that transcends theatricality to also encompass social, material, and ecological dynamics (Carlson, 2004; Denzin, 2003).

Foodish things perform in many different ways. Seeds germinate and grow into plants, producing fruiting bodies that perform effects within the larger bodies that ingest and digest them. Cooks and eaters perform, enacting gestures and utterances, following and improvising around scripts that are both written and intuitive. Artists perform with and about food, producing visceral-emotional-cognitive effects in their audiences and in the spaces around them. And those in the media, who create language and images to express ideas about cuisine and heritage, can be said to be performing, in part, our gastronomic culture. As Richard Gough has noted, food is "a medium for performance and…a model of performance: multisensory, processural and communal" (1999, p. iii).

Performance can thus be understood as a framework with which to perceive, learn about, interpret, and reflect on any number of food contexts. Whether examining the 'natural' cycles of agricultural production, the restaurant-kitchen enactments of 'culture', the macro- and microbiotic collaboration that is digestion, or the systemic conditions that can actualize community food security, performance-based pedagogy offers tools and insights beyond conventional learning frameworks. In short, performance in the classroom allows the lively bodies of students to come into resonance with the lively bodies (and bodies of knowledge) that constitute food and food systems.

This article presents the processes and observed outcomes of an intensive, three-and-a-half week, eighteen-class course, taught at Quest University Canada during autumn 2019. *Performing With(in) Food* invited students to critically examine and reflect on food studies texts, syntheses of performance theory and practice, and a raft of food-related performances and artworks. A set of course assignments and experimental practices created opportunities for integrated learning, including bodywork exercises, reflexive writing assignments, performative 'field trips' on the university campus, and a final, student-created food-performance showcase.

As the course developer and instructor, I also acted as a participant-researcher, with written consent from the students to document my observations and to collect photographs and video recordings of their final performances.[1] By engaging the students' entire corpus in learning—including the sensorium, affect, emotionality, and the intellect—I witnessed them find diverse and very personal points of articulation with our coursework. These were eventually expressed through the development and presentation of their performances, which demonstrated complex understandings of their chosen themes as well as their own positionality. Yet the students and I were also met with a series of resistances to learning and teaching through performance, including questions related to trust and consent, the penetration of emotional and intellectual boundaries, disruptions to the spaces around us, and the perceived rigour and legitimacy of performance as a learning and research method.

In what follows, I juxtapose in-class exchanges, reflections on teaching about food and performance, and examples of the students' performance pieces. My aim is to iteratively demonstrate the value of mixing discursive and embodied learning to engage with complex food issues, activate individual implication in food, and bring about student success and transformation.

Performance-based pedagogy

"Performance and performative thinking can illuminate complex theoretical ideas in new ways and…can become an interdisciplinary foundation for a host of intellectual issues."
—Sally Harrison-Pepper (1999, p. 141)

A growing body of literature addresses the ways in which *embodied learning* can enable students to create knowledge not only through intellectual processes but also those associated with making and doing, sensing and reflecting (Evans et al., 2009; Stoltz, 2015).

[1] For the purposes of this research, ethics clearance was applied for and received from both Quest University Canada and Carleton University, where I was then engaged as a postdoctoral fellow.

Moreover, within food contexts, 'embodiment' is coming to be understood as a holistic experience of the production of integrated knowledges, in which mind, body, emotion, and affect are all engaged at once and in relation to each other (Heldke, 2006; Lupton, 1996; Perullo, 2016). This interpretation resists classical delimitations of the human corpus and its sense-making processes, and recognizes the wholeness of lived experience and the hybridity of enacting knowledge (Korsmeyer & Sutton, 2011; Nguyen & Larson, 2015). It also tends to counter some of the ways in which human understanding itself has been historically categorized—including 'low' and 'high' knowledge, the 'mind-work' of episteme and the 'hand-work' of techne, the 'aesthetics' of art and the 'functionality' of craft. Embodied learning can therefore help students unify and deepen the ways in which they interpret the world, maintain a high level of investment in food issues, and take innovative action towards addressing some of the large-scale, "wicked problems" (Conklin et al., 2011) that characterize many of our realities.

Performance-based pedagogy celebrates and leverages embodiment, offering "a way of knowing…a strategic analytic…a way of seeing and understanding the nuanced nomenclature of human social dynamics" (Alexander, 2006, p. 253). Learning about and through performance engages students' heads, hearts, and hands, giving them "the building blocks to create their own universes, to imagine the ways to take us forward into tomorrow" and to become adept at "dealing with given circumstances [and] engagement with the situation of the moment" (Abrams 2021, pp. 1 - 2). In addition to the immediacy of 'the moment,' performance also leaves and activates space for subsequent feedback and reflection, which helps challenge institutionalized power dynamics and situates students as both empowered and agential (Freire, 1996; Bradley et al., 2018).

Embedded within performance is *performativity*—the transformational potential emerging from the interaction of distributed agencies (Loxley, 2007; Miller, 2007). These include non-living and non-physical things such as architecture, designed objects, language, emotionality, atmospherics, and space (Carlson, 2004; Fischer-Lichte, 2008; Sweetser, 2001). Performance-based pedagogy thus aligns with a wide range of other learning models that acknowledge relationality, including reinterpretations of networks and systems (Gloor, 2006; Latour, 2013), nature-culture assemblages (Bennett, 2009; Phillips, 2006), the productive 'mess' of post-disciplinarity (Cook, 2009; Law, 2004), social resilience and ecosophy (Folke, 2006; Guattari, 2008; Morton, 2007), Indigenous paradigms (Settee & Shukla, 2020; Wilson, 2009), and iterative design and 'becomingness' (Akama, 2015; Orr, 2004). While it would be overstating the nature of performance to say that it transects all disciplines, practices, and frameworks, it remains open to connection with numerous currents in contemporary food scholarship.

Performance also embraces *improvisation*, itself interpreted in multiple ways and, owing to its own nature, resistant to singular definition. Improvisation can be understood as a deviation from a 'script' (either written or implicit), as well as a mutually productive companion to scriptedness (Sawyer, 1999). Improvisation leaves space for and takes advantage of the emergence of unexpected outcomes (Caines & Heble, 2014; Hallam & Ingold, 2007; Sawyer,

2004), serving as "a necessary experimentation with context, but also a specific practice, an awareness of playing the potential and possibility of any moment with the tools at hand" (Fischlin & Porter, 2017, p. 4). In both the field and the classroom, therefore, improvisation can enable students and teachers to develop alternative understandings of the food systems, cultures, and ecologies they collectively examine. Practically, it empowers students to customize their classroom experience while helping teachers respond to a diverse array of learning habits.

At the same time, and for many of the same reasons, performance-based pedagogy can be destabilizing for learners and teachers. The 'non-definitions' at the foundations of both scripted and improvised performance can trouble conventional learning habits, particularly among students whose previous educational experience has taken place within more positivist framings. This can disrupt classroom patterns and introduce doubt and discomfort. It also presents challenges when it comes to course design, including learning goals and modes of evaluation. The "alternative social spaces of engagement and resistance" (Fischlin & Heble, 2004, p. 2) offered up by improvisation and performance tend to cut both ways.

To address these destabilizations, a high level of trust needs to be built in to the processes and objectives of performance-based learning. McRae & Huber (2017) propose the use of "warm-ups" within learning, including sensory and bodily mindfulness exercises that ground a classroom group in a shared experience and moves them toward commonality, and therefore, trust. Following Pineau (1995), they highlight "everyday performances as invaluable sites of knowledge and learning" (McRae & Huber, 2017, p. 165), ones that relate reassuring and familiar acts—such as shopping, cooking, and eating—to the more risk-infused spaces of post-secondary education.

More explicitly, Aidan Curzon-Hobson (2002) calls for a "pedagogy of trust," characterized by *care* and *challenge*, the freedom to express the self (for both learner and teacher), an acceptance of the fragility of objectivity, and the willingness of instructors to 'put down their own power' in order that learners may pick it up and self-actualize their sense of authority. In this sense, "trust is not simply a student's confidence in the teacher that the content of a programme is 'up to date' and that methods of assessment are 'fair' or 'valid'" (p. 268). Instead, it is about taking risks together and sharing what transpires. While risk is generally accepted within artistic performance contexts, performance-as-pedagogy requires more attentive consideration, particularly given the already-fraught spaces of contemporary undergraduate learning (Barnes et al., 2012; Denzin, 2015; Wilson & Gerber, 2008).

Jennifer Sumner has argued that "eating is a pedagogical act" (2013, p. 47), a statement that riffs on and extends Wendell Berry's own powerful declaration that "eating is an agricultural act" (1990). Sumner also notes that eating is a social act and a cultural act, as well as a political, environmental, and economic act. It is as well, by its nature, a personal and embodied act. As an assemblage of these diverse 'acts,' eating and the processes that precede, follow, and surround it, take form as a cycle of entangled performances—of making, doing, thinking, feeling, and even *being*. A performance-based pedagogy thus suggests itself as a way to step into that cycle, and enable students to sense "a more wild patterning of the [food]

world" (Szanto, 2018). It is a way to invite learning that is as systemic and hybrid as food systems themselves, "challenging existing gendered, geographic, sensory, and cultural hierarchies in the process" (Hunt, 2018, p. 29).

Course structure

"We can think of performance (1) as a work of imagination, as an object of study; (2) as a pragmatics of inquiry (both as model and method), as an optic and operator of research; (3) as a tactics of intervention, an alternative space of struggle."
—Dwight Conquergood (2002, p. 152)

Courses at Quest University are delivered through a "block system" in which students enrol in a single course per four-week period, each consisting of eighteen three-hour meetings. In addition, students are expected to complete three to five hours daily of readings, research, exercises, and/or assignments.

Performing With(in) Food was designed as a one-off course, open to all Quest students. It merged discursive, material, and processual learning, as well as occasions for oral and written reflection. Resources included literature on performance theory and practice, food studies, performativity and distributed agency, critical theory, and design. Videos and websites, featuring food art and performance documentation, rounded out the course material.

The course started with foundational questions about the linkages between food and performance, moving on to the evolution of performance and performativity, and the 'spectrum' of food performance, from artistic to environmental. Subsequent themes included material and linguistic agency, a queer perspective on failure and disruption, food politics, the process of iteration in shaping creative outputs, and tactical issues such as developing a performance score, dramaturgy and staging, and techniques related to performance documentation.

Our morning meetings brought together seminar-style discussions, review and analysis of performance and art works[2], peer exchange, and reflexive exercises. Students were required to maintain a journal with entries on food and food issues, technical notes on performance, and themes for creative development. Each Monday, they submitted a written reflection, drawing on their journal notes, and cumulatively producing a sketch of their trajectory through the course.

[2] Merging food, power, gender, technology, queerness, relationality, and other themes, these works included: Alison Knowles' "Identical Lunch"; Sandeep Bhagwati's "Ecstasies of Influence"; Judy Chicago's "The Dinner Party"; food performances by Karen Finley and the Food Not Bombs collective's street-food actions; a range of examples cited in Barbara Kirshenblatt-Gimblett's "Playing to the Senses"; Simon Laroche & David Szanto's "Orchestrer la perte/Perpetual Demotion"; Jana Sterbak's "Vanitas: Flesh Dress for an Albino Anorectic"; David Szanto's "The Gastronome In You"; Marije Vogelzang's "Eat Love Budapest"; and Dawn Weleski & Jon Ruben's "Conflict Kitchen". For additional examples and descriptions of past food performances, see: Kirshenblatt-Gimblett (1999) and Szanto (2017).

Other weekly exercises included a peer-question-and-answer forum, bodywork practice (including sensory 'tuning,' breathing, physical-mechanical, and emotive-interactive exercises), the drafting and revision of a performance score (towards the showcase on the penultimate day), and on-campus, publicly witnessed group performances. These last were loosely framed by the group and then largely improvised; they included one processional performance, one exercise in Situationism, and one interventionist performance.

On the Monday of the fourth week, performance scores were 'finalized' and a schedule was negotiated for the showcase. Dramaturgy and blocking were (mostly) settled, including some partial rehearsals and documentation planning. For logistical reasons, one performance took place on the previous Sunday, while the remaining six spanned Tuesday. On the final Wednesday of the course, we debriefed and reviewed the seven performances and their documentation, including peer critique and commentary.

Some of what happened

"[Performance] is less 'a thing done' than a set of questions asked…the more it keeps on the slip, remains diffuse, and resists congealing…the greater service it provides…."
—Rebecca Schneider (2006, p. 253)

Accommodating a range of learning experiences, *Performing With(in) Food* was intended to engender knowledge that was both intellectual-discursive and embodied-affective. Based on previous teaching, I anticipated this might create cognitive or emotional disconnects, as well as occasions to bridge them through shared analysis and reflection. My desire was to allow emergent threads to arise and be explored, both collectively and individually. In what follows, I summarize several of these threads, including illustrations from the classes and performances.

Building trust and worrying 'consent'

Consent became an important theme during the first week of the course, as students articulated concerns about 'audience permission' within food performance contexts. These included the implications of bodily penetration, maintaining health and safety, confounding taste, and probing identity. Many flyers about sexual consent were posted across campus, and I suspected that this awareness had translated itself into questions of artistic consent. It was both striking and somewhat challenging regarding my ambitions for the course.

Early on, I expressed that food performance is a valuable means to blur and destabilize the 'boundary' between audiences and performers, and to trouble stable definitions of ethics, art, and social norms. My critical pleasure in this value was met by some students with

consternation. *Where is the line of consent?* they wondered. *What right do performers have to create risk for their audiences?* Others recognized that consent is inherently given when an audience chooses to experience a performance, either by buying a ticket, stepping over a physical threshold, or remaining sensorially present. But what of interventionist performances, spontaneous actions in public, or other non–pre-framed actions? When a student in a library is suddenly confronted by a performance class trying out Situationism in the chairs around her, has she given consent to witness what happens? Did she do so merely by placing herself in a public setting? If so, what is *not* public and where might consent be implicitly withheld?

These questions—and the ways in which they relate to eating, consumer 'choice', and other public or private food activities—continued to inform undercurrents that were never fully resolved during the course. I kept uncertainty about them foregrounded while also working to ensure that whatever risk they presented was both visible and addressable. Two main exercises supported this, and while some students remained discomfited by trust, risk, and consent, the final performances also demonstrated a willingness to face—and engage with—that uncertainty.

Performative iterations

Each class thus began with the question, "How did you perform your food yesterday, and how did it perform you?" A bridging mechanism to establish continuity with the previous day's class and the students' work/play/leisure at home, the responses also allowed for additional food themes to be brought forward. Identity and upbringing, the agency of kitchens and supermarkets, hunger and decision-making, migration, love, death, and others were raised.

At the root of my question was a key issue: performance is both a thing we do and a thing that is done to us. Similarly, food and humans exist in a mutual relationship of co-production, just as food systems are both produced by and producers of humanity. The responses from students—generally four or five per class—gradually reflected their growing acceptance of these dynamics. Moreover, the additional themes that students raised helped inform the day's discussion and gave me cues for material and/or exercises that might be added to future meetings. In this sense, their thinking-doing with my daily question prompted my own improvisations while demonstrating my willingness to share in the risk of diverging from the syllabus.

The daily repetition of a question-and-answer cycle also served to reinforce two theoretical concepts and offer practical illustrations. Our readings on performativity addressed the ways in which repeated action tends to sediment itself into material and symbolic bodies. While the relevant texts (Austin, 1978; Miller, 2007; Searle, 1989) might have been read and appreciated during the previous afternoon's course prep, parsing the "*stylized repetition of acts*" (Butler, 1988, p. 519, original emphasis) that constitute day-to-day eating served to anchor a lived experience of performativity.

The related concept of *reiteration*—central to performance—was also portrayed through our question-and-response ritual. While the wording of my inquiry remained the same, I altered my intonation and degree of whimsy or seriousness. By the end of the course, the question had been posed so many times that it was both reassuring and tedious, a matter of serious introspection, and our shared inside joke. Similarly, the students' responses became variously more insightful, impatient, reflexive, and straightforward. I understood this as a growing acceptance of the underlying point about intersubjectivity, and an embodiment of the question as both normal and provocative. On a more functional level, practicing reiteration helped students normalize the repetition of drafting and redrafting their performance scores. Rather than becoming an exercise in 'correcting' a draft, re-writing was understood as a process of discovery and emergence. The students' eventual performances and peer critiques seemed to reflect the creative value of iteration and its bodily and cognitive effects.

Performing bodies

A second set of exercises involved variations on the theme of 'body work,' in which physical action built connections between learning through words and deploying that learning through the body. Exercises included isometric practice, such as pushing hard against a wall or floor (borrowed from choreographer Twyla Tharp), and attentive breathing through alternate nostrils (borrowed from yogic practice). Each was preceded by my prompt to try to witness effects within the senses and emotions; a debrief and reflection session followed each exercise.

As a riff on Erving Goffman's *The Presentation of Self in Everyday Life* (1973), I and two student volunteers sequentially stood on a swivel chair while the rest of us attempted to 'read' the messages communicated by the person's appearance. While the exercise occasionally drifted into fashion critiques (particularly when I was on the chair), it also served to illustrate how gesture and aesthetic choices are part of the diurnal performance of being human. This tied neatly into parallels with daily food habits, as did the isometric and breathing exercises. Reflecting on the (dis)empowering sensations of struggling against an immovable object, or the stabilizing effects of breathing and remaining still, we drew easy analogies to food activism and resistance, including the capacities (and lack thereof) of an individual to bring about change within an apparently dominant system.

A classically inspired theatre exercise involved seating two students opposite one other, with the requirement that they not talk or laugh while maintaining eye contact. The rest of the group paid attention to body language, affective displays, and other cues about what the two might be experiencing. After approximately five minutes, I 'released' the students from their exercise, and we debriefed. A subsequent iteration involved me taking on the role of one of the sitters, while one student played timekeeper and another sat across from me. Channeling my inner Marina Abramović (2010), I attempted to project a wave of affect toward my partner. At a certain moment, I turned my palm upward and moved my forearm into the space between us,

continuing to make eye contact. The student looked unsettled but intrigued. After some seconds, she reached forward and held my hand. We sat like that for perhaps another two minutes, and when the timekeeper eventually ended the exercise, I was hot, shaking, and red in the face. The student appeared equally moved.

In the debrief that followed these two exercises, students agreed that it is intensely challenging to both participate in and witness durational eye contact. My addition of hand contact also resurfaced the question of consent. Had the student across from me been coerced into taking my hand, because of student-teacher power dynamics? Was she pressured by the inherent requirements to participate in a classroom exercise on 'performance,' and therefore prompted to imagine a dramaturgy and take action? Or was it a matter of free will, creative intention, and experimentation?

While none of these questions was resolved—and certainly a good deal of emotional and affective discomfort remained—we had once again confronted a central question that relates to both food and performance. Direct, intense contact with 'the other' can threaten our sense of self, of personal security and bodily integrity. In the realm of food, the perceived threats within eating are mitigated through industrial and cultural control mechanisms such as cuisine, packaging, branding, and regulatory policies (Fischler, 1993). Yet these same devices have also been exploited over time, distancing us from the messiness of food production and mediating the ways in which we experience consumption (Atkins & Bowler, 2001; Mansfield, 2003; Rousseau, 2012).

Rigour, experimentation, and non-objectivity

For the second of three on-campus experiments in public performance, we had collectively agreed to make a mini field trip to the central space of one of Quest's main buildings, where students often lounged, worked, chatted, and sat sipping coffee near a glassed-in fireplace. Earlier in the week, we had read two texts on the Situationist International (SI), an art-and-politics movement that was active largely in the 1960s and which critiqued the mediation of social relations through commercialized objects (SI, n.d.) Our discussion of the SI had focused on their call for citizens to engage in artistic performance through the making of 'situations,' unstudied moments that might invert the dominant relationships among art, commerce, and spectacle. The SI readings coincided with our examination of John Cage's (1952) 'silent' piano performance, *4'33"*, and the insight it provides into the ways in which audiences perform just as much as do those 'on stage.'

We therefore decided to stage a 'situation' in the Atrium, seating our 15 bodies in a circle of chairs that faced outward from the center. We would then spectate upon those in the space, inverting the normative roles of performers and audience. When one of us felt so inclined, they would applaud or otherwise celebrate a 'performance' of someone around us. The experiment lasted about 20 minutes, and included the sharing of a bag of popcorn, leafing through mock playbills, miming gestures of appreciation, and some occasional whispered comments. At a

certain moment, as agreed by the group in advance, one of us rose and initiated a standing ovation, in which the rest of us then joined. This brought an end to the exercise, and we returned to the classroom to debrief.

Another exercise the previous week had followed a similarly loose, experimental approach to public intervention, during which we created a relatively spontaneous, 'processional performance.' It wound through a number of spaces on campus and then also culminated at the Atrium Building, this time on the top floor. There we assembled around the open light well, looking down on the lounge area below. A series of rules regarding gesture and behaviour had been established in advance, including sound-making with a food-related object, improvised mimicry of others' movements, and an open-ended conclusion, which would ultimately be determined by whoever chose to trigger it.

Both exercises aimed less at copying precisely the historic indications for either processionals or situations, and more at establishing a comfort level with drawing attention, disrupting and/or engaging with public space, trusting in one's co-performers, and attending to their cues and prompts. My intention was partly to lay the foundations for our eventual performance showcase, both in terms of experimentation and self-confidence, and partly to synthesize some of the readings through embodied action in learning environments less normative than our classroom.

Our debriefs of the two performances, as well as comments in the course evaluation, revealed that these 'field trips' had been valuable in anchoring theoretic and historic examples of performance. As humans in chairs in a classroom, we learned by listening, speaking, and occasionally gesturing with a hand or shoulder. As humans rolling chairs across a snowy walkway, or climbing an indoor stairwell while rhythmically beating bowls with whisks, we learned to express abstraction through art. We also learned what it is to be witnessed by others, and just as passersby reflected on what we were doing, we reflected on them reflecting on us, creating the all-important relationality of performance. Within this 'feedback loop' of spectation, the students sensed the ways in which their own positionality plays out in creating a 'true interpretation' of what is happening. Truth was thus witnessed as pluralistic, given that we had to accept the co-existence of our own experience *and* our perception of the ways we appeared to others. The parallel for understanding food systems was front and centre: food 'realities' are multiple, produced through an interplay of discourses, materialities, and the performativity of language and substance.

At the same time, these exercises provided the students with a form of lived experience that both supported and offered critiques to the theoretic framings of processional performance and situationism that I had presented. For the former, we learned that processionals, though seemingly loosely organized, in fact require a strong degree of pre-planning, narrative, and commonly held rules. As social rituals, they are highly scripted, serving specific purposes such as celebration, mourning, transformation, and homeostasis (Schechner, 2003). To the viewer, they may appear spectacular, mundane, invitational, or exclusionary, yet each of these effects requires advance thinking and doing on the part of the performers. Given the evident role of food

within rituals, the 'processional' cycles of growing seasons, and the ritual nature of transforming and eating food things, we found many points of connection to the matter of food.

In the case of creating situations, it became clear that the era in which the SI operated was key to the effectiveness of its social impact. Some sixty years later, flash mobs and other performative interventions are far more common, and have perhaps inured average citizens to the powerful critique that situationism originally presented. Moreover, as became clear in our own experiment, our outward facing chairs and 'stagey' presence was itself quite spectacular in the otherwise tranquil space of the Quest atrium. Inverted and re-inverted again, our performance was more a performative mimicry of situationism, rather than a situation in the SI's original intent. It had performed us just as much as we had performed it. While this reinforced the intersubjectivity of food and humans that the course addressed at the larger scale, it also revealed the ways in which attempting to invert systems-based power structures can fall flat or even backfire. Rather than suggesting the need for a "food revolution" (Petrini & Padovani, 2006), the exercise helped reinforce the transformative value of iterative efforts and smaller steps towards food system change.

Dissociations in and out of the classroom

During the first week of classes, a reading that struck a powerful chord with many students was Barbara Kirshenblatt-Gimblett's "Playing to the Senses" (1999), a comprehensive historical survey of artistic performances that have treated food as both theme and medium. The author's interpretation of *dissociation* became the pivot around which we discussed her article: "While we eat to satisfy hunger and nourish our bodies, some of the most radical effects occur precisely when food is dissociated from eating and eating from nourishment. Such dissociations produce eating disorders, religious experiences, culinary feats, sensory epiphanies, and art" (p. 3). This notion resonated with several students, helping a realization to dawn about the ways in which food is normatively and often invisibly integrated with our lives. This then led to an understanding that there is value in 'de-normatizing' food through performance, precisely to re-sense its comforts and discomforts. Notably, the students extended their interpretation of dissociation to a variety of other themes in the course. It became an anchor point for discussions about body image and health, satiety in the absence of food, food as culture versus food as fuel, and cooking Korean, Japanese, or Balinese dishes in North America.

A concept related to dissociation is that of "perceptual multistability" (Fischer-Lichte, 2008, p. 88), that moment when audiences witness both 'actor' and 'character' coalesce into one state of existence while still perceiving them as separate. This condition can produce delight, confusion, dissonance, or even ecstatic transcendence among its witnesses. Historically, cooks have played with a version of perceptual multistability, creating *trompe l'oeil* dishes (e.g., fish formed in the shape of chicken) or architectural *pièces montées* (such as those of 19th-century French chef Marie-Antoine Carême). More contemporarily, the notion might be applied to plant-

based and lab-grown ‘meat,’ as well as the playful yet tightly controlled dishes of avant-garde and molecular cuisine. Perceiving multistability has value beyond culinary theatrics, however. Sociopolitical and economic food issues, such as sovereignty and supply-chain management for example, might also be characterized by multistability, suggesting that training the mind and body to witness such a state can be useful across a range of food realities.

To explore multistability in our course, I proposed an in-class makeup exercise. Strongly anchored to the theatrical arts, applying makeup is a technique that supports an audience’s perception of multiple realities. Feeling that enough trust had been established in our group to make the exercise feasible, I therefore invited the students to bring makeup with them to our 14th meeting, the last Thursday of our course, stating that I would do so as well. I nonetheless made it clear that it was fine not to participate.

As we sat around the table, a wide range of cosmetic resurfacing took place. I opted for full foundation coverage, heavy eyeliner, and beard and eyebrow pencil, in an attempt to ‘erase’ my normal appearance, even as I continued to play professor. Others drew flowers on cheekbones, applied glitter to foreheads, and painted lips with non-standard colors. One student simply highlighted her nose with pearlescent white eyeshadow, leaving the rest of her face bare. As the exercise had been scheduled toward the end of the class time, we then drifted off to the rest of our afternoons.

The following day, we debriefed the exercise, generally agreeing that, despite the safe environment of our classroom community, it had been strange and destabilizing to go ‘out’ looking as we did. One student noted that he was very conscious of being looked at by people at the recycling centre he had gone to that afternoon, a space he identified as highly masculinized. Though he had washed off the Amy Winehouse–like ‘wings’ at the corners of his eyes, traces of green glitter remained. As he purchased pieces of metal grating for his eventual performance installation, he had a strong sense of being seen in two ways. Others also noted that they had sensed themselves being differently perceived by friends and roommates, enhancing their identification as “students in that performance class” as well as bodies that soon would be performing again in public spaces on campus.

As we talked, it appeared that many in the group felt empowered by being able to articulate the embodied sensations they had felt through the theoretical understanding of the Fischer-Lichte and Kirshenblatt-Gimblett texts. As had happened in earlier conversations about the dissociative/reassociative nature of performance, a growing sense of the multiple, simultaneous nature of reality started to emerge, whether on a stage, in a classroom or kitchen, or around a conference table. Notably, although we had previously had an on-campus “disruptive performance” scheduled for Day 15, we collectively agreed that our makeup exercise had been adequately disruptive. Indeed, turning the disruption inward to our own sense of self may have been more pedagogically useful than staging an outward-facing intervention for others.

Reassociating food and performance(s)

Located in the northeastern hills of Squamish, British Columbia, the Quest campus is relatively isolated. Most of the university's 800 students live in residence, and many, though not all of them, participate in the institutional meal plan. Residences have varying levels of kitchen infrastructure, and based on our in-class exchanges, it seemed that many of the students had a love-hate relationship with the Quest cafeteria, the Squamish dining and food-shopping options, and their domestic culinary opportunities.

One student, in particular, found the on-campus food to be a source of extreme frustration, indicating that when she had lived in residence, it made her feel imprisoned and disempowered. (At the time of our course, she had moved off campus and was cooking for herself.) Another noted that the quality of the food made it hard for her to want to eat, and that she had recently started smoking a small amount of pot on the way to the dining hall, to ensure that she had sufficient appetite. Many of the students had a range of overseas histories, and had thus acquired a taste and skill for international cuisine. While they seemed to take pleasure in their own meal-making, it was mitigated by the inconveniences of shopping and cooking that the Quest location and facilities implicated. In my own experience with the Quest cafeteria and café, I found them to be perfectly adequate, although I did imagine that were I to spend more than three and a half weeks on campus, I might align more closely with the students' attitudes.

It was from these very personal and day-to-day food experiences that several of the students' performance themes had emerged. They included food-as-sadness, food-as-collaboration, food-as-sensory-agent, and food-as-identity. One piece, "Banya," (see Table 1, below), was eventually developed around the dissociation of nourishment from edible food, and the potential for shared experience to create a sense of satiety, even in the absence of eating.

Already relatively grounded in critical thinking about normative dualities, the students nonetheless expressed the challenges of using language to express these problematics. For example, even as *self* and *other* were intellectually understood as either opposed (within dualistic thinking) or unified (within systems thinking), reading and saying "self" and "other" out loud reduced the tension between them. Yet as they began to interpret food as *other* through performance (and dissociative performances), many students began to sense the potential to embody a sense of their own 'otherness.' This appeared to be both liberating and confounding for them. The performativity of language, as expressed in academic texts, had started to translate into embodiment, and was therefore more holistically understood as well as more troubling.

Some performances with food

"Because of the way it engages the senses, food offers particular challenges and opportunities for artists, both those interested in spectacular theatrical effects and those working on the line between art and life."
—Barbara Kirshenblatt-Gimblett (2012, p. 85)

The course culminated in a showcase of performances that were conceived, developed, and staged by the students. It served as an occasion to practice reiteration and reflexivity, a means to evaluate overall student learning, and an opportunity to share affective-environmental performance with the broader Quest community. In all, four performances were conceived individually (with collaboration from classmates in two cases) and three were based on an initial direction conceived by one person but collectively elaborated through a compressed cycle of iterative development.

Table 1: The Quest student performances

performance	location/time	witnesses	concept and themes
"Banya"	riverbank (off campus); Sunday AM/PM	invited guests	a Russian-style outdoor steam bath, involving collaborative construction, environmental immersion, endurance, cleansing, and the induction of a feeling of nourishment
"Seeds"	central lawn (on campus); Tuesday AM	passersby	a solo, wordless performance, involving the extraction, distribution, and planting of fruit seeds, the valorization of life, and a critique of consumption
"Whisking Together, Whisking Apart, Calling it Art"	Atrium Bldg. stairwell and café; Tuesday AM	passersby; café clients	a multi-person, two-part processional and installation, involving the whipping of cream, trust and risk, and collective food production
"Strings Attached"	Academic Bldg. breakout room; Tuesday AM	course enrollees	a one-on-one relational storytelling experience, involving the 'translation' of taste and emotion, intimacy, and trust
"A Destructive Dinner Party"	Cafeteria lobby; Tuesday noon	cafeteria clients	a staged, farcical performance of eating in public, involving heightened visual cues, choreography, improvised messiness, and a 'fancy' dinner outside a cafeteria
"Reflexive Curry House"	Academic Bldg. break-out room; Tuesday PM	invited guests	an immersive environment, involving visual and olfactory cues, food consumption, reflective surfaces, introversion, and an invitation to feel the (dis)comfort of eating alone
"Me, Myself, and You"	Academic Bldg. break-out room / classroom; Tuesday PM	invited guests	a durational cooking performance involving vulnerability, emotional self-doubt, and culinary confidence; the cooking and serving of food to two isolated diners, each listening to a recording of the cook telling 'secret' stories about herself

"Whisking Together," "Destructive Dinner," and "Curry House" all treated themes of collaboration and individuality in making and eating food, as well as distributing uncertainty and discomfort among a wide range of bodies in order to mitigate the associated risks. The performers of "Seeds" and "Me, Myself" both looked inward to the ways in which they personally value food, as well as the ways in which they perceived others value it. "Strings" related to the translations between taste and language, as well as the intimacy and vulnerability of sharing food, personal stories, and a physical connection. And "Banya" was an exercise in collectivity, as well as an attempt to re-perform a rite from the family heritage of the key instigator.

In what follows, I expand on three of these performances, drawing out what I view as key themes and their relationships to what the students had learned during our time together. For reasons of space, I do not address all seven of the pieces, though each represented multiple opportunities for analysis.

Calling it art

"Whisking Together" was staged in the glassed-in stairwell of the Quest Atrium Building. It combined processional performance, individual gestures to whip a bowl of cream, and a final, dramatic 'reveal' in which the conceiver of the piece lifted the bowl over her head and inverted it. Lasting approximately five minutes, the performance was visually delightful, gently fraught, and both showy and quotidian. The four-storey 'stage' established a distanciation between actors and audience, yet as I moved my own body closer to the glass wall, I became aware of a lively piece of music playing on the other side. For the performers, it was loud and engaging; for the audience, it was almost inaudible (unless they approached the stairwell). Because of this very difference, the work also portrayed the performativity of architecture—the membranes, boundaries, and channels that mediate sensory perception.

Fig. 1: "Whisking Together, Whisking Apart, Calling it Art" (performers in the stairwell; inverting the bowl of cream; the Mason jar installation)

The performance had an 'annex' within the Atrium Building proper, taking place more passively for another audience. A second cream-whipping installation had been staged on a table near the small Quest café—a labelled Mason jar that invited 'non-performers' to collaboratively whip the cream inside by shaking the jar. Separated from a 'correct' script for whipping cream, however, and left to the efforts of 'untrained' actors, the Mason jar cream was transformed into butter, rather than fluffy peaks. The installation was intended to portray the ways in which end consumers are dependent on, and subject to, the performativities of food system actors that are often beyond our control and sometimes hidden from sight. *As consumers, we accept the risks (and rewards) embedded in these relational webs*, this part of the piece seemed to say. At the same time as demonstrating that unsupervised action can result in 'failure,' however, there was also the implication that such failure can be understood as a positive outcome. Butter isn't whipped cream, but it is still delicious.

"Seeds," too, took a multiple perspective on success and failure, value and waste. The conceiver and performer of the piece, strongly committed to agroecology and horticulture, wanted to communicate the critical yet under-valued function of seed saving within food systems. This performance also served to trouble the notion of beginnings and endings, in both natural lifecycles and cultural narratives.

Huddled under a protective overhang adjacent to the central lawn area, and directly in front of the windowed Quest administrative offices, our group stood uncertainly in the light drizzle. One student asked me when the performance was going to start; I indicated that it might already have done so and we should just wait and observe. Moments later, our solo artist leapt to his feet and with a howl slammed an apple he was holding onto the cement in front of him. It

exploded, sending bits of peel and flesh along arcing trajectories. He did it again, and gestured that others might as well. Subsequent howls and apple-y eruptions ensued, drawing attention from Quest employees sitting at their office desks. Our performer then found and collected seeds from the detritus, cupping them preciously in his palm. The juicy pieces of apple flesh—the commoditized output of agriculture—were ignored. Each of us was offered a seed, and as I took one, I could feel heat emanating from the performer's hand. Most of the group followed the performer onto the snow-dotted grass in front of us, where they knelt and planted their seeds in the soil. I ate mine. Some of us drifted a bit aimlessly and the administrative staff returned their gazes to their computer screens. Eventually, the performance seemed to have stopped.

Like "Whisking Together," the seeds performance treated both the holism of food and food systems, as well as the individual relationships and agencies we all perform as consumer-eaters. What is valued or attended to by one of us may not be the same as that of others, but the set of dynamics we collectively enact constructs the system as a whole. What became evident to me—through the howling and drama, the attention/disinterest of the Quest employees, the diverse reactions of the rest of our group, and the porosity of the start-stop boundaries—was the challenges faced by those who try to intervene in food system normativities. That is, how can one both attract and maintain attention to the need for behavioural change and action? How can one person's passion activate that of multiple others? Where does one take such action, and *when*, given that the timeline of food is so fluid? And is it okay to disrupt things—and to waste edible food—if one's intentions are towards productive, longer-term change? Perhaps less outwardly explicit than "Whisking Together," "Seeds" seemed to demonstrate the student's very strong embodiment of these questions, and perhaps others. It was an effective, visceral expression of knowledge translation.

Fig. 2: "Seeds" (crouching with apple debris; planting seeds)

"Strings Attached" was staged in a small breakout room with a one-way mirror facing onto a second room. The one-on-one performance involved a seated performer and an array of multi-flavoured candies attached in pairs by a piece of string. We were invited to enter the room one at a time, sit down across from the performer, and choose a candy based on their labels: *spicy, salty, numb, sweet, sour,* and *umami.* Our choice was meant to reflect the 'taste' of a story we wanted to tell. Once settled in, the participant and the performer placed their respective candies in their own mouths, the string now forming a drapey connection between them. While allowing the candy to slowly dissolve, the 'audience' participant began to tell her story, and the performer mostly remained silent and listened.

Meanwhile, in the breakout room on the other side of the mirror, the rest of the class sat watching. Literally framed in this way, the performance was reduced to a visual experience not unlike watching an interview on a dim and fuzzy television with the sound off. The other sensory elements were blocked, and the strong sense of affect passing between the two string-connected participants was largely attenuated. For those watching, it was rather tedious, as the performer had given no prescriptions about the length of storytelling, nor how many storytellers he wanted to participate. As a consequence, many students drifted off once they had taken some notes and photos, played around with their own reflections, and muttered various comments.

Fig. 3: "Strings Attached" (watching from behind the one-way mirror; the candy pairs, strung together)

During my own turn as storyteller, I was very aware of the time constraints (in my role as teacher and facilitator), while also drawn into the intimacy and generosity of the moment. A subtle remix of inverting performance roles, 'translating' sensation into words and vice versa, and making one-on-one eye contact, "Strings" layered together many themes from our course content. It also demonstrated the challenges inherent to performance documentation, given that little happened that could readily be recorded in audiovisuals, and much of the experience was highly internal and affective. In this sense, it was a very successful demonstration of learning, yet like "Seeds," more internal than outwardly explicit.

Digesting performance

"To participate in a course about food and performance is to perform oneself and one's food, over and over again, every day, for as long that course endures. (And then afterward as well.)"
—David Szanto (n.d., n.p.)

The above quotation appears in no previous publication; it is a recursive reflection that I wrote just now. It echoes and illustrates the very nature of performance, in which enactments may seem repeated or mimetic, but authentically exist in a singular time and place. As Kristin Hunt has noted, food performance "offers a rethinking of mimetic experience as not divorcing us from, but

connecting us to the very faculties we must hone in order to learn, know, and tell the truth" (2018, p. 157). Such is the nature of food and food systems as well, and despite the rituals and seasons and harvests and cycles they comprise, they are always new in the moment of experience. Coming into resonance with those moments is what a pedagogy of performance can bring to food, and that is what I wished my Quest students to discover.

A key challenge for many is to find legitimacy in relational and reflexive learning, and for it to co-exist with the pedagogic norms of more science-based disciplines. *Performing With(in) Food* exposed some of these tensions. This was evidenced in course evaluation comments, including one that clearly articulated the student's own internalized bias towards physical sciences, as well as doubt about the scholarly efficacy of performance. Another expressed resistance towards some of the bodywork exercises, finding them ineffective as pedagogical tools and transgressive of classroom norms. A third noted that the focus on reiteration—including the use of several of my own texts about food and performance—was like "beating a dead horse."

Some students, however, acknowledged that performance had allowed them to both 'know' and 'sense' food-related issues, and for their intuitions, emotions, bodies, and aspirations to become part of the learning process. One noted that the readings "shockingly harmonized" with those from other courses in political economy, queer and feminist studies, and critical race theory. Another recalled Rebecca Schneider's notion of "the slip," noting that performance "fosters innovation, creativity, and new ideas within a system that has functioned the same way for hundreds of years."

As a private, secular, non-profit university set in the outdoorsy mecca of Squamish, Quest seems to attract a diverse and deeply motivated student body. The small class size and intensive schedule, the range of learning habits, and the students' immersion in the crossing of disciplines all made it possible for this course to achieve many of my intended results. Yet outside of this environment, can performance serve other food educators as a useful pedagogic framework?

Three factors suggest that the answer is yes. First, a pedagogy of performance is responsive, improvisational, and grounded—both in the classroom experience and the larger context of student and instructor lives. This requires trust to be established and risk to be accepted, a syllabus to guide but not limit teaching, and for discomfort and uncertainty to exist. Learning to accept instability may come through body techniques or reflexive discussion exercises, but it also depends on a willingness to experiment. Importantly, for the study of food systems, a sensitivity to complexity is needed, including non-linear learning paths.

Second, performance allows for numerous concepts and methods to be drawn from other disciplines, highlighting how different areas of scholarship can connect. Given that inter- and transdisciplinary approaches are increasingly used within food scholarship, performance offers a coherent space of practice. Parallels to theatrical, artistic, and domestic performances may also make food systems learning more personally relevant and provide a 'translation' tool among disciplines.

A third reason for deploying performance in food pedagogy centres on the word *with*. As Donna Haraway has articulated (2016), *with* reminds us that bodies, minds, and feelings cooperate alongside one another, rather than relating hierarchically. It reinforces the mutual dependence and co-productivity of food and humans, place and culture, economics and politics, bodies and language. *With* is how learners and teachers can co-create knowledge in the classroom, and how students can collect facts and perspectives while also creating ethical stances towards future action. In the words of one Quest learner-performer, "What I walk away with is less what I've learned about performance and more what I've learned about the values from which performance emerges. I will carry these values into my upcoming academics."

Like the writer of those words, I too will carry forward what I have learned from *Performing With(in) Food.* I will remember to strut the line between art and academia with confidence, as well as with care and concern for others. I will forewarn students that not all will be comfortable, and that some exercises, readings, or assignments may not resonate with them. I will follow the lessons from my students' own performances, distributing risk, assuming personal responsibility, listening rather than talking, drawing and releasing attention, and not assuming shared values. Most of all, perhaps, I will valorize what seeds I can share, offering them freely, and accepting that others may or may not choose to plant and nurture them as I do.

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Original Research Article

Addressing the call: A review of food justice courses in Canada and the USA

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Abstract

To address inequality's root causes both within and beyond the food chain, food justice scholars have called for explicit integration of trauma/inequity, land, labour, exchange, and governance into post-secondary education food studies and related fields. This paper explores how instructors of food justice courses (identified by key-word internet search) in Canada and the United States are designing their courses. We collected course syllabi from fifteen institutions to determine key themes related to course content based on weekly topics and readings, resulting in the identification of 16 thematic content areas. We identified seven thematic areas related to course goals (n=49) and eight thematic areas related to learning outcomes (n=123). To clearly distinguish between themes represented in the syllabi, we embedded course goals and learning outcomes into the Understanding by Design instructional design framework, which demonstrates how course goals can be separated into the categories of transfer and meaning, and learning outcomes into declarative and procedural knowledge. We examine content areas in relation to food justice scholarship, focusing on what is present, underrepresented, and absent. In consideration of the Understanding by Design framework, we discuss the need for established goals within which to situate food justice courses, challenges of course scope, value of scaffolding goals and outcomes across programs, and future directions for aligning potential indicators of understanding and identifying effective learning activities. The intended outcome of the paper is to provide current and prospective instructors with greater clarity on how food

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justice is being taught in order to increase our collective effectiveness in developing student capacities in the field.

Keywords: Food justice; pedagogy; critical pedagogy; food systems pedagogy; sustainable food systems

Introduction

Over the last two decades, there has been an increased interest in the intersections between food systems, ecological sustainability, and social justice. Activists and scholars have been working to understand social inequities related to race, class, gender, sexual orientation, and colonization, and recognize how they are reproduced, resisted, and contested within food systems (Glennie & Alkon, 2018). Often referred to as food justice, the concept, process, and practice of food justice has been mobilized as a key aspirational rallying point for social movements, non-profit organizations and networks, and scholar-activists to transform the food system (Alkon & Agyeman, 2011; Allen, 2008; Gottlieb & Joshi, 2010; Holt-Giménez, 2016; Herman et al., 2018). The growing influence of food justice projects and scholarship has resulted in calls for postsecondary institutions to attend to both their complicity in, and responsibility to, addressing social inequities through curriculum, pedagogy, and community engagement (Anderson et al., 2019), which has resulted in an uptake in food justice themed courses and content in food-related programs. In this paper, we aim to examine what postsecondary instructors are offering in response to the growth in scholarly interest in food justice. The objectives of the paper are: (1) To explore how instructors articulate content areas, course goals, and learning outcomes for food justice courses offered in postsecondary education in Canada and the United States; and (2) To situate course goals and learning outcomes within a common instructional design framework (*Understanding by Design*) to support curriculum development in food justice courses (Wiggins & McTighe, 2005). The intended outcome of the paper is to provide current and prospective instructors with greater clarity on how food justice is being taught in order to increase our collective effectiveness in developing student capacities in the field. In the following sections, we describe how we conceptualize food justice relative to common scholarly definitions, broad trends and orientations in the field, and scholarship of teaching and learning in food-related fields that incorporate food justice content and topics. We then outline the core stages of the *Understanding by Design* (UbD) (Wiggins & McTighe, 2005) instructional design framework to position the results of our analysis of the food justice course syllabi relative to Stage 1 of the UbD framework.

Food justice: Conceptualization and orientations

There are numerous interpretations of what food justice means. One of the most cited definitions comes from Gottlieb & Joshi (2010), "we characterize food justice as ensuring that the benefits and risks of where, what, and how food is grown and produced, transported and distributed, and accessed and eaten are shared fairly" (p. 6). Drawing from environmental justice literature, we find it helpful to supplement the distributional justice described in Gottlieb & Joshi's (2010) definition with two additional dimensions of justice: procedural and epistemic. The former orients attention towards representation and decision-making power, and the latter refers to whose knowledge is recognized, valued, prioritized, dismissed, or disappeared (Gibb & Wittman, 2013). The concept of justice employed in food systems positions "the need to address inequalities' root causes at the forefront of a transformative food agenda…it is paramount to acknowledge [food justice's] place-based character, relationality and inherently political character" (Moragues-Faus, 2018, p. 1097). Similar to Glennie and Alkon (2018), we adopt Hislop's (2014) broad definition of food justice as "the struggle against racism, exploitation, and oppression taking place within the food system that addresses inequality's root causes both within and beyond the food chain" (p. 24).

In their evidence-based review of articles and books (n=200) related to food justice in the United States, Glennie and Alkon (2018) found that food justice research can be organized around three central themes: social movement activism, development of alternative food practices, and analyses of food system inequalities. A rich body of scholarly work has documented the relationships between food, structural inequality, and race (Slocum, 2007; Myers & Painter, 2017; Garth & Reese, 2020), income (Loopstra & Tarasuk, 2013), gender (Allen & Sachs, 2012), labour (Sbicca, 2015), and colonialism (Morrison, 2011; Bradley & Herrera, 2016; Daigle, 2019). While this research is vital, the use of food as an organizing strategy and means to address social change is not new. It is important to recognize practices arising from other social, economic, and civil rights projects as comprising food justice. This includes efforts in the United States such as the Black Panthers Breakfast Program, Food Not Bombs, the Delano Grape Strike (Holt-Giménez & Wang, 2011), and Freedom Farmers (White, 2018), and in Canada, the National Farmers Union organizing boycotts and demonstrations (Desmarais & Wittman, 2014) and the efforts of the Working Group on Indigenous Food Sovereignty (Morrison, 2011). Whether or not these initiatives identify explicitly as "food justice" efforts, food is regularly employed as a tool for addressing injustice beyond the confines of food system transformation (Mares & Peña , 2011).

Food justice proponents argue that food justice practice coalesces on the realms of trauma/inequity, land, labour, exchange (Cadieux & Slocum, 2015), and governance (Horst, 2017). In terms of the role of education in food justice, Glennie and Alkon's (2018) review points to two areas of scholarship: analyses of social or educational programs (n=7) and food justice movements contributing to environmental education or social work (n=3).

While the review does not indicate who is implementing these educational programs, the presence of research examining educational initiatives is important. As Sumner (2016) writes, "faced with a suite of environmental, social, cultural, and economic problems associated with the global corporate food system, it is time to ask: What is the role of education? Does it merely promote adaptation to this unsustainable system, or can it encourage the kind of learning experiences that will contribute to much-needed change" (p. xxvi).

Education and food system transformation

Broadly, education is considered a key element in the agenda for food system transformation, with a rich tradition of use in social movements, non-profit, and peasant organizations, and by radical educators/scholar-activists (Anderson et al., 2019; Meek et al., 2019; Holt-Gimenez & Wang, 2011). As Hislop's (2014) survey of United States non-profit food justice organizations demonstrated, 57% of organizations surveyed (n=105) stated food systems education as a key goal. As a critical component to many non-profit food justice organizations, a theory of change is posited that to change the system, peoples' minds must also change. The Sustainable Agriculture Education Association (SAEA), an educational non-profit society focused on the development and exchange of teaching and learning practices in postsecondary education, explicitly centres the active confrontation of racism, patriarchy, and white supremacy in food systems teaching and learning through its equity statement (SAEA, 2019). Social justice concepts and issues are also prominent in the scholarship of teaching and learning in fields of study associated with agriculture and food systems, appearing in specializations labelled food studies, critical food pedagogy, critical education for food systems transformation, critical food systems education, and sustainable food systems education. Below, we highlight the ways in which each specialization connects to key themes related to food justice to demonstrate the range of academic programs in postsecondary education that may offer food justice courses.

Food studies are often associated with social science programs and "focus on cultural, historical, or other academic perspectives on food" (Hartle et al., 2017, p. 40). Koç et al. (2012) define food studies as a field that "focuses on the web of relations, processes, structures, and institutional arrangements that cover human interactions with nature and other humans involving the production, distribution, preparation, consumption, and disposal of food" (p. xiv). Within the field, there is a significant focus on addressing social and political challenges (Berg et al., 2003; Cargill, 2005; Hamada et al., 2015), adopting a systemic approach to analysis, and orientations towards social movements to transform the food system (Anderson et al., 2016; Levkoe et al., 2020). Recent scholarship of teaching and learning in food studies has called for greater integration of an intersectional lens (Williams-Forson & Wilkerson, 2011), including specific attention to race, class, gender, disability, and interspecies relations and animal oppression (Probyn-Rapsey et al., 2016; Sachs & Patel-Campillo, 2014; Julier, 2019; Lloro-Bidart, 2019).

Critical food pedagogy scholarship describes shifting and expansive approaches to teaching and learning that include a combination of food-related content with experiential learning processes, diverse ways of knowing about food, and social, environmental, and economic inequalities resulting from power relations (Flowers & Swan, 2012, 2015). Critical food pedagogy explicitly examines the shifting power relations in modern food systems and food justice. A critical pedagogy approach attends to food education as a political process, interrogates structures leading to inequality (Butterwick, 2005), and explicitly links power issues as integral to pedagogical scholarship and practice (Finger, 2005). In Sumner's (2015) work, she describes a graduate-level course with the goal of helping students "gain a basic understanding of the critical pedagogy of food, while the objectives included cultivating an understanding of the interface between the field of adult education and food; appreciating the importance of this interface within the global and local context; gaining familiarity with issues associated with food; and raising awareness of the importance of food in any pedagogical endeavour" (p. 206).

Critical education for food systems transformation and critical food systems education draws on critical pedagogy, critical race, feminist, queer, and social movement theory (Anderson et al., 2019; Meek et al., 2019; Meek & Tarlau, 2015, 2016) to cultivate learner consciousness and capacity for reason, action, and work towards social justice. The scholarship of both specializations is closely associated with educational initiatives embedded in grassroots and social movements related to food sovereignty, food justice, and agroecology. Their shared educational task is "to leverage the broader educational system and innovative pedagogical techniques so that students and educators can utilize food system knowledge and agroecological practices to systematically dismantle the structural and ideological elements of the corporate food regime and develop transgressive subjectivities" (Meek et al., 2019, p. 612).

Sustainable food systems education (SFSE) programs are often associated with natural science programs, characterized by an emphasis on systems thinking, multi/inter/trans-disciplinarity, and community engagement through collective action projects (Jordan et al., 2014; Valley et al., 2018; Ebel et al., n.d., in press). Proponents of SFSE argue that postsecondary institutions are tasked with supporting the development of professionals that have "new capacities for collective intelligence and integrated action, requiring, in turn, new kinds of knowledge, skills and dispositions" (Valley et al., 2018, p. 2). Central to efforts to transform food systems in SFSE scholarship is an emphasis on making explicit the implicit values, attitudes, and aspirations of curriculum and formal degree programs (Galt et al., 2012; Anderson, 2013; Valley et al., 2018). However, Valley et al. (2020) found that 81% of SFSE degree programs (n=108) across Canada and the United States did not include any explicit mention of equity terms and concepts in public-facing degree program materials. SFSE programs may or may not have an explicit orientation towards developing student capacity to dismantle systemic oppression in their professional or personal practice. However, recent work in the SFSE literature is challenging this deficit and advocating for an increased orientation towards food justice related issues and integration of curriculum and pedagogical processes to develop equity competencies (Valley et al., 2020).

Understanding by design

Instructional design frameworks are commonly used as a starting point for guiding the development of postsecondary courses. They can also be used as an analytical tool to understand the internal coherence of an existing course, or collection of courses, by distinguishing between scope, purpose, goals, and outcomes, and the external correspondence of a course to a field of study or broader educational standards. We selected the *Understanding by Design* (UbD) framework (Wiggins & McTighe, 2005) as it is regularly employed by educational professionals in course design and in educational scholarship (as of July 2020, over 10,000 citations in Google Scholar). More specifically, it has been used in peer-reviewed scholarship related to food systems (Chornyak, 2015), food security (Boger et al., 2019), sustainability (Brundiers & Wiek, 2017; Santone et al., 2014), and social justice (Loya, 2020) courses. UbD offers a useful heuristic irrespective of whether the instructor employed the instructional design approach at the outset.

UbD is used to "focus teaching on the development and deepening of student understanding and transfer of learning" (Wiggins & McTighe, 2011, p. 3). UbD is described as a backward design process and comprises three stages: Desired Results, Evidence, and Learning Plan. Wiggins and McTighe (2005) argue that beginning with goals and specific results of teaching helps overcome recurring problems in instructional design: directionless coverage of content and isolated learning activities.

Stage 1 (Desired Results) begins with identifying established goals from external design standards, such as mission-related goals, program-level learning objectives, or graduate attributes articulated in a field's scholarship of teaching and learning. These long-term priorities are crucial for maintaining perspective on what to include, cut out, emphasize, and minimize when teaching. Next, course goals are developed to identify enduring understandings, which Wiggins and McTighe (2011) separate into transfer and meaning. Transfer refers to being able to independently take what has been learned (i.e., understandings, knowledge, and skills) and apply it effectively in another context. Meaning refers to students ability to make inferences and grasp connections, which in the UbD template for Stage 1 is further separated into "Understandings": "an important generalization, a new insight, a useful realization that makes sense out of prior experience, or learning that was either fragmented or puzzling" (Wiggins & McTighe, 2011, p. 14); and "Essential Questions", that push the learner to "look for familiar patterns, connect ideas, and consider useful strategies when faced with novel challenges" (Wiggins & McTighe, 2011, p. 15). The final section of Stage 1 is the acquisition of declarative and procedural knowledge. This section relates to identifying specific, measurable, short-term learning outcomes that articulate basic facts and concepts students should know as well as discrete skills and processes students should be able to use by the end of the course (Wiggins & McTighe, 2011).

Stages 2 (Evidence) focuses on determining indicators of learning related to knowledge, skills and understandings articulated in Stage 1. Evidence of learning is demonstrated by summative assessment strategies which provide students with opportunities to "flexibly and

intelligently use what they know, in a new complex situation where higher-order thinking in the use of content is required" (Wiggins & McTighe, 2011, p. 24). Stage 3 (Learning Plan) is where an instructor determines the most appropriate activities needed to develop student capacity to acquire learning outcomes and course goals. In this paper, due to our choice to use course syllabi as our data source and considerations of manuscript length, we limit our results and discussion to Stage 1 of the UbD framework; however, it is important to be familiar with the composition and purposes of Stage 2 and 3 to recognize the connections to content articulated in the first stage of the template (i.e., Table 5 in results).

In the remainder of the paper, we present our methods, results, and discussion based on our research questions:

1. What content areas are being included in our sample of food justice courses in Canada and the United States?
2. What are common course goals and learning outcomes in food justice courses?

How do course goals and learning outcomes from the sample of food justice syllabi fit within Stage 1 of the UbD framework?

Methodology

To identify how instructors are teaching food justice in a postsecondary context, we conducted an environmental scan for food justice course syllabi in Canada and the United States. An environmental scan, often used in the health sciences and public health field, allows researchers to collect and collate information from many sources using a flexible and responsive framework (Graham et al., 2008; Kipp et al., 2019; Rowel et al., 2005). Once we had compiled our sample of syllabi, we conducted a qualitative analysis based on the steps outlined by Creswell (2014): organize and prepare data for analysis, read through all data, code data (descriptive and thematic), interrelate themes/descriptions, and interpret the meaning of themes/descriptions. Course syllabi are a standard component of postsecondary teaching, however, content within syllabi varies. Our sample of syllabi contained a large volume of information, such as course policies, logistical information, assignment weighting and descriptions, and learning activities. For comparability purposes, our analysis focused on elements of the syllabi that were consistently present across the sample, which were course content areas, course goals, and learning outcomes.

Identifying courses

A Google search completed during March 2019 using Boolean operators and key terms "food" AND "justice"; "food justice"; "food" AND "social justice"; "food justice course syllabus", "food justice course" identified twenty-one postsecondary courses related to food and

social justice and/or food justice in Canada and the United States. Of these courses, six were excluded: four syllabi were not available after contacting the course instructor, one institution indicated that the syllabi could not be shared publicly, and one publicly available syllabus did not contain enough information to analyze, as it lacked course content areas and learning outcomes. While we acknowledge that this method for identifying courses is likely not comprehensive of all existing food justice courses in Canada and the United States, we feel that the sample is large enough to gain significant and meaningful information to answer our research questions. Furthermore, we pursue a range of perspectives and efforts, not to make general claims of representativeness from this study.

Our final sample included fifteen syllabi for analysis, ranging from 2008 to 2019. Ten syllabi were publicly available and five were acquired upon contacting course instructors and receiving permission to be included in our study. Courses were embedded across a range of academic disciplines (Table 1).

Table 1: Academic domains and disciplines associated with food justice courses in sample

Domain	Number of Syllabi	Specific Disciplines
Social Sciences	7	Sociology (2); Philosophy; Anthropology; Africana Studies & American Studies (cross listed); Communication; Health Education
Public Administration and Policy	3	Public Administration; Urban and Environmental Policy; Planning and Policy & Nutrition Science and Policy (cross listed)
Natural Sciences	3	Agriculture and Food Systems; Environmental Science (2)
Other	2	Sustainable Local Food Certificate; Interdepartmental

Our sample contained ten courses offered at public institutions and five offered at private institutions. Courses were mostly at the undergraduate-level (n=10), with a smaller proportion of graduate courses (n=2), and two courses that were cross listed as undergraduate and graduate. One course was part of a certificate. Only six courses were mandatory courses as part of a larger structure, primarily as part of a minor (n=3), others (n=8) satisfied degree requirements but were optional; four courses were a rotating topics course or electives that were not housed within a specific program and the remaining (n=2) were unlisted.

Although it was difficult to determine which courses were introductory or upper level due to inconsistencies between institutions, six courses required prerequisites whereas nine did not list prerequisites.

Syllabi analysis

The fifteen syllabi in our sample were uploaded into *NVivo Qualitative Data Analysis Software Version 12.6.0*. We focused our analysis on content areas, course goals, and learning outcomes. We conducted a thematic analysis of weekly topics and reading lists when available (twelve syllabi included reading lists) using an inductive approach (Mills et al., 2010). In practice, instructors use the terms goals, objectives, and outcomes interchangeably; for the purposes of our analysis, we identified learning goals as broad statements that described long-term understanding and accomplishments (Wiggins & McTighe, 2005, p. 14). We identified learning outcomes as statements that indicated short-term, measurable knowledge and skills that learners were expected to acquire by the end of the course (Wiggins & McTighe, 2005, p. 14).

Seventeen content area themes were identified through analysis of weekly topics and reading lists stated in syllabi (see Table 2). The course goals (n=49) and learning outcomes (LOs) (n=123) were independently analyzed by two of the authors coding for key themes in the dataset. We followed the coding process outlined by Guest et al. (2012) that relies on coding for themes based on analytic objectives. In our case, the analytic objectives are statements that indicate course goals and learning outcomes in our sample of syllabi to align with research question two. A subsequent coding framework was agreed upon resulting in seven course goals (Table 3) and eight learning outcomes (Table 4) thematic areas. A final round of analysis was conducted based on Stage 1 (Desired Results) of the UbD framework (Wiggins & McTighe, 2005), separating course goals into the categories of transfer and meaning, and learning outcomes into declarative and procedural knowledge (Table 5).

Results

Table 2: Content area themes in syllabi (n=15)

Theme	Present in Syllabi (%)
Defining Food Justice	100
Case Studies of Current Food Justice Projects	93
Agriculture, Husbandry & Fisheries	87
Built Food Environment	87
Food (In)security	87
Food Governance	87
Class	80
Food Policy & Planning	80
Labour	80
Economic Systems	73
Environment & Ecosystem	73
Food Movements	67
Race	60
Diet, Nutrition & Human Health	53
Gender	47
Decolonizing Food Systems and Indigenous Food Sovereignty	33
Intersectionality	27

Table 3: Course goals and frequency of occurrence

Theme	Frequency (n=49)	Definition	Example
Conceptual Frameworks	38%	Students are familiar with and able to connect organizing frameworks (e.g., food sovereignty, food insecurity, food security, right to food) and lenses used to explore food systems topics (e.g., critical race theory) to food justice issues and projects.	"Encourage you to consider the concepts of food security and justice in economic, political, social and cultural contexts."

Spatial Scales	28%	Students recognize the different histories, power relations, and strategies for dismantling systems of oppression at local, regional, national, and global scales.	"Analyze food justice organizations/movements struggling to create healthy and sustainable food systems locally, bioregionally and globally."
Food Systems	26%	Students recognize different components/nodes of the food system.	"Delve into the environmental, economic, health, cultural, and social impacts of how food is grown, processed, manufactured, distributed, sold, and consumed in the U.S."
Skills, broadly	26%	Students develop and apply skills related to advocacy, interdisciplinarity, and systemic thought.	"Focus on building student's knowledge and skills in advocacy in order to help promote healthier, more sustainable, and more equitable food systems."
(In)equity	24%	Students examine the historical development of inequities, contemporary manifestations, and how they are reproduced, resisted, or contested.	"Examines how our food system has been restructured over the last century to benefit large-scale agriculture interests, creating a global food system that emphasizes convenience and fast-food solutions for consumers, often to the detriment of low-income people and communities of color."
Call to Action	22%	Students are aware of approaches opposing structural inequity and work with community organizations to create just food systems alternatives.	"Study and help create an ecologically regenerative local food system and economy in the region that empowers and healthfully feeds all of its people."
Social Movements	20%	Students are aware of past and current examples of social movements involved in food justice projects and their common strategies and patterns of resistance.	"Examines the vibrant and growing range of social movements around food and agriculture, with an emphasis on the global South (or Third World)."

Table 4: Learning outcomes and frequency of occurrence

Code	Frequency (n=123)	Definition	Example
Advocacy	33%	Advocate for development of just and sustainable food systems through discussion, collaboration, data collection, analysis, and dissemination.	"Cultivate analytic, discussion, public speaking, research, and writing skills."
(In)equity	27%	Recognize historical roots of social inequities and how they manifest in current food systems.	"Identify how and why low-income communities of color are disproportionately affected by market and policy failures to produce and distribute healthy, safe food."
Food Systems	20%	Analyze inequities within food systems, including in agriculture, processing, distribution, and consumption of food.	"Identify the different actors in food politics and the varying/conflicting ideas and intentions around food production, distribution, and access as it relates to equity."

Community-Based Collaboration	17%	Contribute to community-based collaborations and multi-stakeholder engagements.	"Enhance your community research skills and methods and offer research services needed by local-food initiatives in your area."
Alternatives	16%	Evaluate the effectiveness of initiatives that are working towards solutions to address inequities and structural issues.	"Investigate organizations of their choice that are working to remedy inequitable power relations in the food system and will present their findings to the rest of the class."
Spatial Scale	13%	Interpret food justice issues, projects, and outcomes at different spatial and geographical scales.	"Research and describe local, regional and global social movements around food justice."
Critical Reflection	11%	Connect topics and issues to one's own lived experience, professional development, and future work.	"Engage in one's own reflection, applying the frameworks and approaches studied to one's own everyday life, experiences, and social context."
Define Food Justice	10%	Determine how and why a project or initiative relates to food justice.	"Define food justice and explore where and how it connects to ourselves and our communities."

Table 5: Stage 1 of Understanding by Design (UbD)

<table>
<tr><th colspan="3">Stage 1 - Desired Results</th></tr>
<tr><td rowspan="4">Established Goals</td><td colspan="2">Transfer</td></tr>
<tr><td colspan="2">Students will be able to independently use their learning to:
Systematically dismantle forms of structural oppression taking place within the food system to address inequalities' root causes both within and beyond the food chain.</td></tr>
<tr><td colspan="2">Meaning</td></tr>
<tr><td>UNDERSTANDINGS
Students will understand that:
Issues of inequity and injustice intersect with other common conceptual frameworks, disciplines, and perspectives related to the food system.
Food justice is not only about considering outcomes related to the distribution of benefits and harms associated with the food system but is layered with procedural and epistemic dimensions.
Current inequalities across populations are not random but based on historical patterns of oppression.
Intersectionality matters.* The disparate forms of oppression are interrelated and form a unified system of oppression.
Inequity and injustice permeate all components/nodes and levels of food systems.
Diverse networks of social actors have been reproducing, contesting, and resisting injustices through their work to make change in the food system. We can learn from their efforts.
Lived experience based on social location and unearned privilege impacts how we understand and address issues of injustice.</td><td>ESSENTIAL QUESTIONS
Students will keep considering:
What are the historical antecedents of current inequalities in food systems?
Who is disproportionately benefiting and who is being harmed by current practices in the food system?
Who holds decision making power and whose knowledge and expertise is recognized in the context of a particular food system issue?
How are others reproducing, resisting, or contesting injustices in the food system?
How am I "showing up" in my work with others to dismantle forms of oppression? How do my social identities afford or deny privilege in these situations?</td></tr>
</table>

	Acquisition	
	Students will know: • Definition of food justice and justice theory* • Definitions of forms of oppression and related terms, such as racism, classism, sexism, xenophobia, colonialism, and white supremacy.* • Definitions of key concepts related to food systems (e.g., food insecurity, food security, food sovereignty) and how they connect to food justice. • Historical events, legislation, and policies that led to the oppression of specific groups. • Characteristics that define components/nodes of the food system. • Examples of historical and current projects that reproduce, resist, and confront injustice in the food system.	Students will be skilled at: • Analyzing projects through a food justice lens. • Applying an intersectional lens* to food system issue. • Integrating knowledge and methods from different academic disciplines and other forms of knowledge. • Applying academic and organizing skills to advocate for systemic change that dismantles systems of oppression in the food system. • Recognizing different spatial scales and geographical sites in relation to food system development and governance. • Collaborating with others on proposing, implementing, and evaluating food justice projects. • Reflecting on their own social location, behaviours and actions while working on food justice projects.

** Denotes terms that are absent from our syllabi analysis but prominent in food justice scholarship.*

Discussion

In the following section, we discuss content areas in relation to food justice scholarship, focusing on what is present, underrepresented, and absent. In consideration of Table 5, which positions course goal and learning outcome themes into the Stage 1 template of the UbD framework, we consider the need for established goals within which to situate food justice courses, challenges of course scope, value of scaffolding goals and outcomes across programs, and future directions for developing Stages 2 and 3 of the UbD framework to align potential indicators of understanding and learning activities.

Content areas

Glennie and Alkon's (2018) evidence-based review of food justice scholarship revealed that the field is highly interdisciplinary and organized around three central axes: social movement activism, the development of alternative food practices, and analyses of inequalities in conventional and alternative food systems. Glennie and Alkon (2018) identified case studies as the most commonly used methodological approach in food justice related peer-reviewed articles.

The content area themes articulated in Table 2 demonstrate a strong correspondence to the findings of Glennie and Alkon's (2018) review.

The courses in our sample integrate a broad range of disciplinary perspectives, make explicit use of case studies of social movements and alternative food practices, and centre inequalities in conventional and alternative food systems. Based on our analysis of weekly topics and readings, class and labour issues receive more attention in our sample, which also follows a pattern identified in Glennie and Alkon's (2018) review, where at the outset of the development of food justice scholarship, class and labour were more prominent lenses through which injustices were framed. There is a similar correspondence in course content to Cadieux and Slocum's (2015) and Horst's (2017) categories of food justice practice, which emphasize orientation towards and intervening in the areas of trauma/inequity, land, labour, exchange, and governance. Apart from trauma/inequity (which we will return to later in the discussion), content in these areas have the highest frequency in weekly topics and readings in our sample of syllabi.

Topics and readings related to race (60% frequency) were less prominent in our analysis of course content. The lower occurrence of race is somewhat surprising. As Slocum (2018) notes, "the concept of food justice rose out of a mobilisation against structural racism in the food system and the whiteness of the local food movement" (p. 1103). Further, it has long been acknowledged that "race is the modality in which class is lived" (Hall et al., 1978, p. 394). An emphasis on class and labour (both with frequencies of 80%) in course content with a lower frequency of content related to race is conceptually limiting and problematic. Topics related to gender were even less prominent at a frequency of 47%. Recent scholarship on feminist perspectives in food studies (Parker et al., 2019) are rich resources for teaching and learning about gender and social oppression in the food system. As Julier (2019) argues, the inclusion of feminist perspectives in food-related courses is a necessity if we are serious about transforming food systems towards more socially just alternatives. Content related to decolonization and Indigenous food sovereignty are similarly less prominent (33%) in our sample. An understanding of settler colonialism in North America—"the elimination of the Native [and] the naturalization of unnatural settler states built on the annexation of Indigenous land and the genocide of Indigenous people" (Estes & Dunbar-Oritz, 2020, p. 3)—is foundational to the various expressions of oppression in food justice scholarship and activism. Within institutes of postsecondary education in Canada and the United States, content related to decolonization and Indigenous food sovereignty ought to be at the forefront. *Indigenous Food Systems: Concepts, Cases, and Conversations* is an excellent resource for exploring these issues (Settee & Shukla, 2020). Although issues of class, race, gender, and colonialism appeared within course syllabi in our sample (at relative unequal frequency), topics related to intersectionality were similarly less prominent (27%). Cho and colleagues (2013) note that intersectionality focuses "attention on the vexed dynamics of difference and the solidarities of sameness in the context of antidiscrimination and social movement politics…[exposing] how single-axis thinking undermines legal thinking, disciplinary knowledge production, and struggles for social justice" (p. 787).

As emphasized by Julier (2019), teaching intersectional analysis in food-related programs is difficult, often resulting in one dimension being emphasized without close attention to the intersections, which leads to oppression—a contradictory outcome of a food justice course.

The following were notably absent from weekly topics and course readings: white supremacy, (anti-)Blackness, explicit justice theories, and trauma. White supremacy, defined as "the presumed superiority of white racial identities, however problematically defined, in support of the cultural, political, and economic domination of non-white groups" (Bonds & Inwood, 2016, pp. 719-720), was absent in our analysis of syllabi. Recognizing how the logic, dialectic, and performance of white supremacy underwrites settler colonialism, racial capitalism, patriarchy, and other forms of social oppression is central to efforts towards interrupting the reproduction of white hegemony (Slocum, 2007; Slocum & Saldanha, 2016; Bonds & Inwood, 2016). In connection to this, few courses engaged with the concept of anti-Blackness within the food system or highlighted the erasure of Black contributions to agriculture and food movements. Specific mention of Black food culture as it relates to food justice was only present in one course at the weekly topic level. While the topic of Blackness may be referenced within the context of racial justice, it is essential to: build a nuanced understanding of Blackness as it relates to the food system, evaluate the unique impacts of the historical traumas of slavery, and to move past an inclusion rhetoric that fails to address present power dynamics (Ramírez, 2015 Reese & Garth, 2020). Many academics have previously highlighted the inequities within the food system that disproportionally affects those of African American descent and the variety of ways Black people contribute to, work towards, and embody food justice and seek to counter this erasure, see *Black Food Matters* (Garth & Reese, 2020) and *Freedom Farmers* (White, 2018).

Defining food justice was present as a topic in all syllabi in our sample, however, explicit links to justice theories were absent. Twelve of fifteen syllabi included citations for weekly readings, however, no reading list cited resources related specifically to justice theory, instead relying on the works of scholars specifically addressing justice from a food perspective. Slocum (2018) states clearly that it is in our collective best interests to recognize and state which theory of justice "lies implicit in the cases we study" (p. 1103), lest our efforts contribute to the depoliticization of the term. For example, Cadieux and Slocum (2015) draw on the work of Young (1997) and Fraser (1995, 2008) to ground their arguments for food justice theory and practice in the United States. Lastly, as emphasized by Slocum and Cadieux (2015), understanding and taking action towards equity "needs to be paired with a recognition of the experience of trauma" (p. 13). The concept of trauma relates to individual, collective, cultural, and intergenerational experiences of exploitation, marginalization, powerlessness, cultural imperialism, and violence (Methot, 2019). Slocum and Cadieux (2015) acknowledge that they approach this term with caution, however, "trauma brings the urgency of past and ongoing harm into the food movement's work…suggesting that food justice cannot settle for promoting mere resilience in the face of a long, slow war against marginalized people, a war that some within the food movement do not recognize" (p. 33).

We include mention of trauma within the context of food justice curriculum development with caution as well, and do not suggest instructors attempt to incorporate trauma-informed pedagogy without adequate consideration of the potentially serious affective impacts on learners. As explained by Carello and Butler (2014), there is considerable risk of retraumatizing and secondary traumatization in postsecondary classrooms when presenting traumatic material in the form of texts and films.

Articulating clear course goals and learning outcomes

In our analysis of food justice syllabi, course goals, objectives, and outcomes were not consistently stated in a manner that reflects the use of these terms in scholarship related to instructional design. First, potential benefits of positioning the course goal and learning outcome themes in the Stage 1 include more accurate distinction between long-term goals and short-term, measurable outcomes. Second, Table 5 contains concise statements that can be adopted by those currently teaching food justice courses or by instructors interested in developing a new food justice course. Third, by displaying the course goal and learning outcome themes in a table, it is easier to recognize the fundamental elements of a food justice course and how they connect to the growing scholarship of teaching and learning related to food studies, critical food pedagogy, critical food system education, critical education for food systems transformation, and sustainable food systems education. However, missing from Table 5 is a statement related to established goals from external design standards, such as mission-related goals, program-level learning objectives, or graduate attributes articulated in a field's scholarship of teaching and learning. Although the field of food justice has a history of activism and a growing scholarship, there does not exist a collective statement from scholars, activists, and instructors articulating exit-level objectives or graduate attributes. As emphasized by Wiggins and McTighe (2005), "with no long-term goals, there is no perspective—hence no check on the teacher habit of merely teaching to short-term, content-related objectives" (p. 56). In a field as diverse as food justice, it may be difficult to create agreed upon statements that can adequately capture long-term objectives; however, it is worth considering as an output of future scholarship, either through peer-reviewed publications, conference workshops, or gatherings connected to grassroots and activist networks. We hope that the content of Table 5 can be a useful starting point towards such a goal.

Course scope

Based on our integration of themes from syllabi into Stage 1 of the UbD framework (and our own experience as instructors of food justice related courses), we believe it is prudent to acknowledge course scope.

The content areas, course goals, and learning outcomes are incredibly diverse and ambitious. Is it realistic to expect student achievement of the stated learning outcomes and course goals over the typical thirteen-to-fifteen-week duration of a postsecondary course? Taking into account the interdisciplinary and methodological landscapes of food justice scholarship, the analysis of social movements, the development of effective advocacy skills, the awareness of historical and current forms of inequity, intersectional analysis of social oppression, familiarity with food systems nodes and components at local, national, and global scales, awareness of one's own social location, and meaningful contributions to community-based food justice projects, these are high expectations to meet for any individual course. Nine courses in our sample did not list prerequisite requirements, meaning students could likely enroll in the course without having encountered content or developed skills related to the field of food justice. As suggested by Bauer and Clancy (2018), it is important to scaffold "content and pedagogy to strategically expand students' zones of comfort from very personal experiences with the material to broader groups of people and course concepts" (p. 72). To achieve the higher-order learning outcomes and goals stated in our sample of food justice courses and articulated in Table 5, it is ideal for students to have developed fundamental knowledge and skills in a food-related discipline, encountered basic definitions related to social justice issues, have experience learning in a community setting, and have had the opportunity to consider and reflect upon their own social location and identities. We suggest that in the process of developing or refining a food justice course, instructors consider what other knowledge and skills are being developed within a degree program to have a better sense of student preparedness to engage in content and processes related to food justice courses. Or, if possible, instructors could consider developing a series of food justice courses to introduce basic concepts, explore case studies of social movements, and provide students with low-risk/low-ask engagement opportunities with community organizations. Ideally, we would be able to intentionally scaffold the fundamental knowledge and skills across a four-year program so that course goals and learning outcomes described in Table 5 are offered to senior undergraduate students that have had opportunities to learn, explore, question, reflect, and engage more deeply with activists and community-based organizations involved in food justice work. By asking too much of our students, likely out of a sense of urgency and lack of further opportunity, we may end up failing to do "justice" to the field and potentially send underprepared students into collaborations with community organizations.

Conclusion

There is a growing prevalence of NGOs and other grassroots "food justice" organizations offering educational programs related to issues of injustice within the food system, mirroring the growth in the use of the term "food justice".

For example, in a recent list of food justice organizations by Food Tank, of the twenty-four organizations listed, at least eleven had an emphasis on education related to food justice based on the synopsis from Food Tank (Nierenburg & Howell, 2020). Furthermore, as mentioned previously, 57% of food justice organizations stated food systems education as a key goal (Hislop, 2014). Our findings provide a useful starting point for designing food justice curriculum using the Understanding by Design framework by starting with the desired results outlined (Table 5) and working backwards to design assessments and activities.

While this paper offers a first response of understanding how food justice is being taught, further research must investigate other framings to enrich our understanding of food justice pedagogy. Based on our initial research we recommend the following approaches: 1) analyzing how food justice concepts manifest at the program-level based on our initial framework or 2) conducting an environmental scan of all courses related to food for presence of social justice issues. By investigating at the course level, it may be determined if courses are scaffolding the ambitious course goals (present in Table 3) across different courses and if a collective "Established Goal" (Table 5) has emerged. For the second approach, a more expansive study will help shape our collective understandings of food justice, as many instructors are likely teaching at the intersection of the course themes (Table 2), however, not explicitly identifying their courses as "social justice" or "food justice" courses.

We end with a call for further scholarship related to Stage 2 (Evidence) and Stage 3 (Learning Plan) of the UbD framework. What are indicators that demonstrate successful acquisition of knowledge and skills in food justice courses? And what types of learning activities effectively support student development in this field? As Table 5 demonstrates, food justice courses are complex and ambitious. Current instructors in food-related fields likely have resources, activities, and assignments that they have tested in their classrooms and feel confident that they help achieve similar learning outcomes. The sharing of educational practices will increase our collective effectiveness to support our students as they develop the capacities to systematically dismantle forms of structural oppression taking place within the food system to address inequality's root causes both within and beyond the food chain.

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Original Research Article

The state of postsecondary food studies pedagogy in Canada: An exploration of philosophical and normative underpinnings

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Abstract

To date, there has been little empirical research on how food studies pedagogy has developed in Canada. Yet, across Canada, more and more postsecondary institutions are offering food studies in formalized programs and individual courses to undergraduate students. This paper contributes to the literature on food studies pedagogy by gathering insights from interviews with key faculty in food studies undergraduate programs at Canadian higher education institutions, and other food studies scholars in Canada. The purpose of this empirical research is to provide clarity regarding the ways that food studies programs are conceptualized and taught to better understand the evolution and future course of food studies pedagogy. Semi-structured interviews were undertaken to explore the normative commitments and philosophical underpinnings of food studies programs; various ways that scholars scope food studies; and challenges faced by food studies programs. We found that food studies programs in higher education in Canada and their associated pedagogy do not have a set of fixed attributes, but they do share common threads. Transformation is a defining characteristic of food studies and its pedagogy and puts critical thinking at the core of how food studies are taught in Canada at the undergraduate level. Interviewees also emphasized the importance of moving beyond critique towards solutions in their teaching to facilitate a transition towards more socially and ecologically just food systems.

Keywords: Food studies; food studies pedagogy; critical pedagogy

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Introduction

In the context of complex twenty-first century challenges, food studies act as a powerful point of convergence to analyze the nexus of climate change, biodiversity loss, economic inequality, hunger, malnutrition, and obesity, amongst other such wicked problems (Rittel & Weber, 1973). Recognizing their potential to address some of society's most pressing issues, twelve postsecondary institutions across Canada have developed food studies programs. To date, however, there has been little empirical research on the approaches of undergraduate food studies programs in Canada. Lack of clarity regarding the ways that food studies programs are conceptualized and taught makes the evolution of food studies pedagogies and how to adapt to the current context unclear. This paper therefore contributes to the literature on food studies pedagogy by gathering insights from key faculty in food studies undergraduate programs at Canadian higher education institutions, and other food studies scholars in Canada. This study includes interviews with two different types of participants in Canada: 1) faculty involved in formal undergraduate food studies programs or certificates ("food program faculty") and 2) scholars who are active in advancing food studies but are not associated with a formal program ("food studies champions").

The aim of this paper is to explore the normative commitments and philosophical underpinnings of food studies programs; examine the various ways that scholars define food studies; and describe some of the challenges faced by food studies programs. This paper focuses on pedagogical approaches in undergraduate food studies in Canada and the empirical data is scoped by the perspectives shared by instructors in food studies programs and those of scholars who teach or have taught courses concerned with food studies issues. In total, we conducted eighteen semi-structured phone interviews.

We found that food studies programs in higher education in Canada and the pedagogy associated do not have a set of fixed attributes, but they do share common threads. The interviews highlight how transformation is a key defining characteristic of food studies and its pedagogy and puts critical thinking at the core of how food studies are taught in Canada at the undergraduate level. Interviewees also highlighted the importance of moving beyond critique towards solutions in their teaching to facilitate a transition towards more socially and ecologically just food systems.

There are two contextual factors worth noting that influenced the analysis in this paper—the COVID-19 pandemic and rising calls for racial justice. These events will undoubtedly impact how food studies are taught to undergraduate students and we touch briefly on the ways these events highlight existing aspects of food studies pedagogies and where they might best adapt to the evolving context.

Evolution of food studies and defining characteristics

Many definitions of food studies have been put forward and there is not one agreed upon definition. Power and Koç define food studies as a "historically specific web of social relations, processes, structures and institutional arrangements that cover human interaction with nature and with other humans involving production, distribution, preparation and consumption of food" (2008, p. 264). *CuiZine*: *The Journal of Canadian Food Cultures* at McGill University, suggests that food "acts as a window" (2016), highlighting food as a focal point to bring disciplines and researchers together and investigate interrelationships. To guide our interpretation of food studies, we use Koç and colleagues' 2012 survey of the field that revealed three overlapping and mutually constitutive characteristics of food studies that are repeated throughout the literature: 1) approaches that span disciplines; 2) a multilevel systems approach; and 3) a focus on applied or transformative work.

Interdisciplinarity in food studies is regularly cited as a defining feature (Koç et al., 2017; Anderson et al., 2016) and appears in food studies programs through multiple topical and/or paradigmatic approaches to teaching about food. Koç and colleagues' (2017) second characteristic of food studies is that of a "multilevel systems approach", which lines up with the "systems thinking" that is prioritized in some food studies pedagogy (Valley et al., 2018), underlining the ways that the content of food studies programs often reinforce the pedagogy, and vice versa. Centering content on systems has long been a defining feature of food studies (Black, 2013), and the prevalence of systems thinking and respect for different ways of knowing as a pedagogical value (Valley et al., 2018) also helps to explain the emphasis on active community engagement frequently present in food studies programs. Interdisciplinarity and systems are integral components to both food studies as a topic and as a priority in teaching it.

Transformation, as the third tenet of food studies suggests an underlying normative outlook. We understand this as signaling a philosophical orientation towards critical theory, alongside a normative orientation towards a socially and ecologically just food system. Much of the early scholarship of food studies used food to illuminate existing research agendas (Belasco & Scranton, 2002), many of which existed in a lineage of critical theory. The commitment to transformation arguably results from critiques of the current food system in a critical theoretical vein. This third characteristic of food studies signals the theoretical and normative underpinnings of the field itself.

Since many food studies scholars prioritize a critical lens in their scholarly work, it is perhaps unsurprising that critical pedagogies are also prominent in food studies programs and courses. Critical pedagogy is, at its core, pedagogy based on the tenets of critical theory. In *Pedagogy of the Oppressed,* Freire's Marxist exploration of the colonizer and the colonized, he argues for a new pedagogy that makes the learner a co-creator of knowledge (1970). Writing on critical pedagogy has since expanded dramatically, so that "it has become a 'sort of big tent' for all people in education invested in social justice work" (Tarlau, 2014, p. 372). Critical pedagogy uses ideas from critical theories to "unlearn" systems of power and oppression that are baked

into modern education. We expect there will be a renewed and continued interest in critical pedagogies as food studies instructors grapple with continued calls for racial justice and equitable reform in society, as well as greater attention to settler colonialism in Canada.

Food studies programs in higher education are informed then by both critical theory and critical pedagogy. The defining characteristics of food studies— interdisciplinarity, systems thinking, and transformation—use and reinforce critical theory and critical pedagogy alike. A critical approach to food asserts its materiality and emphasizes the difference between "a food from nowhere" (McMichael, 2003, 2009)—a construct of a flawed industrial food system—and a "food from somewhere" (Levkoe et al., 2020)—the product of a transformed, resilient, and just food system. Tools that help students interrogate re-spatialization (e.g., through social movements and power relations in the food system) are based in critical theory approaches. They are not necessarily, but are often, taught in critical pedagogical ways as well—that is, they aim to transform both inside the classroom through teaching and outside by transforming the food system. Food studies values food literacy as a way to 'read the world' through food, aiming for these skills to help learners engage with power relations (Sumner, 2013). Instructors in food studies programs often use teaching methods they see as achieving both ends—preparing students to be leaders in food systems change while at the same time unlearning the systems of oppression acting within the education system itself.

Food studies programs themselves only began to appear in the mid-1990s. In the United States, Nestle and McIntosh (2010) recognized the establishment of an academically focused undergraduate Food Studies program in 1996 at New York University (NYU)—just after a Julia Child-inspired gastronomic Master's program at Boston University was developed—as the beginning of this field of academic study. Nearly two decades later, Black (2013) suggested a continued lack of doctoral programs indicated a lingering immaturity of the field. The NYU program later grew to investigate "critical social questions about food production and consumption" (Nestle & MacIntosh, 2010, p. 161). Black (2013) traced the development of food studies programs, describing them as uniquely North American and evolving out of the same tradition as gender or areas studies.

Scholars of food studies therefore often see themselves as part of multiple communities—they may primarily see themselves as historians or sociologists of food, political scientists, or ecologists. As such, we interpret programs of food studies quite broadly and our study focuses on Canadian food studies programs by considering these overlapping communities. While the label of food studies may be a North American invention, many higher education institutions in other countries provide education that would likely fit into the food studies tent: The University of Gastronomic Sciences (UNSIG) in northern Italy offers both undergraduate and Masters degrees; the Open University of Catalonia has a Master's degree in Food Systems, Culture and Society, and City University of London's Centre for Food Policy offers postgraduate courses (City University, 2021; Open University of Catalonia, 2021; University of Gastronomic Sciences, 2021). Officially labeled undergraduate "food studies" programs are also growing, including at the Marylhurst University in Oregon, Syracuse University in New York, the University of Texas

(Black, 2013) and the very recent programs at George Brown College in Canada and the William Angliss Institute in Australia (George Brown College, 2021; William Angliss Institute, 2021). Wageningen University in the Netherlands offers a European Master's of Food Studies in cooperation with universities in Ireland, Sweden, and France (Wageningen University, 2021).

In Canada, significant interdisciplinary approaches to food systems research have existed from the mid-1970s onwards, but it was not until 2005 that the Canadian Association for Food Studies (CAFS) coalesced around some of the earliest scholars embracing food studies (Koç et al., 2017). Like elsewhere, those identifying as food studies scholars have various academic identities, and so "Canadian"[1] food studies scholarship includes an array of disciplinary perspectives. For example, scholars may use social work to understand the ongoing impacts of settler colonialism's "helping policies" on Indigenous populations (Robin (Martens) et al., 2020); others have used social movements to explain Canadian alternative food initiatives (Levkoe, 2014), while still others investigate municipal policy to explore the potential for food systems transformation (Valley & Wittman, 2019).

There is a growing literature on broad conceptions of food pedagogies (Flowers & Swan, 2012a; Swan & Flowers, 2015), but there is room for more research on the pedagogies specific to formal food studies programs and courses in higher education. Relevant works include Valley et al. (2018) and Hilimire et al. (2014) that focus on a subset of food studies prioritizing sustainability and systems thinking. In a different vein, Flowers and Swan (2012a, 2015) consider pedagogies around food more broadly, discussing pedagogy as it is used by chefs, politicians, and educators. More recently, and particularly salient in the COVID-19 climate, Levkoe et al. (2020) explore online food studies pedagogies. Black's (2013) chapter in the *Routledge International Handbook of Food Studies* is, to our knowledge, the only overview of food studies programs in higher education, but while it focuses on North America there is sparse coverage of Canada and no focus on pedagogical approaches. This paper aims to contribute to this literature.

Food Studies: A hands-on guide by Zhen (2019), represents a coherent and very recent approach to teaching methods in food studies that may become a useful tool for instructors in the future. Other recent scholarship has highlighted methods that food studies programs are using in the two-pronged goal of transformation both inside and outside the classroom. For example, student projects that focus on co-creating knowledge with community partners demonstrate the interdisciplinarity characteristic of the core of food studies—respecting multiple forms of knowledge—while using experiential learning in collective action projects that value systems thinking (Valley et al., 2018). Critical reflection based on Kolb's (1984) experiential learning cycle then helps students integrate theory and action (Valley et al., 2018).

[1]We recognize that "Canada" represents a history of settler colonialism but use it throughout the paper to both distinguish it from other "national" contexts of higher education and to keep in line with our common reference points of the Canadian Association of Food Studies (CAFS) and the journal, Canadian Food Studies.

Levkoe et al. (2020) similarly use critical reflection to engage learners with different backgrounds to integrate concepts into their lives. Critical reflection after experiential learning helps strengthen critical pedagogies as it is "useful for unveiling worldviews and frames of reference" (Valley et al., p. 471) (See also Galt et al., 2013b; Mezirow, 1991) that are necessary in unlearning the systems of oppression in both the food and education system. The experiential learning in collective action projects in sustainable food systems education (Valley et al., 2018) or service learning where students help build community advocacy capacity (Wadsworth et al., 2012) serve as both pedagogical and transformative tools for the food system. "Collective action projects" aim to achieve dual purposes of developing agency and civic engagement in sustainable food system education (SFSE) (Valley et al., 2018), suggesting a strong normative commitment to transformation. Another similar approach is the way that Chatham University's Master of Food Studies program uses both field trips as experiential learning and reflection (Seidel, 2020).

Methods

This study, which sought to gather empirical insights from those involved in teaching food studies, includes interviews with two different types of participants in Canada: 1) faculty involved in formal undergraduate food studies programs or certificates ("food program faculty") and 2) scholars who are active in advancing food studies but are not associated with a formal program ("food studies champions"). Interviews took place between May 11 and 28, 2020. Table 1 lays out the criteria that was used, based on the literature, to determine which Canadian programs should be included in the study as they do not all self-identify as food studies programs. In this study, formal food studies programs offered at the college/university level included certificates, minors, and bachelor's degrees. Some programs are embedded in cultural or historical studies, while others lean more towards natural sciences. In determining which programs could be considered food studies, we applied a broad definition that included food systems, sustainable agriculture, nutrition, food security, and food policy studies. Programs, certificates, and minors were largely self-identified as fitting into food studies by the scholars who taught or managed them. In the spirit of widening the lens of what can and should be considered food studies, we included programs that provide a critical perspective on the "ways in which humans, food, and the natural and built environments construct one another" (CFS, 2020). This aligns with our perspective that a narrow conceptualization of food studies keeps the discipline small and limits opportunities for interdisciplinary collaboration and real-world applications. Food centres are not considered food studies programs because they do not officially offer courses. However, faculty members associated with food centres that taught food studies courses in their respective faculties were interviewed and grouped under food studies champions.

Table 1: Selection criteria for food studies programs

Institution	Program Type	Interdisciplinary	Systems thinking	Experiential Learning	Available to Undergraduate Students	Interview(s) secured
University of British Columbia	Core curriculum offered through the Faculty of Land and Food Systems as part of four possible BSc in Food and Resource Economics; Global Resource Systems; Food, Nutrition and Health; and Applied Biology and Minor in Sustainable Food Systems	✓	✓	✓	✓	✓
George Brown College	BA Honours in Food Studies	✓	✓	✓	✓	✓
Kwantlen Polytechnic University	BSc In Sustainable Agriculture	✓	✓	✓	✓	✓
Memorial University	Certificate in Food Studies	✓	✓	✓	✓	✓
Ryerson University	Certificate in Food Security Studies	✓	✓	✓	On a case-by-case basis	✓
University of Toronto	Minor in Food Studies	✓	✓	✓	✓	✓

Trent University	Honours BSc in Sustainable Agriculture and Food Systems Science and Honours BA in Sustainable Agriculture and Food Systems Studies.	✓	✓	✓	✓	✓

Food studies champions were determined initially as those with a high degree of involvement in CAFS, and its associated journal, *Canadian Food Studies*. From this small group, other relevant food studies champions were identified through snowball sampling. We included champions to round out our understandings of the state of food studies in Canada. The food studies champions that we interviewed are affiliated with the following institutions: Carleton University, Concordia University, University of Guelph, Lakehead University, Sir Wilfred Laurier University, Memorial University of Newfoundland, the Ontario Institute for Studies in Education, and York University.

We interviewed food studies program faculty to understand the evolution, pedagogical approaches, and normative and philosophical underpinnings of undergraduate food studies programs. Food studies program faculty also shared their definitions of food studies and described the coherence of their programs. Champions also defined food studies, discussed the evolution and growth of food studies, and offered opinions regarding formalization of undergraduate food studies. A total of eighteen semi-structured phone interviews were conducted for this study, with eleven food studies program faculty and eight food studies champions. Table 2 provides details on the formal programs that are included in the study.

Table 2: Undergraduate food studies programs and certificates in Canada

Institution	Description	Degree/Certificate Awarded	Program Start Date	Number of Students	Types of Students

George Brown College	The Honours Bachelor of Food Studies will offer a broader pathway for foodservice professionals beyond their current culinary education. The program will provide Canada's evolving food sector with thought leaders who can thrive in both for-profit and non-profit work environments, as well as in graduate school. Graduates will be positioned to succeed in a wide range of food-related occupations including culinary arts, education, tourism, recreation, health, food security, sustainability, economic development, agriculture, public policy, and research (Bonar, 2020).	Honours Bachelor of Food Studies	Fall 2021	Twenty-four students will be accepted in the first year	Anticipating it will be people who are interested in culinary training that want a bachelor's degree or those who are interested in broader issues of the food system.
Kwantlan Polytechnic University (KPU)	KPU is home to the only agriculture program in Canada to have its four year degree curriculum focussed on organic production. Students explore the fundamentals, such as math, biology, chemistry, and geography as well as concepts in sustainable agriculture and food systems (KPU, 2020).	Bachelor of Applied Science in Sustainable Agriculture	2013	Approximately forty to fifty students.	Typically, older students, with some life and professional work experience. Often, they already have degrees in political science, biology, or geography for instance and see sustainable agriculture as a way to pursue a meaningful career and contribute to the advancement of society.

Memorial University	The Certificate in Food studies involves the interdisciplinary study of food issues at local, regional, national, and global scales. The objective of the program is to provide foundational knowledge about the various dimensions of food systems and about the barriers to local and global food security (Memorial University, 2020).	Certificate in Food Studies within the Faculty of Humanities and Social Sciences	2017	Information not available	Information not available
Ryerson University	This fully online, leading edge program explores food-related health and education issues, food policy, environmental sustainability, human rights, and alleviation of food insecurity (Ryerson University, 2020).	Certificate in Food Security through the Chang School of Continuing Education	2003	Enrolment varies, but the introductory course, which is taught three times a year, usually has approximately 100 students enrolled.	Undergraduates at Ryerson and graduates from other universities, particularly students taking environmental studies that want to specialize in food and food security. Many students from social work, but also those from nursing, engineering, and journalism.
Trent University	The Honours BSc is an integrated and interdisciplinary program of study that focuses on the science of agricultural production and food consumption. The Honours BA is an integrated and interdisciplinary program that focuses on the social, political, and cultural dimensions of agriculture and food. It presents global, Canadian,	Honours BSc Degree in Sustainable Agriculture and Food Systems Honours BA in Sustainable Agriculture and Food Systems	2012	Approximately sixty full-time majors and 150 full-time equivalents taking the courses.	About half of the students have a farming background, while the other half come from a non-farming background.

	and local perspectives, building on a foundation of concepts and techniques of environmental studies and their application to agriculture and food systems (Trent University, 2020).				
University of British Columbia (UBC)	The Faculty of Land and Food Systems is a world leader in integrated research, education, and service to address critical global issues around human health and a sustainable food supply. The UBC Faculty of Land and Food Systems uses student centred learning to educate new generations of scientists equipped to solve the most fundamental issues faced by society—those focussed around human health, a sustainable food supply and the responsible use of finite land and water resources. To that end, Faculty initiatives foster and support research excellence, innovative action learning environments, strong community connections, and global and local collaborations (UBC, 2020).	The Faculty of Land and Food Systems offers four BSc programs including Applied Biology; Food Nutrition and Health, Global Resource Systems, and Food and Resource Economics. The development of a minor certificate in Sustainable Food Systems is also underway.	Around 2000	First year core course has approximately 100 students enrolled.	The majority of students are drawn from a nutrition perspective.

University of Toronto	Students in this program draw on a number of disciplinary methodologies, including anthropology, ecology, gender studies, geography, history, nutrition, and sociology. Courses span all of human history, from our foraging ancestors to the contemporary industrial food system, and around the world, examining diverse cultural traditions of farming, cooking, and eating. Students will learn the importance of food in religion, society, the family, gender roles, the environment, urbanization, immigration, colonialism, race, and ethnicity. The program also leverages the university's urban location to use Scarborough as a classroom to understand the rich traditions and special challenges involved in feeding diasporic communities. (University of Toronto, 2020)	Minor Program in Food Studies through the Department of Historical and Cultural Studies	2016	Approximately sixty	A diversity of students, many from psychology, biology, and business.

In keeping with the interdisciplinary nature of food studies and acknowledging that knowledge itself is socially constructed, we would like to situate our own positionality and lens. We are two white settler women who conducted this research on land promised to Six Nations in the Haldimand Tract and the traditional territories of the Attawandaron (Neutral), Anishinaabeg, and Haudenosaunee peoples. We recognize that our analysis is undoubtedly shaped by the power of our privilege and the things we do not and cannot see. We are also mindful that our findings and discussion come through the lens of junior scholars who interviewed established scholars in our field.

This is an exploratory study and follows the principles of grounded theory (Saldaña, 2009). The interview transcripts were coded using NVivo software. This study involved two rounds of coding, the first was broad and descriptive while the second was more streamlined. In the first round sixteen codes were identified, which were then further refined into twenty-seven codes (Huberman & Miles, 1994). The analysis of the interview data, in addition to some textual review of publicly available information on programs, generated the empirical results that are discussed in the following section.

Findings and discussion

Food studies and its pedagogy: Not unique or fixed

As the definition of food studies is fluid in the literature, we were interested in hearing how food studies scholars in Canadian higher education make sense of food studies, which can inform the orientation of the programs. Some view food studies broadly and put transformation at the centre of the field: "I think of it as a very expansive thing because food is so huge and runs through everything and everything runs through food. The big dilemma of food studies is how to think of it as wide as its reality without making yourself cuckoo by not having any boundaries…. Basically any endeavor that's about driving us towards a more sustainable health promoting and equitable food system, that's food studies to me" (Participant 1, 05/13/2020).

Others had a narrower conceptualization of food studies, for example by making a clear distinction between food studies and food politics, "I don't like food studies very much. I find most food studies is highly normative without being political. So, I find a lot of the work is intellectually flabby…one thing I think about being normative is I think, when you're normative, to be a good intellectual, you need to understand your own positionality…one way to express that in an academic fashion is through theory. And I find a lot of food studies lacks a theoretical backbone and lacks a clear standing around positionality. And I find that can be a problem with food studies as opposed to food politics" (Participant 2, 05/14/2020).

The ambiguity of food studies was problematic for some, and according to one interviewee, the discipline does not lend itself well to formal programming. Rather, they saw the development of food studies programs as the act of picking a topic and building an interdisciplinary degree program around it in response to trends. According to this interviewee, the interest in food studies programs can be explained by the fact that students are drawn to food as an entry point to focus on things that they are actually interested in, such as sustainability, nutrition, or agriculture.

However, food as an anchor or a window from which to study other topics was also mentioned by several interviewees as a strength rather than a weakness,

> "I really see food studies...as a vehicle for talking about other important things. People might not want to talk about globalization or gender issues or sustainability issues. But if you can get them there through food, then they see it, and it opens doors into these bigger issues or issues that are just as big as food...that we need to talk about" (Participant 3, 05/21/2020).

The imprecise nature of the discipline means scholars have diverse views on what constitutes food studies and whether there is value in formal programs for undergraduate students in Canada.

Just as the definition of food studies is not fixed, there is no canon on how to teach food studies.[2] However, significant and common threads, such as interdisciplinarity, experiential learning and community engagement, have emerged as food studies pedagogies become established. These common elements reflect Valley and colleagues' (2018) findings in sustainable food systems education (SFSE), but participants noted that these threads are not uniform in food studies: "I don't think we have one specific way of doing it. To me, and I think, because it is interdisciplinary, maybe what we hope is that different approaches will contribute to that knowledge and that building. I don't think we have a specific one [way] to say to characterize it" (Participant 4, 05/15/2020).

However, several interviewees discussed critical pedagogical approaches to student-led learning as important, where students are just as much part of the knowledge generation process as the instructor and are encouraged to challenge power dynamics in the classroom, "A normative thing around teaching is that classrooms are fundamentally hierarchical and unjust…And how we build relationships within the classroom…are a trial run or a practice for building a better world, whether it's through food or it's through thinking differently about international politics or environmental politics" (Participant 2, 5/14/2020). Interviewees were often interested in emancipatory educational work, suggesting an implicit Freirean outlook in food studies pedagogy—which aligns with the history of critical theory in food studies as a discipline.

Critical thinking in food studies pedagogy

Food studies is built on critical theory which promotes resistance and change. Critical theory has been described as covering "a wide variety of theoretical projects and agendas" (Allen, 2016, p. xi). As this paper does not have the scope to discuss critical theory in depth, here we employ the broadest conception (or, as Allen suggests, the "capacious usage" where it "refers to any politically inflected form of cultural, social, or political theory that has critical, progressive, or emancipatory aims" (p. xi)). Certainly, other food disciplines, such as nutrition or agriculture, are also built on normative commitments. However, these normative commitments are operationalized through a positivist lens and are often perceived as "technical" or "objective" and "value free".

Our findings highlight the interlinkage of critical theoretical approaches and commitment to transformation and suggest that these are the potentially *the* defining features of food studies and foundational to its pedagogy. This is partly because food-related disciplines that did not have critical theory underpinnings, such as agriculture and nutrition (which instead have more positivist lineages), were not considered part of food studies by study participants**.** For instance, the University of Guelph is Canada's leading agricultural university but does not have what

[2]Though Zhen's (2019) *Hands-on guide* offers a starting point to build a teaching canon through its guidance on teaching methods and activities in food studies.

might be considered recognizable food studies programming. All participants agreed that interdisciplinarity, systems thinking, and experiential learning were necessary characteristics of a food studies pedagogy, but some scholars also emphasized transdisciplinarity, systems of systems, political ecology, social justice, and power relations. Critical thinking stood out as an important learning outcome that was integral to food studies pedagogy, aligning with Dewey's pedagogy of realizing students' full potential and commitment to the greater good (Dewey, 2001). Equipping students to think critically was highlighted as one of food studies' key learning outcomes. For example, one champion explained, "So, I don't want you leaving necessarily saying, 'I'll never eat another box of Kraft Dinner.' But I want you leaving with an understanding of how that fits into larger social, economic, political systems and how you can look at this critically, but how you can also look critically at people who will judge you for not giving up Kraft Dinner" (Participant 6, 5/11/2020).

Another champion explained how critical thinking is key for achieving transformation both inside and outside the classroom: "I try to bring it to my teaching that, you know, the food system as we know it today is basically predicated on structures of white supremacy. You know, class exploitation, etc. So, I think if we're talking about sustainability, we have to address those things and address those things critically" (Participant 5, 5/13/2020).

Democratizing knowledge generation was raised repeatedly, as one participant noted they aimed "to deconstruct power and privilege in the classroom so that [students] can deconstruct power and privilege outside of it" (Participant 7, 5/18/2020). This underlines the inseparability of critical pedagogies in food studies, critical theoretical approaches to the scholarship, and the normative commitment to transformation and justice both inside and outside the classroom. Relatedly, another participant explained that Dewey's pragmatism informs their teaching philosophy: the idea of education for a civic community (Participant 16, 5/12/2020). Civic engagement and development of agency are key components of the "collective action" that Valley and colleagues (2018) found common amongst SFSE programs. These teaching strategies impart training for transformation internally and externally. Critical approaches to pedagogy are therefore often intertwined with the critical theoretical approaches of a lot of curriculum content. While they are distinct features—and it remains possible to teach a critical course where no critical pedagogy is used—interviewees repeatedly highlighted the ways that these concepts are largely integrated in their programs.

Dismantling white supremacy was identified as a program goal that can be achieved through critical and interdisciplinary pedagogical approaches. While this has been a core component of some conceptions of food studies pedagogy for years, it will likely hold even more weight given the growing awareness of systemic racism in light of rising calls for racial justice: "For me, interdisciplinarity is like the first crack into the white supremacy system of beliefs, because it acknowledges that one way of knowing, and I think of the hierarchy of sciences like physics, chemistry, biology, and everyone else, that interdisciplinarity is a crack to say that objective positivist ways of knowing are powerful, but insufficient or limited. And without that,

it makes it really hard and then once that crack is there, then you can start talking about and creating spaces for all the other ways" (Participant 7, 5/18/2020).

Another interviewee mentioned how their course on the performance of food allows for displacing a singular authority figure as the centre of agency. In their view, this approach,

> "helps connect to things like Indigenous research paradigms, helps to de-masculinize knowledge frameworks…helps to take the individual researcher out of the position of authority and expertise, it tends to be good for local action-oriented research" (Participant 8, 5/18/2020).

Several interviewees noted Indigenous food sovereignty as an area of growing importance and recognition in Canadian food studies. Students are eager to learn more about the topic, as one participant shared, "a lot of our students are interested in the Indigenous studies, like Indigenous food systems" (Participant 9, 5/21/2020). Another interviewee mentioned how the lens of food can be a helpful tool in understanding unique dynamics in these communities: "the relationship between Indigenous peoples and food systems and there's a whole range of dynamics that you can really get do a deep dive into through the lens of food" (Participant 10, 5/20/2020). As an example of a response to this interest, Ryerson is now offering a course specific to Indigenous food studies in Canada.

Philosophical and normative underpinnings are intertwined

Many programs were established when a critical mass of faculty were interested in, or already teaching, food studies related courses. As a result, each program has a unique flavour based on the original faculty members or broader communities the programs are affiliated with. For example, the University of Toronto's minor in food studies was started by relatively senior faculty members from the history department. Given its location in Scarborough, it largely focuses on challenges faced in an urban environment and by migrant communities, and emphasizes cross-cultural understandings. The Ryerson Certificate in Food Security originated in the School of Nutrition, while the Certificate in Food Studies at Memorial University is housed within the Department of Anthropology. These different disciplinary homes are reflective of original program architects, and then create legacies of their own.

Food studies programs often grew organically from the spearheading of champions within university departments, rather than designed at the request of university administrations to meet a perceived need for food studies programs. Therefore, many programs that we have considered part of food studies in Canada were described as having been "cobbled together" (Participant 8, 5/18/2020). In other words, they have been designed based on available offerings driven by academic interests of faculty members. Sometimes, though not always, faculty are limited to offering courses they *can* teach —rather than having a fully conceptualized curriculum from the outset. As such, these programs are subject to the different topical and pedagogical

approaches of individual instructors, versus a strategic design process that may produce a coherent whole-of-program pedagogical approach. George Brown College and Kwantlen Polytechnic University stand out in this regard as their programs were developed from scratch in response to a perceived increase in demand and interest in food studies programs and courses.

Each food studies program in Canada has its own flavour, stemming in part from the philosophical and normative underpinnings of the scholars who established it. For instance, the normative underpinnings for some lean heavily towards social justice and less on environmental justice. Moreover, some programs very strongly support the transformation of food systems away from conventional agriculture towards an alternative agroecological model. In terms of normative foundations, or program values, one program is guided by the belief that, "all people should be able to be food secure, food production cannot destroy the earth, our food system should build community and facilitate human and household wellbeing" (Participant 11, 5/27/2020). One very common philosophical underpinning describes food studies pedagogy as one that creates engaged citizens: "Food is powerful, and we all have power as individuals, and…we all need to work in community. And part of why you would go to university is to learn to equip yourself to act in the world. So, it is very much oriented towards engaging as a citizen in the world. I would say that's a big underpinning. It's not just sort of learning for the sake of learning. We're teaching people a specific way of being in the world" (Participant 12, 5/22/2020). A champion mentioned how, if they were to design their ideal food program, its philosophical underpinnings would be "pluralist knowledges. And I think that's kind of the…critical epistemological centre of food studies is pluralism, holism, ecology, continuity, flow assemblage" (Participant 8, 5/18/2020). Some of the founding characteristics of food studies then, systems and interdisciplinary lenses, are mapped directly onto the approaches to teaching food studies in Canada today.

In some cases, individuals had a strong sense of their own philosophical and normative underpinnings and those of specific courses they taught, but struggled to describe the underlying programmatic values in concrete and coherent ways. In effect, instructors were uncomfortable describing the philosophical and normative underpinnings of an entire curriculum, suggesting a potential difference between "cobbled together" and "designed" programs. It became clear that some of these goals were informal because there was a lack of cohesion about philosophical commitments and normative transformational goals within faculties. Some interviewees noted they had to be cautious about what terms they used in front of particular faculty members who prefer programs remain more positivist than normative in orientation.

Transformation: Moving from critiques to solutions

While effective critical thinking emerged as a core learning outcome in food studies programs, there were some calls to move beyond critique and towards concrete solutions and problem

solving that would be applied by graduates to produce the desired transformation in the food system. The following quote illustrates this perspective:

> I find the big tension is the critique versus the solution. Like a lot of people don't really want to do solutions. The thing that most commonly happens which really, I find really irritating now as you know, the classic thing is the fourteen-chapter book where the first thirteen chapters give a brilliant dissection of what the problem is. The last chapter is this vague, general overview of solutions that you can't do anything with. the tragedy of it is that the students are desperate for it, because they really want to get out there and make a difference (Participant 1, 5/13/2020).

One program participant was highly committed to moving beyond critical reflection to exploring solutions, "students are led to understand the structural formation of food systems and then levers for changing them towards sustainability. So yeah, it's not a study of what is but a study of what is…to inform what could be" (Participant 13, 5/27/2020). Covering solutions may be difficult because many scholars are expected to be apolitical in their teaching even as some food studies scholars suggest the field itself is unapologetically values-based (Galt et al., 2013a). In describing a potential canon of food studies, Nestle and McIntosh identified an entire section of books dedicated to social movements inside the field (2008). In Anderson and colleagues' 2016 collection, the foreword describes food studies as "characterized by its interdisciplinary focus, systemic perspective, and *dedicated commitment to change*" (Koç, 2016, p. viii; emphasis added).

Relatedly, participants also expressed a desire to incorporate more design thinking, future studies, and problem-based learning as teaching activities into food studies programs and courses. The assertion that food studies is too focussed on critique and problems over solutions may be an indication of the underlying tensions between more positivist and critical normative commitments in the scholarship and pedagogy of food studies.

Tension between positivist and critical normative commitments in scholarship and pedagogy

One of the missing pieces identified that limits solutions in food studies by respondents is the divide between agriculturists and food studies scholars. We see this as a reflection of a broader tension between positivist and critical normative commitments. When asked to describe their ideal program, one champion explained that it would not be "anti-scientist, but anti-rigid-scientist—positivist is probably the best encapsulation of that" (Participant 8, 5/18/2020). One of the defining features of food studies is its critical normative orientation—making it difficult to incorporate positivist disciplines such as agricultural sciences, nutrition, or dietetics, that have

often lacked a critical theoretical foundation. Indeed, faculties that have brought these disciplines into closer interaction appear to experience clashes. However, for food studies to move beyond critique towards solutions, participants suggested it might need to interact with and draw on more traditionally positivist disciplines that are seen as more pragmatic and practically solutions-based. The need to bridge this gap was identified by several interviewees, "One of the sad things in a way is that, you know, Canada has eight agricultural faculty and has had them for a long time, and the people in the agriculture faculties generally don't participate in food studies" (Participant 1, 5/13/2020).

According to interviewees, the divide is partly explained by how often agriculture is intellectually and physically isolated from academia and other parts of society. This was a point of frustration for food studies program faculty who see the divide between food studies and agriculture as a deficiency, highlighting again the challenges of university structures, "I do find that it is dominated by social scientists and geographers and it needs to, and I talk about this a lot with my colleagues across the country, it needs to have agriculturist in there…. My point is that production agriculture ought to be part of food studies and food studies ought to see itself, fully related to agriculture, but we don't" (Participant 11, 5/27/2020). These tensions may be the key to explaining why food studies scholars—based on systems-thinking and transformation—might be reluctant to teach about solutions. While scholars might engage in research aimed at food systems transformation, institutions where value is placed on "objectivity" or apolitical content might inherently restrict teaching transformative solutions. For food studies programs to more effectively embrace a solutions-orientation, some participants suggested the need to extend invitations to include more traditional disciplines, particularly those that emphasize mainstream, industrial approaches to agricultural production. Trent University may be at the forefront of this endeavour as it already offers a science and an arts stream in their sustainable agriculture program, where students not only learn about agroecological production methods, but also have the opportunity to hone critical thinking by taking courses that explore food studies through a political ecology lens. The UBC also offers streams that recognize the interdisciplinary nature of food studies.

Prospects for growth and challenges faced by food studies programs

Some higher education institutions do clearly value formalized food studies, tailoring programs to this end. George Brown College will offer an Honours Bachelor's Degree in Food Studies in Canada starting in September 2021 (George Brown College, 2021). It is uniquely positioned to do so given its ability to provide both practical culinary training and administer a formal degree. Similarly, UBC is developing a minor in sustainable food systems, and the University of Toronto is working towards offering a major in food studies. The Université du Québec à Montréal announced two new program offerings in October 2020 that will begin in the Fall of 2021. The first is on contemporary issues in nutrition studies, and the second caters to those hoping to work

in gastronomy and takes a multidisciplinary approach to sociocultural issues related to the field. These developments are in response to perceived growing demand for and interest in food studies. However, there is debate regarding the degree to which food studies is growing and whether there is a need for more formal academic programs in this area.

There was no consensus about the trajectory of food studies, with some participants described food studies programs as booming while others described them as plateauing. Scholars who did not see rapid expansion in the field consequently did not see a need for an official program at their institution. Beyond growth and demand, they pointed out that programs can have unintended and undesirable consequences. For instance, some feared that formalizing food studies programs could end up siloing them.

One champion noted: "I have reservations about this idea of you know, every school, every university should have a food studies department. Because once you start putting boundaries and walls around things, I think it actually limits what it can become" (Participant 5, 5/13/2020). Other champions welcomed the idea of more formal programs as long as they could fill niches that do not already exist elsewhere in Canada. Finally, one champion summarized the advantages and disadvantages:

> So, I have my two answers to your question. Absolutely food studies should remain fluid and, across faculties students should be able to take it and we should be able to create these minors or these concentrations or these foci…without formalizing in a program. As soon as you formalize it, you'll screw it up because the institution, the university institution will tend to mess it up, will tend to control it…[it] will try to box it in and put it in a formal space. And that's a problem because food extends beyond its boundaries all the time. So that's answer one.
> Answer two is we've got to create formalized food studies programs, because it's such an important subject. And because, yes, you know, you can create formalized programs on anything but to draw attention to its importance, develop expertise, develop funding, you know, the funding is the big thing (Participant 8, 5/18/2020).

Questions as to whether food studies programs are expanding Canada or not and the desirability of formalized food studies programs remain. These are only the first of several challenges faced by food studies programs in Canada.

Challenges faced by food studies programs

Food studies programs in Canada face relatively consistent challenges, though the scale varies across institutions. Program participants emphasized a lack of resources, in some cases stating that their programs are "chronically underfunded" (Participant 14, 5/14/2020). The structure of universities was also raised by several participants, suggesting that organizing by department

does not lend itself well to inter- or transdisciplinary work nor is it well set up for solutions-oriented or transformative normative work that is inherent in food studies. For instance, one program participant lamented that, "A lot of solutions work requires normative research approaches, rather than [positivist] research approaches. And most people are trained in positivist research and the system rewards that kind of research. So, you know, the research grant process, the journals, the structure of the journals, all these things really are about positive inquiry, not normative inquiry. And when you do normative inquiry, you're usually penalized" (Participant 1, 5/13/2020).

Evidently, scholars run up against challenges when presenting solutions-based work that may be viewed as politically normative versus positivist and value free. Another participant explained how achieving true interdisciplinarity, which is a cornerstone of food studies, continues to be a struggle at their institution often because of dominant positivist orientations: "The challenges are rooted in beliefs about knowledge. So, ontological, epistemological, and methodological challenges. Anything that's not a natural science objective 'truth' is considered not worthy of being in the curriculum. Yeah, and it's not widely held, but it's enough that it gets airtime. There are those who believe it and talk about it, and then there are those who are silent and believe it and then those who are kind of on the fence. And so, I'd say that those three groups are pretty prevalent and powerful in my faculty" (Participant 7, 5/18/2020).

Setting up programs that achieve the normative commitment to critical transformation then is difficult in Canadian universities. Other, more concrete challenges to traditional teaching strategies also exist. Experiential learning, important to most food studies program faculty and champions, as a teaching method that integrates the main characteristics of food studies, also presents unique logistical and financial challenges.

Classes where experiential learning is a priority tend to be smaller and require more tailored experiences to achieve learning outcomes. In short, programs tend to have a low return on investment, a clear challenge as universities become increasingly neoliberal (Slaughter & Rhoades, 2000). The commercialization of higher education generally pushes universities to promote more industrially relevant activities, which food studies do not immediately lend themselves to (Rigas & Kuchapski, 2016).

The challenges and opportunities specific to COVID-19

COVID-19 will significantly impact experiential learning in food studies programs, if not eliminate it entirely. One interviewee described the changes as a result of the pandemic as a "tectonic shift in pedagogy" (Participant 15, 5/27/2020). Almost all participants mentioned the shift to online teaching and some expressed concern about how this would hinder learning experiences. While many acknowledged that universities were moving to increased online learning prior to the pandemic, some noted that the acceleration due to the crisis meant the transition might not be done in the required thoughtful way. Bringing an entire set of programs

online over the summer would be a "Herculean task" (Participant 10, 5/20/2020). Concerns were also raised regarding equity and accessibility in online learning environments. One participant worried, "I honestly don't know how we're going to pull this one off. And, and I mean, we're just going to have to figure it out. And so, I'm teaching, you know, very basic kinds of things, actually, the classes that I was teaching when I started years ago" (Participant 16, 5/12/2020). While many admitted that COVID-19 will hurt the experiential learning that so many food studies programs use to encourage interdisciplinary, systems thinking and community engagement, some programs are better equipped to shift to online learning than others. Although COVID-19 will present challenges to fostering meaningful experiences and synchronous class discussions for students, it is also seen as a positive development by some interviewees, as it validated food studies as a field, and consequently food studies programs. It also serves to heighten concepts of exploitation and inequality that have always been central to food studies as a field. For instance, one interviewee claimed that, "From a food studies perspective, I can say the chickens have come home to roost. That so much of what we've been arguing over the last decade or more, is so very true. And you can't ignore it. The whole system rested on so much exploitation that in a pandemic time becomes frightfully clear" (Participant 3, 5/21/2020). The advantages of greater recognition were expressed by a champion who stated that:

> I think this is a boon for us. Yeah, I wish it wasn't…. People are starting to, you know, from journalists who are actually making an effort to write more about this to people who are actually apparently spending more time reading about these things now, and recognizing some of these issues that they maybe weren't paying attention to before, not only have been considered by scholars but have been thought through quite carefully. And so, I do feel that it is it is validating our work. And when I say our work, I mean in terms of understanding the supply chains in terms of understanding the relationship between food production and distribution of the environment, and I think the social justice part is like a major, major part of the conversation, right now (Participant 6, 5/11/2020).

It appears that this attention on food systems resilience is already leading to greater recognition and support for food studies programs. The pandemic highlighted certain vulnerabilities in Canada's food supply chain that may also be raising awareness of the value of food studies and its pedagogy. Notably, the outbreaks experienced at meat processing facilities and in the fields amongst migrant workers exposed some harsh realities of Canada's industrialized food system (Ayres, 2020; Patrice & Lamboni, 2020). Moreover, as food service establishments were forced to close, consumers had to adapt quickly and some began to support smaller scale local supply chains (Holland, 2020). Financial impact from job loss or reduced work hours as a result of Covid-19 has been devastating for some households and increased food insecurity amongst those Canadians (Polsky & Gilmour, 2020). The pandemic is still in full force and it is impossible to ascertain its the full ramifications on Canada's food systems. However, it is clear that it has had

an impact and this is being reflected in support for food studies programming. As one interviewee noted, “So it's an interesting time. And, and I think at our university, there's been a push for [funding]. Like, all of a sudden, the university has woken up to the importance of the program” (Participant 9, 5/21/2020).

Conclusion

This paper sought to take stock of undergraduate food studies programs and courses in Canada. Through a review of the literature on food studies and food studies pedagogy, it demonstrated how theoretical concepts of critical pedagogy and food systems transformation are translating to food studies programs across the country. By doing interviews with eighteen food studies faculty and scholars who are acting as champions of the field, we have gathered a range of perspectives and stances on curricular and pedagogical approaches that define the field at this point in time. The degree of cohesion varies considerably across programs, so it is difficult to make broad claims.

As many food studies programs are cobbled together, there is not always a clear through line in terms of the underlying values and pedagogical commitments. This is reflected in the lack of clarity around commitments and vision of certain food studies programs. However, other programs have a much stronger sense of cohesiveness. In these cases, ensuring shared values (or a shared normative outlook) was seen as vital to the success of the programs.

In sum, the critical approach to food in food studies drives the emphasis on transformation of the food system, pointing to its underlying philosophies and normativity. This critical element of food studies was repeatedly emphasized and is unsurprisingly a key feature of the way food studies are taught in Canada and the varying pedagogies of food studies scholars. Critique should be kept in high regard among those teaching food studies or involved in adapting and developing food studies programs, particularly in the current context of COVID-19 and the rising demands for racial justice, where critical consciousness must be prioritized in scholarship and in developing students. However, interviewees also highlighted a potential weakness in food studies in that it shies away from exploring solutions to the problematic systems that it often critiques. Other disciplines that have not traditionally been integrated as part of food studies may be helpful in this endeavor. If, as Marx suggested (2002/1924), the point is to cause change, the challenge will be to calibrate the scope of food studies to enable functionalizing its hallmark—a normative commitment to food systems transformation.

As food studies scholarship globally is underdeveloped, Canada can make some important contributions to the field relative to its size. The existence of CAFS provides an opportunity to carve out a particular Canadian food studies identity. CAFS is exploring ways of making food studies more inclusive and reflective of diverse perspectives in Canada. They have made public statements on specific issues such as the Sipekne’katik Mi’kmaw Moderate Livelihood Fishery and on racialized policy violence and systemic racism. The open and honest

reflection about what perspectives that are missing in food studies scholarship and the desire to create a more inclusive community is a positive contribution that can be made to the broader field of food studies. Domestically, the mainstream approach to agricultural production in Canada tends to take an industrial, positivist orientation. However, the Canadian government is beginning to consider alternative viewpoints as evidenced by the 2019 Food Policy for Canada and the recent establishment of the Canadian Food Policy Advisory Council (Government of Canada, 2020). Canadian food studies scholars now have a unique opportunity to engage with practitioners and encourage a more critical stance on the future course of food and agriculture in Canadian classrooms.

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