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IN THIS ISSUE

This latest issue of Canadian Food Studies is full to bursting with seasonal—as in timely—fare. Philip Loring's Editorial makes a strong case for radically reimagined food systems. In their Commentary, the CAFS board of directors collectively reflect on the past year and walk us through three areas of emphasis for the years ahead: racial justice and decolonization; (anti)austerity; and knowledge production and accessibility. The line of inquiry that connects the four research articles is that of the Canadian classroom. The authors explore such matters as food pedagogy, food security, school food programs and bento. Also on offer are Paul Manning's Perspective on what can happen when fences are made to stand between white-tailed deer and community gardens, while Pineau et al. explore experiences of food insecurity, shame, stigma, and social exclusion among women in high-income countries. 145 pages of reading material, including two book reviews on the subjects of pork and factory farms and food justice and gentrification. We conclude the issue with a submission format that is new to the journal: an interview with a key thinker, actor, and/or practitioner in the field of food. For this inaugural interview we find ourselves in the best company to be had, with Wayne Roberts (1944–2021): food systems thinker, public intellectual, and "actionist."

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

Editorial

The imperative to transform global food systems

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Never before, perhaps, has there been greater consensus that our food systems need to be radically reimagined and transformed. However, there is also much contention among those working to advance these transformations over the solutions and futures that ought to be pursued. So, while there is great opportunity to enact truly radical actions that reduce hunger, rebuild and steward biodiversity, and redress the many harms and dispossessions of colonialism and extractive development, there is also great risk that the need for rapid change will be coopted by powerful elites as a shroud for advancing technocratic agendas and gaining further control of global food systems.

These opportunities and tensions were on full display this month; on September 23, the United Nations held its much-anticipated 2021 Food Systems Summit: a self-proclaimed "people's summit" that sought to set the stage for making major advancements toward achieving the 17 Sustainable Development Goals. On the same day, however, a counter-summit, organized by the People's Coalition on Food Sovereignty and 21 other organizations, culminated in a variety of protests led by rural peoples in various countries across the Global South. In their declaration, the organizers of this "Global People's Summit on Food Systems" decried the UN's summit as being captive to corporate agendas; in their words, " [it] turned a blind eye to structural causes of failed food systems, ignored the worrisome corporate concentration of power, … and lacked transparency and meaningful opportunities for people to participate."[1]

This critique was not entirely absent from within the proceedings of the UN summit. In his opening statement, noted economist Jeffrey Sachs offered a blistering critique of corporate influences in the global food system:

[1] https://peoplessummit.foodsov.org/gps-declaration/

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> We have a world food system. It's based on large multinational companies. It's based on private profits. It's based on … extreme irresponsibility of powerful countries with regard to the environment… and a radical denial of rights of poor people. … We cannot turn [our food systems] over to the private sector because we already did, 100 years ago. … The private sector is not going to solve this problem. … We need a different system, and the different system has to be based on principles of human dignity, in the Universal Declaration, principles of sovereignty, principles of economic rights.[2]

Despite his passionate words, the summit proceeded largely as its critics expected, emphasizing solutions based in technological advances and the expansion of international markets for large-scale agribusiness. Neither agroecology nor food sovereignty, for which fishers, farmers, and other members of world's largest peasant movements have been calling for years, received noteworthy attention.

The failure of our food systems to feed people is a natural consequence of the colonial agenda to extract and consolidate as much capital as possible from the Global South (Hickel, Sullivan, and Zoomkawala 2021). It is not a technological failure but an ethical one; the same constellation of moral values that allow hunger to persist are those that have advanced widespread deforestation, turned a blind eye to ongoing slavery around the world, and that justify the inhumane treatment of livestock in confined feeding operations. These ethical failings cannot be solved in a piecemeal manner because they all derive from a set of core modernist assumptions about economic growth and cultural supremacy.

This is the same supremacy that on display in the failure of the leaders of the UN summit to truly engage with the agendas, ideas, and priorities of the world's largest peasant and Indigenous groups. They don't listen because they believe that they know better.

Sustainable food systems must be ethical food systems (Lam and Pitcher 2012). There can be no social justice without a food system that starts from a recognition of basic human rights and which sees the massive consolidation of wealth and power that currently exists in the world as fundamentally incompatible with those rights (Alkon and Agyeman 2011). Likewise, there can be no ecological justice if we do not acknowledge that these rights must be extended to water and many the more-than-human beings with which we share this planet (Leonard 2020; Beacham 2018).

Achieving ethical food systems will require a fundamental reorientation of power in our societies, one wherein people are empowered to demand and implement a wholly new ethical framework based on both social and ecosystem justice. In practical terms, this means wresting our collective food sovereignty back from the elites. It means returning jurisdictional authority over the lands that produce or foods to the world's peasant and Indigenous communities and

[2] https://www.youtube.com/watch?v=WZ1xc491mnU

empower them to rebuild food systems based on healthful, reciprocal, and regenerative relationships with those places.

These issues are not only relevant to the Global South. They matter for Canada's food systems as well. I write these concluding words on September 30, the first national day of Truth and Reconciliation in Canada. If we want to honour the spirit of this day, and the goal of reconciliation in general, we must acknowledge that Canada's lucrative agricultural and fisheries industries are built entirely on stolen land and seascapes. No matter what steps we take to make these industries more sustainable or climate friendly, whether achieving Marine Stewardship Council certification or enacting regenerative ranching practices, these acts will only serve to further entrench the legacies of colonial harm and dispossession unless they are paired with acts that restore Indigenous jurisdictional authority (Pasternak, King, and Yesno 2019).

"Land Back" not an aspirational chimera but a legitimate theory of change. Indeed, Indigenous communities in North America are already out-performing settler governments when it comes to addressing fossil fuel abatement via active resistance and protest (Indigenous Environmental Network 2021). Indigenous peoples are also the first regenerative farmers (Loring 2020), and many today are taking great strides in remaking food production and food systems from the inside out, based on values of reciprocity, restorative justice, and regenerative relationships (Arcand et al. 2020). If the COVID-19 pandemic has taught us anything, it is that the grip of the dominant, agro-industrial complex is more tenuous and vulnerable than its proponents are willing to admit (Stoll et al. 2020; Garnett, Doherty, and Heron 2020). So, while the imperial machinations of the status quo may seem daunting, I believe that there has never been a better time to push for truly transformative change.

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Commentary

Reflections on the roles and responsibilities of food studies in Canada, Indigenous Territories, and beyond – 2020-21

The 2020-21 CAFS Board of Directors (Amanda Wilson[a], Meredith Bessey[b], Jennifer Brady[c*], Michael Classens[d], Kirsten Lee[e], Charles Z. Levkoe[f], Jennifer Marshman[g], Tabitha Martens[h], Sarah-Louise Ruder[h], Phoebe Stephens[e], Tammara Soma[ii])

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The Canadian Association for Food Studies (CAFS) was founded in 2005 when a group of academics, community-based researchers, and practitioners came together to develop a proposal for a national research program on food security and food systems. Out of that initial discussion, CAFS was created to further critical, interdisciplinary scholarship in the broad area of food systems, including policy, production, distribution, and consumption, as well as the social and environmental conditions that shape those systems.

Sixteen years later, we find ourselves within scholarly, environmental, ecological, political-economic, and cultural contexts that are both similar to and very different from those of our founders. Thanks to critical food systems scholars and activists, our analytical tools are more varied and calibrated—but the challenges continue to mount. Today, our work is intended to inform policy makers, engage the public, assess the outcomes of community-based work, broaden the scope and plurality of food knowledge, and demonstrate the impacts of local and global change that affect food systems.

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Though in the roil of ongoing social inequity, climate chaos, a global pandemic, and a gathering storm of both austerity and populism, we are faced with increasingly urgent questions not only about *what* we do, but *how* we do our work. We find ourselves at a stage of profound reflexivity as we reckon with the past, grapple with our collective futures, and collaboratively strategize about how to seize the ever-present here and now.

In this commentary, we collectively reflect on the past year and propose three areas of emphasis for the years ahead: racial justice and decolonization; (anti)austerity; and knowledge production and accessibility. While it is evident that these themes have become relevant for us as food studies practitioners, we see them as equally meaningful across academia more broadly, and for all those who care about moving forward with equity and empathy. In what follows, we address the significance of these areas of emphasis in guiding CAFS' journey as an organization.

Racial justice and decolonialism

The 2020–21 CAFS Board began our term on the heels of widespread mobilizations for racial justice, spearheaded by Black Lives Matter in both Canada and the U.S. After reflection and conversation, the Board released a statement in support of these movements. Beyond rhetoric, the purpose of the statement was to acknowledge ongoing structural racism and racialized police violence, connections to food and food systems, and CAFS' commitment to action. We particularly wanted to draw attention to the presence of systemic racism in the Canadian context, including the disproportionate killing and incarceration of Black and Indigenous people by Canadian police forces.

The commitments we outlined in our statement included developing a publicly available resource on the intersection of food systems, racialized violence, and oppression within the Canadian context. We also committed to working with the editorial collective of our journal, *Canadian Food Studies/La Revue canadienne des études sur l'alimentation* (CFS/RCÉA), to develop a themed issue confronting anti-Indigenous, anti-Black, and anti-Asian racism in Canadian food systems. The call for commentaries for this issue was circulated at the beginning of May 2021, with a September 15, 2021 deadline. We also organized an online discussion with three Indigenous scholars and practitioners to share their reflections on the place of "Canada" in food studies and food systems, which contributed to a broader conversation within CAFS and CFS/RCÉA about the use of *Canadian/canadienne* in our respective names and the framing of our work.

The discovery of thousands of unmarked graves at several residential schools is a condemning reminder of the horrific consequences of an ongoing genocide in this territory. We know, from oral histories and research by food studies scholars, that food was used as a weapon within residential schools. Indigenous children were barred from participating in cultural food practices and were subject to nutrition experiments in which they were intentionally starved and malnourished (Food Secure Canada, n.d.; Tennant, 2021).

Food continues to be a key tool of control and violence in the broader processes of colonization. As the academic association for the study of food in this territory, we cannot turn away from the reality that food is a vector for oppression and inequity. We hope that CAFS' recent activities to engage with these tensions have created space for reflection and learning, and that they will set the stage for future engagement, understanding, and knowledge generation on these important issues.

Austerity

With respect to our individual and collective academic work, the experience of the pandemic has made many enduring issues more acute. Despite celebrities' and governments' ad nauseum repetition that we are "all in this together," it became clear that deep disparities in food and labour are all too common. Many people lost their jobs and their homes, took on additional labour to support friends and family, and wrestled with maintaining physical and mental wellness. As some people disproportionately continued to reap profit and benefit from the profound state of inequity, many people in the academy struggled to balance care and reproductive responsibilities with teaching, research, and service commitments. At the same time, some responded to this new context by building collaborations to help better understand the impacts of the pandemic on our food systems, and to support the efforts of those on the front lines in re-imagining and actualizing what comes next.

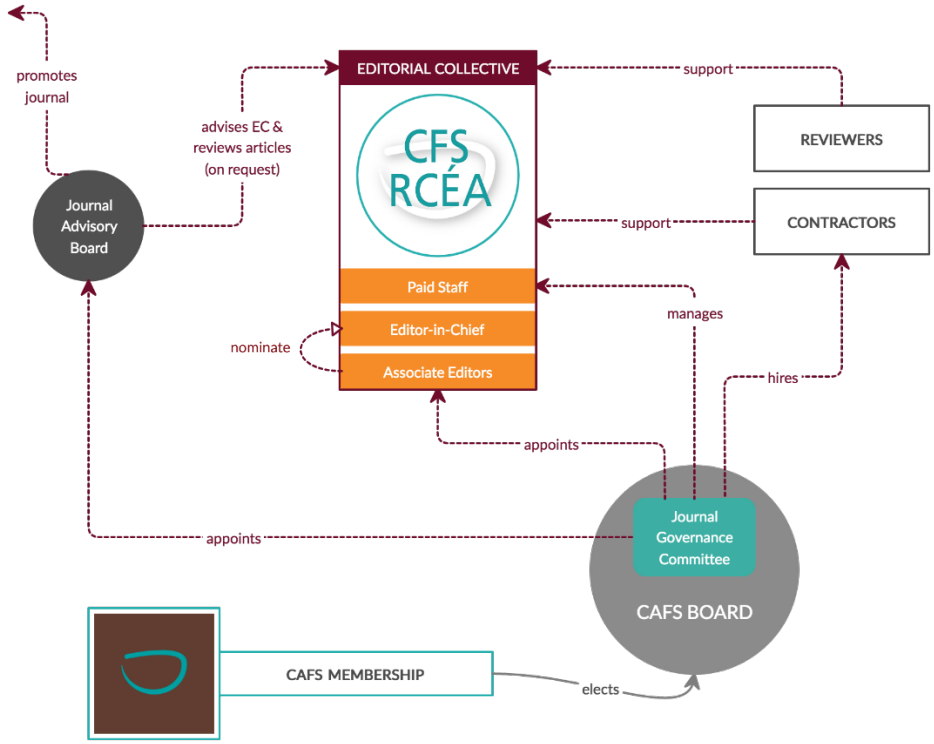
Many of our partner communities have also struggled over the course of the pandemic. Rates of food insecurity have increased dramatically, myriad food workers have lost their jobs and/or been subject to unsafe working environments, conditions for migrant farm workers have deteriorated precipitously, and food access for vulnerabilized people has become more limited. The increased demand for food charity has in part resulted in a further destabilization of the food-focused non-profit sector, which already bore the twin burden of chronic underfunding and governments that are ill-prepared (or unwilling) to support populations in need. We all need to remain attentive to maintaining an anti-austerity ethos in our work and rhetoric over the months and years ahead.

Knowledge production and accessibility

Over the past decades, we have watched publicly funded academic research be subsumed by corporate-owned journals and sold back to us as proprietary knowledge. As an open access, collaboratively managed, scholarly journal, CFS/RCÉA was developed and has adapted to counter this. A new governance structure was put in place, founded on relationality among journal staff, the editorial collective, and the journal governance committee (see Figure 1).

In addition to engaging with broader debates about knowledge construction, we have also taken on a responsibility to keep the pages of CFS/RCÉA accessible to both authors and readers. With a new schedule of publishing fees, the journal has reinvigorated its commitment to open access, non-profit, non-commercial, independent, and high-quality publishing, all while maintaining financial sustainability. In a publishing environment increasingly crowded by for-profit, predatory corporations, we remain resolute in our commitment to open access, flexible publishing fees, fair pay for our staff, and creating new ways of mobilizing knowledge.

Figure 1: The CFS/RCÉA organigram



Many of the conversations and activities initiated in 2020–21, including those of our new webinar series, will continue in the years to come. Looking forward, the possibilities abound to use food studies to understand both food and ourselves, while also transforming the world around us. We are also cognizant of the extensive work to be done to ensure food studies is a welcoming and nurturing space for all. CAFS has raised critical questions about our role as an academic association this year, particularly in the context of calls for social justice, as well as public scholarship and community-centered research and output practices.

One of the priorities over the past year was to increase communications and outreach capacity, so that those who have not previously felt a part of food studies might feel more encouraged to participate in CAFS and CFS/RCÉA. This has created space for important moments of learning and conversation.

A further effort related to knowledge production is to challenge the entrenched epistemologies and ontologies that continue to create hegemonies of knowing, often prioritizing so-called scientific and objective data over embodied and traditional knowledge. Food is too often treated as object to be studied in isolation from its complex web of relations. For instance, many approaches to food and health mobilize narrow understandings of "obesity" as a problem to be solved, which perpetuates weight stigma and anti-fat bias (Brady, Gingras & LeBesco, 2019). Agricultural productivism continues to be driven by neo-Malthusian and technocratic configurations, which reproduce global inequity and marginalize Indigenous, agroecological, and folk farming practices (Rosset & Altieri, 2017). Narratives proclaiming that food insecurity is simply an absence of food—one that can be solved through corporatized charity—remain intransigent, despite decades of evidence to the contrary (Swift & Power, 2021). In order to avoid re-entrenching damaging narratives and practices, we encourage our membership to embrace epistemological diversity and to continue pursuing the horizons of inter/trans/anti-disciplinary modes of knowledge production.

On a final note, we keep front of mind our colleagues and comrades within CAFS and other food communities who were lost this past year. COVID-19 took the lives of migrant farm workers, meat-packing workers, food service workers, and others. One particularly wide-felt loss was Dr. Wayne Roberts, who passed away on January 20, 2021. Wayne was the recipient of the 2019 CAFS Lifetime Achievement Award and the author of numerous articles and books (including *The No-Nonsense Guide to World Food*). He worked tirelessly to encourage city authorities, policymakers, and scholars to integrate food systems thinking into their work, and to promote food security and urban resilience. During his fruitful 76 years, he mentored myriad activists and scholars, many of whom have gone on to become leaders in their respective communities. He brought people of diverse—and at times opposing—perspectives together, playing the role of weaver and cross-pollinator. Many of us have been grateful recipients of his ideas, service, commentaries, and publications. While we will all miss him deeply, his spirit will live on, perpetually positive, perpetually hopeful, and perpetually grounded in humility.

Food studies is a space of evolution, reflection, tension, and learning, presenting numerous opportunities for remaking what we think of as normal. As the pandemic evolves at different paces around the world, we will not—and should not—aim at a return to 'normal'. There is far too much at stake. Instead, let us each reenergize our efforts to play a positive role in transforming our norms, questioning our assumptions, and re-imagining our food systems, foodscapes, and food cultures.

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Perspective

The potential of fenced community gardens to mitigate the negative impacts of white-tailed deer on food gardening in Canada

Paul Manning

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Abstract

Household food insecurity describes insufficient or unreliable access to food due to financial constraints. Food gardening is practiced throughout the world as a means of addressing household food insecurity. Although food gardening is not a viable standalone solution to food insecurity in Canada, it is a useful practice for providing households with fresh and nutritious food. Gardeners are faced with numerous challenges and barriers to growing food, including lack of gardening knowledge, availability of space, and lack of financial resources to purchase supplies. Community gardens, where members of a local community cooperatively manage an area of land to produce food, can be useful in helping individuals overcome many of the challenges and barriers to food gardening. A benefit of community gardens is the shared protection that fencing infrastructure can provide against wildlife. In this article, I highlight how fencing can help overcome the potential challenges posed to food gardening by a herbivore: the white-tailed deer (*Odocoileus virginianus*). White-tailed deer can negatively influence the potential of food gardening to support household food security by causing significant damage to garden plants. Fencing is an effective way of reducing these impacts, and this intervention can be highly useful for community gardens where users benefit from shared infrastructure. In landscapes with high abundances of deer, governmental and grassroots support of deer fencing for new and existing community gardens could be a useful action in increasing the potential of food gardening to ease household food insecurity.

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Household food insecurity in Canada

Household food insecurity is defined as insufficient or unreliable access to food due to financial constraints and is increasingly recognized as a serious population health problem in Canada (Jessiman-Perreault & McIntyre, 2017). Based on a survey of 103,500 Canadian households conducted from 2017 to 2018, approximately 12.7 percent of respondents had experienced some level of household food insecurity within the past 12 months (Tarasuk & Mitchell, 2020). The occurrence and severity of household food insecurity does not affect all equally but is influenced by numerous socioeconomic factors including employment status, income level, receipt of social assistance, and immigration status. Household food insecurity is disproportionately experienced by households of colour: the most recent survey of Canadian food insecurity found 28.9 and 28.2 percent of Black and Indigenous households respectively experienced some level of food insecurity compared to 11.1 percent of white households (Tarasuk & Mitchell, 2020).

Numerous social interventions have been implemented to address food insecurity in Canada. At a federal level, the Government of Canada's Universal Child Care Benefit from 2006 to 2016 provided families $100 per month for each child under six years of age; this policy yielded a 25 percent decrease in food insecurity among families that received the benefit (Ionescu-Ittu et al., 2015). Provincial policies have also been effective in addressing household food security. For example, in Newfoundland and Labrador, a collection of poverty reduction policies that included increasing the minimum wage and reducing income tax among the lowest earning households reduced household food insecurity from 59.9 percent in 2007 to 33.5 percent in 2012 among families receiving social assistance (Loopstra et al., 2015). One of the most widely practiced interventions for addressing food security across Canada is the establishment and management of food banks, where charitable food donations are made by the public, and collection and redistribution of surplus food can be freely accessed by those in need. While food bank use has been shown to improve household food security in the short-term, food banks do not address the underlying causes of food insecurity and are not considered as a sustainable long-term solution (Tarasuk et al., 2014).

Food gardening as an approach to supporting household food security

A potential pathway to help alleviate household food insecurity is the self-provisioning of food produced via food gardening in home and community gardens.

More than 600 million people living in urban areas worldwide are estimated to grow food for their own personal consumption within community gardens, vacant lots, private gardens, and on balconies (Petts, 2005).

The practice of food gardening is widespread in Canada, but food grown in this manner generally represents a small proportion of the food consumed within a household across the full calendar year. A study based in Guelph, ON asked 50 gardeners to keep a garden diary and record harvest weights and inputs (time and resources); They found that an average home garden produced 256 servings of fruits and vegetables on an annual basis, which could provide a family of four with sufficient fruits and vegetables for approximately ten days (CoDyre et al., 2015). While the productivity of these gardens may not be sufficient for alleviating food security across the entire year, food gardening can be highly productive at certain times of the year. A recent demographically representative survey of 1,023 Canadians revealed that during 2020, 51 percent of respondents reported growing at least one fruit or vegetable at home (Mullins et al., 2021) and that during peak harvest season, 53 percent of experienced gardeners reported that 25 percent or more of their household fruit and vegetables were supplied via food gardening. Despite the recognized limitations of food gardening for alleviating overall food insecurity, among food insecure gardeners, self-grown produce is highly desired for its social and nutritional value (Kortright & Wakefield, 2011).

Multiple factors influence the ability of individuals to participate in food gardening. A study based in Ohio, U.S., found that individuals with lower socioeconomic status were less likely to participate in home gardening. Through surveys, individuals with lower socioeconomic status were found to have less knowledge of food production practices, fewer financial resources for purchasing supplies, and lack of access to gardening space (Schupp et al., 2016). An effective means of addressing these concerns are - community gardens areas that are cooperatively managed by members of a local community where food or flowers are cultivated (Drake & Lawson, 2015). Community gardens can be a solution to a lack of gardening space, lack of gardening knowledge, and reducing capital costs—while also supporting a number of other benefits to users (Drake & Lawson, 2015), which are described below.

An overview of the benefits of community gardens

Community gardens are effective in removing financial barriers to participating in food gardening. Many community gardens are established specifically for the purpose of engaging people of lower socioeconomic status in the process of food gardening, with memberships that are either free or priced at a relatively nominal cost. Along with access to land, users of community gardens regularly benefit from access to plant material such as seeds and transplants (Pearsall et al., 2017), use of gardening tools, access to a water source (Petrovic et al., 2019), and use of composting facilities (Drake & Lawson, 2015).

While individuals participating in community garden initiatives are largely driven by intrinsic motivations such as learning from others, numerous studies have also shown the benefits of participation to dimensions of health and wellbeing (Hale et al., 2011). Many of these benefits are related to diet; for instance, a study based in Twin Cities, MN, U.S. found a 22 percent increase in daily vegetable consumption among Karen and Bhutanese refugees who participated in a community gardening program (Hartwig & Mason, 2016). In a second study exploring the health benefits of community gardens, a case-control study of 165 gardeners in Tokyo, Japan, found that participants involved in community garden projects self-reported significantly better mental and physical health, and fewer numbers of subjective health complaints as compared to a control group (Soga et al., 2017). A third study, that used case-control approach to compare individuals participating in a community gardening initiative to same-sex siblings and neighbours, found community gardening was associated with lower body mass index and reduced odds of obesity (Zick et al., 2013).

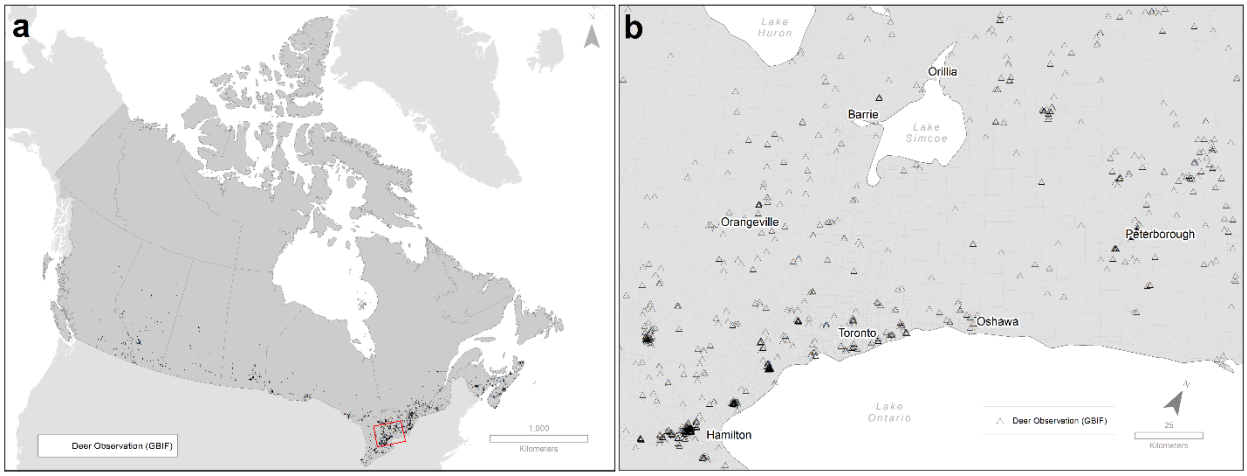
Community gardens are a physical space that facilitate knowledge sharing through formal education programs and conversation. In a survey of 445 community garden organizations across the U.S. and Canada, 96.7 percent reported "education specifically about gardening" as a benefit provided by their organization (Drake & Lawson, 2015). Within community gardens, this sharing can take place through workshops or classes (Booth et al., 2018), and through organic social connections, such as conversations with fellow gardeners (Rogge et al., 2020).

White-tailed deer and food gardening

Individuals growing their own food within community gardens must contend with various production challenges including soil fertility, irrigation, and insect pests. Food gardeners must also deal with wildlife that can cause significant food losses, that may require special attention. Some examples of wildlife in Canada that thrive in human-dominated landscapes and may cause large food losses from gardens include rabbits, hares, groundhogs, birds, and raccoons. One species of wildlife that poses a particular challenge for food gardeners throughout many parts of Canada is the white-tailed deer.

The white-tailed deer (*Odocoileus virginianus*) is a medium-sized ungulate that is variable in size. Males usually weigh between 34 and 73 kg and females typically weigh between 28 and 66 kg (Sauer, 1984). White-tailed deer are generalist herbivores that can adapt to a wide variety of habitats and feed on a wide range of native and non-native plants (Weckerly & Nelson, 1990). Deer typically consume between 1 to 4 percent of their bodyweight in plants each day, representing approximately 1.0 to 1.2 kg of dry plant material (Berry et al., 2019). White-tailed deer are found across Canada east of the Rocky Mountains (Figure 1a) and can be commonly observed in human-dominated landscapes such as the Greater Toronto Area (Figure 1b).

Figure 1: Observations of white-tailed deer across Canada (a) and the Greater Toronto Area (b).



Each point represents a georeferenced observation of a white-tailed deer, either through direct observation or indicators of deer activity (e.g., fecal pellets, hoof prints). White-tailed deer data provided by Global Biodiversity Information Facility (GBIF.org, 2021).

The past century has seen exponential growth in the abundance of white-tailed deer. Population estimates of white-tailed deer in the U.S. and Canada expanded from 100,000 individuals in the early 1900s to more than 30 million today (Adams and Hamilton, 2011). The rapid growth of the white-tailed deer population has largely been attributed to factors associated with living in urbanized areas, including release from predation, longer lifespans, tolerance to humans and human activities, and widely available food resources (Adams and Hamilton, 2011). White-tailed deer readily habituate to human contact (Schuttler et al., 2017), and when living in suburban areas without the pressure of hunting, can reach densities as high as 80 individuals per km^2 (Williams et al., 2013).

In many human-dominated landscapes, high densities of white-tailed deer bring challenges that include more frequent deer-vehicle collisions, damage to landscape plants, and the spread of zoonotic diseases. An underappreciated impact that deer have to humans, however, is the consumption of food plants in community and home gardens. Although many plants grown for human consumption are nonpalatable to deer such as members of the Allium family, including chives, onions, garlic (Nitzsche et al., n.d.), the wide dietary breadth of deer means that many crops can be lost to deer browsing.

Studies of conventional agricultural systems have shown that browsing by white-tailed deer may cause significant losses of agricultural productivity. For example, in a study of soybean (*Glycine max*) plants browsed by white-tailed deer yielded 74 percent less seed than plants protected from deer by cages (Begley-Miller & Cady, 2015). Even so, the severity of these losses is highly variable and does not necessarily correspond to deer density.

A series of field studies by Matthews (2019) determined that crop damage by white-tailed deer varied from 0 to 538 kg/ha for soybean, and from 0 to 1002 kg/ha for corn, but that deer density did not explain appreciable variation in crop losses.

Though no published estimates are available, damage by white-tailed deer is likely exacerbated in many home and community gardens, specifically during periods of drought. Under drought conditions, white-tailed deer shift foraging preferences and become more selective about the plants they consume (Lashley & Harper, 2012). Irrigated gardens may be particularly attractive to browsing deer because of the increased palatability of irrigated plants relative to other plants in the landscape. To this end, because home and community gardens are small relative to most commercial agricultural operations, a concentrated browsing effort by deer will have a larger overall effect on crop productivity.

Fenced community gardens can help mitigate the impacts of white-tailed deer on food gardening

Because of the challenges associated with living amongst high-density deer populations, numerous products and practices have been tested to prevent conflict between deer and humans. For example, to keep deer from damaging landscape plantings many fear-based approaches have been used ranging from the use of auditory deterrents like propane cannons, to olfactory deterrents that include bobcat urine or pig blood (Vantassel & Groepper, 2016). Deer tend to acclimate to these cues over time, and as such these fear-based interventions are typically not effective over prolonged periods—particularly when deer are living in predator-free landscapes (Champagne et al., 2017).

The intervention which has shown the most promise for preventing deer damage is fencing. Fencing is widely used as an effective intervention for reforestation efforts in landscapes with high deer densities (Sweeney & Dow, 2019), and when used in conjunction with crossing structures is highly effective in preventing deer-vehicle collisions (Huijser et al., 2016). A wide range of fencing styles have been tested for their efficacy in excluding deer, with fence height generally proving to be the most important attribute for preventing deer damage. In a study by Stull et al. (2011), a fence height of 2.4 m prevented any deer from crossing into the other side of a fenced pen–even when startled by the researchers. The study also explored a range of lower fence heights, between 1.2 and 2.1 m, finding that as height decreased fence crossings became more frequent. Fences 1.2 m in height have been effective in preventing deer damage in 100m^2 forest plots (Sweeney & Dow, 2019), however given that deer can easily leap over low fences (Huijser et al., 2016), the effectiveness of such fencing is likely dependent on the fenced-off area being of similar forage quality as the surrounding landscape—which is typically not the case for food gardens.

In landscapes where white-tailed deer browsing pressure is high, deer-proofing gardens through fencing may be necessary in preventing food losses.

The costs and challenges of building and or maintaining these fences represent another significant barrier to individuals growing their own food. Adjusted for inflation, VerCauteren et al. (2006) estimated the cost of deer-proof fencing with 90 to 99 percent efficacy ranged between $16.4 to $32.7 per m. This cost would be prohibitive to many individuals, particularly those who were opting to grow their own food for the purpose of alleviating food insecurity. Beyond the barrier of initial capital to build and install the fencing, the economic benefit of fencing for protecting against food losses must outweigh the cost. This becomes more likely for community gardens where users share a larger fenced area. This is partially because users can share the full cost across the membership, and partially due to the mathematical relationship between area and perimeter: where when considering areas of consistent shape, the ratio of fencing cost to area protected decreases as area increases.

Along with the other widespread benefits to health and wellbeing, users of community gardens can collectively benefit from the use of shared fencing infrastructure. Fencing may also provide additional benefits to users, such as providing protection against food theft, and acting as structural supports for climbing food plants like cucumber (*Cucumis sativus*). Governmental and grassroots support of deer fencing for new and existing community gardens could be a useful action in realizing the potential of food gardening in addressing household food insecurity in areas with significant deer-human conflict.

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Original Research Article

Unboxing the bentobox: An arts-informed inquiry into Japanese families' experience at school lunchtime in Canada

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Abstract

Bento, a Japanese-style boxed lunch, has a distinct cultural meaning for Japanese people as a medium of affective communication between children and parents. However, in Canadian schools governed by the dominant food norms, their culinary practices may stand out. This study employed an arts-informed participatory design to explore how school-aged children (6-12 years old) of Japanese origin and their parents describe their experience bringing Japanese food to school in Toronto, Canada. We conducted arts-informed workshops with 16 children who created artworks about their lunch boxes, and focus groups with 19 parents (all mothers). Children's artworks illuminated a common aesthetic about "good" lunch that closely reflected mothers' commitment to preparing nutritionally balanced and aesthetically appealing *bento*. Both children and mothers reported that the Canadian school food environment (e.g., short eating periods, snack times, built environment) sometimes misaligned with their food practices. Some families were compelled to modify their *bento* to accommodate children's needs to fit in at school. At the same time, participants' narratives indicate the prevalence of stigma toward "junk" food that may perpetuate food shaming at school. A more inclusive, diverse, and culturally appropriate discussion on "healthy eating" at school can embrace children's and their families' intercultural food identities.

Keywords: Bento; school food environment; food culture mismatch; family food practice; migration

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Introduction

With the growing public concern over the so-called "childhood obesity epidemic" (Moffat, 2010), children's food experience at school has attracted increasing attention from nutrition and public health professionals. The school environment is recognized as an important site of intervention where healthy eating and physical activity are systematically promoted to protect children from the "obesogenic" environments to which they are exposed (Sanigorski et al., 2005). In schools across the world where many students bring packed lunches from home, the contents of their lunch boxes have become subject to increasing scrutiny. Nutrition research on home-packed lunches in Canada (Neilson et al., 2016; Tugault-Lafleur et al. 2017), the U.S. (Hubbard et al., 2014), the U.K., (Evans et al., 2010), and Australia (Sanigorski et al., 2005) commonly claim that children's lunch boxes tend to contain energy-dense, nutrient-poor, packaged foods, and are generally less nutritious than school-provided meals (Rogers et al., 2007).

While public health and popular media discourses rely heavily on nutrition-based judgements that construct some foods as "good" or "bad," "healthy" or "unhealthy" according to nutrient values, how people make their everyday food choices are much more complex than this binary logic. Critical food scholarship has demonstrated that families make their food choices according to their socioeconomic status, social and geographical locations, and unique "cultural logics" (Beagan et al., 2015, p. 9) shaped by their culinary traditions and local food environment (Chapman & Beagan, 2013; Sawyer et al., 2020). As part of these rich, immersive cultural logics, migration has considerable impact on what and how families eat and feed their children. Research has documented how food can be integral for migrant families in maintaining their emotional ties to home and sustaining culinary identities across generations (Chapman & Beagan, 2013; Beagan et al., 2015; Lv & Brown, 2010).

As a meal to be consumed outside the home, children's school lunches occupy a unique place in migrant families' food practices. Children's lunch boxes are often "balanced culturally rather than nutritionally" (Metcalfe et al., 2008, p. 405) reflecting competing influences of family food traditions, household resources, personal tastes and intra-family dynamics. In their study with migrant parents in the U.K., Harman and Cappellini (2018) documented that some parents consider children's home-packed lunches as a bridge between home and school, through which parents can expand their effort to preserve their family's culinary identities. Yet other parents felt compelled to adapt to the foodways of the host country due to the limited availability of and access to food items from "home." Blanchet and colleagues (2018) also note that the rigidity around Canadian school food environments—such as short eating periods, restrictive eating settings, and the absence of microwave ovens—does not accommodate diverse food practices, forcing some migrant families to abandon their preferred ways of feeding children.

Along with the experience of adults who pack children's lunches for school, it is reported that children sometimes experience "food culture mismatch" between home and school food environments (Agaronov et al., 2019).

Children whose home-packed lunches do not align with dominant food norms may feel conspicuous, embarrassed, or ostracized during school lunchtime (Blanchet et al., 2018; Tanner et al., 2019). Media anecdotes suggest the prevalence of lunchtime shaming in Canada among children from cultural minority backgrounds that propelled some of them to stop bringing their favourite foods to school (Kwong, 2018). Schools that promote mainstream food norms may also contribute to potential food culture mismatch that can fuel inequality. Karrebæk (2012) In her study of lunch boxes in a Danish primary school, Karrebæk (2012) observes that teachers' understanding of "healthy" food is closely intertwined with the ideals of the superiority of the dominant culinary culture. Treating a traditional Danish bread as nutritionally superior to other food items brought by students from non-Danish backgrounds, the school reinforces children's and families' acceptance of dominant food norms while ostracizing other food practices as the sign of cultural disintegration.

Culturally dominant foodways have a strong influence on school food environments. In the province of Ontario, where this study took place, school nutrition guidelines are determined at the provincial level, based on Canada's national Food Guide (Government of Canada, 2019). The Food Guide is also incorporated into the health and physical education curriculum in public schools across Ontario to promote healthy eating at school. As Canada currently lacks a national school food program, many children bring home-packed lunches to school every day. Encouraging families to involve children in packing lunches, the Food Guide provides a "Healthy School Lunch" video, in which a teenage boy prepares his own lunch for school (Government of Canada, 2020). His lunch consists of a chicken wrap ("main lunch"), yogurt with fruit, and vegetable sticks for morning and afternoon snacks. What the Food Guide alludes to is that at Canadian schools, lunch is generally considered to be a light, cold meal, such as sandwiches and wraps, that can be consumed quickly between classes. To ensure that children can obtain enough nutrients, it is recommended to add "healthy on-the-go snacks" to the main meal (Government of Canada, 2020). The lunch-plus-snacks routine, quick mealtime, and eating on-the-go are dominant food practices that govern Canadian school food environments.

To date, very little research has been conducted in Canada about children's food experience at school and how families from non-dominant cultural backgrounds maintain, change, or modify their everyday food practices in relation to their children's experience at school. As children's food environment at school can have strong, reverberating impacts on the entire family food practice (Blanchet et al., 2018; Harman and Cappellini, 2018; Tanner et al., 2019), exploring the experiences of children and their families around school lunch offers a meaningful contribution to the growing body of research focusing on the intersectionality of children's multiple food environments (Agaronov et al., 2019; Baines & MacIntyre, 2019; Hansen & Kristensen, 2017). This paper reports findings from our arts-informed qualitative study with Japanese children and their families in Toronto, Canada.

We were particularly interested in the meanings children and families ascribe to home-packed lunches for school, children's experience at school lunchtime, and how potential food culture mismatch experienced by the children may impact family food practices at home.

Bento and Japanese food education

In Japan, *bento* (boxed lunch) refers to a portable, packaged meal that is usually eaten at lunch. A traditional *bento* has multiple compartments to hold different types of food such as rice, vegetables, and meat or fish dishes to serve a wholesome meal on the go. *Bento* is often considered a medium of intimate communication between a mother and her child, especially for most preschoolers who bring home-packed *bento* for lunch. Allison (1991), in her ethnographic research into *bento* for Japanese nursery school children, argues that *bento* preparation is a form of ideological state apparatus for both Japanese mother and her preschool child. For the mother, preparing a nutritious and visually appealing *bento* every day for her child is interpreted as her active commitment to societal expectations that she be a 'good' mother. For the child, finishing the *bento* with no leftovers within the timed lunch period symbolizes his/her conformity to group rules and membership.

While *bento* has traditionally had a distinct cultural meaning for people of Japanese origin, its social function was revitalized around the turn of the 21st century with the surge of political interest in citizens' everyday food practices. In 2005, the Japanese government enacted *Shokuiku Kihon Hō* (the basic law on food education) to promote healthy eating habits, improve population health, and preserve traditional culinary culture through local food production and consumption (The Ministry of Agriculture, Forestry and Fisheries (MAFF), 2005; Takeda et al., 2016). Along with the launch of the basic law of *shokuiku*, the MAFF (2005) created the Japanese Food Guide Spinning Top, a visual dietary guide that resembles a shape of a spinning top, a "well-known traditional Japanese toy," to "remind people of the importance of maintaining optimal balance in their diets" (MAFF, 2005, p. 6). The Food Guide presents a rotating inverted cone divided into four food category layers, with grain dishes on the top, followed by vegetable dishes, fish and meat dishes, and milk (dairy products) and fruits equally apportioned on the bottom-most layer. Snacks, confections and beverages are deemed "non-essential treats," (MAFF, 2005, p. 7) and are presented outside the cone as the string attached to the spinning top. The string carries the message: "enjoy snacks, confections and beverages moderately" (MAFF, 2005, p. 7). A salient characteristic of this food guide is that recommended servings are illustrated using specific dishes, mostly Japanese homemade cuisine, rather than individual food items or ingredients.

Within the *shokuiku* discourse, the home is depicted as an important locus of policy implementation along with schools and childcare facilities. MAFF (2005) wrote that "we believe *shokuiku* as a national movement will ultimately have achieved its goals when every individual takes proper dietary actions in his or her home, in the communities and in other places" (p. 3).

As Takeda et al. (2016) aptly contend, such policy discourses shape family meals and home-cooking as an ideal past that has been lost from contemporary Japanese society.

Through the *shokuiku* discourse, the link between home-cooking and 'good,' traditional eating at home was portrayed as a moral imperative (Mah, 2010). 'Good' Japanese citizens are thus obliged to discipline their eating at home to improve not only their own health but that of their families and the nation, while playing their part to preserve the national culinary tradition. The nostalgic idealization of family meals and home-cooking is highly gendered, in that it justifies the conservative image of the traditional, heterosexual, middle-class family, including the male breadwinner and female homemaker dyad. In her feminist analysis of the *shokuiku* campaign, Kimura (2011) suggests that the *shokuiku* discourse has revitalized a culturally scripted feminine ideal of 'good' homemaker (mother/wife) that normalizes women's roles and responsibility in feeding, cooking, and preparation of food for their families.

As the *shokuiku* discourse has prevailed in Japanese society, *bento* for young children has become a site of public health intervention. Several studies have been conducted to improve mothers' food literacy using the Spinning Top food guide and similar educational materials (e.g., Tatano & Yamada, 2012; Ogamo et al., 2014), to ensure *shokuiku* can be implemented at home even "in the absence of a school nutritionist" (Kigawa et al., 2012, p. 215). *Bento*-making is also recognized as one of the "superior examples of *shokuiku* activity" for students (MAFF, 2005, p. 10). In 2003, a local elementary school won the MAFF's "Local *Shokuiku* Activity Competition" for the monthly *Obento* Day initiative, in which students prepared their own *bento* without help from their parents and brought their results to school once a month (MAFF, 2005). Within the *shokuiku* campaign, *bento* has become a symbolic cultural artifact that embodies lessons as to how food should appear, be arranged, and be eaten.

Given the established *bento* culture and recent political emphasis on home cooking in Japan, the experience of Japanese families in Canada offers an interesting case study to examine how migrant families navigate through school food environments that are different from that of their 'home.'

Methods

This study employed an arts-informed qualitative interview as the data collection method to explore children's experiences at school lunchtime. Collaborative art making through drawing and collage was chosen to stimulate children's creativity, engage them in group discussion about their lived experiences, and promote their agency and autonomy as active knowledge creators and users. Our methodological approach aligns with critical early childhood and youth researchers (Clark, 2017; Lomax, 2015) in that we aimed to conduct collaborative research *with* children, as opposed to research *on* children.

The use of visual elicitation method was also inspired by recent food studies with children and youth that employed a variety of arts-informed methods such as photovoice (Tanner et al., 2019) and draw-and-tell (Blanchet et al., 2017) to acquire an in-depth understanding of children's and their families' experiences.

Participants and recruitment

All participants were recruited from the Toronto Census Metropolitan Area (TCMA), which has the second largest population of Canadians of Japanese origin after Vancouver. According to the 2016 Canadian Census, those who self-identify their ethnicity as Japanese[1] comprise 0.4 percent of the TCMA population, which is approximately 20,650 people (Statistics Canada, 2017). There are two large Japanese groups in Canada, consisting of the generational Japanese whose ancestors immigrated to Canada before World War II, and *shin-ijūsha* ("new immigrants" in Japanese), those who settled in Canada during the 1960s and 1970s and their descendants. *Shin-ijūsha* also includes a small number of people who moved to Canada upon marriage to Canadians and those who came to Canada for work or study, and eventually settled as Canadian citizens or permanent residents (Sakamoto et al., 2016). It is worth noting that historically women have dominated the Japanese *shin-ijūsha* population[2] (Lindsay, 2007). For example, among the 5,715 *shin-ijūsha* who settled in the TCMA between 2011 and 2016, women comprised 67% (Statistics Canada, 2017).

Prior to the recruitment, the study received ethics approval from our institutional review board. Given the exploratory nature of the study, a convenience sampling strategy was employed. We posted the study flyer in an online parenting group for Japanese families in the TCMA with support from the group organizers. The paper version of the study flyer was also distributed at four Saturday Japanese language schools across the TCMA. Study participants were asked to share the study information with those who may be eligible for the research. In order to ensure that eligible children would understand the study and make an informed decision, we also presented the recruitment information through an animated video. Most child participants informed us that they had watched the recruitment video with their family members and understood the study requirements before making a voluntary decision to participate in the study.

[1] The Japanese population in Canada is known to have an "astonishingly high" mixed-ethnic/mixed-race marriage and civil unions rate, as high as 78.7% in 2014 (Sakamoto et al., 2016). This may contribute to the fact that Canadians with Japanese ethnic origins do not necessarily self-identify as belonging to Japanese ethnic group or the visible minority group.

[2] One of the potential reasons for this is the fact that a relatively large number of Japanese women have moved to Canada under the family class, sponsored by a Canadian citizen or permanent resident, and were granted their permanent resident status on the basis of their relationship with the spouse, partner, parent, child, or other family class sponsor. According to 2016 Canadian Census, between 1991 to 2016, about 60% of female Japanese newcomers who gained permanent residency were sponsored by family members (Statistic Canada, 2016).

While participation of a child-parent dyad was welcomed, it was not required that both child and parent from the same household take part in the study together. Children were included in this study if they: (1) were 6 to 12 years old (grades 1 to 6); (2) had at least one parent who is a first-generation or second-generation Japanese immigrant to Canada or a temporary visa holder; and (3) had experience bringing Japanese food to school for lunch. There was no criterion related to the birthplace of children. Parents were included if they: (1) had at least one child aged 4 to 18 (grades K to 12); (2) were a first- or second-generation Japanese immigrant to Canada or a temporary visa holder; and (3) had experience packing Japanese food in their child's lunches for school. Common eligibility criteria applied to both child and parent participants were residency in the TCMA and ability to communicate in English or Japanese. Informed written consent and assent were obtained from participating parents and children. Inspired by recent discussions around participatory visual research with children and youth (Lomax, 2015), we employed a two-stage consent process, in which participants consented to: (1) take part in the research prior to the data collection; and (2) allow images of themselves and their artworks to be used for knowledge mobilization. The secondary consent was sought during the member checking process described below.

Data collection

Participating children were invited to join one of two art workshops co-facilitated by the lead author (YS) and a visual artist from a Japanese background. Children were asked to create art pieces about their lunch boxes, focusing on the Japanese food items they brought to school. Coloured papers, tissues, textiles, magazine pages, coloured pencils, markers, and other arts-and-crafts supplies were provided to stimulate the children's creativity. At the beginning of the workshop, the artist briefly demonstrated a technique of collage and offered support to children with drawing, collage, or other artmaking throughout the workshop. The art workshops and children's artworks were photographed with participants' assent and parental consent. Prior to the art workshop, parents/guardians of participating children were asked to answer a short demographic questionnaire about their children.

Following artmaking, children were invited to join a group discussion to talk about the art pieces they made and their experience at school lunchtime. At each workshop, two group discussions with three to four children each were conducted in Japanese and English for children to choose the language with which they were most comfortable. A series of brief prompts for discussion were prepared to facilitate the discussion to explore how the children perceived their school lunchtime, the role of parents in [the making of] their lunch boxes, and what they considered to be a "good" lunch. A total of four group discussions (two in English and two in Japanese) were conducted and each discussion lasted about 30 to 45 minutes.

Along with children's focus groups, the voices of parents were captured via focus group interviews.

Parent focus groups were facilitated in Japanese as per participant preference by the lead author (YS) and a bilingual research assistant (CTR). Prior to the data collection, parent participants were asked to complete a short questionnaire about their demographic background. A total of four focus groups (one to one-and-a-half hours each) took place with four to six participants each.

Data analysis

All focus group discussions (both children and parent groups) were audio-recorded and transcribed verbatim in the language in which they were conducted by the research assistants who conducted the focus groups (LR and CTR) and cross-checked by the lead author (YS) against the audio recordings. The bilingual research assistant (CTR) translated Japanese transcripts into English and the lead author validated the translation. Three research team members (YS, LR, CTR) then individually viewed and/or read multiple data generated from this study, including focus group transcripts, photographs of art workshops and children's artworks, fieldnotes documented during the workshops and focus groups, and meeting minutes from research team debriefs. Children's artworks were analyzed as supplementary material to know better about the children's experience at school lunchtime. In children's focus groups, we documented the ways in which the children discussed their artworks and used that documentation as data.

A preliminary set of codes was inductively generated and revised as needed to assist with the analysis. During the analytic process, we also wrote and compared analytic memos (Saldaña, 2015) to reflect on our analytic process and discussed potential themes within the team. Through repeated engagement with visual and textual data, we moved across different data types to identify recurrent patterns and documented where there were resonances or contradictions (e.g., between children's artworks and accounts of the parents). Finally, the lead author consolidated the team's analysis and mapped conceptual links among codes into a thematic schema for member checking.

Member checking and secondary consent for image use

At the completion of the preliminary analysis, all participants received a short summary report of the findings along with an animated video that contained photographs of children taken at the art workshops and their artworks. All participants (both children and parents) in the photographs were asked to provide the secondary consent and assent to use the images for knowledge mobilization. Along with the written summary and video, participants also received a link to an anonymous online feedback form that asked their feedback on the preliminary findings.

Three children and five parent participants contributed their feedback, which was then integrated into the final analysis.

Results

Participant demographics

During the month of January 2020, we conducted two arts-informed focus groups with a total of 16 children, and four focus groups with a total of 19 parents. The age of participating children ranged from 6 to 12 years old (Mean=8.75 years old). Eleven were girls (68.8%), half of them were born in Canada (50%), and all were attending public schools in the TCMA. Among the participants, three sibling dyads were present. As for parent focus groups, all 19 participants were mothers, although we intentionally used gender-neutral terms during the recruitment process (i.e., "parents or guardians"). Among the parent participants, 11 joined with their children (57.9%). All parents were born in Japan, of which 16 (84.2%) were *shin-ijūsha* (first generation immigrants) and three were temporary visa holders (15.8%). The year of residence in Canada among the 16 immigrants ranged from 5 to 19 years with an average of 15.2 years. Ten of 19 participants (52.6%) reported co-parenting with a partner from a non-Japanese cultural background.

Thematic findings

Our thematic analysis generated two overarching themes related to children's and their families' experiences at Canadian schools: (1) ***bento* as a conduit of Japanese food values**; and (2) **food culture mismatch**. In what follows we describe each theme and subtheme along with illustrative quotes from focus group interviews.

Theme 1: Bento as a conduit of Japanese food values

When asked what foods they usually bring to school for lunch, many child participants reported their lunch boxes tend to reflect a Japanese ideal of a **nutritionally balanced and visually appealing meal** (subtheme 1) that consists of a staple (mainly steamed rice), main dish (mainly meat), and side dishes (vegetables). While some children reported bringing non-Japanese style lunches such as sandwiches or pasta, most of them said that their typical lunchboxes contained steamed rice and Japanese home dishes cooked just for lunch or the prior night's dinner leftovers that are Japanese home meals. One mother described the Japanese school lunch program she grew up with as "the dream lunch":

> "The dream lunch would be the Japanese school lunch, but I can't copy that. Protein, carbohydrate, lots of vegetables. Balanced and different food items every day. [...] It allows kids to eat what they don't eat at home too. Such an ideal lunch." (Parent 14)

In the absence of an "ideal" school lunch program, mothers strived to provide their children with adequate nutrients through homemade lunches. They described that at least four or five different food items should be present in an ideal lunchbox to ensure a balanced ratio of carbohydrates, protein, vitamins, and minerals. Mothers had a very clear idea of what they considered an unhealthy lunch. Foods that contain "salty and strong flavour" and "processed foods with preservatives" are considered "bad stuff" (Parent 13) that should be avoided from children's school lunches, while sufficient amounts of vegetables must be packed every day. Children echoed this view and described a "healthy lunch" containing: "vegetables and just like balance. Not junk food, not too much of anything" (Child 04). Accordingly, what mothers considered unhealthy lunches included sandwiches, because "they don't have enough vegetables" (Parent 06) and thus lack basic nutrients that should be covered in a good lunch.

Along with the importance of nutritionally balanced meals, mothers placed a significant emphasis on colours and visual appeal present in children's *bento*. For mothers, packing colourful food items signified not only serving children a balanced meal with proper nutrients, but also increasing the visual appeal of the meal, believed to boost their child's appetite.

> "The Japanese are said to eat with their eyes, right? That's why I pay attention to colour balance when packing *bento* for my child." (Parent 12)

Making a colourful lunch is also closely linked to mothers' self-perception. Even mothers of children "who would eat anything" expressed their commitment to prepare colourful lunches every day.

> "I try to prepare a colourful *bento* for my kids, quite frankly, for my self-satisfaction. Whenever I make a brown, monochrome lunch, I feel down… so I often add cherry tomatoes or (boiled) broccolis [to my child's school lunches] for no reason but colour." (Parent 09)

The children's artworks (Figure 1) precisely reflected this value by presenting a variety of colourful Japanese food items, including white *onigiri* (rice ball) with black *nori* (seaweed), yellow *tamagoyaki* (rolled omelet), boiled broccoli or other green vegetables, and red cherry tomatoes that together indicate the prevalence of the lunch colour code.

Figure 1: Children's artworks depicting their school lunchboxes

Along with the emphasis on nutritionally balanced, aesthetically appealing meals, another salient food value expressed by both children and mothers was the **no leftover** rule (subtheme 2). Many participating children commented that they were told by their parents (mainly mothers) to eat all foods in their *bento* and avoid throwing away leftovers unless there was a food safety concern or other justifiable reason.

While the rigidity of rules around lunch leftovers varied across families,[3] most mothers mandated their children to eat their entire lunch before having an after-school snack or dinner.

> "Mom says no snack without eating vegetables; no dinner without finishing lunch; no dessert without finishing dinner." (Child 06).

One driver behind this rule is mothers' determination to nip the bud of *sukikirai* (food fussiness) in their child. In the words of one mother, early childhood food habits "would impact one's entire life, especially *sukikirai* (food fussiness)" (Parent 03) and as such, healthy eating habits need to be established during elementary school years through everyday food practice including school lunchtime. From this perspective, food items that a child does not yet like should be packed in school lunches, so as to eventually curb the child's fussiness in food habits. This notion is closely associated with participants' belief in the nutritional value of vegetables. Mothers reported making extra efforts to regularly pack vegetables in children's *bento*; although many of them regularly consult with their children about which and how much vegetable should be added to their school lunch boxes, little resistance from children was tolerated at lunchtime. In focus groups, children named steamed broccolis and cherry tomatoes as two vegetables most frequently packed in their lunchbox. Although some expressed a dislike for these vegetables, they nonetheless eat them almost every day at lunch, eventually getting "used to the taste" (Child 03).

The no leftover rule goes in tandem with parents' commitment to monitoring children's nutritional well-being. Across all four parent focus groups, parents expressed that they felt appreciated when their children finished their lunches because this assures them that these last are receiving the planned-for nutrition.

> "One day I packed a slightly big lunch for my older child who's a picky eater, but she came home with an empty container. It turned out she threw food away… I was so shocked. I told her: 'it's okay if you can't finish lunch, but don't throw leftovers away. Make sure you bring it back home. I want to see how much food you ate that helps me understand how much food I should prep for dinner.' Since then, she has brought lunch leftovers back home." (Parent 08)

Additionally, the exhortation to eat all foods prepared reflects a Japanese cultural norm to avoid waste. One mother made reference to the *mottainai* ("it's a shame to throw away") mentality, to explain how she avoids wasting food by eating her child's lunch leftovers (Parent 14). Many mothers expressed disagreement with "Canadian" norms around food waste.

[3] During the member checking process, one mother anonymously commented that she does not ask her child to eat lunch leftovers at home. Although it is important to teach her child not to waste food, the mother noted that it is also concerning to make her child eat lunch leftovers that have sat in the lunchbox too long, which could pose a hazard to the child's health.

> "Canadians do not really care about food waste, right? They would tell their children things like 'you can throw away foods if you don't like them.' I feel awkward about that." (Parent 12)

From the focus groups, it became evident that both children and mothers considered **mothers as the guardians of Japanese culinary identity** (subtheme 3). All mothers took on the responsibility of family feeding and prefer to serve Japanese home meals to their family. Some mothers commented that they self-learned how to cook Japanese home meals after having children in Canada, so as to "feed [their] children properly" (Parent 05). A few mothers mentioned that their notion of "healthy" meals (i.e., nutritionally balanced and colourful meals) was informed by their mothers, as well as food education at school while growing up in Japan. Through everyday lunchbox making, these mothers hope to pass on Japanese culinary identity and a normative understanding of personal responsibilities for health to their children.

> "[Through the lunch I pack] I want [my son] to get interested in eating, *shokuiku* and nutrition. I believe it helps him learn how to manage his health." (Parent 13)

Accordingly, lunchbox making was almost exclusively the domain of the mothers. In parent focus groups, all but two mothers said they pack their children's lunch every day, while these two participants reported they occasionally share the responsibility with the child's father. One mother who co-parents with a non-Japanese partner commented:

> "My husband sometimes packs children's lunch to school, but he usually packs a hot dog in a bun, that's all! I end up adding veggies [to my children's lunchboxes], but kids only eat the hot dog and bun and don't touch veggies at all… My husband doesn't really care about nutrition. He says, 'let kids eat what they want to eat.'" (Parent 10)

Most children endorsed that the food prepared by their mothers would always be more nutritionally balanced and "better" than that prepared by their fathers, and fathers tend to pack "unhealthy" food that would not please their mothers. In the words of one child:

> "Sometimes daddy will be a bad boy and make spaghetti for lunch, even if we're not supposed to eat it." (Child 15)

A mother who co-parents with a European-Canadian partner mentioned that the partner supports her everyday effort to pack Japanese-style lunches for school, in comparison with his childhood experience in Canada.

> "Because my partner grew up in Canada bringing typical Western lunches like sandwiches to school, he often tells my son that 'you are so

> lucky to have a mommy who really cares about you and makes a great lunch every morning.'" (Parent 07)

Theme 2: Food culture mismatch

Participants reported that the Japanese food norms they embrace do not always align with Canadian school food environments. Both children and parents commented on the **limited available time and space** during Canadian school lunchtimes (subtheme 1), which is not conducive to children enjoying their meal comfortably. Most children in the focus groups reported that they often feel rushed to eat. As lunchtime is part of recess in many Canadian public schools—which includes time for traveling to the eating space, waiting in lines, and having to use the bathroom—children shared that their actual seated lunchtime was limited to 15 to 20 minutes. Some children also commented that lunch supervisors would punish students if they eat slowly:

> "The slowest kid has to stay there [in the cafeteria] and take all the garbage home [...] If you don't finish lunch on time, the whole class's garbage becomes your responsibility to bring home." (Child 10)

Another common challenge pointed out by many participants stemmed from a suboptimal eating environment at school. Some children commented that they eat lunch in a shared multi-purpose space such as a gymnasium that tends to be crowded, noisy and distracting. Others said they sometimes had to eat lunch in hallways using folding tables, due to the lack of dedicated eating space. Those children had to bring their chairs from their classroom and take them back after lunch, which further reduced their already short lunchtime. In order to adapt to the limited lunchtime and suboptimal eating environment, some children have requested that their mothers pack fewer food items in their lunch boxes.

> "Sometimes my mom gives me huge lunches and all I think is 'how am I supposed to finish this?' I eat and eat and eat but it doesn't go away and all I see is my friend with corndogs who eats it so fast." (Child 07)

A related theme around Canadian school food environments was the **dominant food norms** (subtheme 2) of cold lunches and the meal-plus-snacks routine. For Japanese mothers who wish to feed children through three wholesome meals, "snack" is not an essential component of the everyday diet and should not be prioritized over lunch. Many mothers interpreted "snack" as confections or treats, as expressed in the Japanese Spinning Top Food Guide (MFAA, 2005), rather than as light meals, as they are considered in mainstream Canadian food culture. From the mothers' point of view, "healthy snack" sounds oxymoronic.

Although most mothers reported packing "healthy snacks" for children, such as sliced vegetables and fruits, the overarching contention was that snacks did not align with the Japanese ideal of a nutritionally balanced, wholesome meal, which would not require additional food to meet daily nutritional requirements. In this regard, some mothers unfavorably commented on food items served at snack programs in Canadian schools:

> "My children's school used to have a snack program that served kids a pack of chocolate milk every day. My daughters were happy, but I felt it was too much. Sometimes I was shocked to hear that [my older daughter] had two packs of chocolate milk in one day! That's too much sugar and calories. I was glad when the school stopped the snack program." (Parent 02)

Relatedly, pizza lunches at school frequently came up in parent focus groups as a contested topic. All mothers reported their children's schools have monthly or by-weekly "pizza days" as part of schools' fundraising initiatives. Some mothers did not mind their children occasionally enjoying a treat with their friends and were grateful for a day off from packing lunches. However, the general consensus was that a slice of cheese or pepperoni pizza from fast-food chains does not provide children with enough nutrients they need for their growth.

Some children and parents shared experiences of their lunchbox being subject to **food shaming** (subtheme 3). Japanese food items such as *nori* (black seaweed) or steamed rice sometimes received unwanted attention from classmates.

> "When I brought *onigiri* (rice ball) to school for lunch, my friend thought I brought *sushi*. I told her it's *onigiri*, not sushi, but she kept on calling it *sushi*. I don't care, but my [Japanese] friend got teased for bringing *onigiri*, too. Kids in her class teased her like '*sushi, sushi'* and her mom went to the school to complain." (Child 06)

Children's experience of being teased at school has varying impacts on family food practices. Some parents continued packing Japanese food regardless, while others acquiesced to their children's requests and packed non-Japanese food items such as sandwiches and pasta.

> "One day my daughter told me 'Mom, rice is not good.' One of her classmates told her 'You are not allowed to bring rice [to school]' and she believed that. We discussed this as not true, but it was bothersome and pitiful for her to be teased like that, so I asked her if she wanted to bring lunch similar to her peers. I think I have made less Japanese *bento* since then." (Parent 08)

It is important to note that both children and parents also expressed negative views toward what others bring to school. When asked about their opinions of other children's lunches, both groups frequently expressed **disdain towards "junk" foods** (subtheme 4).

"Junk" foods described by participants typically referred to foods that are high in sugar, salt, fat, and calories, and meals that are seen nutritionally unbalanced.

> "My child recently asked me to buy a thermos (food jar). His friend brings *junk food* in a thermos, like canned soup or canned pasta, and my son thought he, too, can eat *junk food* if he gets a thermos." (Parent 13)

Replicating parents' concern about the lack of nutrients in non-Japanese style lunches, children discussed the lack of vegetables in the lunchboxes of their peers as well as the frequency of processed foods and sweets packed for lunch. Many children in the focus groups expressed puzzlement regarding their peers' lunches, especially those who bring to school "unhealthy food like burgers, [...] like sandwiches that has a lot of junk in it" (Child 07), or those who "eat only chocolate croissant, pancakes, or yogurt for lunch" (Child 13). One of the children commented on the frequency of corndogs in the lunch box of a classmate, which to him are not considered a proper meal, but instead as "junk" (Child 12). Intriguingly, children noted that their teachers would quickly intervene if there was culture-related food shaming in class, but comments on "junk foods" rarely attracted adults' attention.

Discussion

Children's home-packed lunches to school present multiple aspects of the family's food traditions, social locations, culinary norms, values, and moral accountability. Our study revealed that children's lunch boxes are a medium through which Japanese mothers pass on their culinary identity to their children growing up in Canada. Mothers in the present study described Japan as a place where healthy eating is intrinsic to their lifestyle and strived to preserve their culinary culture in the host land. They also considered that childhood food practice has a long-term impact on children and felt responsible for teaching their children "proper" eating habits and nutrition knowledge. By packing children's *bento* every day, mothers are telling their children what makes up a "good" and "healthy" lunch, while continuing to teach "good" eating outside the home.

Concomitantly, most child participants internalized the mothers' idea of a "healthy" lunch and moral imperative of not wasting food prepared for them. Their artworks and narratives eloquently suggested successful an intra-family transmission of the culinary values. The artmaking was invaluable to engaging children in focus group discussions. Through their artworks, the children made their experience palpable, supplemented their creation with their own words, and interacted with their peers and researchers, during which rich dialogues about school food environments took place. The arts-informed method also helped children contextualize abstract subjects such as healthy eating through their artworks.

We found it intriguing that children's narratives around school lunch, Japanese food culture, and healthy foods aligned very closely with that of mothers. During the member checking, one mother commented that it was rewarding to learn that her children understand and respect Japanese food values that she thinks are important.

In terms of parents' experience, our findings echo Harman and Capellini's (2015; 2018) study with mothers in the U.K., which illuminated lunch box making as a key aspect of mothering outside the home. All mothers who participated in our study, regardless of their employment status, reportedly played the lead role in preparing children's lunch boxes, while their partners (mainly the fathers of the children), from Japanese and non-Japanese backgrounds alike, left this role to the mothers. Within both mothers' and children's narratives, fathers were described as incapable of preparing a "good" lunch box that meets the mother's moral standards. In other words, children's *bento* at school is a cultural artifact that displays a gesture of "good" mothering (Harman & Capellini, 2015, 2018; Allison, 1991). Notably, more than half of the mothers (ten out of nineteen) reported co-parenting with a partner from a non-Japanese cultural background. Although the daily act of feeding children sometimes induces tensions in an intercultural household (Rogan et al., 2018), most mothers in our study continued Japanese culinary practices when packing their children's lunch boxes and generally received support from their partners.

In this regard, our findings differ from Blanchet et al.'s (2018) study with immigrant mothers from African or Caribbean origins, many of whom eventually stopped packing foods from their cultures in their children's school lunch boxes due to the lack of time, resources, and the children's preference for "Canadian food" (p. 231). Arguably, food security levels in the participants' household, availability of ingredients, affordability, and families' economic means to purchase culturally appropriate food items are among the significant determinants of whether migrant families retain their preferred food practices. But one potential factor unique to our participants is the culinary nationalism promoted by the *shokuiku* campaign, in which the Japanese dietary pattern developed in the 1980s is deemed scientifically validated, uniquely and constitutively Japanese, and superior to Westernized diets (Mah, 2010; Takeda, 2008). There was a strong alignment between the mothers' perceptions of "good" *bento* and food norms advocated by the *shokuiku* project, which focuses on consumer's food literacy and individual sense of morality. Many mothers deployed a rationale similar to *shokuiku* when describing how a colourful *bento* is not only aesthetically appealing but also nutritionally well-balanced and healthy, while prioritizing Japanese cuisine over a "Canadian" diet.

Nonetheless, both children and mothers reported "food culture mismatch" between home and school (Agaronov et al., 2019). The rigidity around eating time and settings, such as short lunchtimes and restrictive eating settings do not accommodate Japanese food practices that prioritize wholesome meals. Some participants shared a strong disagreement with the dominant Canadian eating habits, such as snack times and pizza days, which shapes Canadian school food environments.

Moreover, Japanese food items such as rice and *nori* occasionally received unwanted attention at Canadian schools, which compelled some mothers to stop serving their children Japanese-style *bento*.

Even though Japanese cuisine has been widely accepted in North America as one of "hallmarks of the contemporary American food culture" (Cwiertka, 2005, p. 256), Japanese home dishes are still conceived of as foreign and are Othered at Canadian schools. As food is closely tied to one's identity, the experience of food culture mismatch, especially the bitter experience of lunchbox shaming at school, can have a substantial impact on children and their families' emotional well-being (Tanner et al., 2019). Participant narratives alluded to factors such as family food norms, cultural demographics of schools, and classroom social dynamics, which could alleviate or aggravate the potential impact of food culture mismatch.

Migrant food experience in host countries have long been analyzed through the concept of dietary acculturation, the process by which migrants adopt or resist the eating patterns and food choices of their new environment (Satia-Abouta et al., 2002; Blanchet et al., 2018). However, recent works illuminate that existing conceptualizations of dietary acculturation might be too narrow to adequately capture the fluid and transnational experiences that migrants have in their host countries. Chapman and Beagan (2013) assert that culinary tradition is continually reconstituted, rather than remaining static, and individuals can hold attachment to and express the traditions of multiple national identities simultaneously (p. 381). Our findings add support to Chapman and Beagan's discussion (2013) in that some mothers reportedly learned how to cook Japanese meals after having children in Canada. This turn to Japanese food practices has then more to do with *construction* of a cultural identity in Canada, rather than *maintenance* of traditional culinary identities. The meaning of "Japanese food" for migrant children and families is worth exploring further, in order to better understand how migrants develop their intercultural food identities.

It is also noteworthy that food shaming does not occur in one direction. The stigma toward "junk" food was prevalent across mothers' and children's narratives. The examples of "junk" food given by the participants included canned soup or pasta, corndogs, and chocolate, which are commonly packed in their schoolmates' lunch boxes. The tendency among the children to pass judgment on what other children eat at school deserves closer attention, as shaming toward "junk" food reportedly resulted in fewer adult interventions than culture-related food shaming. Stigma associated with "unhealthy eating" may intersect with other stigmas associated with poverty, race, ethnicity, gender, obesity, among others, which can perpetuate food inequities (Earnshaw & Karpyn, 2020). As this study suggests, stigma toward "unhealthy eating" could be linked to a type of culinary ethnocentrism that prioritizes one food practice over the others. As Tanner et al. (2019) assert, the question of what and how food should be eaten at school is not just practical but also a political one, and thus requires careful interrogation.

Limitations

The small size and relative homogeneity of the participants should be noted as a study limitation. Despite our hope to recruit diverse adults who pack children's lunches for school, all participating parents were biological mothers raising children in nuclear families. Future study can take the method of maximum variation sampling to recruit diverse family members, for example, fathers, grandparents, or siblings who are responsible for packing children's lunch boxes for school. Relatedly, all participating mothers were *shin-ijūsha*, first-generation immigrants to Canada and temporary visa holders who grew up in Japan. The voices of generational Japanese were missing in our study, although food practices play a key role for Japanese Canadians in transmitting cultural legacy, despite the intergenerational trauma of wartime internment (Ikebuchi & Ketchell, 2020).

The demographic information gathered from the participating Japanese families was limited in scope. Some demographic data was asked of the participants, such as mothers' age, marital status, employment (i.e., full-time, part-time, unemployed), number of children, and co-parents' cultural background. However, other demographic data, such as household income, parental educational levels, and family social class, were not collected during the study. Subsequent studies may benefit from obtaining such demographic data to bolster the study results and deepen the understanding of participants' family backgrounds.

Moreover, it was beyond the scope of this study to examine family food practices outside the lunch box. Although most participants' narratives suggested that home food and food in lunch boxes generally fit together without major obstacles, further research would lead to a more nuanced understanding of how food is negotiated among family members, particularly in intercultural households. An in-depth, intersectional exploration into the impacts of food culture mismatch can help better understand children's experience at school and its potential impact on family food practices.

Lastly, it should be noted that the mothers' responses could have been influenced by social desirability bias. The researchers facilitating the parent's focus group were also women of Japanese background. The parental focus groups were facilitated in Japanese, as it was the language of preference selected by the Japanese mothers. As previously mentioned, Japanese societal expectations of a "good" mother particularly relate to her active commitment to providing balanced meals for her children. This could have influenced the responses of the mothers, as they may have felt that their responses should be consistent with the perceived expectations to avoid judgement from the researchers and other mothers.

Conclusion

Our study highlights the need for Canadian schools to acknowledge diverse food realities packed in children's school lunch boxes. Participants' narratives implied that Canadian school food systems do not always support their distinct food values. It is also evident that lunchbox preparation is tied closely with cultural norms of "healthy eating" and moral discourses of mothering. A more inclusive, intersectional, and culturally appropriate discussion on "healthy eating" at school can support children and families from diverse backgrounds to safely explore their food identities. At the same time, we believe that food should not become a taboo subject at school where children are afraid of offending one another. Instead, Canadian schools can offer an optimal space to help children be exposed to many different food cultures and learn how to negotiate social and emotional boundaries around their food identities. One potential starting point is to let children unpack their lunch boxes and explore how their lunches are prepared every day.

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Original Research Article

Food pedagogy for transformative social change

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Abstract

The contemporary global agrarian regime has altered patterns of food production, circulation, and consumption. Its efforts toward food security vis-á-vis capitalist modes of mechanized cultivation have produced large-scale climatic and socioeconomic ramifications. To improve the dynamics of dominant agricultural systems, practitioners and scholars are engaging in a critical analysis of food pedagogy. We argue that a gap exists between Food Studies scholarship and community-based transformative engagement. To support local food systems through activist scholarship, our paper calls for an academic paradigm shift wherein learner-centred experiential classrooms bridge academic-public divides and enhance student learning. Through a reflexive case study of urban farming in Calgary, we provide strategies for building leadership and technical skills in advanced urban farming while strengthening intercultural relationships. We conclude by evaluating the success of our approach, presenting potential benefits and challenges, and offering pathways within food scholarship to align with grassroots movements.

Keywords: Food pedagogy; activist scholarship; experiential (EXL); participatory; food systems; food security; social change; transformative; community; agroecology

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Introduction

Until recently, discourse in Food Studies pedagogy—the various ways that instructors, activists, and communities are teaching, learning, and intervening in their food processes (Meek & Tarlau, 2016)—has largely highlighted the role and impact of mechanized industrial agriculture (Frison, 2016; Kremen et al., 2012). This tendency has encompassed both the social and ecological ramifications of an agrarian regime that emphasizes market privatization, distribution corporatization, and extractive-led development platforms (Bernstein, 2009; Horrigan et al., 2002; IRP, 2019). With the emergence of "critical agrarian studies," this analysis was broadened to ask key agrarian questions, including 1) who owns what?; 2) who does what?; 3) who gets what?; and 4) what do they do with it? (Bernstein, 2010). Indeed, dialogues and debates concerning the feminization of agriculture, large-scale land acquisitions, food sovereignty, and the financialization of food have gained momentum (Akram-Lodhi et al., 2021; Borras et al., 2012; Bernstein, 2016; Edelman & Wolford, 2017; McKay, 2017). However, we argue that a gap still exists for the convergence of classroom-based food scholarship and experiential learning (EXL) within sustainable community food models to cultivate transformative social change.

As active participants in the agrarian communities and institutes we wish to change, we highlight our experiences as anthropology graduate students engaged in food pedagogies. Before COVID-19 halted our respective fieldwork, we were scheduled to conduct participatory research alongside farmers internationally during the summer of 2020. In response, we attuned our lenses to local agrarian systems, observing gaps in access and security over healthy food choices in Calgary, Canada. Over the course of a four-month University of Calgary Transformative Talent Internship with a not-for-profit peri-urban farm, Grow Calgary, we asked the questions: How can the incorporation of community-driven food movements in academic frameworks cultivate awareness and action surrounding more socially and ecologically-just agrarian models? How can this shift support student learning and build resilient communities?

In our intern capacities as Executive Director and Community Outreach Coordinator, we worked with volunteers to cultivate produce to donate to social agencies with food access programmes for Calgarians living below the poverty line. To address challenges faced by Calgary's food-insecure populations, we present strategies for bridging the academic-public divide through activist scholarship that directly engages with sustainable urban and agrarian development. Our results indicate that running course-based theory and literature alongside applied methodologies that build the technical and leadership capacity of post-secondary students yields numerous positive outcomes. Namely, it enhances student learning of food systems, builds stronger community ties, and supports economically viable, socially just, and environmentally sustainable food systems that improve food access opportunities for marginalized communities. We conclude by discussing and evaluating the success of our approach, identifying the limitations (i.e., online learning during the COVID-19 pandemic) and potential benefits to students who engage in Food Studies programmes, and making recommendations for best practices in food pedagogy that will support social change.

Activist food pedagogy

Food Studies educators are gradually making efforts to help students engage with food-related issues by expanding post-secondary scholarship beyond the classroom. This is characterized by curricular re-design and pedagogical approaches centred on student learning and application (Salomonsson et al., 2009). Within food pedagogy, there has been a noticeable shift from a teacher-centred to a learner-centred praxis. On the one hand, conventional teacher-centred instructional techniques privilege the instructor as the sole source of knowledge in the classroom—one who disseminates information to students principally through lectures reflecting content-heavy textbooks (Hilimire et al., 2014). Such siloed approaches are narrowly focussed without substantial opportunities for interdisciplinarity (Dole et al., 2015; Galt et al., 2012; Salomonsson et al., 2009). Moreover, this archetypical classroom environment places a higher value on competition over collaboration, resulting in fewer meaningful relationships among students (Wiedenhoeft et al., 2003).

On the other hand, in a learner-centred approach, which shifts the focus from the teacher to the student, "students construct knowledge through gathering and synthesizing information and integrating it with the general skill of inquiry, communication, critical thinking and problem-solving" (Huba & Freed, 2000, p. 5). Grounded in participation, experience, and action (Galt et al., 2012), both students and teachers create and evaluate the learning process together, while emphasizing more attuned questions and self-reflexivity. Scholars have argued that this paradigm shift in food pedagogy has been informed by an emphasis for more sustainable modes of agriculture as a result of climatic and socio-economic implications of the global agro-food system (Francis et al., 2012; Lieblein & Francis, 2007).

Environmental and social sustainability issues in agro-food systems are receiving increasing attention, as demonstrated by a rising interest in farming and food within academic circles and among the general population (Alkon & Agyeman, 2011; Lieblein & Francis, 2007; Parr et al., 2007). There is also an observed movement of students enrolling in Food Studies courses that focus on important issues in local and global communities. Food Studies educators are distinguishing themselves from other pedagogical means by combining systems-thinking, group learning, and a direct connection between theory and practice (Francis et al., 2011; Hilimire et al., 2014; Lieblein & Francis, 2007).

Curricular design within many food systems programmes is also encouraging collaboration between diverse faculties, whose lessons draw upon disparate disciplinary perspectives (Francis et al., 2011; Parr et al., 2007). Moreover, the gradual incorporation of EXL in Food Studies courses has become a pillar in the effort to bridge the gap between the theory and practice (Lieblein et al., 2004; Parr & Trexler, 2011). Experiential learning opportunities in food systems education range from internships at farms and gardens, ranches, and social agencies, to participating in food justice campaigns and policy reforms (Hilimire et al., 2014). These provide students with critical, self-reflective learning experiences that heighten their consciousness about

academic, personal, and civic relationships to food and food systems (Galt et al., 2013; Niewolny & Lillard, 2010; Parr & Trexler, 2011). Peer-to-peer learning opportunities also open the doors for more distributed knowledge to be shared among diverse stakeholders in the community and experiential classroom (Alkon & Guthman, 2017).

One can observe activist scholars, practitioners, and organizations around the world engaging in food justice with the aim of dismantling uneven power dynamics in agrarian systems both at local and global levels (Reynolds et al., 2018: McEntee & Naumova, 2012). A central objective in this endeavour is supporting and building the capacity of marginalized communities through platforms of knowledge mobilization (Casas-Cortés et al., 2008; Choudry & Kapoor, 2010) and social justice frameworks (Calhoun, 2008) determined by the communities themselves. Thus, when engaging in activist scholarship, one must draw from participatory experiences that contribute to positive social change.

Food pedagogy has evolved to address the interconnectedness between social and ecological dynamics of food systems, including production, harvesting, processing, distribution, consumption, and waste management (Knezevic et al., 2017; Stephens et al., 2019). Much of this growing critical scholarship has focussed on capitalism and the implications for social and ecological relations in systems, including, but not limited to, land appropriation, exploitation, inequity, and health (Alkon & Agyeman, 2011; Alkon & Guthman, 2017). Scholars are contributing immensely to sustainable food systems debates by adopting creative and engaged theoretical and methodological approaches, and through collaborations with practitioners eager to support community-based food activism (Levkoe et al., 2020). In addition to epistemic critiques of the structural production of food injustices, activist scholars can contribute to the generation and channeling of resources to support the work of non-academic activists (Derickson & Routledge, 2015; Duncan et al., 2019). In the following section, we present our experiences with activist food scholarship through a case study approach with the not-for-profit farm Grow Calgary. As our internships were not directly related to our respective theses, and therefore did not secure ethics approval for working with human subjects, community perspectives will not be discussed in this paper. From our lens as graduate students, we demonstrate how food pedagogy may be grounded in experiential learning to address urban food insecurity through a transformative agenda.

Experiential learning at Grow Calgary

Grow Calgary (www.growcalgary.ca) is a twelve-acre peri-urban farm in Balzac, Alberta, that grows fresh produce for social agencies serving food-insecure populations within Calgary, originally known as Moh'kinstsis (MOH-kin-stsis) in the Blackfoot language.
Translated as "elbow" in English, Moh'kinstsis references the confluence of the Elbow and Bow Rivers, which flow from the Rocky Mountain glaciers to the watersheds of our contemporary

urban landscape. These waters and lands have been stewarded since time immemorial by the Indigenous Peoples of Treaty 7 region in Southern Alberta. Treaty 7 signatories include the Blackfoot Confederacy, comprising of the Siksika, Piikani, and Kainai First Nations; the Tsuut'ina Denè First Nation; and the Ìyethka (Stoney) Nakoda, including the Chiniki, Bearspaw, and Wesley First Nations. Calgary is also home to Métis Nation of Alberta, Region III, as well as Indigenous and non-Indigenous kin from around the world, including the Inuit. We have been privileged to work, learn, and live on these lands as visitors and interns of Grow Calgary.

Kick-starting a farm situated on a new swath of land from scratch proved to be exhilarating and challenging, requiring administrative structures and interns, such as ourselves, to supervise over 500 volunteers on and off the farm. Drawing on the professional and interpersonal skills honed during our graduate programme, we supported voluntary coordinators in sixteen departments, including material procurement, fundraising, policy, information technology, and more. To connect with the Calgary community, we mobilized volunteers and group days with youth and social agencies, such as the national Katimavik volunteer programme. To reach wider audiences and increase awareness about the organization's efforts to address food insecurity, we conducted interviews with local news stations, including CBC, CTV, and CJSW. Through Grow Calgary's social media platforms and weekly newsletter, we connected over 12,000 "followers" with activities, educational programmes, sponsors, and cultivation tips from the farm. This network has since expanded beyond Grow Calgary to connect us with other agrarians in and around the city.

Akin to developing a semester-long curriculum with a core learning objective and subsequent learning targets—skills that we acquired as graduate teaching assistants—we created strategic plans that aligned with the organization's overarching mission to guide us in our off-farm positions. Norms and expectations were created in a collaborative manner, which we reflected upon during monthly all-staff meetings. Each week, we established goals, monitored and evaluated our progress, and reported updates to our immediate supervisors. Departments were encouraged to "cross-pollinate" and work with one another to achieve common goals.

To build technical and leadership capacity on the farm, we developed a free and flexible Small-Scale Agricultural Farm Management Certificate Programme. Seventy learning targets were thematically characterized and scaffolded with specific, measurable, attainable, relevant, and time-bound (SMART) goals (Lawlor & Hornyak, 2012). Each target aligned with the organization's meta transformative agenda of bolstering food security in Calgary through a more ecologically sustainable and socially-just agrarian model. Situating ourselves in a larger web of life guided how we operationalized our learning targets to strengthen soil health, water, and resource conservation, and biotic diversity.

For instance, “by the end of my certificate programme, I will be able to: Facilitate discussions on the ecological benefits of small-scale agriculture; space and rotate crops to ensure maximum resource allocation and soil conservation; construct ‘lasagna beds’/sheet mulching for no-till planting (Figure 1); optimize the use of low-impact local resources, such as compost; ‘chop and drop’ at the end of the harvest season to enhance soil structure; and reduce high-impact technologies and energy-intensive inputs by supporting regenerative practices.”

Figure 1: No-till lasagna beds with polycultures.

At the end of each shift, we learned the best practices for harvesting and transporting produce (Figure 2) to deliver straight to the chefs of our twenty-one partnering food access agencies, such as The Leftovers Foundation (https://rescuefood.ca/), Inn From the Cold (https://innfromthecold.org/), and Calgary Women’s Emergency Shelter (https://www.calgarywomensshelter.com/). Interacting with members of the community was one of the most rewarding aspects of our experiences with Grow Calgary—an opportunity we typically did not have in conventional classroom settings. Another way in which we built community relationships was through Grow Calgary’s #Kits4Kids initiative. Kits included a tray, dome, soil, seeds, and pots, which were donated to low-income families in Calgary, along with an instructional pamphlet. The goal of this project was to increase the capacity of youth to grow fresh food from home. When the call was sent out via our social media platforms between February and April of 2020, over 10,000 Calgarians signed up to receive kits.

We believe that this heightened interest in food access and security at the household level was in response to the COVID-19 quarantine mandate, which began in March 2020 in Calgary. An upward trend in gardening was also reflected in the lack of available seeds, soil, and other growing materials at garden centres around the city.

Figure 2: Fresh produce for a Calgary-based social agency.

We recognize that change occurs not only at the community level, but through institutional and policy reforms. Taking part in Grow Calgary's Policy Team, we discussed the underlying politics of food production in Calgary and Alberta and planned to make recommendations to the Government of Alberta through the Local Food Engagement programme. For instance, through the #Mow2Grow initiative, Grow Calgary advocated for changes in urban land use that would convert high maintenance grass lawns into food producing ecosystems that would attract native pollinators and increase local food resiliency. In addition to advancing political agendas concerning land use, sustainable agriculture, and gaps in food security, Grow Calgary recognizes the connection between food and shelter. Supporting Article 25 of the United Nations Declaration of Human Rights (UN General Assembly, 1949), the organization advocated for the fundamental rights to shelter through a Microhome initiative. Each living space, which was less than 200 square feet, was designed and constructed by Calgarians in a friendly competition.

The goal was to raise awareness about the lack of affordable housing options in urban centres, and to provide alternative and feasible living conditions that could be supported at the municipal level. Addressing challenges to food security requires a holistic lens, which considers income levels, access to healthcare and education, affordable housing, available transportation, institutional barriers, and systemic inequalities. Compounded by a global pandemic and ongoing recession, the relevance and cruciality of converging food pedagogy with transformative community work has been heightened. Building upon our conceptual and theoretical foundations of food system studies, we were able to support a more sustainable food model, build community within and beyond academia, and foster social change by engaging in activist scholarship at the community level.

Building bridges for transformative social change

From the perspective of graduate students interning on a not-for-profit urban farm, we have brought to light viable pathways for incorporating experiential learning and participatory action research into Food Studies pedagogy. Aligning theory and literature with community-driven food movements may support students in contributing to food and social justice, economic well-being, social equity, and environmental conservation efforts (Clancy, 2014; Sumner et al., 2014). Volunteering on a farm during the COVID-19 pandemic also led to an improvement in our physical, emotional, and mental well-being. Being able to socially distance while contributing to essential work provided a sense of purpose during an unprecedented time. Interning as University of Calgary affiliates also brought us closer together as an academic cohort, as we could continue offering support to one another on a frequent basis. Whether we were transplanting seedlings or watering tomatoes, we could carve out time to discuss our dissertation proposals, course work, teaching assistantships, and personal struggles. These opportunities for community-building and support are not always available in conventional classroom-based learning environments. A community-driven, learner-centred platform further helped us to reflect critically upon local issues, horizontal goals, and integrated frameworks to address food insecurity. Alongside stakeholders, we were able to effect change vis-á-vis activist food pedagogy, as well as connect global to local issues concerning food access and security. Intersecting food pedagogy with a transformative agenda also furthered our abilities to grow nutritious food alongside our fellow Calgarian agrarians. We now promote other local organizations employing ecologically sustainable and socially inclusive food models grounded in agroecological frameworks, permaculture principles, regenerative techniques, and Indigenous Knowledge Systems. One such social enterprise is FoodScape Calgary, which transforms high maintenance lawns and gardens into easy-to-care-for, edible landscape ecosystems. Offering Indigenous Métis land stewardship consultations, founder Heather Morigeau designs healing spaces, such as Sacred Medicine Gardens (Figure 3), to celebrate and reclaim significant aspects of Indigenous culture.

Volunteering with FoodScape taught us the importance of following cultural Protocol while working alongside Traditional Knowledge Keepers of Treaty 7.

Figure 3: Sacred Medicine Garden by FoodScape (photo credit: Heather Morigeau)

Another social ecology organization that showed us food's ability to nurture social change, cultural healing, and relationship-building was Dirt Boys Urban Farming. Run by Michael Gavin, whose motto is to "help plants grow," we learned how to reposition ourselves from producers of food to stewards of the land. Since our internship, we have further honed our professional leadership and communication skills by mobilizing knowledge about sustainable, socially just, and secured food systems through formal and informal presentations at the University of Calgary. It is our responsibility as activist scholars to promote agroecological production models that enhance social and ecological diversity, and reduce vulnerability via increased food security, access, and food sovereignty. Connecting Food Studies scholars with sustainable agrarian models through hands-on academic frameworks will further support local agrarian efforts and enhance student learning processes.

Conclusions

Through a case study approach, we presented the benefits of activist food pedagogy within the context of a University of Calgary Transformative Talent Internship with the not-for-profit farm, Grow Calgary. Harnessing our foundations in course-based Food Studies theory and literature, we engaged in sustainable farming during the COVID-19 pandemic to enhance our leadership and technical capacities in advanced urban food production. As a result, we fostered a robust network of fellow agrarians, bridged our academic and public agendas, and helped to increase

food access and security among Calgary's most food-insecure populations. We recognize that our case study is but a small initiative at the margins. However, we argue that activist food scholarship may be incorporated into existing academic frameworks more widely to cultivate awareness and action surrounding more socially and ecologically-just food models.

Partnering with local stakeholders (i.e. farmers, social agencies, and food recipients) not only encouraged a dialogue about system inequalities surrounding food but also prompted critical reflections about our own positions relative to those systems. For future consideration, activist food pedagogy may be even more deeply grounded in community-based participatory research (CBPR) by working directly with marginalized community members to develop a plan of action, a knowledge mobilization platform, and a social justice framework determined by the communities themselves. Students enrolled in Food Studies courses could partner with existing social enterprises and farms for a semester to support an initiative deemed necessary by the organization (i.e. environmental scan, capacity-building workshops, or a "PermaBlitz," or high energy installation of a permaculture system in an urban space). These collaborations may also be tailored to an online learning environment, such as that which post-secondary institutions are facing now as a result of COVID-19. For instance, students can assist farming organizations develop strategic plans, policy reports, literature reviews, website design, social media presence, and media engagement from home. Instructors may complement these community-driven projects with guest lectures from local food activists and practitioners. Socially distanced learning activities, such as cultivating plants at home or volunteering in a neighborhood garden, may also support a more experiential Food Studies model.

In addition to addressing the limitations of virtual learning, we must also emphasize that our experiences with activist food pedagogy are place-specific (Wezel et al., 2016). The findings from our internship with Grow Calgary may not be applicable in other urban settings, where the dynamics of food insecurity and community capacity may differ drastically. Nevertheless, our case study can provide general insights into the potential benefits of activist food scholarship for students, researchers, practitioners, and food-insecure populations in urban settings.

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Original Research Article

Examining the relationship between food security and perceived health among Memorial University students

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Abstract

Objectives: The prevalence of student food insecurity at Memorial University of Newfoundland (MUN) is relatively high (58.0%) compared to the national population (12.7%). We explored the relationship between food security status and perceived health, as well as the qualitative nature of student experience due to food insecurity among MUN students.

Methods: Through an online survey of returning MUN students at the St. John's campus, we assessed food security using Statistics Canada's Canadian Household Food Security Survey Module (HFSSM), and self-reported physical health, mental health, and stress. We used logistic regression to compare health and stress ratings between students of different food security levels. We thematically coded open-ended responses to describe students' experiences related to food insecurity.

Results: Among the 967 study eligible students, 58.01% were considered food insecure, of which 18.10% were marginally food insecure, 28.23% were moderately food insecure, and 11.69% were severely food insecure. After controlling for significant predictors, students who were moderately or severely food insecure were 2.09 [95% CI:(1.39, 3.13)] and 3.41 [95% CI:(2.09, 5.55)] times as likely to rate their physical health as 'fair' or 'poor' than food secure students, and 2.17 [95% CI:(1.54, 3.05)] and 5.54 [95% CI:(3.47, 8.85)] times as likely to rate their mental health as 'fair' or 'poor' than food secure students, respectively.

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Moderately food insecure and severely food insecure students were 1.67 [95% CI:(1.22, 2.29)] and 2.21 [95% CI:(1.42, 3.43)] times as likely to rate their stress level as 'high' than food secure students, respectively. Students' comments on their experience were categorized into four themes: Impact on academic performance, impact on student experience, impact on physical health, and impact on mental health and/or stress.

Conclusion: Food security levels experienced by MUN students was closely related to their perceived physical and mental health. As food security levels worsened among participants, their self-reported physical and mental health also worsened. Health professionals working with university student populations should screen for food security and consider its relationship to students' health.

Keywords: Food supply; food insecurity; hunger; student health services; universities; population health

Introduction

Food insecurity exists when an individual has insufficient access to food due to financial constraints (Tarasuk et al., 2014). The experience of food insecurity has long been linked with numerous health concerns, such as an inadequate diet, chronic diseases, and depression (Kirkpatrick & Tarasuk, 2008; Vozoris & Tarasuk, 2003). Researchers are continually learning more about food security's relationship with health, and recent findings corroborate that food insecurity is associated with suicidal ideation, increased utilization of mental health care services, and increased health care utilization costs (Davison et al., 2015; Tarasuk et al., 2015; Tarasuk et al., 2018).

Food security research among the university population has been gaining traction in recent years, with student poverty recognized as a growing problem in light of decreased public funding for universities, increased tuition rates and student fees, and stagnant student funding (Canada Without Poverty, 2017; Smith-Carrier, 2020). Within Canada, researchers have found rates of campus food insecurity (moderate and severe levels) between 28.6% and 46% across the country (Entz et al., 2017; Olauson et al., 2018; Silverthorn, 2016), which are alarmingly higher than the national household food insecurity prevalence of 8.7% (moderate and severe levels) reported for Canada in 2018 (Statistics Canada, 2020). The health effects of experiencing food insecurity during postsecondary education are not well known, but preliminary research suggests that food insecurity among postsecondary students is associated with high stress, depression, and self-reported poor physical and mental health (Farahbakhsh et al., 2017; Frank, 2018; Hughes et al., 2011; Patton-López et al., 2014).

Evidence also strongly suggests that the burden of hunger and stress associated with experiencing food insecurity may cause the inability to concentrate and compromise academic success (Bessey et al., 2020; Farahbakhsh et al., 2017; Maroto et al., 2015; Patton-López et al., 2014).

The objective of our study was to determine if food security level was a significant predictor of perceived physical health, perceived mental health, and/or stress level among students at Memorial University of Newfoundland (MUN). An estimated 58.0% of MUN students experienced some level of food insecurity (marginal, moderate, or severe) in the 2015-2016 academic year (Blundell et al., 2019). We hypothesized that experiencing food insecurity is associated with poorer perceived physical health, poorer perceived mental health, and increased stress among the MUN student population. Our study provides a better understanding of the factors related to food insecurity among postsecondary students and provides university administration and food security policy actors to form evidence-based recommendations to improve the well-being of students.

Methods

In Fall 2016, we disseminated a cross-sectional online survey to returning MUN students. We pre-tested our survey instrument to identify any potential errors or confusing survey questions. Nine university alumni of various backgrounds pre-tested the survey and we amended the instrument to improve clarity, but did not make any changes to the questions related to perceived health or food security status.

Inclusion and exclusion criteria were set to ensure participants shared a similar food environment. Participants were included if they had been enrolled in full- or part-time studies at a MUN campus in St. John's, Newfoundland and Labrador (NL), including the St. John's campus, the Marine Institute, and the Centre for Nursing Studies, during the September 2015 to April 2016 academic year. Our survey questions referred to the previous academic year, and therefore, we excluded students who were currently enrolled in their first year of studies. Post-graduate medical residents were also excluded. Based on our criteria, 10,400 of 18,272 students attending MUN in 2015 were eligible for our survey that was conducted in 2016.

Recruitment

We recruited students by distributing posters on St. John's campuses, sharing advertising posts on social media pages related to MUN students such as student societies' Facebook and Twitter pages, and sending emails to the email lists of MUN graduate, undergraduate, and international student associations and the international advising office.

Each academic unit at St. John's campuses was also contacted and asked to email our survey to their corresponding list of students. Participating student groups and academic units were then asked to email students at the beginning of the study, and again one week before the study ended. The survey link was live from mid-September to mid-October 2016, for four weeks total. As an incentive to participate in the study, we offered students a chance to win one of five $50 grocery gift cards. This incentive was advertised in each recruitment communication, and students were informed that their survey answers were anonymous and not tied to contact information provided for the prize draw.

Assessing food security and health status

The Household Food Security Survey Module (HFSSM) is used in the Canadian Community Health Survey (CCHS) to evaluate household food security (Health Canada, 2008). The HFSSM contains eighteen questions relating to food security during the past twelve months, ten of which form the 'Adult Scale', specific to the experience of the adult(s) of the household. This module is in a standardized survey instrument used in the CCHS. For this study, we used the Adult Scale with minor wording modifications to change second person statements (you) to first person (I) statements. For example, the HFSSM question "You and other household members worried food would run out before you got money to buy more", was changed to "I worried whether my food would run out before (I/we) got money to buy more." These changes were made to remain consistent with other food security research recently conducted in postsecondary student populations (Frank, 2018; Silverthorn, 2016). These questions referred to students' food experience during the previous 12 months. For this reason, students were asked to relate all questions about their demographics and experience to the *last* academic year, and this was repeatedly noted across the survey. Students were also asked to only include people who they shared groceries with regularly when selecting responses. Consistent with an interdisciplinary research team investigating household food insecurity in Canada, PROOF, we classified students as 'food secure' if they had zero affirmative responses, 'marginally food insecure' if they had one affirmative response, 'moderately food insecure' if they had two to five affirmative responses, and 'severely food insecure' if they had five or more affirmative responses (Tarasuk et al., 2014). Health Canada (2008) has traditionally not recognized 'marginal food insecurity' as a category, and instead has considered these individuals as 'food secure', but otherwise has scored food insecurity in the same way.

We used a five-point Likert scale to assess participants' perceived physical health and mental health during the past twelve months, with options of 'poor', 'fair', 'good', 'very good', and 'excellent'. Because answers were highly skewed, we re-aggregated physical and mental health ratings into two categories. 'Poor' and 'fair' ratings were grouped as 'poor' perceived health, and 'good', 'very good', and 'excellent' were grouped as 'good' perceived health.

We also assessed participants' level of stress using a five-point Likert scale, asking student to describe whether most days in the last twelve months were 'not at all stressful', 'not very stressful', 'a bit stressful', 'quite a bit stressful', or 'extremely stressful'. Responses of 'quite a bit stressful' and 'extremely stressful' were grouped as high stress, and 'not at all stressful', 'not very stressful', and 'a bit stressful' were grouped as low stress.

We collected demographic information such as student origin, level of study, gender, age, course load, partner status, parental status, living situation, and primary source of income. We also included an open-ended question asking participants to identify how the quality of their university experience has been negatively affected by a lack of money for food.

Analysis

Food security level was the independent variable in this study, measured using the HFSSM. Covariates included sociodemographic (gender, marital status, parental status, Indigenous status), educational (student's level of study, year of study, course load, year in program), financial (primary income source, employment status), food-related characteristics (meal plan, grocery sharing), and living arrangements. These variables were chosen based on reviewing literature related to postsecondary student food security and a discussion of factors that are unique to the student food experience (i.e., meal plan, students having roommates which may or may not practice grocery sharing). Our dependent variables were the students' perceived physical health, mental health, and stress level.

We used SPSS (Statistical Package for the Social Science-v22) to describe the characteristics of the sample. We used Chi-square tests (or Fisher's exact test in cases of small sample sizes) to assess each outcome and predictor variable, and then used multiple logistic regression to investigate how food security level related to health and stress, after controlling for other significant predictors. Covariates that were significant in the bivariate analyses were included in regression models (data not shown). This included the following covariates: Student's level of study, place of origin, gender, parent status, year of study, and primary source of income. Covariates were removed from the model if they were not significant (using the Wald test) and if they did not significantly improve the change in the -2 log likelihood value (Tabachnick & Fidell, 2007). Only significant predictors were included in the final regression models.

We thematically coded responses to open-ended questions to capture students' perceptions of the effect of food insecurity on physical health and well-being, and academic performance. The questions asked, "Do you have any comments on how a lack of money for food has affected the quality of your university experience?" and at the end of the survey, "Do you have any further comments?" Two authors reviewed all responses independently and developed a coding template with preliminary themes (Fink, 2013).

Both authors then met to compare themes, refine the meaning of each theme, and then recoded the data using the final coding template. We both independently reviewed the coding of quotations and together we resolved any discrepancies. We present illustrative quotations for each theme.

Results

Our survey had a total of 1486 participants. Of these, we excluded 326 who were not returning MUN students, 148 who did not complete the required screening questions for food insecurity status and health status, and 45 who attended a campus other than St. John's campus, for an eligible sample of 967 (Figure 1). The sample was representative of the total student population in terms of student origin (66% NL, 19% Out-of-province [OOP] Canadian, 13% international in the population; 65.42% NL, 20.29% OOP, 14.29% international in the sample; $\chi 2= 2.12$, $p= 0.3465$) and level of study (21.6% graduate and 78.4% undergraduate in the population; 22.49% graduate and 73.26% undergraduate in the sample; $\chi 2= 1.83$, $p= 0.1761$).

The majority of respondents in the study sample were undergraduate students (73.26%), from NL (65.42%), full-time students (92.95%), female (73.25%), and living off-campus (85.52%) (Table 1). We did not have sample frame data to assess representativeness using each of these characteristics. However, Statistics Canada (2016) reported that 54% of college and university graduates of NL were women in 2013. This indicates that women may be overrepresented in our sample. Less than half (41.99%) were food secure and more than one in ten students (11.69%) were severely food insecure. The proportion of students (by food security level) who reported poor physical health, poor mental health, and high stress were significantly different from expected values, suggesting that food security status is related to health and stress outcomes (Table 2).

One fifth of the students (19.96%) rated their physical health as poor. After controlling for other significant predictors graduate students were 1.89 times *less* likely (the inverse of 0.53) to report poor physical health than general undergraduate students. Compared to food secure students, marginally, moderately, and severely food insecure students were 1.74, 2.09, and 3.41 times more likely, respectively, to report poor physical health (Table 3).

More than a third of the students (38.37%) reported poor mental health. After controlling for other significant predictors, graduate students and medical students were 1.79 and 2.5 times *less* likely respectively (the inverse of 0.56 and 0.40), to report poor mental health than other undergraduate students.

Female students were 2.73 times more likely to report poor mental health than male students. Marginally, moderately, and severely food insecure students were 2.25, 2.17, and 5.54 times more likely, respectively, to report poor mental health than food secure students (Table 3).

More than half the students (54.60%) reported high stress. Female students were 1.75 times more likely than male students to report high stress. After controlling for gender, marginally, moderately, and severely food insecure students were 1.27, 1.67, and 2.21 times more likely, respectively, to report high stress (Table 3).

From students' open-ended responses on how food insecurity has impacted their university experience, we identified recurring themes related to the impact on physical health, impact on mental health and stress, impact on academic performance and impact on student experience (Table 4). Comments related to "impact on physical health" were focused on feelings of low energy and specific health implications such as anemia and hypertension. One student indicated that they "suffer from constant tiredness and weakness" (Participant 109800994), while another stated that "[worry about food supply] …contributed to [their] sickness and deferred exams." (Participant 109525180) In the theme of "impact on mental health/stress", students discussed their stress and anxiety associated with acquiring a sufficient food supply. The theme "impact on academic performance" relates to how food insecurity affects a student's experience in the classroom, studying, ability to focus, and succeeding in their program of study. Several participants of our study stated that they found it difficult to maintain attention, energy, and focus when experiencing hunger or a compromised food intake. Students also commented on how food security shaped their overall experiences as university students. While attending postsecondary training is often described as a period when young adults form many important lifelong relationships through social interactions, food insecure students commented that they were often unable to socialize due to having to save money or to work for money to buy food.

Discussion

Food insecurity is associated with poorer self-reported physical and mental health and higher levels of stress among university students enrolled at MUN, NL's sole university. The findings are consistent with other studies of postsecondary student populations across North America and the general Canadian adult population (Frank, 2018; Hughes et al., 2011; Patton-López et al., 2014; Vozoris & Tarasuk, 2003). Moreover, in this study, there is a direct relationship between the level of food security and health, as food insecurity worsened, self-reported physical health, mental health, and stress worsened among participants. In addition, as shown through responses to open-ended questions, food insecurity also influences academic performance and student experiences. These findings highlight the need for greater public health interventions, from the university as well as other organizations, to address the high prevalence of food insecurity among postsecondary students. For example, MUN students who rely on student grants and loans are vulnerable to food insecurity, and policies that include changes to government funding available to students may increase students' ability to pay for food (Blundell et al., 2019).

Other vulnerable student populations at MUN include students living off-campus and students with children (Blundell et al., 2019). Affordable housing and childcare policies may alleviate the financial pressure experienced by these groups. Also, despite available programs at MUN, such as food banks on campus, few students are aware of or use these programs (Blundell & Mathews, 2021). The food insecurity experiences of our study participants emphasize the need to tailor programs to the needs of different student populations. International students are vulnerable to food insecurity and are more likely to use MUN campus resources to access food (Blundell & Mathews, 2021). MUN should conduct a further program evaluation of these services and collect feedback from international students to learn how to better support these individuals. Additionally, because international students are often not eligible to receive funding from the same opportunities as other students, an increase in funding options available to these students (offered by MUN or other institutions) may prevent the financial strain that leads to food insecurity in this population.

Stress and mental health impacts of food insecurity were gendered, while physical health was not. These findings are consistent with studies that show women are more likely to report mental health-related issues than men (Nurullah, 2010). Moreover, while women typically report poorer perceived physical health than men, university students are generally a young and relatively physically healthy population. Furthermore, many students may experience food insecurity for the first time if they have moved away from home and/or assumed responsibility for paying for food for the first time. The cumulative effects of food insecurity after a relatively short exposure may be limited for an otherwise healthy population, which may have contributed to students less frequently reporting poor physical health at this point in time. Future studies that involve following a cohort of postsecondary students over time would help us better understand the relationship between food insecurity and health in this population.

Graduate students and medical students who were food insecure were generally less likely to report poorer physical and mental health. However, given that graduate studies and medicine admit high performing students, and students from wealthier families are more likely to pursue graduate studies and medical careers (Dhalla et al., 2002), these findings may reflect a selection bias. This bias means that food insecure graduate students may have better overall health, and subsequently better perceived health, given that more graduate students come from wealthier families as compared to undergraduate students. While students' comments indicate that food insecurity may also affect academic performance, further research is needed to assess how food insecurity affects career goals and trajectories.

This study has limitations. For instance, because this is a cross-sectional study, the direction of causality between health and food insecurity cannot be determined.
One might suggest that the arrow has the potential to be bi-directional; food insecurity can cause malnutrition and stress (decreased health), and the presence of chronic health conditions may increase vulnerability to food insecurity by affecting one's income and ability to access food.

Our study also used non-random sampling and is subject to sampling bias. Women are likely overrepresented in this study. The use of self-reported health measures also presents caution for interpretation. Further, while we slightly rephrased statements for our context, the HFSSM is intended to be used at a household level, rather than an individual level. To build on existing knowledge, future researchers of student food insecurity should use methods that enable us to infer causation so that we can better analyze food insecurity's relationship with health and include objective (non-survey) data sources.

Conclusion

Food security is directly associated with physical health, mental health, and overall stress levels of university students in NL. Food insecurity may also influence academic performance and contribute to systemic inequities in professional programs. Given the high prevalence of food insecurity among postsecondary students, food insecurity presents an important and urgent public health challenge across Canada.

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Original Research Article

Characteristics of Canadian school food programs funded by provinces and territories

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Abstract

Given the complex administration of school food programs (SFPs) in Canada and recent federal interest, this research systematically examined provincial and territorial funded SFPs during the 2018/19 school year. Relevant literature and the RE-AIM Framework, a planning and evaluation tool developed by Glasgow et al. (1999), informed the development of an electronic survey sent to program leads in provinces and territories to assess SFP Reach, Effectiveness, Adoption, Implementation, and Maintenance. Results from 17 programs indicate considerable administrative and program variability across Canada. Collectively, provinces and territories contributed over $93 million which partially funded a minimum of 35% of JK-12 schools to provide free breakfasts, snacks, and/or lunches to a minimum of 1,018,323 or 21% of students in Canada (based on limited data in some jurisdictions). The majority of provinces and territories partner with one or more non-governmental organization (NGO) and rely heavily on NGO staff and volunteers. Program demand often exceeds supply, and program monitoring is inconsistent. This research–which provides much-needed, updated information on SFPs–highlights the need to explore the complexity of the topic further and helps inform discussions about SFP administration and characteristics, specifically program mandates, student reach and universality, program sustainability and resources, and monitoring. Opportunities exist for (1) a closer examination of varied and promising organizational practices, (2) enhanced collaboration and knowledge sharing, and (3) harmonization of key metrics, all of which would assist with developing the National School Food Program proposed in the 2019 federal budget.

Keywords: School food programs; national school food program; mandates, funding, implementation, monitoring; food security; student health; Canada

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Introduction

Internationally, school food programs are one of the most successful drivers of improved health, education, and economic growth (World Food Programme, 2016). School food programs have been shown to pay for themselves through an impressive return on investment: $3 to $10 for every dollar spent (World Food Programme, 2016). In 2020, over 388 million children in at least 161 countries–83% of all countries globally–participated in a free or subsidized school food program funded by state and national governments (World Food Programme, 2021). School food programs (SFPs) generally encompass a range of initiatives, including milk, snack, breakfast, and/or lunch served in elementary or secondary schools, and may include the integration of additional food literacy and food skills programming. As children spend a large proportion of their waking hours in school, schools are an ideal setting to improve dietary quality and reduce health inequities (United Nations System Standing Committee on Nutrition, 2017; World Health Organization, 2006). Furthermore, school meals are healthier compared to home-packed meals in many countries, including the United Kingdom (Hur et al., 2011), Denmark (Sabinsky et al., 2019), the United States (Johnston et al., 2012), and Canada (Taylor et al., 2012).

In Canada, the diets of school students need improvement. In 2007, a House of Commons Standing Committee report on childhood obesity found that the pervasiveness of diet-related diseases among Canadian children may make today's youth the first generation to have sicker, shorter lives than their parents (Government of Canada, 2007). Research confirms that the diet quality of Canadian children across the socio-economic spectrum remains poor, with only a small proportion meeting the recommendations of Canada's Food Guide (Black & Billette, 2013; Garriguet, 2004; Health Canada, 2012; Minaker & Hammond, 2016).

Canada rates poorly in providing children with access to nutritious food, ranking 37 out of the 41 wealthiest nations (UNICEF Canada, 2017). Canadian schools could do more to address this problem. Canada is the only G7 country (Bas, 2019) and one of the only industrialized member countries of the Organization for Economic Cooperation and Development (OECD) (Koc & Bas, 2012) without a nationally-funded and harmonized school food program. Instead, municipal and provincial/territorial governments, a few federal government departments/agencies, and non-governmental organizations (NGOs) at all levels support an inconsistent patchwork of programs across Canada (Haines & Ruetz, 2020; UNICEF Canada, 2019). Figure 1 indicates the multiple levels of SFP funding and various types of program partnerships that fund individual schools/districts (this research studied provinces and territories only as indicated in the bolded box).

Figure 1: Levels of SFP Funding in Canada

Level	Examples of Governments that fund schools/SFPs directly	Examples of Government and NGO funding partnerships	Examples of NGOs and charities that fund programs directly
Federal/ National	Unknown	Farm to Cafeteria Canada (with support from 11 partners including the Public Health Agency of Canada) fund farm-to-school salad bar programs in five provinces (Farm to Cafeteria Canada, 2020)	Canadian Feed the Children (funds programs in First Nations communities)
Provincial/ Territorial/ Regional	**British Columbia's Ministry of Education** **Ontario's Ministry of Health**	**Provincial Government + Child Nutrition Council of Manitoba** **Provincial Government + Kids Eat Smart Foundation, Newfoundland and Labrador**	The Grocery Foundation (provides gift cards and coupons to schools in Ontario and Western Canada)
Municipal	City of Vancouver	City of Toronto + Toronto Foundation for Student Success	Fredericton Community Kitchen
School Districts or Individual Schools	Funded by one or a combination of the above, e.g., a school-based SFP could receive municipal and/or provincial government funding and/or funding from one or more national NGOs plus conduct their own fundraising.		

It is within this complex and dynamic SFP landscape–with varied mandates, types of programs, multiple and overlapping sources of funding, and limited program coordination and monitoring–that the Federal Government declared its intention in 2019 to "work with provinces and territories towards the creation of a National School Food Program" (Government of Canada, 2019). While no funding or timeline was announced (Ruetz & Kirk, 2019), this declaration was significant as school food in Canada has received little consideration since after the Second World War (Carbone et al., 2018; Mosby, 2014).

The federal government, SFP funders and other stakeholders could benefit significantly from a clearer picture of current programs. Thus, the aim of this research is to address this knowledge gap by systematically compiling existing data from provinces and territories (P/Ts) about program models, practices, and gaps; including similarities and differences pertaining to program mandates, reach, implementation, and effectiveness. Key questions include: what are the main characteristics of SFPs in Canada, how do they operate, and what is their prevalence?

Bringing greater clarity to the Canadian SFP landscape serves several purposes. First, it provides current data: the last Canada-wide survey occurred in the early 1990s and much has changed since then (McIntyre & Dale, 1992). New funders emerged, new programs started, existing programs expanded, and some organizations, such as the national NGO *Breakfast for Learning*, disbanded. This information provides a baseline for discussions about the current state of SFPs in the country and a point of reference for future programming and research.

Second, it helps identify current strengths and challenges within SFP administration and implementation in Canada. Third, it provides an opportunity to assess current SFPs relative to recommended SFP models, which are universal, comprehensive, and multi-component (Oostindjer et al., 2017). The results may help catalyze future investments in SFPs and widen their 'value proposition' beyond food security and other health-related benefits, including increased returns on investment due to local agriculture, and environmental and social benefits (Becot et al., 2017; Powell & Wittman, 2018).

For the purposes of this article, and because they are potential criteria for a nationally-harmonized program, we define SFPs as (1) school-based (or equivalent) breakfasts, mid-morning meals, snacks, and or lunches offered; (2) at no-cost; (3) to JK - 12 students; (4) during the school day; (5) consistently over the majority of the school year. We conducted this pan-Canadian summary of characteristics of SFPs funded by P/Ts during the 2018-2019 school year, the most recent year with complete data and without COVID disruptions.

It is important to note that this research captures data about free provincial and territorial SFPs and their provincial/territorial NGO partners, i.e., a single level of funding. As such, this research excludes programs where most students pay but those in 'need' do not, and SFPs funded exclusively by charities, the federal government[1], or municipalities. We made this decision for three main reasons. First, the 2019 federal budget announcement named provinces and territories as partners. Second, collectively, provinces and territories are the largest source of SFP funding in the country. Third, we wanted to avoid double or triple counting the program numbers, participation rates, etc., which would occur if we included other levels of funders, given that individual SFPs frequently receive funding from multiple sources. As such, it is important to note that this resulted in an underestimation of SFP activity in Canada.

Literature Review

Extensive literature on SFPs exists, including research on outcomes of SFPs internationally and in Canada, as well as SFP participation rates, student intakes, and SFP recommendations and guidance. The international literature on SFPs indicates they are one of the most successful drivers of improved health, education, and economic growth (World Food Programme, 2016). A recent international review from the United States and other OECD countries (47 articles, 0 from Canada) found positive associations between student participation rates and the availability of universal free school meal programs ("i.e. meals provided at no cost to all children who wish to participate") (Cohen et al., 2021, p.2). Lunch programs were associated positively with diet quality, food security, and academic performance; breakfast program results, however, were mixed (Cohen et al., 2021).

[1] This research accounts for cases where federal funding flows through P/Ts (e.g., NU, NT).

Universal SFPs have also been found to have a positive influence on social inclusion (Corter & Pelletier, 2010), gender equity, food literacy, environmental sustainability and stewardship (Rojas et al., 2017), and economic development (Becot et al., 2017).

Results from school lunch and breakfast programs in the United States indicate that school meals make a significant contribution to students' caloric and food intake (e.g., Cullen & Chen, 2017). In Sweden, where lunch is available free to all students, national research found that younger students who ate school lunch every day had higher caloric and nutrient intakes than those who did not (Persson-Osowski et al., 2017). An international review of the impact of school food policies on students' eating (91 articles; 3 from Canada) found that student consumption of vegetables and fruits increased when provided by schools directly (Micha et al., 2018). As well, standards for school meals (mainly lunch) increased student intake of fruit, maintained their caloric intakes, and reduced intakes of total and saturated fat and sodium (Micha et al., 2018).

Research on Canadian SFPs is relatively limited (Everitt et al., 2020; Haines & Ruetz, 2020; Hernandez et al., 2018), with a concentration of studies from Ontario. An evaluation of the multi-component Northern Fruit and Vegetable Program in Ontario found that fruit and vegetable consumption increased somewhat among 1277 students in grades 5-8 participating (He et al., 2009), and students reported positive changes in their preferences for some fruits and vegetables. A small (n=122 students, grades K-5) multi-component intervention in a First Nations community in Ontario found that increased student participation in the school breakfast snack program (part of a larger, multi-component program) was associated with students meeting their daily recommended fibre intakes (Saksvig et al., 2005). Another small program that offered milk, vegetable, and fruit snacks in one northern Ontario First Nations school and a milk program in a second school found positive results within one week; however, the changes were not sustained over a year (Gates et al., 2013). Powell & Wittman (2018) identified that while providing locally grown foods for students is an important goal of the Farm-to-School organization in British Columbia, barriers to scaled-up implementation existed, requiring further research on addressing limitations.

Monitoring of breakfast program availability and participation in a two-year, Ontario-based study in 43 schools with over 23,000 students in grades 9-12 showed widespread prevalence of SFPs but relatively low student participation. Most schools offered breakfast programs (n=38), and of these, 37 were free. In year 1 of the study, 12.3% of students participated in a program one or more times per week, which rose slightly to 13.6% in Year 2, while the number of students who skipped breakfast one or more times per week remained high throughout (54.5% in year 1 and 54.9% in Year 2) (Leatherdale et al., 2016).

A national survey from 2015 of 2,540 students ages 6-17 highlighted a number of dietary concerns regarding students' food consumption at lunch during the school week. Around 68% of students ate lunch at school; approximately 6% reported consuming no lunch (researchers were unable to distinguish if food consumed at school came from the school). Results for all students indicated that lunch provided about 26% of their total daily calories.

Students consumed lower than recommended amounts of dark green and orange vegetables, whole fruit, whole grains, milk and alternatives, vitamin D and calcium, and higher amounts of sodium (Tugault-Lafleur & Black, 2020).

Other researchers have reviewed existing studies, provided recommendations, and examined organizations involved with SFPs. A recent review that examined SFPs and other school food initiatives found that universal, culturally appropriate, and multi-component SFPs positively influence children's nutritional knowledge, dietary behaviours, and food intake (Colley et al., 2019). A second review recommended that SFPs address social determinants of health, food systems, and environmental and economic sustainability (Everitt et al., 2020). Hernandez et al. (2018) recommended six guiding characteristics of a National School Food Program: (1) universal, (2) health-promoting, (3) financially sustainable, (4) respectful of local conditions and diversity, (5) connected to local communities and producers, and (6) multi-component and comprehensively connected to food literacy and food skills development. Godin et al., (2017), reviewing provincial and NGO documents on breakfast programs, found that the documents attributed different meanings to the term 'universality'; and while programs were encouraged to monitor themselves, evaluation results were typically unavailable or inaccessible.

While none of the Canadian research provided national-level information on SFP characteristics, the studies indicate the type of SFP research occurring in Canada and provide useful context for this research. The studies indicate that international studies yield positive outcomes; the existence of programs does not necessarily translate to high student participation rates; at current low levels of participation and funding, programs may have positive but relatively small impacts; students' dietary intakes during the school day are of concern; multi-component SFPs are recommended; and provincial/territorial guidance on SFPs is inconsistent.

Framework

This research was informed by two frameworks: a social policy and program development framework (Oostindjer et al., 2017) and a program evaluation framework (Glasgow et al., 1999). These frameworks were selected as they are complementary for assessing the state and characterization of SFP operation.

Oostindjer et al.'s (2017) social policy and program development framework informed a number of survey questions and provided an opportunity to assess our findings relative to their recommendations. By tracing the historical development of school feeding in high-income countries, Oostindjer et al (2017) found that SFPs typically follow three phases of evolution. In the first phase (roughly 1850-1970s), school food programs (SFPs) emerged in response to malnourishment and high rates of army recruits found to be unfit for war. In response to increased prevalence of diet-related diseases, the focus of the second phase shifted from food

security to healthy food (1970s-2000s). The third, emergent, multi-component phase aims to integrate health and environmental sustainability.
This phase, recommended by Oostindjer et al. (2017), prioritizes community and societal impacts of food- and food-related meal activities—integrating health, sustainable food systems, economic development, and education. In this research, the framework informed a number of survey questions and data analysis.

The second is the RE-AIM Framework, an operations framework often used in public health program planning and evaluation (Glasgow et al., 1999) that has informed research on food programs (e.g., Helmick et al., 2020) and school programs (e.g., Dunton et al., 2009). The RE-AIM Framework is used to assess the **R**each, **E**ffectiveness, **A**doption, **I**mplementation, and **M**aintenance of health programs and policies, although as sequenced, the acronym becomes ARIME. As conceptualized by Glasgow and Estabrooks (2018, p.5), the framework can help address "who, what, where, how, when, and why" questions linked to program planning and evaluation. The RE-AIM framework was adapted to develop the research and survey questions.

Methods

The initial method of data collection was a survey designed to be completed in 30-60 minutes. To develop the survey, we adapted the categories from the RE-AIM framework (see Table 1 for guiding questions and sample indicators). For example, we classified the year provinces and territories adopted programs and the type of program adopted (mandate) as "Adoption". The number of schools with SFPs (typically classified as Adoption in RE-AIM) was moved to "Reach" because that number is related closely to the number of student participants.

Table 1: Guiding questions and sample indicator for survey

RE-AIM Component	Guiding Question	Sample Indicators
Adoption	WHEN did provinces/territories adopt/initiate SFPs, WHY were they established, and WHAT are their current mandates?	First year of P/T funding Primary program objective All desired outcomes
Reach	HOW many schools operated SFPs and HOW many students participated?	Number of SFPs Number of unique school sites offering an SFP Number of students participating in SFPs Percent of student population participating in individual SFPs

Implementation	WHO offered the programs, WHERE, and WHAT types of programs were delivered, HOW were they delivered, and HOW much funding did provinces/territories contribute?	Type of P/T Ministry/Department funder Amount of funding per P/T Ministry/Department funder Permitted and not permitted uses of funding Number of SFPs by program type (e.g., breakfast, lunch, snack) Funding distribution mechanism
Maintenance	WHAT supports and monitoring practices were in place to sustain programs?	Monitoring survey (schools or school boards) Annual school site visit Nutrition quality verification such as grocery receipt review
Effectiveness	HOW did program provision align with program demand and HOW much per capita funding was expended to assist SFPs with achieving their desired outcomes?	Funding per participating student per school day Funding per student in P/T per school day Number of schools on waiting list for funding Outstanding funding requests from schools

The draft survey consisted of close-ended questions about SFPs (e.g., type of mandate) and requested numerical data (e.g., number of student participants) plus one open-ended question asking participants for comments. Questions were specific and precise to maximize the validity of the data. For example, a question asking for the total number of school-based SFPs specified to include all programs, including multiple programs at a single school and provided an example (a breakfast and snack program at one school counts as two programs). The draft survey was reviewed for clarity and feasibility by members of the Coalition for Healthy School Food (CHSF), the only national coalition dedicated to school food; the final e-survey, created using Qualtrics, was available in English and French. This study was approved by the University of New Brunswick's Research Ethics Board (#2019-076).

The names and contact information for key provincial and territorial government employees who oversaw SFP funding were obtained through the literature search and from members of the CHSF and prospective participants were sent an email invitation. In some instances, the government participant indicated that their NGO partner was better positioned to respond to some questions, so surveys were sent to them. During analysis, when survey data from government or NGO participants were incomplete or raised questions, the lead author conducted a follow-up telephone interview to review and verify the data, using the survey questions as a guide.

Data from the close-ended and numerical responses from the surveys and interviews were compiled into an excel spreadsheet, categorized using the RE-AIM framework and then summarized. Numerical data were computed and results analyzed descriptively for response variability and in reference to the framework of Oostindjer et al. (2017). All survey data are at the provincial and territorial level and self-reported. In the few cases where participants provided different numerical data for the same question, we used the results from government participants. The number of publicly funded schools in the province or territory reported by Ministries of Education was used as the denominator to calculate SFP prevalence across the country. Data from publicly available websites were used when a jurisdiction declined participation and to augment survey data. Participants and CHSF leaders were sent a draft copy of this article for review.

Results

Data on SFP operation in the 2018/19 school year were collected from November 2019 to June 2020. Some provinces/territories offer more than one program and/or a program may be funded by more than one ministry or department, which meant the total number of surveys (n=24: n=16 government and n=8 NGO representatives) and follow-up telephone interviews (n=15: n=9 government and n=6 NGO representatives) is greater than the number of provinces and territories (n=13). As it is common that SFP administration and monitoring is shared among P/T department or ministries and NGOs, the data on 19 P/T funders were collected. In 2018/19, New Brunswick (NB) did not fund a province-wide SFP, so was ineligible to participate; Alberta (AB) declined to participate, so publicly available data were used (Government of Alberta, 2017; Government of Alberta, 2019b).

Due to overlapping responsibilities, the results from 16 programs (eight provinces and three territories) plus publicly available data from AB resulted in a final sample of 17 provincial/territorial SFPs from nine provinces and the three territories. Seven provinces and two territories funded one program each, the Northwest Territories (NT) funded two programs, and Ontario (ON) and Quebec (QC) each funded three.

Adoption

The guiding questions for program adoption included: when did P/Ts adopt/initiate SFPs, why were they established and what are their current mandates and desired outcomes? As indicated in Table 2, the first wave of P/T funding for SFPs started in the 1990s.

In the wake of growing awareness regarding the prevalence of child poverty and food insecurity, funding was initiated by four Ministries/Departments of Social Services–Saskatchewan (SK) (1990), ON (1995), British Columbia (BC) (1996), QC (2001)–and two in the Territories–Nunavut (NU) (1992) and the Yukon (YK) (1997).

In the mid-2000s, a second wave of investments in SFPs from Ministries of Health and Education began, which coincided with the publication of the Integrated Pan-Canadian Healthy Living Strategy (Canadian Minister of Health, 2005). In 2005, Nova Scotia's (NS) Departments of Education and Health made a joint investment to fund a provincial breakfast program. In 2006, ON's Ministry of Health funded the Northern Fruit and Vegetable Program (NFVP).

In response to a Manitoba (MB) taskforce in 2005 that recommended increased access to nutritious foods in schools, three departments started funding SFPs in 2007, 2009, and 2014. Prince Edward Island's (PE) Department of Education began their support in 2009, and the NT 2013 Anti-Poverty Strategy led to an investment from the Department of Education and the Department of Health and Social Services in 2013. In 2016, AB introduced a "targeted school nutrition program" in select Kindergarten to Grade 6 schools in the province (Government of Alberta, 2017).

Most provincial/territorial programs tied initial funding to a Food Security/Poverty Alleviation mandate that targeted schools based on demographics, geography, and/or socio-economics (data not shown). The most commonly reported primary objective of 2018/19 programs (n=6; 37.5%) was "to provide a social safety net (Food Security/Poverty Alleviation)." The second was "to meet nutrition and/or health goals (Public Health)" (n=4; 25%), and third, "to meet educational goals (Academic Performance)" (n=3; 18.7%), tied with and "other" (n=3; 18.7%) (see Table 2). No participants indicated agricultural or environmental goals.

The outcomes that governments aim to foster through SFPs (data not shown; multiple responses were possible) were: public health (n=16; 100%); food security/poverty alleviation (n=14; 87.5%), academic performance (n=13; 81.2%); and health education (n=11; 68.7%). ON's Ministry of Health identified agricultural goals (n=1; 6.3%) and MB's Ministry of Education identified environmental goals (n=1; 6.3%) as secondary outcomes.

Table 2: Adoption

Province / Territory	First Year of Funding	Initial Government Ministry or Department Funder	Funding Government Ministry or Department in 2018/19[1]	Primary Objective of SFP in 2018/19
NL	2008	Department of Health and Community Services	Department of Children, Seniors, and Social Development	Food Security/Poverty Alleviation
PE	2009	Department of Education and Lifelong Learning	Department of Education and Lifelong Learning	Food Security/Poverty Alleviation
NS	2005	Joint investment between the Department of Education and the	Department of Health and Wellness (Nova Scotia Health Authority completed the survey)	Public Health

Province / Territory	First Year of Funding	Initial Government Ministry or Department Funder	Funding Government Ministry or Department in 2018/19[1]	Primary Objective of SFP in 2018/19
		Department of Health Promotion and Protection		
QC	2001	Ministry of Labor, Employment, and Social Solidarity	Ministry of Education (subsidized by the Ministry of Labor)	Food Security/Poverty Alleviation
	2018	Ministry of Education and Higher Education	Ministry of Education	Food Security/Poverty Alleviation
	2017	Ministry of Health and Social Services	Did not participate in survey	Did not participate in survey
ON	(1995)[2] 2005[3]	Ministry of Children and Youth Services	Ministry of Children, Community and Social Services, Children with Special Needs Division	Academic Performance
	2016	Ministry of Children and Youth Services	Ministry of Children, Community and Social Services, Child Welfare and Protection Division	Other: To support healthy eating and mental, spiritual, and emotional wellness
	2006	Ministry of Health	Ministry of Health	Other: To increase the consumption and awareness of fresh fruits and vegetables, on and off reserve, in Northern Ontario
MB[1]	2007	Department of Indigenous and Northern Relations	Department of Indigenous and Northern Relations	Public Health
	2009	Department of Health, Seniors and Active Living	Department of Health, Seniors and Active Living [Lead Department]	Public Health
	2014	Department of Education	Department of Education	Academic Performance
SK	1990	Ministry of Social Services	Ministry of Education (transferred in 2009)	Other: three equal objectives – promote good nutrition practices, help develop independent living skills, and provide opportunities for communities to address local food security initiatives
AB	2016	Ministry of Education	Did not participate in survey	Did not participate in survey
BC	1996	The Ministry of Children and Family Development	Transferred to the Ministry of Education and the CommunityLINK (Learning Includes Nutrition and Knowledge) program started in 2002	Academic Performance
YK	1997	Department of Health and Social Services	Department of Health and Social Services (Health Services Division)	Public Health
NT	2014	Department of Education, Culture, and Employment	Department of Education, Culture and, Employment [Lead Funder]	Food Security/Poverty Alleviation
	2013	Department of Health and Social Services (funds the Food First Foundation)	Did not participate in survey	Did not participate in survey

Province / Territory	First Year of Funding	Initial Government Ministry or Department Funder	Funding Government Ministry or Department in 2018/19[1]	Primary Objective of SFP in 2018/19
NU	1992	Department of Health and Social Services	Department of Health and Social Services (Health Services Division)	Food Security/Poverty Alleviation

[1]The single program in Manitoba is funded by 3 different agencies; otherwise each row corresponds to a separate program for a total of 17.

[2]The Ontario government contributed $1 million to launch a 'child nutrition partnership' with the NGO Breakfast for Learning to fund individual breakfast programs in the 1995/1996 school year (Legislative Assembly of Ontario, 1994).

[3]In 2005, Ontario government began (partially) funding programs on an annual basis through the Ministry of Children and Youth Services (Ontario Newsroom, 2005).

Reach

Data on reach (i.e., schools and student participation), which in turn raises questions about availability and access to programs (i.e., universality), were a challenge to compile. For example, P/Ts use different methods to count and report rates of student participation and SFP prevalence. To obtain consistent data, the survey question requested that participants report on the number of unique students and schools that participated in the 2018/19 school year. The results (see Table 3) indicate that student participation rates vary widely among P/Ts, with values ranging from approximately 5% in AB to 83% in YK.

In the territories, close to 100% of schools offer SFPs, with participation rates of approximately 80%. In other regions, Atlantic Canada has the highest program prevalence, with 90-96% of schools running one or more food programs (e.g., breakfast or snack); student participation rates range from 31% to 51%. ON is the next highest at 71% of schools offering one or more SFPs, with its province-wide program (the Ontario Student Nutrition Program (OSNP)) serving approximately 40% of students. ON also offers a First Nations Student Nutrition Program (FN SNP) in 67% of band-operated and federally funded schools and a fruit and vegetable program in the north. In MB, 37% of schools have an SFP, serving 16% of the student population. AB has a lower prevalence–18% of schools and 5% of the student population participating.

The total student reach of SFPs in Canada is difficult to estimate as not all jurisdictions collect data at the provincial level. For example, BC's Ministry of Education distributes funds directly to school districts as part of a larger funding initiative (the CommunityLINK program funds more than SFPs) and does not collect provincial data. SK pools data across a range of sites, resulting in incomplete school-specific provincial data. In 2018-19, QC's program was in transition, and data were limited.

Collectively, of the approximately 15,500 JK-12 schools in Canada (Council of Ministers of Education Canada, 2019), a minimum of 5,371 schools offered 6,408 free SFPs funded

entirely or in part by P/Ts (no data from BC and only partial data from SK). This figure equates to a conservative minimum of 35% of Canadian schools offering one or more programs. Within these programs, a minimum of 1,018,323 students of Canada's 4,917,438 students[2] (Statistics Canada, 2019) participate, which equates to a minimum of 20.7% of students (data unavailable from S, K, BC, NT and only partial data from QC and ON) (see Table 3).

Table 3: Reach

Province / Territory	Name of School Food Program	Number of school food PROGRAMS	Number of JK-12 SCHOOLS running an SFP	Percent of SCHOOLS with one or more SFPs[1]	Number of unique STUDENTS Served	Percent of ALL STUDENTS served[2]
NL	Kids Eat Smart Clubs	257 programs	237 schools	96%	31,000 students	48%
PE	School Breakfast Program	91 programs	56 schools	90%	10,400 students	51%
NS	School Healthy Eating Program	343 programs	343 schools	91%	37,904 students	31%
QC	Measure 15012: Food Aid in Secondary Schools	165 programs	165 schools	9%[3]	unknown	unknown
	Measure 15016: Breakfast Programs in Elementary Schools	45 programs	45 schools		8031 students	
	SFPs in Cree, Inuit and Naskapi nations	19 programs	19 schools	79%	2537 students	unknown
ON	Ontario Student Nutrition Program (OSNP)	4,156 programs	3,433 schools	71%	812,500 students[4]	40%
	First Nations Student Nutrition Program (FN SNP)	134 programs	87 schools	67% of band-operated and federally-funded schools	Unknown[5]	unknown
	Northern Fruit and Vegetable Program (NFVP)	449 programs	119 unique schools not served by OSNP (449 schools total)	not applicable, NFVP is a geographically-specific SFP that includes a combination of public and FN schools overlapping with OSNP	20,371 unique students not served by OSNP (82,612 students total)	Not applicable
MB	School Nutrition Programs supported by the Child Nutrition Council of Manitoba	415 programs	260 schools	37%	30,500 students	16%

[2] Students attending regular programming at publicly-funded JK-12 schools in Canada in 2018/19.

SK	Child Nutrition Development Program (CNDP) Grants	>86 programs	>86 schools	>9%	unknown	unknown
AB	Alberta's School Nutrition Program (Kindergarten to Grade 6 schools)	>400 programs[6]	>400 schools[6]	18%	33,000 students[7]	5%
BC	CommunityLINK (non-specific poverty alleviation funding that includes a food funding stream)	unknown	unknown	unknown	unknown	unknown
YK	SFPs supported via Yukon Food for Learning Association	85 programs	29 schools	94%	4,500 students	83%
NT	(1) Foods for Healthy Learning Program (Department of Education) and (2) SFPs supported via the Food First Foundation (Department of Health)	49 programs	49 schools	100%	Unknown	unknown
NU	Nunavut School Food Program	44 programs	43 schools	100%	7580-8590 students	75-85%[8]
TOTAL	17 Provincially or Territorially funded SFPs	6,408 programs	5,371 schools	Minimum of 35% of schools in Canada[9]	1,018,323 students	Minimum of 20.7% Canadian students[10]

[1]Percent of Schools with SFPs: Calculations based on school data obtained from provincial and territorial Ministries of Education.

[2]Percent of Students Served: Calculations based on 2018/19 JK-12 student enrolment data (regular programs for youth attending publicly-funded schools) from Statistics Canada (2019).

[3]This percentage is calculated based on the total number of schools in QC. During 2018/19, Measure 15012 only concerned secondary schools in disadvantaged areas (socioeconomic background index 8-9-10). If calculated according to this data, there were 165 participating schools out of 170 secondary school in disadvantaged areas (8-9-10), which equates to 97% of the schools targeted by the measure.

[4]This figure from the OSNP is from 2017/18 as it was the last year that the unique number of students served was reported. In 2018/19, Ontario moved to only tracking the average daily participation rates (personal correspondence with Anne Collinson, October 1, 2020).

[5]ON's FN SNP tracks the number of meals served. The ministry representative stated that the 883,799 breakfasts served in 2018/19 could approximate the number of students served. 883,799 breakfasts divided by 194 instructional days equates to approximately 4,556 students, or 32% of the provincial FN student population (Dennis Sithoo, personal correspondence, April 1, 2020).

[6]Government of Alberta. (2019b). Education Annual Report 2018-2019. Retrieved From: https://open.alberta.ca/dataset/8b226e68-1227-4aec-87a5-b573f3bfb062/resource/fec2c6c0-2fa7-4030-adcc-8f3dbaa1bcf4/download/education-annual-report-2018-2019-web.pdf

[7]CBC News. (2018, September 26). Alberta grows school nutrition program to feed 33,000 kids across province. CBC. https://www.cbc.ca/news/canada/calgary/alberta-school-nutrition-program-grows-1.4839368

[8]Sharma, R. (2020, August 26). Nunavut's school food programs modified safely alleviate food insecurity. *Nunavut News*, 1–4. Retrieved from: https://nunavutnews.com/nunavut-news/nunavuts-school-food-programs-modified-to-safely-alleviate-food-insecurity/

[9]School participation data from BC was not available and only partial data from SK were available.

[10]Student participation data from SK, BC and NT was not available and only partial data from QC and ON was available.

Implementation

Data on implementation included: who offered the programs, where and what types of programs were delivered, how were they delivered, and how much funding did P/Ts contribute (see Table 4)? Implementation varies across the country and sometimes within P/Ts, including program funder, funding calculations and distribution, and permissible uses of funding. Within governments, SFPs are most commonly funded by Ministries of Education (n=8; 50%), followed by Ministries of Health (n=7; 43.7%), Ministries of Social Services (n=3; 18.7%), and Indigenous Affairs (n=1; 6.3%). In four P/Ts, funding responsibilities are distributed among more than one department, either supporting the same program (MB) or different programs (NT, ON, QC), with varying degrees of collaboration among departments/ministries and NGO partners.

Table 4: Implementation

Province / Territory	Funding Ministry/Department in 2018/19	Funding (all costs, not just food)	Funding Distribution	Types of SFPs, by prevalence (bold most common)
NL	Department of Children, Seniors and Social Development	$1,093,700	Kids Eat Smart Newfoundland and Labrador (NGO)	**Breakfast;** Snack
PE	Department of Education and Lifelong Learning	$200,000[1]	Directly to schools	**Breakfast**
NS	Nova Scotia Department of Health and Wellness (via the Nova Scotia Health Authority)	$1,700,000	Funding distributed to Regional Centres for Education (i.e., school boards)	**Breakfast;** Snack
QC	Ministry of Education with subsidy from the Ministry of Labour, Employment and Social Solidarity [Measure 15012 for Food Aid in Secondary Schools]	$9,747,3858[2]	Directly to school boards	**Breakfast;** Snack; Lunch
	Ministry of Education [Measure 15016 for Breakfast Programs]	$9,200,000	Breakfast Club of Canada (National NGO)	**Breakfast**
	Ministry of Health and Social Services	$142,000	Breakfast Club of Canada (National NGO) to support SFPs in Cree, Inuit and Naskapi nations	**Breakfast**
ON	Ministry of Children, Community and Social Services [Ontario Student Nutrition Program]	$27,900,000	14 Regional Lead Agencies (all are NGOs)	**Breakfast;** Snack; Lunch

	Ministry of Children, Community and Social Services [First Nations Student Nutrition Program]	$4,300,000	Other: Funding given directly to First Nation communities and NGOs	**Breakfast;** Lunch
	Ministry of Health	$5,400,000	Other: Ontario Fruit and Vegetable Growers Association (NGO) & northern health units	**Snack (Fruit & Vegetable)**
MB	Department of Indigenous and Northern Relations	$25,000	Child Nutrition Council of Manitoba (NGO)	**Breakfast;** Snack; Lunch; Snack (Fruit and Vegetable)
	Department of Health, Seniors and Active Living [Lead Department]	$301,000		
	Department of Education	$650,000		
SK	Ministry of Education	>$936,044 - <$2,337,044	$936,044 given directly to school districts for SFPs and $2,337,044 distributed to a combination of school districts and 26 NGOs to support a combination of SFPs, gardens, and other community food security programs.	**Snack; Lunch;** "Meal Programs Generally"; Breakfast"
AB	Ministry of Education	$15,500,000	Funding distributed directly to school districts	N/A
BC	Ministry of Education	$13,231,7138[3]	Funding distributed directly to school districts	**Lunch;** breakfast; and snack
YK	Department of Health and Social Services, Health Services Division	$116,500	Funds transferred to the Yukon Food for Learning Association (NGO)	**Breakfast; snack;** and lunch
NT	Department of Education, Culture and, Employment	$650,000	Directly to schools	unknown
	Department of Health and Social Services	$25,000	Food First Foundation (NGO)	**Breakfast; Snack;** and Lunch
NU	Department of Health and Social Services	$1,945,092	Other: Funds administered by sponsoring agencies such as hamlets or district education authorities (DEAs) via Community Wellness Plans	**Breakfast;** Lunch; Snack
CA	19 government funders/funding agreements	$93,061,434	Most common to transfer funding to one or more NGOs for distribution (n=10 / 63%)	Breakfast most common

[1]Funding from PE only covers food expenses.

[2]QC's Measure 15012: $9,394,285 for public school boards + $ 190,315 for the Cree school board + $162,785 for the Kativik school board = total of $9,747,385 to cover food expenses in secondary schools. $1.4 million was subsidized by the Ministry of Labour, Employment and Social Solidarity.

[3]BC's figure does not include any funding that may have been used towards SFPs from the Provincial Vulnerable Students Supplement (VSS) grant as this was not tracked in 2019.

In 2018/19, provincial/territorial governments collectively contributed a minimum of $93,061,434 to support free, regularly occurring SFPs. The funding distribution illustrates the complexity of SFP administration in Canada, with ten P/T funders distributing funds through one or more regional (e.g., ON and SK), provincial (e.g., NL and MB), territorial (e.g., YK), and/or

national (e.g., Breakfast Club of Canada in QC) NGOs. In PE, NS, AB and BC, governments allocate funds directly to schools or school boards. SK, QC and NT use a combination of direct to schools and NGO(s), while NU, ON's NFVP and ON's FN SNP use other combinations.

There was also significant variability in funding criteria, funding formulas, and the allowable uses of funding (data not shown). The majority of P/T funders (n=11; 68.7%) in most jurisdictions (ON, QC, NS, MB, NT, BC, AB) prioritize funding based on socio-economic need. Half the government funders required an annual school grant application (n=8; 50%). Fewer than half the P/T funders permitted schools to fund food literacy activities (n=7; 43.7%) or supplies and equipment (n=7; 43.7%). In SFPs where funding flows directly from the government to school or school boards (QC, PE, BC, and NT), funds were restricted to food purchases. Only three P/T funders (19%) permitted funding for food preparation staff salaries (SK, NU, and ON's FN SNP).

Within jurisdictions, there is also variability (data not shown). In ON's province-wide SFP (OSNP), funds are restricted to food, regional NGO staff, and some supplies and equipment. Provincial funding covers "up to 15% of the program costs," thus other funders are required (Government of Ontario, 2018, p.13). In the First Nations Student Nutrition Program, which is funded by a different department in the same Ministry, funds can also be used to cover the cost of food delivery, food preparation staff, and food literacy activities. Similarly, the fruit and vegetable program in the north receives 100% of the funding procured for snacks for the entire school population from the Ministry of Health. While this program relies on volunteers to prepare food, the budget covers all other aspects, including food transportation, some off-site food processing, and food literacy.

One characteristic where there is little variability is that breakfast or a mid-morning meal is the most common type of program, but lunch is most common in BC. As well, the majority of SFPs are exclusively or heavily volunteer-driven (data not shown). For example, approximately 56,000 volunteers support the province-wide SFPs annually in ON. In NS, approximately 4000 volunteers contribute an average of nine hours (ranging from three and a half to 17 hours) per week.

Maintenance

Program maintenance assessed the types of supports and monitoring practices that were in place to sustain programs. While all P/Ts reported using nutrition guidelines and a program manual, there is a lack of standardized monitoring within and across jurisdictions (see Table 5).

Seven P/Ts verified that programs are universally available to all students in individual schools, and six verified the food's nutritional quality–four of which (MB, NL, ON, and YK) employed a grocery receipt review process. Annual school site visits, which can provide localized support to review program operations and verify food handling practices, occurred only

in NL and ON. Fewer than half the P/Ts confirmed they surveyed each school or school board and/or offered training for safe food handling. The majority of SFP data are collected by NGO partners and are usually aggregated at the provincial/territorial level. SFPs that use a direct funding model, allocating funding to school boards (QC, SK, NT, BC), are associated with collecting less provincial-level data about programs, especially student participation. No participants reported monitoring the amount of money spent on local food or targets for reducing food waste.

Table 5: Maintenance[1]

Province / Territory	Nutrition Guidelines	Program Manual	Survey of each school or school board	Annual School Site Visit	Safe Food Handling Training	Verification programs are universally available	Nutritional Quality Verification	Grocery Receipt Review
NL	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
PE	Yes	Yes	No	No	No	Yes	No	No
NS	Yes	Yes	Yes	No	Yes	No	Yes	No
QC	Yes	Yes	Yes	No	Yes	No	No	No
ON	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes (random audit)
MB	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes (and verification that a minimum is spent on fruits and vegetables)
SK	Yes	Yes	Yes	No	Yes	Yes	Yes	No
AB	Yes	Yes	N/A	N/A	N/A	N/A	N/A	N/A
BC	Yes	Yes	N/A	N/A	N/A	N/A	N/A	N/A
YK	Yes	Yes	No	No	N/A	Yes	Yes	Yes
NT	Yes	Yes	Yes	No	N/A	No	No	No
NU	Yes	Yes	No	No	N/A	Yes	No	No

[1]As some participants did not complete this section of the survey, supplementary data from the literature review was used and data was aggregated at the provincial/territorial level.

Effectiveness

As data on SFP effectiveness in Canada are limited (Everitt et al., 2020; Powell & Wittman, 2018), this research used funding level as a proxy measure of program capacity, i.e., how did program provision align with program demand and how much per capita funding was expended to assist SFPs with achieving their desired outcomes? As shown in Table 6, based on student participation rates, provincial/territorial funding ranged from $0.10/student/school day for breakfast in PE (only food costs) to $3.45/student/school day in AB (inclusive of all costs); an average of $0.48/ participating student/school day. If every student in the province, territory, or program catchment participated (universal participation), P/T contributions drop–from

$0.03/student/day in MB to $1.58/student/school day in ON's FN SNP, which includes all program expenses; an average of $0.10/student/school day.

Table 6: Effectiveness[1]

Province / Territory	Funding Ministry/Department	Funding per participating student per school day in 2018/19[2]	Funding per student in the province or territory per school day (if universal participation)[3]
NL	Department of Children, Seniors and Social Development	$0.19	$0.09
PE	Department of Education and Lifelong Learning	$0.10	$0.05
NS	Nova Scotia Department of Health and Wellness	$0.23	$0.07
QC	Ministry of Education [Measure 15012 – Secondary]	unknown	$0.11
	Ministry of Education [Measure 15016 – Elementary]	$1.20[4]	
	Ministry of Health and Social Services [First Nations Program]	$0.31	Not applicable
ON	Ministry of Children, Community and Social Services, Children with Special Needs Division [Ontario Student Nutrition Program]	$0.18	$0.07
	Ministry of Children, Community and Social Services, Child Welfare and Protection Division [First Nations Program]	unknown	$1.58 (based on number of FN students in Ontario)
	Ministry of Health	$0.34	Not applicable (overlap with OSNP)
MB	Department of Indigenous and Northern Relations	$0.16	$0.03
	Department of Health, Seniors and Active Living [Lead Department]		
	Department of Education		
SK	Department of Education	unknown	>$0.03 - <$0.07
AB	Department of Education	$3.45	$0.17
BC	Ministry of Education	unknown	$0.10
YK	Department of Education, Culture and Employment	$0.14	$0.11
NT	Department of Education, Culture and, Employment Department of Health and Social Services	unknown	$0.37
NU	Department of Health and Social Services	$1.16 - $1.32	$0.94
CA		$0.48[5]	$0.10[6]

[1]This table includes funding from jurisdictions that only fund food (i.e. PE) to others that fund a range of items in addition to food, such as NGO administration. Therefore, the figures are not a direct compassion but rather provide insight into SFP funding variability across Canada.

[2]Funding per participating student was calculated by dividing the total SFP funds by the number of participating students reported by the highest number of school instructional days in 2018/19 as reported by the EdCan Network (except for QC, see note below).

[3]Funding per student in the province or territory (universal participation) was calculated by dividing the total SFP funds by 2018/19 student enrollment data (regular programs for youth attending publicly-funded schools) (Statistics Canada, 2019) by the highest number of school instructional days in 2018/19 (EdCan Network, 2019).

[4]QC's figure was calculated differently as 2018/19 was the first year of the Ministry of Education funded Measure 15016, which included a one-time $5000 allowance per school for program start-up expenses in addition to an allowance of $216 per student enrolled in the breakfast program (Government of Quebec, 2018). Using the $216 per student allowance, and dividing this by the 180 instructional days in Quebec according to EdCan Network (2019), this equates to $1.20 per student per day.

[5]Funding per participating student per school day in Canada was calculated by dividing the total P/T funding ($93,061,434) by number of participating students (1,018,323 students) by the number by the average number of school days in Canada (190 school days).

[6]Funding per student in Canada was calculated by dividing the total P/T funding ($93,061,434) by the total number of students that attend publicly-funded schools in Canada (4,917,438) by the number by the average number of school days in Canada (190 school days).

Generally, provincial/territorial government funding covers a small portion of program costs. For example, in NS, schools receive government funding for 25% of the cost, which in MB decreased to a maximum of 12% of estimated food costs from government and non-government sources that could be distributed by the NGO partner. In AB, the $15.5 million contributed to SFPs in 2018/19 was roughly 26% of the government's 2015 campaign promise of investing $60 million annually for a province-wide school lunch program by 2017/18 (Notley, 2015).

Using funding as a proxy for capacity and hence effectiveness, P/T funding levels are low, and SFP demand outstrips supply. Government and/or NGO partners in NL, NS, ON, MB, SK, and NT reported there were inadequate funding levels to meet the demand for existing programs.

NT's Ministry of Education reported on their insufficient funding: "schools try to provide a type of program that will run for the full year, but… [some schools reported that] the funds they receive from our program are only sufficient to provide daily breakfast for four months of ten." In BC, one estimate is that teachers contributed close to $4 million per year out-of-pocket to purchase food for students (British Columbia Teachers' Federation, 2015). Participants in SK, MB, and NS reported insufficient levels of funding to establish new programs.

Discussion

The results from this research provide insight into the complexity of Canadian SFP landscape. Despite the absence of a National SFP, over 1/3 of schools (35%)[3] in Canada offered one or more free SFPs in which a minimum of 21% of JK-12 students[4] participated in 2018/19

[3] School participation data was unavailable from BC and only partial data was available from SK.
[4] Student participation data was unavailable from SK, BC, NT and only partial data was available from QC and ON.

(conservative figures based on limited data in some jurisdictions, see footnotes). Meals and snacks were provided at no cost to students, made possible, in part, through a collective of $93,061,434 of provincial and territorial funding; however, government contributions were often one quarter or less of the total costs (e.g., 15% in Ontario and 25% in Nova Scotia). The majority of P/T funders (n=11 of 16; 69%) in most jurisdictions (ON, QC, NS, MB, NT, BC, AB) prioritize funding based on socio-economic need. Fewer than half the P/T funders allowed schools to direct a portion of funding to support food literacy activities (n=7; 44%) or supplies and equipment (n=7; 44%), and it was uncommon to permit the use of funding for food preparation staff salaries (n=3; 19%).

The prevalence of SFPs in schools and student participation rates vary widely, resulting in inequitable access to SFPs across Canada. Program participation rates are the highest in Northern and Atlantic Canada and participation is lowest in Alberta at 5%. A few P/T jurisdictions have prioritized Indigenous communities (i.e., ON, QC, MB), but that practice appears to be inconsistent across the country. Mechanisms for distributing SFP funds vary widely, reflecting complicated relationships within provincial departments; regional, provincial, territorial, and national NGOs; school districts and individual schools; and other partners. The types of supports P/Ts provide to SFPs for their maintenance differ as well; accountability and monitoring measures vary and data are not always compiled at the provincial level (e.g., BC).

Nevertheless, common characteristics of SFPs in Canada include: food security is the most common objective, breakfast remains the most common SFP meal, and programs are predominately, in most jurisdictions exclusively, run by volunteers. Table 7 provides a summary of characteristics that highlight similarities and differences within programs and characterize the current state of SFPs in Canada.

Table 7: Summary of Findings

RE-AIM Component	RE-AIM Category	Results
Adoption	First Year of Funding	1990 (NFL) – 2016 (AB); 2020 (NB)
	Primary Objective	Food Security/Social Safety Net (n=6) Nutrition/Health Goals (n=4) Education/Academic Performance (n=3) Other/Combination (n=3)
	All Desired Outcomes	Public Health (n=16) Food Security/Social Safety Net (n=14) Education/Academic Performance (n=13) Health Education (n=11) Local Food/Economic Development (n=1) Environmental Outcomes (n=1)

Reach	Student Participation Rates	5% (AB) – 83% (Yukon) A conservative minimum of 1,018,323 students or 21% of Canadian students participate in a free SFP (student participation data was unavailable from SK, BC, NT and only partial data was available from QC and ON)
	Schools Offering SFPs	9% (QC) – 100% (NU and NT) A conservative minimum of 6,408 programs are offered in 5,371 out of 15,500 schools or 35% of Canadian schools offer one or more free SFPs (school participation data was unavailable from BC and only partial data was available from SK)
Implementation	Provincial/ Territorial Ministries/ Departments	Education (n=8; 50%) Health (n=7; 44%) Social Services (n=3; 19%) Indigenous and Northern Relations (n=1; 6%)
	Models and Administration	1-3 Ministries within a province/territory funding programs 1-3 provincial/territorial, or regional programs per province/territory The majority of P/T funders transfer funding to an NGO administrator (n=10; 63%) It is common for P/T funders to require annual school grant applications to receive funding (n=8; 50%)
	Funding	A minimum of $93,061,434 from provinces and territories spent on SFPs contributed collectively by 17 unique Ministries/Departments (19 funding agreements in total), supporting 17 SFPs Provincial/territorial contribution is a percentage of total costs, e.g., 15% in ON and 25% in NS. The majority of funders prioritize funding based on socio-economic need (n=11) Fewer than half the P/T funders surveyed (n=7 of 16; 44%) allowed schools to direct a portion of funding to support food literacy activities It was uncommon to permit the use of funding for food preparation staff salaries (n=3; 19 %)
	Program Types	Breakfast/mid-morning meal is the most common type of program SFPs are heavily volunteer driven
Maintenance	Support and Accountability	All P/Ts have adopted nutrition guidelines and a program manual
	Monitoring	Provincial/Territorial level data available for 7 provinces and 3 territories Survey of schools or school boards (n=6 P/Ts) Annual School Site Visit (n=2 P/Ts) Safe Food Handling Training (n=6 P/Ts) Verification that programs are universal (n=7 P/Ts) Nutrition Quality Verification (n=6), including grocery receipt review (n=4 P/Ts) Use of local foods (n=0 P/Ts) Food waste reduction targets (n=0 P/Ts)
Effectiveness	Program Demand versus Supply	Program/student demand often outstrips supply NL, NS, ON, MB, SK, and NT reported there were inadequate levels of funding to meet the demand for existing programs (n=6 P/Ts); SK, MB, and NS reported there were insufficient levels of funding to establish new programs (n=3 P/Ts)

	Funding per participating student per school day	$0.10 in PE (only food costs) - $3.45 in AB (inclusive of all program expenses); an average of $0.48 per participating student per school day
	Funding per student in P/T per school day	$0.03 in MB - $1.58 in the First Nations SFP in ON (inclusive of all program expenses); an average of $0.10 per student in P/T (universal participation) per school day

Whereas National School Food Programs in other countries function with a single mandate, a single set of rules for inclusion of schools and students, a single set of regulations for program implementation, and maintenance, and require standardized monitoring, programs within Canada share some common characteristics, but not as a result of operating under the umbrella of a sole program. When analyzed from the perspective of the framework from Oostindjer et al. (2017), Canada–with its continued emphasis on food security as an objective, heavy reliance on volunteers, lack of clarity regarding universality, inequitable and low levels of funding, and limited monitoring and SFP evaluations–is behind in its evolution. While a number of participants also identified health as an objective and desired outcome, only two provinces identified agricultural (n=1; ON's NFVP) and environmental (n=1; MB) aspects. These results point to several characteristics of SFPs that require closer examination: program mandates, reach and universality, maintenance and sustainability, and monitoring and data.

Program mandates

Currently, SFPs in Canada have adopted a mix of mandates. Most programs were established to reduce child food insecurity (see McIntyre & Dayle, 1992; Rutledge, 2016), similar to the starting point of other countries (Oostindjer et al., 2017). However, SFPs' effectiveness in reducing child hunger has been questioned (Raine et al., 2003). While food security was the most common primary objective of current provincial/territorial SFPs (n=6), health was second (n=4) and is the aim acknowledged by all government respondents (n=16). Given the overall low levels of funding, semi-targeted program reach, and funding restrictions for activities such as food literacy, this research cannot assess the extent to which programs can fulfill a food security or health mandate.

Moving forward, Canada has the opportunity to implement SFPs that are comprehensive and part of an overall multi-component approach to school food, as recommended by several researchers (Everitt et al., 2020; Haines & Ruetz, 2020; Hernandez et al., 2018; Oostindjer et al., 2017). This approach recognizes the potential of SFPs to improve public health, overall child well-being, and educational, economic, and environmental outcomes. Comprehensive SFPs supporting food-related activities such as hands-on food literacy curricula, food preparation, and learning about local foods in a sustainable manner also complement the new Canada's Food

Guide (2019). In addition, SFPs have the potential to contribute to a range of positive outcomes across a variety of sectors, including the agri-food sector (Becot et al., 2017; Christensen et al., 2017; Ruetz & Fraser, 2019; Ruetz et al., 2020), provided sufficient and sustained resources are allocated. Most P/Ts already have legislation and/or programs that promote local food (Reynolds et al., 2018) and SFPs could help reach P/T local food procurement targets by prioritizing the use and monitoring of local foods. For example, NB's *Local Food and Beverages Strategy* had a target of 30% local food in public schools (Government of New Brunswick, 2016) and promoted local food in its school nutrition policy. P/Ts without such mandates and local food procurement targets could adopt them.

Reach and universality

SFP mandates influence not only the nature of programs but also their reach. Variable program types and funding levels across the country have resulted in inequitable access to SFPs in Canada (see Table 3). These results raise the question of the goal for SFP reach in Canada, i.e., where are they offered and who is eligible? A significant related concern is the potential for student stigma. *Universal* programs, whereby all students have daily access, have been identified as one approach to help students meet their food and health needs and not single them out or discourage them from accessing programs.

In Canada, many school food practitioners agree that universality is important. However, there is a range of associated understandings that need clarification.
The most common understanding is universal *access*: "'universally accessible programs' means that all children and youth are eligible to participate… [but it] does not mean that every child or youth enrolled in a school is served by the SNP [student nutrition program]" (Government of Ontario, 2018, p. 5).

The Ministry of Education in NT reported a challenge with this approach: "We have advised schools to offer a program that will not stigmatize needy students, so schools run programs universally and through anecdotal feedback we have been advised that for the most part, it is the students with greatest need that avail themselves of the food provided". Raine et al. (2003) found that when student participation is low, it discouraged intended recipients from accessing the program due to the fear of stigmatization. As a result, programs reached only a minority of the intended population. Presently it is unclear what level of student participation in universally *accessible* programs avoids or reduces stigmatization -- an important topic for future research.

Internationally, an alternative approach is universal *participation.* The Global Child Nutrition Foundation defines this as when "all students in the whole country are *intended* [emphasis added] to receive school feeding" (Global Child Nutrition Foundation, 2019, p.11). Robert Wood Johnston Foundation's Healthy Eating Research program (2021, p. 1) define universal participation as when "all enrolled children in a school [receive] a free breakfast or

lunch, regardless of their family's income." In Sweden and Finland, universal participation is the norm: they provide free, freshly cooked lunches to all students in all types and years of primary school, irrespective of family income (Patterson & Schäfer Elinder, 2015; Tikkanen, 2011). As well, New York City, Chicago, and now California is the first U.S. state to adopt free universal school meals (breakfast and lunch) starting in 2022-2023, made available without any paperwork or eligibility requirements (Bill 364: Free School Meals for All Act, 2021).

In Canada, the dominant approach to universality could be described as *nested universality:* schools in lower socio-economic areas are targeted to receive base funding and/or extra funding, and all students in those schools are eligible to participate. This approach presents challenges. First, from a food security perspective, providing funding only for schools in low-income neighbourhoods leaves vulnerable students in other, non-designated neighbourhoods ineligible (or ineligible in the future if their neighbourhood undergoes gentrification). Second, from a public health perspective, nutrition intakes of Canadian students across every socio-economic stratum need improvement (Tugault-Lafleur et al., 2017).

Maintenance and sustainability

Inequitable and overall low levels of government funding coupled with other factors, such as reliance on volunteer labour to purchase, prepare, and serve food and sometimes deliver auxiliary program components pose significant challenges to sustaining SFPs.
Critical food studies scholars argue that SFPs reliance on contingent labor relations (i.e., volunteers and part-time staff), charitable funding sources, and the devolution of responsibility from the government to communities reproduces neoliberal discourses used to justify SFPs remaining as an NGO service as opposed to a public good and responsibility (Allen & Guthman, 2006; Gaddis, 2019; Koc & Bas, 2012). Thus, the charitable service delivery model still dominates.

Most elementary and often secondary schools in Canada do not have school food infrastructure such as kitchens and gardens, and most teachers are not trained to lead cooking and gardening lessons (Haines & Ruetz, 2020). Many groups, such as medical and health professionals (CODE-COMOH Partnership, 2021) and Canadian school food researchers (Everitt et al., 2020; Haines & Ruetz, 2020; Hernandez et al., 2018), advise that trained teachers, paid food preparation staff, and adequate investments in school food infrastructure are imperative to the delivery of high quality, comprehensive SFPs.

CHSF (2020) is asking for a one-time federal investment of $200 million for dedicated school food infrastructure, comparable to the United Kingdom's commitment of the equivalent of more than $295 million (CAD) for school kitchens and dining facilities in 2014 (BBC News, 2014). As a start, conducting school food infrastructure assessments (of kitchens, cafeterias, eating areas, and teaching spaces) and reporting on school food infrastructure spending could assist school boards with capital planning (Haines & Ruetz, 2020).

Although SFPs are often cost-shared with communities and NGOs (i.e., funding not captured in this research), program maintenance requires a minimum threshold of on-going government financial support for program operation, monitoring, and evaluation. As a point of comparison, in 2014, Finland spent 532 €[5] (euros) (CAD $918, including inflation[6]) per participating student per school year operating their free school meal service, including ingredients, labor costs, kitchen equipment maintenance, and other fixed expenses (Finnish National Board of Education, 2015) reaching 95% of JK-12 students (Harper, Wood & Mitchell, 2008). If 95% of Canadian JK-12 students[7] participated in a comparable SFP, an investment of approximately $4.3 billion ($4,288,497,588) per annum–less than $5 per student per day-would be required. 2018/19 contributions by Canadian P/Ts provided 10% of the amount ($0.48 per participating student per school day of the $4.83 (CAD) equivalent[8]) Finland provides to cover SFP operations.

Monitoring and data

Overall, the results indicated that SFP monitoring practices vary. Designing and conducting this research illustrated challenges, including obtaining province-wide data, comparable data based on clear and consistent indicators among programs, the presence of multiple sources of data about a single program, data discrepancies from different sources, and balancing the need for data validity and accounting for multiple funders of individual programs.

Positive monitoring practices in some jurisdictions could inform the expansion of monitoring in others. For example, as practiced in ON and NL, annual school site visits can help ensure safe food preparation practices and provide direct support and oversight of programs. Nutrition verification and tracking of program foods, ideally in the form of a receipt review or audit, can assist with quality control and provide valuable feedback to individual programs. Overall, more research that assesses outcomes associated with SFPs in Canada is needed (Everitt et al., 2020; Haines & Ruetz, 2020, Powell & Wittman, 2018).

With the promise of a National SFP, it is more important than ever to establish consistent definitions, equitable funding, nationally-harmonized metrics and monitoring practices, which includes monitoring SFP program outcomes. SFP terminology and monitoring practices within

[5] School meals are funded using money generated from taxes. Organising the meals is the responsibility of municipalities, which receive a subsidy of approximately 70% of the costs from the Finnish Government (Roos et al., 2002).

[6] 532 € (euros) equates to CAD $832 (1.564 exchange rate), and when inflation is accounted for based on 2021, this equates to $918 per student/year or $4.83 per student/school day (190 school days).

[7] 95% of 4,917,438 JK-12 students (attending regular programming at publicly-funded schools) (Statistics Canada, 2019) equates to 4,671,566 students.

[8] $918 (CAD) divided by 190 school days (the average number of school days in Canada) equates to $4.83 per school day.

and between jurisdictions were sometimes not well defined, agreed upon, or utilized. For example, it was not always clear how much funding was allocated to food versus other program costs, making it difficult to compare data. Adopting QC's practice of setting a minimum food budget per student and reporting on this sub-total of funding ($216 per student/year, equating to $1.20 per breakfast) would yield more accurate and comparable data and could support more equitable access to healthy food in SFPs.

Assessing program reach is another problematic area. Current practices for tracking and reporting include: the total number of students that had "access" to an SFP which in some cases is the total enrollment of a school with an SFP as opposed to the number of students that actually participated; the unique number of students who participated throughout the school year (as collected by this research); and average daily participation[9] within a program. In some jurisdictions, only the number of meals served is tracked in lieu of the number of students served, a method that may not be an accurate proxy if multiple types of meals are served at one school.

In the future, obtaining more accurate data will require standardized program-level data collection. The definitions and data reporting requirements outlined in ON's *2018 Student Nutrition Program Guidelines* (Government of Ontario, 2018, pp.19-23) may provide a useful starting point for developing nationally-harmonized definitions and metrics related to SFPs and P/T school food program databases (i.e., ON's Student Nutrition Program sites database [Government of Ontario, 2017]). Statistics Canada's *Elementary-Secondary Education Survey* could also be expanded to collected SFP-related data to create a *Canadian School Food Program Database and Monitoring System*. The RE-AIM Framework, as used in this research, could inform the selection of SFP indicators and SFP administrators and researchers could use this system to better understand gaps in program access and evaluate program funding and expenditures.

In general, improved monitoring can assist with the tracking of the dynamic nature of SFPs. For example, this research collected data from 2018-19; however, a number of additional investments were made after this time period, which a monitoring system could capture. For example, AB announced an increase of $3 million for a total of $18.5 million in the 2019/20 school year (Government of Alberta, 2019b). QC's Ministry of Education increased their funding for Measure 15012 by $11 million to expand program reach to all schools regardless of its socioeconomic index for the 2020/21 school year, bringing the total investment to $30.3 million (Government of Quebec, 2020). In November 2019, the Council of Yukon First Nations received $4.4 million to launch the rural SFP (Council of Yukon First Nations, 2019). NB became the last

[9]Average Daily Participation: "the number of meals served for month divided by the number of program operating days per month" (Government of Ontario, 2018: 21).

province to adopt a provincial SFP, with an initial $200,000 for an SFP pilot in 2020/21 and proposed expansion to $1 million in 2021/22 (Government of New Brunswick, 2020).

Conclusion

Considerations for the future

This research provides clearer insights into the complex patchwork of SFPs that exists in Canada. While not a complete picture, it updates SFP information from the provinces and territories: the largest funder of SFPs in Canada. The results illustrate the varied nature of SFPs and their ongoing evolution–2020 was the first year that all P/Ts funded programs. In doing so, it prompts further discussions about fundamental aspects of SFPs, such as:

- How can Canada evolve to adopt comprehensive program mandates that will provide the most significant benefit to students in Canada (Oostindjer et al., 2017), strengthening the capacity of SFPs to offer multi-component programs; and how can SFPs contribute to achieving the United Nations' Sustainable Development Goals (Food and Agriculture Organization of the United Nations, 2019) and implement the 2019 Canada's Food Guide.

- Drawing on Canadian and international examples, how can Canada clarify definitions and goals regarding student reach and universality and how can they be achieved.

- How can current practices vis-à-vis program implementation, maintenance, and sustainability inform future planning about infrastructure, funding and other resources to support programs, addressing the current reliance on volunteers.

- How can a nationally-harmonized monitoring and evaluation system that obtains essential data be established and coordinated to better facilitate tracking programs' reach, implementation, maintenance and effectiveness (including funding, expenditures, and outcomes) while having the least burden on those working within the school food system.

- Ultimately, how will the federal government as a new partner interface with the existing SFP landscape, specifically given jurisdictional implications with the P/Ts and Indigenous communities?

The status quo, reflected by these results, indicates an overall insufficiency of resources to achieve the type of comprehensive and multi-component program recommended by Oostindjer et al. (2017) or to achieve universal student access or participation. Where will a new mandate aim:

improved delivery of the current types of programs or ambitious development of multi-component programs recommended by the CHSF and other groups?

Given the variable nature of current SFPs, a related question is how much variation is acceptable within a national program? One option is laissez-faire; to permit SFPs to augment or strengthen existing programs as they choose. A second is a hybrid model that would establish minimum base requirements (such as harmonized food and nutrition standards based on Canada's Food Guide (2019), specifications regarding universality, and essential indicators for monitoring) while maintaining considerable local autonomy. A third is a nationally-harmonized model with standardized food procurement, food and nutrition standards, funding, eligibility, program components, infrastructure provision, monitoring and evaluation.

Jurisdictional planning will benefit from increased collaboration and coordination from a cross-section of ministries and agencies at the federal, provincial-territorial, and municipal levels, including but not limited to: Health, Social Services, Children and Youth, Education, Agriculture, Industry, Finance, and Indigenous Services, along with the many NGOs working in this field. The CHSF, with its significant member base across the country, is well-positioned to assist with fostering greater collaboration and coordination.

While the existing variability of SFPs in Canada poses a challenge, it also provides an opportunity to learn from best practices to move towards a more comprehensive approach to SFPs. The key strength of this article is that it compiles characteristics about SFPs to serve as a point of reference of pre-COVID practices and identifies key considerations for next steps.

A weakness is that the inclusion criteria resulted in an under-estimation of SFPs in Canada. To that end, a closer examination of SFPs in Canada is warranted, including the focused examination of individual SFPs, implementation models, and outcomes. Canada would also benefit from research that explores various types of SFPs (e.g. pay-what-you-can lunch programs, farm-to-school programs, Indigenous-led programs, programs funded solely by NGOs, and funding from other levels of government), and additional research on universality and stigma, effective monitoring indicators and program effectiveness, including research on economic and environmental benefits of local food procurement. Better understanding of these types of SFP models for food preparation, education, and other program elements will yield important insights to inform options for implementing SFPs that are comprehensive and responsive to the diverse needs of communities across Canada.

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Review Article

Exploring experiences of food insecurity, shame, stigma, and social exclusion among women in high-income countries: A narrative review

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Abstract

In Canada, over 4.4 million people experience food insecurity, a serious public health issue characterized by inadequate or insecure access to food due to financial constraints. Globally, women experience disproportionately high rates of food insecurity, which is a highly stigmatizing experience that is associated with feelings of shame and social isolation. This narrative review explores how and why social beliefs and stigma contribute to social exclusion among women experiencing food insecurity within high-income countries, along with how enhancing the capacity for empathetic responses to feelings of shame, and efforts to strengthen women's resistance, can lead to a reduction in stigma. The thematic analysis of the articles included in this review identified four themes: 1) the mechanisms of food insecurity-related social exclusion; 2) shame, stigma, and social exclusion associated with the use of charitable food programs; 3) women's experiences with food insecurity, shame, stigma, and social exclusion; and 4) empathy, shame resilience, and resistance.

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The findings of this review suggest that dominant responses to food insecurity contribute to shame, stigma, and social exclusion among women, and that the inadequacy of existing policy responses to address food insecurity has wide-reaching ramifications for the health and well-being of women and their families. Sharing these intersecting lived experiences of food insecurity, shame, and stigma may be an important strategy for building empathy among others and forming a collective resistance in broader society against the systemic injustices at the root of poverty.

Keywords: Household food insecurity; women's experiences; stigma; shame; resilience; resistance

Introduction

Over 4.4 million Canadians lived in food insecure households in 2017/2018 (Tarasuk & Mitchell, 2020). Household food insecurity is a serious public health issue that results in significant cost to the health care system, as well as in negative outcomes for individuals' physical health and life expectancy, social and mental well-being, overall quality of life, and healthy child development (Collins, 2009; Hamelin et al., 1999; Men et al., 2020; Middleton et al., 2018; Tarasuk et al., 2015). Statistics Canada (2020) documented a 40% increase in household food insecurity in May 2020 due to the economic fallout of the COVID-19 pandemic and stated that this is likely an underestimate.

Food insecurity is widely recognized as the "limited or uncertain availability of nutritionally adequate and safe foods or limited or uncertain ability to acquire acceptable foods in socially acceptable ways" (Anderson, 1990, p. 1598). The findings of Canadian research on low-income mothers' experiences with household food insecurity are consistent with the seminal findings of Radimer and colleagues (1990), revealing that the experience encompasses four components: quantitative (food depletion), qualitative (unsuitable food), psychological (food anxiety), and social (food acquisition in socially unacceptable ways). While the manifestation of food insecurity is dynamic and may differ among individuals within the same household, the four components at the individual level generally present as insufficient intake of food, compromised dietary quality, feelings of deprivation or lack of choice, and disrupted eating patterns, respectively (Hamelin et al., 2002; Radimer et al., 1990; Tarasuk, 2001; Williams et al., 2010, 2012). In Canada and other high-income countries, the prevalence and severity of household food insecurity is measured based on inadequate or insecure access to food due specifically to financial constraints, and it is considered a powerful indicator of broader material deprivation (Tarasuk & Mitchell, 2020).

Both locally and globally, women experience disproportionately high rates of food insecurity relative to their male counterparts (Collins, 2009; Martin et al., 2016).

One in three female-led, lone-parent households in Canada experienced food insecurity in 2017/2018, the highest rate of all household types (Tarasuk & Mitchell, 2020). Lone mothers are especially vulnerable to both food insecurity and its negative physical and psychological health outcomes, including dietary inadequacy, chronic illness, social exclusion, depression, mental illness, and feelings of inferiority and shame (Carter et al., 2011; Ciciurkaite & Brown, 2018; Collins, 2009; Hanson, 2011; Lawlis & Jamieson, 2016; Martin et al., 2016; Power et al., 2014; Williams et al., 2012; Wu & Schimmele, 2005).

Shame is a self-conscious emotion that occurs when a person is, or perceives that they are, being seen or judged to be fundamentally flawed or inadequate (Brown, 2006; Dolezal & Lyons, 2017). Shame can also result when an individual is perceived to be deviating from sociocultural expectations and norms and thus failing to live up to social standards (Brown, 2006; Dolezal & Lyons, 2017). Experiences of shame are inextricably linked to interpersonal relationships and can jeopardize a person's feeling of social acceptance due to the self-conscious nature of shame and its association with a heightened sense of visibility and self-awareness (de Hooge et al., 2018; Dolezal & Lyons, 2017). Actual or anticipated experiences with shame tend to elicit social withdrawal, leading to feelings of alienation and social isolation (Brown, 2006; de Hooge et al., 2018; Dolezal & Lyons, 2017). As a result, shame can have a detrimental effect on an individual's mental and psychological health and well-being (Dolezal & Lyons, 2017; Martin et al., 2016).

Social stigmatization occurs when the traits or behaviours of a person or group of people are perceived to be different from, or inferior to, sociocultural standards, as well as when judgements or stereotypes are attributed to them because of this perceived difference (Ahmedani, 2011). In their international scoping review on the experiences of food bank users in high-income countries, Middleton et al. (2018) differentiate between experiences of "enacted" and "felt" stigma. Enacted stigma refers to explicit experiences with stigmatization and judgement, while felt stigma comprises the anticipation of enacted stigma, an individual's own recognition of their stigmatized identity, and the shame they feel as a result (Middleton et al., 2018). Experiences with felt stigma can cause individuals to internalize stigma by accepting the associated stereotypes and judgement as true and valid, which may damage their self-image and psycho-social well-being (Middleton et al., 2018; Whittle et al., 2020). Like shame, stigmatization can also threaten a person's social ties because others may distance themselves from a stigmatized individual, leading to social exclusion.

Being food insecure is highly stigmatized (Martin et al., 2016; Power et al., 2014; Rosa et al., 2018; Thompson et al., 2018; Wu & Schimmele, 2005). Individuals are often blamed for being food insecure, and are viewed as lazy, uneducated, or uncaring about their health (Hamelin et al., 2002; Purdam et al., 2016; Thompson et al., 2018). The experience of food insecurity induces feelings of shame, guilt, alienation, and social isolation, particularly among women (Hamelin et al., 1999; McIntyre et al., 2003; Power, 2005; Williams et al., 2010, 2012).

The urgency of understanding and addressing stigma as a key driver of individual and population health inequities was flagged in the 2019 national report on the State of Public Health in Canada (Tam, 2019). Food insecurity-related stigma, however, was not addressed in Tam's (2019) report, and efforts to redress shame related to food insecurity have yet to be fully explored in the published literature. This review aims to fill this gap by providing a synthesis of literature on shame, stigma, and social exclusion associated with household food insecurity, including research foci and key findings, knowledge gaps, and directions for future research, with a particular view to the experiences of women.

Methodology and methods

This narrative review was undertaken to support a larger Social Sciences and Humanities Research Council-funded project called Dismantling Stigma, which comprises two objectives: 1) understanding how stigma contributes to social exclusion among women experiencing household food insecurity; and 2) redressing stigma using participatory action research. A narrative review is considered the most appropriate method to obtain a broad perspective on an issue where there is a lack of published literature, as was the case for this research (Green et al., 2006). Drawing upon systematic methods, a narrative review is intended to bridge theory and context, provoke thought, and support scholarly discussion and further inquiry, rather than to provide an assessment of the efficacy of the methods employed in the published studies (Green et al., 2006).

The primary researcher (C. P.) independently performed an initial literature search using the following databases: Google Scholar, EBSCO, SocIndex, PsycInfo, PubMed, and ERIC. Relevant scholarly peer-reviewed literature was identified by applying the following search strategy, combining free words and MESH terms: (household food insecurity OR food insecurity) AND (women's experiences OR women OR gender) AND (stigma OR shame OR social exclusion OR marginalization) AND (empathy OR shame resilience). Initially, the search focused on women's experiences within a Canadian context; however, the availability of relevant literature was limited. As a result, inclusion criteria were subsequently expanded to include all high-income countries and any experiences with household food insecurity, rather than women's experiences specifically. Articles were excluded if they were not available in full text, were not published in English, or were published before 2000. The literature search was augmented by both a manual search of reference lists of the articles retrieved and by the identification of other published and "grey" literature by the research team to fill in missing evidence (Ferrari, 2015).

Initially, the titles and abstracts of all articles were screened independently by the primary researcher (C. P.), and duplicate articles were removed. Articles that met the inclusion criteria were added to a Microsoft Excel file.

Each selected article was read through once and then critically evaluated, extracting the following data when available, which was subsequently added to Microsoft Excel: study citation, publication type (e.g., published or unpublished), study type (e.g., quantitative, qualitative, or mixed method), study characteristics (e.g., study location, setting, and use of control), participant characteristics (e.g., number, age, and study inclusion/exclusion criteria), intervention details (e.g., length and type), and outcome measures and study results (e.g., quantitative results, qualitative themes, recommendations, key learnings, and insights).

The initial literature search identified 91 articles; of the 82 articles with full-text available, 35 met the inclusion criteria. An additional 20 references were added through the manual search. Of the 55 articles identified as meeting the criteria, 45 sources with the best contributions to address the research question were selected for synthesis (Ferrari, 2015). Of the 45 sources selected, 38 involved original research, 7 were reviews/syntheses, 19 employed qualitative methods, 13 employed quantitative methods, and 6 employed mixed methods. The selected articles were uploaded to MAXQDA, read a second time, and coded using a process of open coding (Castleberry & Nolen, 2018; Strauss & Corbin, 1990; VERBI Software, 2018). The coding strategy evolved during the coding process as conceptual themes emerged from the literature. "Codes" served as labels to categorize and retrieve relevant sections from the data (Castleberry & Nolen, 2018). The activity of coding involved attaching codes to units of data within the document that were related to the overarching conceptual theme associated with a particular code (Castleberry & Nolen, 2018). Through an iterative process, conceptual themes representing patterns within the data, such as the social functions of food and women's experiences with food insecurity, were identified and peer reviewed by the research team.

Results and Discussion

The thematic analysis of the articles included in this narrative review identified four overarching themes: 1) the mechanisms of food insecurity-related social exclusion; 2) shame, stigma, and social exclusion associated with use of charitable food programs; 3) women's experiences with food insecurity, shame, stigma, and social exclusion; and 4) empathy, shame resilience, and resistance.

The mechanisms of food insecurity-related social exclusion

There are several potential mechanisms through which food insecurity can contribute to stigmatization, shame, and social exclusion.

In Canada, dominant healthy eating discourses are perpetuated by dietary guidelines such as Canada's Food Guide, which was recently revised by Health Canada (2019). Canada's Food Guide offers a visual representation of what constitutes a "healthy" diet and provides several recommendations for how to "eat well [and live] well," such as eating "a variety of healthy foods each day," and including protein foods, whole grains, and "plenty of vegetables and fruits" to achieve a healthy diet (Health Canada, 2019, p. 1). This type of information establishes societal expectations about how to eat healthily, live healthily, and thus function in socially acceptable ways (Hamelin et al., 2002). Language such as incorporating "plenty" of fresh produce is problematic in that it presents an ideal that is in stark contrast with the everyday inadequacy faced by households experiencing food insecurity (Whittle et al., 2020; Williams et al., 2010, 2012). Similarly, in relation to infant feeding, "breast is best" discourses used in public health promotion serve to frame breastfeeding as a directive rather than a choice. Though unintended, these health promotion messages may contribute to feelings of powerlessness and stigmatization for mothers in their infant feeding decisions, particularly among mothers experiencing food insecurity (Guttman & Zimmerman, 2000; Knaak, 2005; Waddington, 2016). Food insecurity prohibits individuals from eating and feeding their families in ways that meet societal expectations, which exacerbates stress, feelings of deprivation, and social exclusion (Collins, 2009; Hanson, 2011; Hamelin et al., 2002; Williams et al., 2010, 2012). Research has also shown that "coping" with food insecurity may involve compromising the quality of food, for example by watering down milk or infant formula to "stretch" it, or by adopting sub-optimal feeding practices such as using food substances other than infant formula when not recommended (Frank, 2015; Partyka et al., 2010, Williams et al., 2010, 2012). For women, who are often tasked with feeding and nutritional gatekeeping work within households, the dominance of these healthy eating discourses likely heightens the stigma associated with having to make these choices when struggling to feed their families (Bellows, 2003).

Food insecurity can also result in alienation due to feelings of compromised social standing (Hamelin et al., 2002). While varied diets are associated with privilege, food insecurity is often characterized by limited and "impossible" food choices along with a monotonous diet that lacks options for creative, pleasure-focused, or values-based food choices (Cairns & Johnston, 2015; Hamelin et al., 2002; McIntyre et al., 2007; Williams et al., 2010). Certain types of foods that are imbued with heightened cultural capital, such as organic produce and fair-trade beverages, tend to be associated with higher social status, but these types of foods are likely not accessible for households experiencing food insecurity (Hamelin et al., 2002; Williams et al., 2012). Even milk, a food that is considered a healthy staple for its calcium and vitamin D content, was found to be seen as an "elite commodity" by food insecure mothers in Atlantic Canada (McIntyre et al., 2007). When food insecure households are forced to manage their families' nutritional needs and food preferences with inadequate food budgets, they are limited to purchasing both less nutritious food items and foods that mark them and their families as belonging to a lower social class, and thus being of perceived lower social value (Hamelin et al., 2002; Lawlis & Jamieson, 2016; Tarasuk, 2001; Williams et al., 2012).

These "impossible" choices are also demonstrated in the context of infant feeding, where mothers living with food insecurity are constrained by multiple factors, including the lack of affordability of infant formula or a basic nutritious diet for breastfeeding mothers (Frank et al., 2020). A lack of social policy and social stigma may prevent food insecure households from exercising true choice around how to feed their infants (Frank, 2015; Waddington, 2016). While weak economic protections, including inadequate income assistance and maternal and child benefits, create the conditions necessary for maternal and infant food insecurity to exist in high-income countries, these outcomes are often experienced as personal failures related to not being able to "properly" feed one's child (Frank, 2015, 2020; Frank et al., 2020). The experience of being restricted to a diet that is socially devalued and considered to be inferior or substandard can be demeaning, and results in a damaged social image and feelings of shame and deprivation (Hamelin et al., 2002).

The importance of food extends beyond basic nutritional requirements to encompass aspects of a person's identity, culture, and social activities, as well as their sense of connection and belonging (Hanson, 2011; Martin et al., 2016; Purdam et al., 2016). Food insecurity may limit an individual's capacity to express their values through food, share meals with others, or celebrate special occasions (Harmon et al., 2017; Wu & Schimmele, 2005). The inability to fully participate in social activities and in one's community, which accompanies the experience of food insecurity, amplifies existing feelings of social isolation related to material deprivation itself (Martin et al., 2016).

Shame, stigma, and social exclusion associated with the use of charitable food programs

Numerous studies have documented the shame, stigma, embarrassment, and social isolation associated with the use of charitable food programs, most notably food banks, along with many other limitations and negative repercussions (Frank, 2020; Martin et al., 2016; Middleton et al., 2018; Power et al., 2014; Tarasuk et al., 2014a). Food banks are often unable to offer varied, high-quality food items, which constrains users' food choices and their ability to meet dietary needs (Frank, 2018; Hamelin et al., 2002; Middleton et al., 2018; Purdam et al., 2016; Riches, 2002; Tarasuk et al., 2014a). Food bank users are also often understood as "recipients" rather than "consumers" of food, which reinforces a lack of control and powerlessness that can damage their sense of identity, pride, and self-worth (Middleton et al., 2018; Purdam et al., 2016; Thompson et al., 2018). This may further undercut food bank users' sense of autonomy over their food choices, and, by extension, their ability to manage health concerns, as well as to meet preferences for spiritual, cultural, or moral reasons (Hamelin et al., 2002; Middleton et al., 2018; Purdam et al., 2016; Riches, 2002).

Individuals reporting food insecurity often resort to using coping strategies other than food banks to feed themselves and their families; while there are many reasons for this, stigma is a common factor associated with the avoidance of food banks. Food bank users often describe having no choice but to adopt food acquisition strategies that are viewed as socially unacceptable, resulting in a reduced sense of autonomy and control, fear of being judged, and shame and self-judgement (Hamelin et al., 2002; Martin et al., 2016; Middleton et al., 2018; Power et al., 2014; Purdam et al., 2016; Rosa et al., 2018; Tarasuk et al., 2019; Thompson et al., 2018). For many, the decision to visit a food bank is initially met with hesitation and reluctance, and it is often considered as a last resort after feelings of shame and embarrassment have been overcome (Hamelin et al., 2002; Purdam et al., 2016). The hidden costs of food banks, namely the stigma and indignity surrounding their use, can be so great that they can prevent individuals experiencing food insecurity from accessing them at all, regardless of the extent of their need (Hamelin et al., 2002; Middleton et al., 2018; Power et al., 2014; Purdam et al., 2016). This is evidenced by the finding that only 20-30% of Canadians experiencing food insecurity utilize charitable food programs (Tarasuk et al., 2014a).

In recent years, recognizing the limitations of food banks, some charitable and community-based food programs have transitioned away from traditional food assistance models into supermarket-style "food hubs," and have partnered with small-scale producers in an effort to provide individuals experiencing food insecurity with the ability to access affordable, healthy, and sustainable food in a more dignified and socially acceptable way (McNaughton et al., 2021; Psarikidou et al., 2019). While this expansion of services, including community-based food centres, may have benefits for participating families, it can expose a family's struggle to access food to others in the community, and may elicit feelings of embarrassment and shame for program participants (McNaughton et al., 2021; Psarikidou et al., 2019; Rosa et al., 2018). Participation in other types of charitable and community-based food programs may also contribute to feelings of inadequacy related to users' own perceptions that they are unable to provide for themselves and/or their families (Middleton et al., 2018). They often fear that being seen by others in their community as the recipients of charity will result in judgement and a negative social image, which can be detrimental to their self-esteem, reputation, and sense of dignity (Middleton et al., 2018; Purdam et al., 2016). Similarly, programs that focus on building food skills, such as cooking programs or community kitchens, may operate on the assumption that individuals facing food insecurity have a knowledge deficit in this area, despite research to the contrary (Huisken et al., 2016).

The resulting judgement and internalized stigma associated with using food banks and other charitable and community-based food programs can lead to detachment from society and rejection of potential sources of help, which can further compound social isolation, and thereby worsen the severity of food insecurity (Purdam et al., 2016). Not only are food banks and other charitable and community-based food programs an inadequate response to food insecurity that fails to address root causes, but they also fail to respond fully to the needs of those they intend to serve and create stigma surrounding their use.

This, in turn, leads to negative impacts on physical and psycho-social health (Hamelin et al., 2002; Middleton et al., 2018; Power et al., 2014; Riches, 2002; Tarasuk et al. 2019).

Women's experiences with food insecurity, shame, stigma, and social exclusion

The higher risk of experiencing food insecurity and its negative physical and psycho-social health outcomes faced by women, particularly lone mothers, compared to their male counterparts is related to underlying gender inequities. Gender inequities have been well documented and include disproportionately high rates of poverty, income inadequacy, and single parenthood among women, gendered familial roles and responsibilities, sociocultural expectations, perceptions of self-worth, and the subservient role of women created in part by the historical movement from matriarchal to patriarchal structures in society (Collins, 2009; Kerr et al., 1988; Matheson & McIntyre, 2013; Muldoon et al., 2013).

Parents are typically subjected to greater social scrutiny than adults without children, but mothers tend to be particularly vulnerable to social judgement because of gendered sociocultural expectations regarding women's familial roles and responsibilities (Ciciurkaite & Brown, 2018; Hanson, 2011). Even within dual-parent households, women are more likely to assume primary responsibility for household tasks such as childcare and managing household food resources, including the procurement, production, and preparation of food (Hanson, 2011; Martin et al., 2016; Matheson & McIntyre, 2013; Muldoon et al., 2013). In Canada, like in many other developed countries, women have been socialized to adopt the traditional domestic roles of caregiver and food provider, and, consequently, they are subjected to the social expectations that accompany these roles (Carter et al., 2011; Hanson, 2011; Matheson & McIntyre, 2013; Muldoon et al., 2013). As a result, mothers most often shoulder a disproportionate share of the psychological and emotional burdens related to household food insecurity, leading to gender inequities in the distribution of negative psychological effects of household food insecurity (Ciciurkaite & Brown, 2018; Hanson, 2011; Thompson et al., 2018). This is particularly evident for breastfeeding mothers, who have a unique role within the family in relation to infant feeding practices as the co-producers of infant food through lactation (Frank, 2015). Mothers are uniquely susceptible to concerns surrounding the inability to produce what they perceive as sufficient breast milk, both in terms of quantity and quality; as a result, feeding infants in comparison to feeding others is arguably more enshrined in ideas about mothers' natural disposition for family food work (Frank, 2018). Furthermore, for breastfeeding mothers experiencing food insecurity, assumptions around cost savings as the primary motivator for breastfeeding have also been shown to be stigmatizing (Waddington, 2016). Conversely, there is also stigma surrounding the decision to formula feed, due to neoliberal discourses that hold mothers responsible for an inability to provide infants with the optimal nutrition associated with breastfeeding (Murphy, 2000).

These findings demonstrate that both breastfeeding and formula feeding may be socially and culturally unacceptable depending on the context, and that mothers in food insecure households may be particularly susceptible to stigma regardless of how they feed their infant (Waddington, 2016).

Women's social roles as care- and food-providers are related to normative expectations that mothers should prioritize the health and well-being of other family members at the expense of their own (Ciciurkaite & Brown, 2018; Thompson et al., 2018). Furthermore, mothers' socialized roles as caregivers, which involve monitoring and protecting the health of their children and families, put them at risk of assuming the blame for any poor health outcomes that arise among their family members due to food insecurity (Ciciurkaite & Brown, 2018; Hanson, 2011). These sociocultural expectations often cause mothers to act as "shock absorbers" for the negative effects of food insecurity on their families, which is demonstrated by the frequent and consistent finding that mothers compromise their own food intake to protect the nutritional needs of their children (Carter et al., 2011; Collins, 2009; Hamelin et al., 2002; Hanson, 2011; Lawlis & Jamieson, 2016; Matheson & McIntyre, 2013; McIntyre et al., 2003; Thompson et al., 2018; Williams et al., 2012). The desire to protect their families from the negative effects of food insecurity, and the stress and stigma that arise when they are unable to do so, can have profound implications for women's nutritional, psychological, and physical health and well-being, and, consequently, can also compromise the critical role mothers play in parenting their children (Ciciurkaite & Brown, 2018; Hanson, 2011; Thompson et al., 2018; Williams et al., 2012). In relation to infant feeding, research has shown that food insecurity may lead mothers to initiate breastfeeding due to perceptions of cost savings; however, when breastfeeding is perceived as a true necessity for financial reasons, mothers may feel that they have no choice but to persevere through breastfeeding challenges despite possible negative impacts on their own physical or mental health (Frank, 2015; Waddington, 2016). When food insecurity compromises mothers' ability to provide food for their families, it also fundamentally undermines their ability to live up to the dominant sociocultural standards that are imposed upon them. Consequently, the inability to fulfill their real or perceived role within the family has been found to lead to feelings of failure, guilt, stress, shame, social exclusion, and alienation among women, negatively impacting their self-esteem and sense of self-worth (Carter et al., 2011; Ciciurkaite & Brown, 2018; Collins, 2009; Hanson, 2011; Muldoon et al., 2013; Williams et al., 2012).

Empathy, shame resilience, and resistance

While the shame and stigma that result from food insecurity and unmet social expectations can lead to social isolation and compromised parenting and health, findings from a small pool of published literature suggest that enhancing the capacity for empathetic responses to feelings of shame, along with efforts to strengthen women's resilience to shame, can lead to a reduction in internalized stigma (Brown, 2006; Middleton et al., 2018; Purdam et al., 2016).

Empathy refers to the ability to perceive a situation from another person's perspective, as well as the ability to convey understanding of their unique position and experience (Brown, 2006; Harmon et al., 2017). In her study on the impact of shame experiences on women, Brown (2006) conceptualized the experience of empathy as the opposite of the experience of shame. From her research, Brown (2006) developed shame resilience theory, which describes the strategies employed by women to develop shame resilience and is centred on the importance of empathy, connection, and a concept called "speaking shame," which refers to a woman's ability to recognize and articulate her shame experiences. When women lack the language and emotional competence to reflect on and identify their shame experiences, shame can be internalized, which can exacerbate feelings of social isolation (Brown, 2006). In contrast, speaking shame allows women to externalize, and thus normalize, these experiences (Brown, 2006). Equipping women with the language to identify and deconstruct their shared experiences with shame can increase their sense of connection and enhance their capacity to develop mutually empathetic relationships, which can in turn alleviate some of the isolating aspects of shame and strengthen women's shame resilience (Brown, 2006; Middleton et al., 2018; Purdam et al., 2016).

Brown's (2006) findings regarding empathy and the power of speaking shame not only have implications for dealing with the experience of food insecurity in more efficacious ways in the short term, but also offer promise for shifting thinking to more comprehensive longer-term solutions to food insecurity. While empathy has long been recognized as an important attribute of health care workers and other service providers, discussion of how these professionals can interact with women experiencing material deprivation, including food insecurity, in ways that help to dismantle feelings of shame and social isolation is limited in the published literature (Harmon et al., 2017). A deeper understanding of lived experiences of stigma and shame may help women affected by food insecurity, and professionals working with them, to better resist dominant narratives around poverty that place responsibility on individuals for their circumstances and can empower them to draw attention to the structural and systemic issues that lie at the root of poverty. Addressing this knowledge gap may also offer important insights for those in other sectors and across society to more broadly understand and relate to those living in poverty, allow them to develop collective resistance to social injustice, and ultimately lead to improved agency to advocate for policy change.

Conclusions and implications

Recognizing that gaps exist in the published research, the findings of this narrative review point to three key mechanisms whereby food insecurity contributes to stigmatization, shame, and social exclusion, underscoring insights from and limitations of the understandings reflected in the literature: 1) the exclusionary and potentially damaging nature of dominant healthy eating discourses; 2) alienation due to inequities in social standing; and 3) the importance of food for social and cultural identity.

The findings from this review also suggest that dominant responses to food insecurity, namely traditional food banks, often contribute to shame, stigma, and social exclusion by undercutting users' sense of autonomy over their food choices, inciting fear of judgement based on a family's struggle to access food, and causing individuals to acquire food in ways that they often perceive as socially unacceptable.

This narrative review is not intended as a systematic review of the research that has been published on women's experiences with food insecurity-related shame, stigma, and social exclusion. We have, however, applied systematic methods to examine how and why social beliefs and stigma contribute to social exclusion and shame among women who experience household food insecurity within high-income countries, an area of research that is currently lacking. Moreover, this review provides important insights by bringing together understandings in existing theoretical and empirical published and "grey" literature to support scholarly discussion and future research.

Considered together, the issues raised by this review paint a picture of the current inadequacy of the policy response to address household food insecurity, as it places women, particularly mothers, at risk to become trapped in a cycle of material deprivation and its associated shame because of their unique relationship to food. While food banks and other charitable food programs were intended to be a temporary measure to address food needs in a time of crisis, they have become pervasive as the dominant, and some would argue de facto, policy response to household food insecurity in Canada and many other high-income countries (Martin et al., 2016; Middleton et al., 2018; Power et al., 2014; Tarasuk et al., 2014a). Policy responses have failed to address the well-documented income gap that has been created and deepened by the deterioration of social safety nets with the expansion of neoliberal policies over the past four decades in Canada. Furthermore, the shortcomings of current policies and programs have exacerbated the demands on, and vulnerability of, charitable, ad hoc, and community-driven responses to household food insecurity, increasingly raising questions as to their adequacy for addressing this issue in a sustainable manner (Tarasuk et al., 2014b).

While this narrative review has highlighted the absence of gender-based analysis in the published literature related to food insecurity in high-income countries, the COVID-19 pandemic has amplified the implications of the current inadequacy of policy response to address household food insecurity in our local and global communities and the wide-reaching ramifications this has for the health and well-being of women and their families. Vulnerable populations, including women, are likely to be disproportionately affected by the increase in the prevalence and severity of food insecurity resulting from the pandemic, particularly due to reduced participation in paid work or education by women who hold a larger proportion of childcare responsibilities (Wall, 2021). These issues further highlight the pressing need for approaches that improve the material conditions of women's lives, and consequently those of their children.

Brown's (2006) theory of shame resilience, in which the practices of empathy, connection, and "speaking shame" enhance the capacity for empathetic responses to shame experiences and strengthen women's resilience to shame, offers promise for addressing the far-reaching implications of the issues highlighted by this research. The finding that limited empirical research has applied shame resilience theory and the insights from this body of work to the experience of food insecurity among women points to the need for further research in this area, particularly with respect to implementation science, including the role of participatory processes in redressing shame and building shame resilience and resistance. Our work on the engagement of women with experiences of food insecurity critically examines the underlying structural determinants of food insecurity through a unique model of participatory food costing (Johnson et al., 2015; Monteith et al., 2019; Williams et al., 2012; Williams, 2014). The results indicate that the creation of a supportive environment that allows women to speak shame and experience empathy and connection contributes to capacity building at individual levels with the potential for positive impacts at the organizational, community, and systems levels within which women are engaged (Monteith et al., 2019; Johnson et al., 2015; Williams, 2014). Consistent with our experience, the findings of this review suggest that sharing the intersecting lived experiences of food insecurity, shame, and stigma offers promise for building empathy among others and developing a collective resistance in broader society against the systemic injustices at the root of poverty. Given that "stigma affects us all [and] we are all vulnerable to the slow and insidious practice of dehumanizing others" (Tam, 2019, p. 5), this narrative review fills an important gap and points to a need to examine intersectionality with respect to food insecurity-related stigma.

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Book Review

Porkopolis: American animality, standardized life, and the factory farm

By Alex Blanchette

Duke University Press, 2020: 298 pages

Review by Stephanie Rutherford*

At the beginning of the pandemic in April 2020, then-President Donald Trump signed an executive order naming slaughterhouses and meat-packing plants as "critical infrastructure" essential to American life. The meat industry in both Canada and the US had emerged as a source of heightened COVID transmission, where workers labouring in close proximity as part of fast-moving disassembly lines faced increased exposure to the virus. Facilities were forced to close, leading to fears of a compromised food chain, and soaring prices for poultry, beef, and pork. Noting the importance of American access to protein, Trump's move authorized the meat industry to remain open, despite the risk to workers' (and their families') lives.

Since Upton Sinclair wrote *The Jungle*, we have known that slaughterhouse work is unsafe and sometimes lethal. Exposé as an approach has animated a variety of activist, journalistic, and academic studies. The fact that these workers are usually racialized and often recent immigrants with few options has made their endangerment more politically acceptable. Tracing these horrific injustices has been, and continues to be, important work.

But there is yet another story to tell, and it is the one that anthropologist Alex Blanchette charts in a significant and beautifully crafted book. *Porkopolis* demonstrates, in often poignant and sometimes harrowing detail, how pig life and death is indeed a central node—or a critical infrastructure—of industrial capitalism. There is little space outside of the industrial pig; hogs are invisibly enmeshed in our everyday lives. The industry's efforts to use *all* of the pig means that no part of it is economically unaccounted for, from its birth to its rendering. From pet food and gel capsules to paper money and surgical sutures, pig bodies produce an astonishing 1,100 commodities (2020, pp. 204 & 212). Put simply, our lives are made in and through what

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Blanchette calls "American animality", even if we don't always know this is the case. As such, Blanchette claims that rather than being exceptional sites of violence, factory farms are *completely unexceptional*, fitting as they do into "regular, ongoing processes of industrialization in other places and industries" (2020, p. 27).

This is not the only way in which Blanchette unsettles what we think we know about factory farms. Through careful ethnography of "Dover Foods" in the Midwest town of "Dixon", Blanchette asks us to see how an entire town can be reorganized around animal life. But the author also points to a much deeper remaking. Across the five parts and 10 chapters plus an epilogue, *Porkopolis* demonstrates that "[m]odern meat, as the model is unfolding in the United States, revolves around remaking the lives and labor of human beings to make them amenable to capitalist animality" (2020, p. 4). For instance, Chapter 2 focuses on how biosecurity protocols have begun to structure human sociality, dictating who can live and socialize with whom so as not to pass porcine pathogens across the live (birthing and raising) and plant (killing and processing) sides. Chapter 4 explores how workers have to become increasingly attuned to the specificity of individual pigs as they engage in the (sex) work of sow insemination. And Chapter 8 examines how workers' bodies are medically assessed by a Dover-sponsored clinic as (un)suitable for different kinds of work across the industrial pig's life and death cycle. As Blanchette asserts, like the industrial pig, those who work with them are also thought of "as distinct and segmentable physiologies" (2020, p. 181). The claim that Blanchette reiterates is that humans are reshaped—bodily and affectively—in their making of animal capital.

In a particularly effective example of the imbrication of human and porcine life, Blanchette examines how the industry has reached such extremes of fecundity that sows no longer have enough teats to suckle their enormous litters. The industrial pig, as a species, is becoming "systematically runted" (2020, p. 141). As a result, much of the labour on the live side is devoted—with practices of empathy and care—to making these runts live so that they can eventually be slaughtered. These "hyperprolific sows" (2020, p. 139) draw human workers into intimate animal orbits in new ways; as Blanchette writes, "The biology of the industrial pig is not contiguous with its body. It requires expanding arrays of labor to survive" (2020, p. 124). And yet, Blanchette is careful to note that while it is the desire of Dover Foods "to directly own and engineer every stage of the pig's life-and-death cycle" in order to make them "unendingly more uniform over time" (2020, pp. 15 & 17), this goal remains elusive. Pigs and people evade these totalizing moves.

Not everyone will love this book, not least because Blanchette eschews pat and easy answers to our entanglement with industrial animal life. However, those who is interested in the intersections among political economy, food politics, and labour studies will find it extremely valuable. Toward the end of the book, Blanchette notes that the problem is not just with these specific places, but with the capitalist system that generates them. So, Blanchette asserts, we cannot simply give up meat; we have to commit ourselves to a more radical and uncertain politics.

The author proposes is "a positive politics of inefficiency" (2020, p. 236) in which aspects of animal and human lives can remain nonfungible and outside commodification. It was here that I longed for a more sustained engagement with the political possibilities and ethical practices of human and animal refusal: what might this mean and how might we affect this refusal? But it seems to me that this is too much to ask of an already complex and accomplished book. Blanchette successfully offers an ethnography of the industrial pig, and has shown us how deeply invested we are in porcine life and death. I contend it is up to us to craft new practices of care between humans and pigs beyond their commodification.

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Book Review

A recipe for gentrification: Food, power, and resistance in the city

Edited by Alison Hope Alkon, Yuki Kato, Joshua Sbicca
NYU Press, 2020: 384 pages

Review by Rachel Engler-Stringer

The book, *A Recipe for Gentrification: Food, Power, and Resistance in the City* is a well-crafted and useful contribution to the food environment, food access and food justice literatures. The premise of this edited book is to take a close look at the intersections between gentrification, increased property values, displacement and food justice and race in urban contexts. The book is primarily US-focused with one chapter on Vancouver's Downtown Eastside, and the rest case studies of American cities of various sizes. The three editors of the book are Alison Hope Alkon (who has previously co-edited an excellent volume on food justice to which this is an interesting follow-up), Yuki Kato and Joshua Sbicca, all of whom are sociologists.

One of the book's strengths is that it does not simply focus on large cities, where most gentrification literature already exists, but also on mid-sized cities (Denver and Oklahoma City for example) where the gentrification process has slightly different characteristics. It was interesting to note in reading all of these chapters together, how resistance to gentrification and displacement appears more challenging in these smaller cities. In cities like Los Angeles and New York, for example, gentrification has been happening in waves for decades and the organizing structures to both manage and resist it appear to be much more significant. I would argue that this plays out in the Canadian context as well and could see a follow-up to this book from Canadian researchers, examining this phenomenon by comparing Montreal, Toronto and Vancouver, to smaller cities such as Edmonton, Halifax and Ottawa.

The chapters in the book focus on not only restaurants and grocery stores, but also on various types of urban agriculture (community gardens, food forests, urban farms) and how these may draw gentrifying investments into neighbourhoods.

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This is a unique contribution given that rarely is urban agriculture problematized in this way within the literature. The authors are able to illustrate the limitations of alternative food systems as they are understood today in that they can contribute to displacement of long-term, often racialized, communities, if not carefully constructed. What is especially interesting is that some of the latter chapters show how food justice organizing—leadership by communities at risk of displacement as one example—can be used to counter gentrifying forces.

Overall, this book covers a lot of ground and does an excellent job of balancing depth and theoretical connections, and breadth by examining various examples and issues in different sized cities. As a Canadian food researcher, however, I was a bit disappointed to find only one Canadian example included (and probably already the most researched example). One thought that kept occurring as I read the book was wondering if some of the issues around displacement of racialized communities might play out slightly differently in Canada, where cities and neighbourhoods are not as segregated along racial lines.

The book is relatively dense, but not overly so, and I would expect would be best suited for upper undergraduate and graduate students, but the case studies could serve as excellent examples for teaching purposes. Personally, as someone who has spent quite a bit of time studying food environments, I found this edited volume to be refreshing in its analysis and it helped me to make connections between concepts like gentrification and alternative food systems in ways I had not considered. I would recommend this book particularly to anyone who is interested in improving food access in urban environments.

Dr. Rachel Engler-Stringer is an Associate Professor in the Department of Community Health and Epidemiology in the College of Medicine at the University of Saskatchewan and a researcher with the Saskatchewan Population Health and Evaluation Research Unit.

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

Interview

Wayne Roberts: Food Systems Thinker, Public Intellectual, "Actionist"

Patricia Ballamingie[a*] and Charles Z. Levkoe[b]

[a] Carleton University
[b] Lakehead University

Abstract

Wayne Roberts (1944–2021) was a food systems thinker, public intellectual, and "actionist." This text was developed from a series of oral history interviews conducted between December 2020 and January 2021. It touches upon several of the key themes addressed during the interviews: adopting a food systems approach; employing the power of ideas; identifying solutions and being propositional; acknowledging progress for political credit; enhancing impact through media, old and new; working strategically to "seed" then "tip"; influencing government; and forming alliances with academics and other champions. In addition, we provide links to additional resources. In this article, which inaugurates the Interviews section of *Canadian Food Studies/La Revue canadienne des études sur l'alimentation,* we aim to do justice to the gift of Wayne's experiences and knowledge by sharing a selection and synthesis of his words.

Keywords: Food policy; food policy councils; food systems

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Introduction

Wayne Roberts was a food systems thinker, public intellectual, and "actionist." He held a PhD in social and economic history from the University of Toronto and spent his life working for social and environmental justice in the areas of food systems, community organizing, education, media, and union administration. While perhaps best known for his leadership of the Toronto Food Policy Council from 2000 to 2010 and commitment to a "people-centred food policy[1]", he wrote prolifically throughout his life. His writings can be found in multiple scholarly journals, popular magazines (including a regular column in *NOW Magazine*), regular blog series (including Medium[2], Rabble.ca[3], and Resilience[4]), and 12 books he wrote and co-authored. Between 1977 and 1982, Wayne worked as an assistant professor in the departments of History and Labour Studies at McMaster University, and from 2010 to 2015, he served as a visiting scholar at the University of Toronto's New College. He taught food systems courses at York University and the University of Toronto and gave lectures around the world. In considering and discussing political strategies and tactics, Wayne consistently referenced critical theorists and non-academic authors, demonstrating his breadth and depth of knowledge. He played a foundational role in food movements across the globe and contributed to key organizations such as the Community Food Security Coalition, Food Secure Canada, and the Canadian Association for Food Studies (CAFS), participating actively in governance and annual conferences. Wayne received the Queen's Diamond Jubilee Medal in 2013 and the CAFS Lifetime Achievement Award[5] for 2019–20. In January 2021, after a short battle with leukemia, Wayne died at the age of 76[6]. During his Celebration of Life[7] on February 21, 2021, he was described as not only principled, brilliant, strategic, irreverent, prolific, and connected, but also loving, joyous, funny, generous, gracious, inclusive, playful, and loyal.

[1] https://www.resilience.org/stories/2019-01-25/connected-critics-branding-for-a-people-centered-food-system/
[2] https://medium.com/@wayneroberts
[3] https://rabble.ca/author/wayne-roberts/
[4] https://www.resilience.org/stories/content-partner/wayne-roberts-blog-2/
[5] https://foodstudies.info/news-conferences/cafs-awards/
[6] Tributes to Wayne Roberts were published in *Corporate Knights* (https://www.corporateknights.com/food-beverage/remembering-food-policy-writer-wayne-roberts-a-radical-happyist/), *Now Magazine* (https://nowtoronto.com/news/in-memoriam-wayne-roberts-1944-2021), *The Toronto Star* (https://www.thestar.com/life/together/remembrance/2021/04/18/the-joy-seeker.html), and *CBC* (https://www.cbc.ca/news/canada/toronto/wayne-roberts-remembered-1.5884879).
[7] https://www.facebook.com/Dr.WayneRoberts

It seems the core themes of Wayne's life were love, solidarity, gratitude, joy, and an unwavering pursuit of justice and the common good.

> "I can't give Wayne a fitting obituary that adequately covers his many contributions to food systems work in Canada and the U.S., but I'm sure that many people can tell stories of how he touched their lives. Wayne was always bubbling over with good spirits and ready to see silver linings in the darkest clouds. I will miss him very much—it's hard to believe we won't hear his laugh and pithy analyses again."
> —Molly D. Anderson, William R. Kenan Jr. Professor of Food Studies, Middlebury College

Between December 14, 2020 and January 10, 2021, we had the privilege of conducting a series of oral history interviews with Wayne as part of a broader research project focusing on Participatory Food Systems Governance (PFG). The PFG project aims to explore effective, innovative, and collaborative approaches to food governance for building healthy, equitable, and sustainable food systems. Moreover, it aims to develop a deeper understanding of the possible trade-offs, limitations, and paradoxes associated with civil society organizations' active participation in multi-stakeholder and collaborative governance arrangements.

We interviewed Wayne by phone and using the Zoom platform in five installments, for a total of about ten hours. His beloved partner, Lori Stahlbrand, was at his side for each session. Our conversations focused on food governance, but also flowed naturally into memory and connection, skipping a pebble across myriad themes. Wayne proved his usual lucid, cogent, and funny self throughout. We bore witness to the grace with which Wayne lived joyously in the moment—an approach he (and good friend, Jim Harris) dubbed being a "radical happyist" (Harris, 2021). Through this text, we aim to do justice to the gift of his time and knowledge by sharing a selection and synthesis of his words.

The discussions were conducted as a semi-structured interview and followed a core set of questions sent to Wayne in advance. We analyzed the five transcripts to identify the key themes that are covered below. Where relevant, links to additional resources are included, provided by Wayne himself. We have also embedded a representative sampling of the outpouring of tributes from around the globe that Wayne's passing prompted. The audio (and selected video) recordings from our conversations will be archived on a publicly accessible server, so that future scholars and practitioners might have access to this material.

Photo credit: Michelle Quance

Wayne Roberts's Theory of Change

Throughout our interviews, Wayne reflected on key tactics he had employed to effect change within and around food systems—most of which were informed by his long history in the labour movement (see Roberts, 1994; 2014a; 2014b; Roberts & Brandum, 1995; Roberts & Ehring, 1993; Roberts et al., 1999). We characterize what follows as Wayne's Theory of Change but wish to flag that Wayne did not frame these contributions as such, and they should be understood as necessarily partial and incomplete.

Adopt a food systems approach

Throughout Wayne's life and career, he proved committed to the idea of applying systems thinking in relation to food.

In some of his earliest writings (see Roberts, 2014a; Roberts & Brandum, 1995) he was a proponent of the idea of food systems thinking—the idea that the various interactions within the food web, along with social and ecological relationships, cannot be understood in isolation. Wayne described food as part of an interconnected and interdependent system that is "hidden in plain sight" (Roberts, 2014a, p. 11). He wrote: "The world of food is poised on the edge of problems and opportunities. Welcome to a subject that impacts upon everyone and invites everyone to make a difference" (Roberts, 2014a, p. 11). Failing to recognize and engage food as part of a system can lead to even greater challenges, sometimes described as "wicked problems" (Pohl et al., 2017). Wayne committed himself to advancing a food systems approach through his research, teaching, and writing, even if it was messy and complex. He suggested, "We need not be bound by neat systems thinking, just systems thinking."

Wayne pointed to multiple instances of isolated food-related thinking he considered to be extremely problematic. For example, he discussed the binary that many academics and activists have (perhaps inadvertently) created between poverty and food. Acknowledging poverty as a major concern—directly connected to issues of equity and justice—he suggested that solutions were much more complex than often perceived. In other words, addressing poverty is not a silver bullet that solves all food systems issues. Instead of positioning specific ideas and approaches in opposition to one another, Wayne suggested that a spectrum of options was needed: "Stage one, the lowest level, would be offering calories to help someone keep body and soul together without any concept of meal, any sense of togetherness. [There's] no dignity, no nutrition, no culture of food." Further stages would include healthy, culturally appropriate food as a core part of labour, housing, transportation, and other aspects of livelihoods and well-being.

In another example, Wayne mused on the problematic binary typically used to critique food banks: "It's virtually impossible to be less efficient than food banks!" While he opposed them in favour of a stronger social safety net, he also acknowledged that it is an instinct for people to want to help others in their community. He suggested that the problem is when anti-poverty organizations fail to support people that have been made vulnerable by using food banks as an opportunity to actualize issues of equity and social justice. Wayne argued, "We don't need a binary . . . We need to raise the level of what a food bank does for its clients, including empowerment, English-language training, and access to job programs." In other words, food problems cannot be solved by money alone, either by giving people free food or by giving them higher incomes. Food is also about reducing social isolation, generating environmental benefits, creating stronger communities, and much more: "You have to look at the whole system—problems of nutrition are not just problems of nutrition, they are problems of the food system.

And problems of hunger are not just problems of hunger, they are problems of the food system and the way that we have constructed the food system."

> "If there were a Hall of Urban Food Systems Fame, Wayne Roberts would be among the first to [be inducted] from North America who contributed so much to the integration of food in health policy, food in urban planning and food in democratic governance! His humour, his wisdom and his wonderful speaking and writing on his passion for 'food solutionaries' were guideposts for so many of us who follow in this giant's food steps!"
> —Thomas Forster, New School Food Studies

Wayne argued, when understood through a food systems lens, food could be used as a valuable tool to solve multiple problems in cities (see Roberts, 2001; 2014b). He joked, "The way to a city's heart is through its stomach." This notion informed Wayne's faith in and commitment to food policy councils, and that food-centred partnerships between civil society and municipal governments could serve as a lever for cities to act on issues like green roofs, transportation, housing, zoning, and environmental challenges. Wayne viewed food policy councils as an integral part of food movements because they embrace a food systems approach (see Koç et al., 2008; Roberts, 2014b, 2016). Wayne was a primary author of Toronto's Food Charter, which was unanimously adopted by Toronto City Council in 2001 and was a guiding document for the Toronto Food Policy Council. The charter formally brought together the then largely disparate issues of poverty, hunger, sustainable agriculture, health, and others: "It was about improving the city by improving food."

> "Wayne was best known as coordinator of the Toronto Food Policy Council for a decade in the 2000s, but he was beyond that a pillar in the emergence of recognizing cities and their regions as central actors in food systems, and one of the most influential thinkers and disseminators of thinking about the place of food in cities. He always combined astute thoughts with joyful laughs, sharp zingers and perfectly constructed writing."
> —Joe Nasr, Centre for Studies in Food Security, Ryerson University

Employ the power of ideas

In addition to embracing a food systems approach, Wayne understood implicitly how knowledge, power, and discourse are intertwined.

He advocated, "We must define ourselves in terms of the power of ideas," noting his own unique positionality: "I might be the weakest in terms of resources, but I am the guy with the idea!"; "Think of the power you bring to something, rather than the power you don't have." He mused that most civil servants have a relative paucity of ideas, enthusiasm, and imagination, and that those of us seeking to effect positive change can use ideas "as a battering ram to move ahead in the world." For example, in relation to his dedication to expanding community gardens and farms in the City of Toronto, he asserted that "the limit on urban agriculture is the limit of our own imagination." Wayne would have us dream big and imagine alternative food futures, prefiguring them first in our minds and then in the material world.

Related to the power of ideas, Wayne reflected on a key historical discursive shift: the reframing of the significance of food beyond it being "a women's issue." He explained that some of the early work of the Toronto Food Policy Council involved broadening media coverage of food beyond the "women's section of a magazine." To this end, he felt the Toronto Food Policy Council (and food movements more broadly) had made some significant success: "By 2004, food was in Business, Lifestyle, Restaurants, etc.… We broke out of the hammer grip of where food would be covered" (see Roberts, 2009). Of course, food is increasingly understood as a portal through which to achieve a myriad of environmental, health equity, and social justice ends—a conceptualization built upon these earlier discursive shifts.

Identify solutions, be propositional

According to Wayne, the food movement has historically identified problems, but had the opportunity to effect change more potently by identifying solutions. He contended, "You need to always be propositional, rather than oppositional." Wayne viewed this approach as a necessary maturing of the movement. He also saw tremendous opportunity in the media's appetite to cover food movements—largely because food work can be so positive (for example, community gardens, healthy school lunch programs, community kitchens, edible landscaping, etc.) Moreover, campaigns that move toward something beautiful are good ways to engage people. And he stressed, there is "no one focus or way of coming at it."

Wayne offered very practical advice: "We must address the problems people [actually] have, not the problems we imagine them to have." He also thought in terms of specific tactics: "We must list all the problems [and then ask] who has the same problems? For whom do we have a solution?" He further prodded, "What is a big problem that the government has that has a long list of beneficiaries and low resistance to change?"

However, he felt that for food movement actors to identify solutions, they must agree upon and aim for discrete wins. In this vein, Wayne alluded to strategies from the labour movement. He explained: "Unions are successful organizations because members begin asking for the moon, but then negotiators narrow [these demands] to three or four issues."

He further advised that rather than "going for the whole ball of wax," activists should stay closely focused on goals that meet several criteria. Wayne argued for identification of a "low complexity" goal for which there is "low resistance to adoption" and a "good list of immediate beneficiaries from doing it right." These beneficiaries are potential allies in the fight. To make a goal a reality, it needs both "an internal, civil service champion, and an external champion." Wayne offered the inability of local producers to meet the increasing demand for local food as a tractable problem. For example, local productive capacity *can* be bolstered, and value-added processing *can* be strengthened. This was a way to avoid creating wicked problems with competing and contradictory underpinnings. Wayne argued that determining what to tackle requires an understanding of food systems, identification of both wicked and tractable problems, self-discipline, and, ultimately, political judgement.

Acknowledge progress for political credit

Without doubt, Wayne's history representing workers infused his food scholarship and activism. He lauded the tactics of Bob White, the founding president of the Canadian Auto Workers (now Unifor) from 1984 to 1992, and president of the Canadian Labour Congress from 1992 to 1999. Wayne explained, "Take, for instance, the most militant trade unionist… No one did a contract with Bob White without a highly public letter of thanks!" He further asserted, "Autoworkers always give applause. They have people who know how it works, and we [proponents within food movements] don't." In this sense, Wayne adopted a deeply pragmatic and strategic approach to bringing about change. He argued that activists must be willing to compromise: "You [government, industry] do this, it will help solve this, and we will shut up about the other issue." In other words, Wayne argued the food movement must acknowledge progress, even partial progress, for political credit, just as the labour movement has done successfully in the past, to secure gains in the future.

Enhance impact through media, old and new

Early in his career, Wayne recognized "media as an incredible zone of power," – using it strategically to shift the discursive framing of key issues, build reputation, and ultimately, enhance impact. He waxed, "We [food movement actors] have one of the most popular, media-covered movements of the past twenty years. And coverage is almost always positive." He saw potential for media campaigns to influence the government but stressed the need to "be in the news a couple times a week" to affect power.

Wayne also lamented the disappearance of the beat system in news media, in which reporters specialize in a particular topic, sector, or organization.

Realizing that former beat reporters might struggle to navigate a broader story terrain, he put the word out that if someone didn't know where to go for a story, they should go to him, and he would direct them. Wayne gained the trust of the media by using his knowledge of the labor system to compensate for their lack of knowledge as beat reporters. When Wayne started at the Toronto Food Policy Council, he put the same word out regarding food stories. He demonstrated his prowess for media literacy in the multiple blog posts and articles he published on a wide range of topics (food, labour, democracy, geopolitics, public policy, economics), targeting audiences from food systems scholars and activists to policy makers and the public.

Wayne also proved more than capable of adapting to changes in media usage. Notably, he maintained an active presence on many social media platforms, viewing online communities as "an excellent place to develop reputation." His Twitter account[8] boasted almost 100,000 followers, and in the last year of his life Wayne continued to foreground relevant hashtags: "During #coronavirus, I post on #healthequity, #foodjustice, #urbanagriculture #greeninfrastructure." Wayne's website—"where local sustainable food policy meets action"—along with his Wikipedia[9] entry and Facebook page[10] served as another hub for his work, providing details of his background, publications, and more than 500 speaking engagements (including in Mexico, England, Ireland, India, and South Korea). His use of old and new media aimed to augment the impact of his other efforts, while maintaining and growing his visibility. As Wayne put it, "[an activist's] number one asset is reputation… That's what makes us able to scale up and down."

Work strategically to "seed" then "tip"

Wayne spoke about the power of "seeding" as a big theme in his life. He seeded people by supporting their work and augmenting their roles, notably Ellen Desjardins and Alison Blay-Palmer, both of whom went on to play national and international roles in food systems work. He seeded strategic alliances, encouraging activists to "find another group which has the resources to do what you cannot." As his partner, Lori Stahlbrand, noted, the metaphor also extends to the ways Wayne planted story ideas. "Wayne would offer insights into not only the stories journalists were calling about, but also the ones Wayne was interested in seeding."

[8] https://twitter.com/wrobertsfood
[9] https://en.wikipedia.org/wiki/Wayne_Roberts_(activist)
[10] https://www.facebook.com/WayneRobertsPage

> "Wayne's vision and example made everyone he touched understand the power of good food. He helped us see its regenerative potential to make the world more socially just, green, healthy and vibrant."
> —Alison Blay-Palmer, UNESCO Chair on Food, Biodiversity and Sustainability Studies, Director, Centre for Sustainable Food Systems, and Professor, Wilfrid Laurier University

Once enough seeds had been sown, Wayne identified the possibility of "tipping" the system towards progressive change—crediting Malcolm Gladwell (2000) for this notion. He reflected, "I don't have any money, expertise, connections, budget. But if you are ready to tip, I can help you tip." While Wayne in fact possessed expertise and connections in spades, he also clarified: "You can tip an issue, but you cannot create an issue where none exists."

Wayne suggested, "We have to find an issue that isn't wicked. [For example,] buying local food from local farmers only has winners." He argued that there needs to be greater collaboration and agreement of key issues to push collectively, but that the law of politics constrains progress to one issue at a time, and: "Thus, we must go in with the tippers." He quipped, "there used to be a saying in management theory: two objectives is no objective." And he further asserted: "If the Left is pushing one issue, it's got to shut up on the other. Because you're only getting one issue. That's just the law of politics. So, we're all going in with 18 issues, but we really should only be going in with the tippers."

Play ball to influence government

Wayne offered several insights on working the system at different scales to influence government and to get beyond what he described as "a culture of no." To begin, he noted the very real constraints of influencing governmental policy around wicked problems such as hunger and poverty. "Government won't touch the food security thing because there are too many guarantees of failure… Whichever way you turn, it's not going to be adequate." He explained the social and psychological underpinnings of why the government won't act: "If it doesn't turn out, [food movement actors] will condemn you, and that doesn't encourage risk taking." He identified this approach as a potential area for improvement, noting that "food movement people aren't really engaged politically" and "[the] food movement has made huge progress in many areas, but not in policy." Wayne wanted to see the food movement "mature" to work cooperatively with the government to put solutions in place, since "permanent and transformative change demands institutional- and political-level work."

Wayne stressed the need to approach the right level of government with the right problem. As he explained, "In Canada, the provinces deal with issues of food and health and education." If efforts occur mainly at the national level, we are therefore "knocking on the wrong door," since "the feds cannot move on it, and if they can, it is limited action."

He specified that when asking the federal government for change, it must be proportionate to what they can deliver. Otherwise, he said, "federal governments are where good ideas go to die… We really lack the constituency for national issues." Wayne went on to note the efficacy of Joanne Bays' work as National Director of Farm to Cafeteria Canada (F2CC), explaining that "she picked areas where governments were looking for something, like in New Brunswick and northern BC… In politics, if you want to do food, you have to do provinces."

Wayne revealed his tactical nature in explaining what happens once you have decided on the issue you wish to influence and have developed the appropriate level of public engagement: "To have an impact, you need to cause a problem for someone in the system… You need to ensure consistent pain for politicians for not solving the problem." He suggested that even in the current pandemic, with so much attention on the poor quality of care in privatized nursing homes, "you [would still] need a four-year commitment of hounding them." Yet Wayne also advocated for building relationships with government officials, and not simply being a pain in their necks. He explained, "The food movement has missed that step, because we saw policy as the crux of the matter, and not relationship building. But out of relationships come the policies that solve the problems."

> "Wayne was indeed a pollinator of ideas. He played a cardinal role in influencing the massive work we have done in East, Central and Southern Africa on food systems and urban sustainability. We will miss his deep reflections and critical perspectives on policy interventions and IRO food security in African cities."
> —Mulala Danny Simatele, Professor, Global Change Institute, University of the Witwatersrand, Johannesburg, South Africa

> "Wayne was a true legend in the urban food world. So many of us and so many of the cities we work in can trace the DNA of our work back to Wayne's work. He was also the most generous, inclusive supporter of scholars, activists and policy folk."
> —Jane Battersby, Associate Professor, African Centre for Cities, University of Cape Town

> "He was a longstanding inspiration in international food studies and food policy. A real innovator and creative thinker, [who combined these qualities] with a deep understanding of real politics and getting things done. He was also a lovely person and human being, a pleasure to be with and a very engaging and always inquisitive conversationalist."
> —Terry Marsden, Professor of Environmental Policy and Planning, Director of PLACE, Cardiff University

Wayne adopted a deeply pragmatic approach, recognizing the need for a range of political views on any committee seeking to effect policy change. He posited diverse political representation as a conscious strategy. Referring to the 2010 advocacy efforts around the Toronto Food Strategy, he said, "Part of that work is that every committee had a right, left, and centre person on it." He further explained, "I always made the distinction that we're not non-political, we're non-partisan… Our position is for food." Moreover, Wayne sought to diversify representation on the Toronto Food Policy Council to ensure it was "bulletproof… that is, so beyond reproach as to be immune to Conservative attack." This meant establishing a collective mix of credentials, social identities, and lived experiences, even though he recognized the risk of inadvertently reinforcing an elitist element through this strategy.

Another related aspect of Wayne's pragmatic approach lay in framing food as a potential economic contributor, not only in terms of revenue generation and community economic development, but also as a mode of job creation. On this theme, he joked about his time at the Toronto Food Policy Council: "I wore a suit and tie every day to work, because I was promoting food as having job creation possibilities. What's the uniform of people who create jobs? A suit and tie!" Wayne chuckled, "Some guy said: 'Hey, it's casual Friday,' and I said: 'This *is* casual.'… If you are proposing something economic, it's just a fact, you've got to wear a suit and tie."

Photo credit: Michelle Quance

Form alliances with academics and other champions

Academic scholarship held a special place in Wayne's heart and mind. While he spent most of his life either working for or in service of civil society organizations, Wayne conducted research, wrote scholarly papers, presented at academic conferences, and taught at post-secondary institutions throughout. He observed that universities had changed significantly over time: "The idea of the university as an ivory tower has ceased to be a dominant reality. Now the university has become a centre of the new knowledge economy and part of the overall functioning of society."

Throughout our interviews, Wayne spoke of scholars situated within the academy as playing an essential role in food movements—notably, through their contributions to food systems thinking. He saw academics as bringing additional resources to food movement work, including funding, access to space, applied student research capacity, and more. "These academics are opening the door to connect food and knowledge and push [new and diverse] ideas of food as part of systems thinking." In this way, Wayne suggested that post-secondary institutions "are not just about [developing] food studies, but also about using the university as a lever that can work with food to develop a transformative agenda." He saw an important role for academics to present new research to the broader public and frame food studies as a path to employment. Wayne noted that key academics created space in scholarly debates for discussions about "food as a topic in its own right… more than just food safety and nutrition." He stated that this advanced approach to food systems thinking has "led to qualitatively different conversations, that is, beyond nutritionism."

Wayne characterized some individuals as *academic entrepreneurs*—people who took risks within their professional positions to support civil society organizations and practitioners in their work and in the co-creation of knowledge. In doing so, they made universities more accessible places for public discussion and debate. He recognized that such people "go beyond academia, by using their academic positions to move in a broader sense." He described individuals who started coalitions and networks, who challenged conventional thinking by exposing the limitations of academia, and who offered paths forward for food systems thinking. These included scholars who helped build Food Secure Canada into a national food movement network, as well as students and professors who helped to develop university connections that helped legitimize the Toronto Food Policy Council. Wayne also spoke about the *Food for Talk* discussion series in the early 2000s—a collaboration among Ryerson University, York University, and the University of Toronto. The series involved regular lectures and workshops that brought together members of the three university communities—as well as civil society actors and activists across a range of sectors—to engage with critical ideas about food systems. This series also increased international collaborations in food movements in Toronto and across Canada. Similarly, Wayne also noted how CAFS not only connects academics with each other but also pulls in activists, practitioners, and policy actors to participate in and share experiences.

These examples emphasize the merits of what Wayne called "using universities as levers to make food a transformative agenda." Looking forward, he suggested that universities might serve a valuable role in encouraging and assisting cities to be vibrant and dynamic places and to accomplish many of their goals. For example, academics could take on "worthy projects" by figuring out what is holding government back from making progress on a given issue and contribute to the necessary knowledge and tools. Ultimately, Wayne felt that academics need to take this role much more seriously, using their power to support food systems change.

Wayne also made alliances with food systems champions outside of academia—those working on the ground in grassroots struggles, and with political actors with whom he shared core values. Notably, he worked closely with Debbie Field, the Executive Director of FoodShare Toronto from 1992 to 2017, and later Coordinator of the Coalition for Healthy School Food (Canada). Wayne paraphrased Debbie's idea that "we're building inch by inch now, and we'll be building inch by inch until we die." He went on to joke, "I barely went to the bathroom without consulting Debbie Field… I was checking in with her, and she with me, every day." Moreover, Debbie took on tough political issues on Wayne's behalf, protecting his role as a civil servant and advancing the goals of the Toronto Food Policy Council. "She wasn't an idealogue… She was so unbelievably respected." Similarly, Wayne worked closely with Brian Gilvesy, who he called "one of Canada's most-recognized farm innovators, as well as one of the country's best-known leaders of the food movement" (Roberts 2015, p. 20). Together, they documented and shared Brian's perspectives and approaches to food system sustainability. Wayne eventually published two articles in *Canadian Food Studies/La Revue canadienne des études sur l'alimentation,* presenting this research to a larger audience (Roberts 2014c; 2015).

Conclusion

This interview has highlighted a range of thoughts of food systems thinker, public intellectual, and "actionist" Wayne Roberts—a unique individual who drew on intellect, humour, and vision to effect change. Wayne often cited Canadian politician Tommy Douglas' call to "dream no small dreams." It is an imperative Wayne himself embodied. During one of our conversations, he laughed and said, "If you want to move and shake, you have got to be a mover and a shaker!" Clearly, Wayne moved and shook—in Toronto and across the globe. While this article highlights some of his key allies, Wayne recognized many other people he worked with and learned from. He was far from a lone hero. He forged close personal bonds from his professional affiliations—friends he viewed as "co-conspirators" in the fight to build a more just and sustainable world. In his celebration of life, many expressed that meeting Wayne for the first time was like reuniting with a long-lost friend you never knew you had.

The impact of this human-centered intellectual—the legacy of his academic and activist work, the seeding of food policy councils, the tipping towards food systems thinking, and the rich personal and professional connections—cannot be understated.

> "He was a true public intellectual, a professor whose class was everywhere he could speak or write. He made food studies part of popular discourse. I will remember his laughter and smile. Farewell brother!"
> —Mustafa Koç, Professor, Sociology, Ryerson University

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