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Chapter 3

Food Literacy: Bridging the Gap between Food, Nutrition and Well-Being

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This chapter argues that a new approach to food is needed in light of the poor nutritional health status of Canadians, and recent changes in food-related habits, environments and norms. Due to diminishing understanding around food and its uses, the concept of “food literacy” or being food literate is being explored as a new approach to food that has the potential to facilitate healthy food relationships. Food literacy extends beyond nutritional recommendations and cookery lessons, to fostering important and vital connections between food, people, health and the environment both theoretically and practically. This chapter will review current constructs of food literacy presented in the literature and explore the importance of educating for food literacy in order to rectify issues raised with respect to current food related concerns and ideologies. Finally, this chapter will identify why food literacy as a new approach to food should be examined within the larger context of emerging well-being frameworks. However, further work is still needed that examines how to best translate food literacy and well-being knowledge and skills through familial, cultural, educational and private sector institutions.

Procuring food and maintaining good health through diet has been one of humankind’s main pursuits, and has always had its challenges. However, despite significant technological advancements in food production and transportation methods and scientific progression in nutrition research, the ability of people to maintain health and well-being through food and nutrition has paradoxically become increasingly difficult. The relationship people have with food is becoming ever more disordered as obesity and diet-related chronic disease rates soar, and messages emphasizing diet and nutrition are numerous and conflicting from public health authorities promoting healthy eating and from food companies marketing their vast and diverse products for profit. Some may argue that as a society we have never been more food centered while at the same time we have never been so far removed from the food we eat, figuratively and literally. Consequently, these rapid developments have shaped our current and complex food environment which is intertwined with shifting societal issues. As a result, our multifaceted food system has become increasingly complicated to navigate, highlighting the critical need to examine ways to re-establish our relationship with food in order to achieve health and well-being. In light of these issues, the concept of food literacy has emerged in the literature and educational programs. Food literacy extends beyond nutritional recommendations and

cooking lessons, to fostering important and vital connections between food, people, health and the environment both theoretically and practically.

This chapter presents the rationale that a new approach to food is necessary due to: the poor nutritional health status of Canadians and changes in food-related habits, environments and norms. In light of these concerns it is argued that food literacy or being food literate can serve as this new approach to food and foster healthy food relationships. This chapter will review current constructs of food literacy presented in the literature and explore the importance of educating for food literacy in order to rectify issues raised with respect to population health trends, and current food related concerns and ideologies. Finally, this chapter will identify why food literacy as a new approach to food should be examined within the larger context of emerging frameworks of well-being.

Rationale for a New Approach to Food

The “Nutrition Transition”

Our food and food systems have changed dramatically over the last 70-80 years, most intensely in recent decades. More specifically, there has been a shift from fundamental, whole food ingredients to processed and ultra-processed, low nutrient and energy dense food commodities and sweetened beverages that are typically mass-produced and shelf-stable for long periods of time (Montiero, 2013). This shift has been coined the “nutrition transition” (Popkin, Adair, & Ng, 2012), and these changes have contributed substantially to the ways we eat and how food is viewed and recognized today. This surplus of convenience and ultra-processed foods are typically “branded” and heavily marketed (Moore & Rideout, 2007; Ustjanauskas, Harris, & Schwartz, 2013). They are also readily available at supermarkets, restaurants, vending machines and other retail venues (Glanz, Basil, Maibach, Goldberg, & Snyder, 1998) contributing to increased away-from-home food intake and eating outside traditional meal structures (Warde, 1999). Although the nutrition transition can be viewed as a sign of progress and efficiency, including reduced time spent in the kitchen, it also warrants greater scrutiny for its role in the health of people and the natural environment (Lang, 2001). Countries undergoing the “nutrition transition” have uniformly experienced concurrent growth in obesity and diet-related chronic disease (Popkin, 2001; Popkin & Gordon-Larsen, 2004; Popkin, Adair, & Ng, 2012; Popkin, 2002).

Population health status. Obesity and other diet related health issues are a major and growing public health concern globally, and Canada is no exception. A damning 2013 UNICEF report ranked Canada 27 out of 29 wealthy countries on a healthy weight index (UNICEF Office of Research, 2013). Recent statistics show that 67% of Canadian men and 54% of Canadian women are overweight or obese (Canadian Health Measures Survey, 2011). As well, close to one third of 5- to 17-year-old Canadians are classified as overweight (19.8%) or obese (11.7%) (Roberts, Shields, de Groh, Aziz, & Gilbert, 2012).

It is widely accepted that excess weight is a significant risk factor for type 2 diabetes, cardiovascular disease, hypertension, osteoarthritis, some cancers and gallbladder disease (The Conference Board of Canada, 2012). Diabetes is considered a worldwide epidemic and currently affects more than 9 million Canadians who have either diabetes or prediabetes (Canadian Diabetes Association, 2012). In the past, type 2 diabetes was only seen in adults; however the disease is

increasingly appearing in adolescents and children. Overweight and obesity is the major risk factor for type 2 diabetes, which accounts for 90% of all cases of diabetes (Canadian Diabetes Association, 2012). Also of concern are related functional limitations, disabilities and psycho-social problems, including: depression, social isolation and discrimination, low self-esteem, body-image dissatisfaction, and reduced quality of life (Hramiak, Leiter, Paul, & Ur, 2007; Puhl & Latner, 2007; Schwimmer, Burwinkle, & Varni, 2003; Wang & Veugelers, 2008).

Changing dietary habits. A growing body of evidence suggests that observed obesity and overweight trends are primarily due to increased energy consumption (Bleich, Cutler, Murray, & Adams, 2007; Slater et al., 2009; Swinburn, Jolley, Kremer, Salbe, & Ravussin, 2006) and modestly due to increased sedentary lifestyles. Slater and colleagues refer to this resultant energy imbalance as the ‘energy gap’ (Slater, 2009).

When examining the rates of obesity and diet-related disease crucial parallels can be drawn between what people are currently eating and how these dietary habits have changed in recent decades. Results from the 2004 Canadian Community Health Survey (CCHS) indicate several areas of concern within the average Canadian’s diet: 70% of children aged 4 to 8 and 50% of adults do not consume a minimum of five daily servings of fruit and vegetable (current recommendations are a minimum of seven servings); more than 37% of children aged 4 to 9 are not consuming enough milk products; people are consuming too much fat; and “other foods” (nutritionally-poor, calorie dense snacks, candies and condiments) account for almost one quarter of total calories consumed by Canadians (Garriguet, 2007).

Additionally, 14-18 year old boys obtain on average one quarter of their calories from sugar, half of which is “added” primarily from soft drinks (Langlois & Garriguet, 2011) and a study from British Columbia found that 91% of children and youth consume too much sodium (Mulder, Zibrik, & Innis, 2011). This is in part due to high consumption of convenience and fast food which accounts for up to one third of meals consumed by youth (French et al., 2002).

The twin trends of the nutrition transition, and population obesity and diet-related chronic diseases, have been accompanied by a decline in time spent planning for and preparing food, as well as the skills required to perform these activities. They have also diminished the importance of “food cultures” in favour of a homogeneous, branded, convenient food environment.

The “Culinary Transition”

Food skills. Lang and Caraher (2001) refer to the current state of food skills within our society as a “culinary transition”, which occurs when “cultures experience fundamental shifts in the pattern and kind of skills required to get food onto tables and down throats” (p. 2). Reasons they provide for this transition are: globalization; changes in production and processing methods; the growth of processed/pre-prepared food; and the increase in takeout meals. The prepared and shelf-stable nature of ultra-processed convenience and fast foods frequently releases consumers from the burden of preparation (in some cases requiring none at all). While heralded as time-saving commodities, the low-input and convenience aspect of these foods may be actually disfavoring the population on both nutritional and social fronts.

Some argue that these foods have actually caused a “deskilling” of citizens, meaning many people no longer possess the necessary skills to prepare food from whole food ingredients as they are no longer required to, thus furthering reliance on pre-prepared items (Caraher & Lang, 1999; Caraher, 2012; Jabs et al., 2007; Jaffe & Gertler, 2006; Lang & Caraher, 2001). Jaffe and Gertler

(2006) argue that “consumers do not have – and are systematically deprived of – the information, knowledge and analytical frameworks needed to make informed decisions that reflect their own ‘fully costed’ interests” (p. 143). In effect, even the concept of cooking has become obsolete, as more often a combination of processed foods assembled and heated together can constitute as a ‘home cooked meal’ (Engler-Stringer, 2010).

Scrinis (2007) attributes the poor state of food knowledge and skills to this process of deskilling which has resulted in “a decline in home-based food production...the shift from unprocessed whole foods and home-prepared meals to increasingly processed, prepared and convenience foods...an overall decline in the percentage of gross income spent on food...the loss of traditional and locally-distinct foods, cuisines and farming practices...and a decline of cooking and food preparation skills” (p. 121-122). According to Rützler (2003), the ability to prepare traditional meals without using recipes is significantly declining with age, where about 85-90% of forty-year-old women feel able to do so while in the case of those under forty, only 40-50% feel able. This is not to say women should be solely responsible for cooking, however it illustrates changes in social norms and decline in food preparation knowledge/skills, where more women are working outside the home and the deficit in domestic food work is not being picked up by other household members (Reynolds-Zayak, 2004; Woodruff & Kirby, 2013). This brings to light the importance of food and cooking education for men.

Jaffe and Gertler (2006) and Kornelson (2009) argue that intentional steps are needed to re-skill citizens as they become increasingly distanced (in time and space and experience) from the sites and processes of production. Selection of foods and particular products (i.e., informed shopping), food storage and preservation, and cooking and related activities of food preparation are all key gaps in food knowledge and skills (Jaffe & Gertler, 2006). Not only do these gaps negatively affect the cost of eating, nutrition, health and the environment but they also have unfavorable social impacts on food consumption and reduce the aesthetic and cultural enjoyment of food.

In order to start making positive changes within the culinary transition and counter the process of deskilling, Wilkins (2005) advocates for food citizenship, or “the practice of engaging in food-related behaviors that support, rather than threaten, the development of a democratic, socially and economically just, and environmentally sustainable food system” (p. 271).

Food skills and health. There are limited studies that have directly examined food preparation skills and health; however, existing studies indicate that increased diet quality is associated with greater frequency of cooking and using more complex preparation steps (Larson, Perry, Story, & Neumark-Sztainer, 2006). Early in-home food experiences seem to have a positive impact on food skills, as study subjects who enjoyed cooking in their twenties were significantly more likely to have been engaged in food preparation activities as adolescents and emerging adults (ages 19–23 years). They were also more likely to cook meals with vegetables if they had engaged in food preparation as an adolescent (though regular vegetable consumption was low for the entire group: 24% of males and 41% of females incorporated vegetables more than twice per week) (Laska, Larson, Neumark-Sztainer, & Story, 2011). Eating out more frequently is associated with obesity, and higher body fatness and eating more fast-food meals is linked to consuming more calories, fat, saturated fat, and sugary soft drinks and less fruits, vegetables, and milk (Larson, Perry, Story, & Neumark-Sztainer, 2006; Laska, Larson, Neumark-Sztainer, & Story, 2011).

The reliance on highly processed foods can have serious health consequences, especially for lower socio-economic groups as higher income people can afford “healthy” pre-prepared foods (Lang & Caraher, 2001). Studies show the rise in obesity and related chronic diseases can in part be

attributed to the combined effect of insufficient vegetable and fruit consumption, increased occurrence of meals away from home, poor food preparation skills, and increased portion sizes (Rafioura, Sargent, Anderson, & Evans, 2002; Lino, Gerrior, Basiotis, & Anand, 1998). While more studies are required, there is compelling evidence that fundamental food and nutrition knowledge and skills (food literacy) can have a protective influence on health and well-being.

Changing Social Norms: Food, Eating and Cooking

Convenience orientated. The above noted trends have synergistically and profoundly created contemporary norms around food and eating primarily characterized by convenience. Carl Honoré (2004) captures this in his book, “In Praise of Slowness: How a Worldwide Movement is Challenging the Cult of Speed”, where he states that speed has been the obsession of the modern world for the past century and that it governs every aspect of social organization and subsequently also regulates our meals. The shifts in our food environments described above are compounded by changes in societal values and norms, including our need for speed and convenience. Food corporations respond to, and reinforce these values and norms by offering more and more convenience and ultra-processed food products. Although there are movements beginning to challenge this ideology (“Slow Food Movement”, localism, organics, etc.), it still primarily governs how we engage with and consume food today.

Family meals. Shared meals were once the centre of family life, and the main vehicle for translating important cultural food knowledge. Today, however, parents and caregivers can no longer be expected or relied on solely to teach their children to prepare healthy meals as they may not have the necessary skills or knowledge due to a lack of opportunity to acquire these skills and/or impeding priorities. Ironically, parents say they want to spend less time “cooking” and more “family time”, therefore the two are not seen as complementary (Agriculture and Agri-Food Canada, 2010; Pronovost, 2007). Everyday work and chaotic family schedules provide less time for provision and preparation of meals, and limits the ability of children to visit grocery stores with parents or help with food preparation (Lichtenstein & Ludwig, 2010). These are missed opportunities for teaching and mentoring children about essential food skills, as well as key time that could be viewed as “family time”.

Additionally, more women are working outside the home, while still being primarily responsible for food related activities (Reynolds-Zayak, 2004). In one study, 87% of food planning or preparation was done by the mother or stepmother (Woodruff & Kirby, 2013). This is coupled with an overall de-valuing of “domestic foodwork”, affecting both the home and school environment (Smith & de Zwart, 2010).

Research on family meal frequency is ambiguous with respect to nutritional quality of shared meals, though some research points to a protective influence. Woodruff and Kirby (2013) found increased consumption of fruits and vegetables, whole grains, calcium-rich food, protein, and micronutrients from food and less consumption of fried food and sugar-sweetened beverages were associated with higher family meal frequency. They also found that participants with greater self-efficacy and more positive family meal attitudes and behaviors were more likely to have higher family dinner frequency. Morin and colleagues (2013) also highlight the importance of perceived self-efficacy related to meal management and food coping strategies among working parents. The decline in family meals is also concerning as frequency of recalled childhood family meals appear to

influence the frequency of current commensality in the eating habits of students (De Backer, 2013; Murcott, 1997).

School-based food and nutrition education. Schools have been highlighted as a potential vehicle of change in light of current health trends and societal changes; however concerns within the school system exist. There have been increased initiatives to change the school environment, such as introducing “school nutrition guidelines”, which focus on improving the nutritional quality of foods available to students through vending machines, cafeterias and fundraising (Healthy Child Manitoba, 2006). Although this attempt at changing school food environments is important, it does not address the deficit of key food skills amongst this population that would equip students to make healthy choices in the outside world and home (Lichtenstein & Ludwig, 2010).

Home Economics Food & Nutrition (HEFN) education in the school system is traditionally where students (primarily girls) gain knowledge and applied experience in cooking and related activities. Unfortunately, there has been a decline in home economics education in North America, and HEFN programming faces significant challenges. Some of this can be attributed to diminishing gender stereotypes, however there are other reasons. Food and nutrition education is often undervalued in the schools while “core” subjects, like math and science, take precedence (Lichtenstein & Ludwig, 2010; Slater, 2013). As well, there are significant challenges presented by the wider food and nutrition environments, which undermine HEFN education. These include the widespread availability of highly processed foods and high frequency of irregular eating away from home (Slater, 2013). Students are also entering HEFN classes with less food knowledge and fewer skills than in the past, presenting challenges for teachers. In one Canadian province, less than half of students take HEFN, though enrollment has increased over the last ten years and more males are enrolled (Slater, 2013). Additionally, there is a projected teacher shortage, as training programs close, eliciting concern over HEFN teacher competence (Smith & De Zwart, 2010).

Lichtenstein and Ludwig (2010) argue that while food and nutrition education must be re-introduced into schools, traditional, gender specific home economics education is no longer relevant in today’s food environment and needs to be changed to meet current demands. Fordyce-Voorham (2011) has identified “essential skills required for a skill-based healthful eating program” (p. 117), which includes: knowledge (experiential learning at supermarkets, awareness around environmental sustainability, understanding various cooking methods and kitchen equipment, exposure to enjoyable taste experiences, meal planning, and nutrition knowledge in the context of enjoying a wide variety of food); information (food literacy relating to food labels and proper use of kitchen equipment); skills (planning, shopping, and preparation); resources (energy, motivation, time, cooking equipment and transport). These aspects of the curriculum should be integrated with other subject areas to be truly effective.

Food and nutrition trends. Paradoxically, despite the somewhat dismal state of the population’s nutritional health and food skills there is unprecedented interest by the public in food and nutrition, including vitamins, minerals and supplements; weight loss regimens; organics and local foods; celebrity doctors promoting weight loss schemes; cookbooks; celebrity chefs; and “food TV” (Adema, 2000). Health and wellness is a major concern for consumers, especially as our population ages (Reynolds-Zayak, 2004). A “food as medicine” philosophy has also started to gain popularity and credibility (Adema, 2000). People are likely to proactively pursue food and beverages that they perceive will support physical health for themselves and family members, and there is increased demand for “functional foods”, “nutraceuticals”, “natural”, organic, and novel food products.

However, while Canadians exhibit high interest in the area of nutrition this has not been translated into actions and behaviours that promote individual and population health and wellness (Canadian Medical Association, 2013). People's desires conflict with perceived "time scarcity", and consumers feel overwhelmed by their lifestyle obligations, which are a primary driver for the desire for convenience, which often regulates and determines food choices (Agriculture and Agri-Food Canada, 2010; Slater, Sevenhuysen, Edginton, & O'neil, (2012). One study revealed that 53% of Canadians spend their lunch break in isolation reading, surfing the internet, or not stopping for lunch at all and if they do break for lunch, they do so for only 16-30 minutes (Conagra Foods, 2009). Current cookery culture is also paradoxical in that we now have multiple channels dedicated to food preparation, yet people spend less time cooking than ever before (O'Sullivan et al., 2008).

In response to these trends, educators and others are recognizing the importance of re-invigorating school-based food education as an important prevention/health promotion strategy for future generations. As evidenced above people lack food literacy, necessary food related knowledge, skills, attitudes and values, to live well within current food and social environments, as a result of "nutrition" and "culinary" transitions. In part, this has contributed to poor nutritional health and food relationships. Therefore, a new approach to food is required in order to educate people and create food literate and well populations.

The Future of Food

The 2005 Agriculture and Agri-Food Canada report "Canadian Food Trends to 2020: A Long Range Consumer Outlook", foreshadowed trends which, beneficial for food producers and marketers, signal an alarming future for the health and well-being of future generations. The report predicted that: "Consumers will become even more disconnected from food preparation. Shopping and eating habits will be sporadic; meal planning cycles will be shorter, snacking will replace courses, as well as whole meals, and food will become even more portable" (Agriculture and Agri-Food Canada, 2005, p. i). This report was produced nine years ago, and we can see that our current food trends are on par with these predictions.

Although the exact balance of what constitutes a sustainable diet from biological or an environmental perspective is still emerging, there is common agreement that if current food trends continue, it will be at the expense of both human population health and the environment (Nestle, 2013). Perhaps a healthy balance can be struck between consumer demand for health/wellness, convenience, pleasure and values to support future health (Reynolds-Zayak, 2004). Belasco (2006) argues that we have a "complex food culture that aspires to convenience and authenticity, efficiency and artisanship, mass distribution and class distinction"; a myriad of contradictions which will have to be considered when attempting to predict what the future holds regarding food, nutrition and wellness.

Food Literacy: A New Approach to Food

"Nutritionism"

The dominant response to the poor nutritional health of the population has been the rise of "nutrition science", a biological science "concerned with the interactions of food and nutrition with

physiologic, metabolic and now also genomic systems, and the effects of these interactions with health and disease” (Beauman et al., 2005, p. 783). Here, the primary focus is on the role of nutrients in disease prevention or control and traditional, culturally-relevant cuisines are rendered invisible. This understanding of food and diets based on their nutrient and biochemical composition has in turn driven much of the commodification of food and health (nutritional supplements, functional foods) (Smith, 2009). The nutrition industry (nutrition scientists, dietitians, public health authorities, purveyors of diet products and books) has reinforced this scientific paradigm by recommending that citizens consume a “nutritionally balanced” diet, by eating less of certain nutrients (saturated fats, sugar, salt) rather than less of the actual foods that contain high levels of these nutrients such as processed meat or sweets (candies, baked goods) (Scrinis, 2008). In turn, these types of dietary recommendations have created ideal conditions for the food industry to capitalize on, through strategic production and marketing of “nutritionally enhanced” processed foods.

This reductive focus on nutrients and decontextualized individual biologies has been scrutinized and referred to as “nutritionism” which “has come to dominate, to undermine, and to replace other ways of engaging with food and of contextualizing the relationship between food and the body” (Scrinis, 2008, p. 39). While this approach has produced a vast amount of knowledge and research, its inherently reductive focus on nutrients has promised individualistic solutions to complex public health nutrition problems, on which it has not delivered. It is increasingly being scrutinized by some critics as misguided and possibly detrimental to the health of humans and the natural environment (Pollan, 2007; Scrinis, 2008; Nestle 2000).

Pollan (2007) argues that “the reductive focus on nutrients and biomarkers (whether these be protein, the glycemic index or body mass index) removed from all other contexts and frameworks of understanding food and the body... provides scientific legitimacy for, and drives the development and marketing of, nutritionally-modified processed foods, functionally-marketed foods, fad weight-loss diets, and nutritionally-modified genetically-modified crops” (p. 97).

Marion Nestle explains the central contradiction between nutrition theory and practice:

On the one hand, our advice about the health benefits of diets based largely on food plants - fruits, vegetables, and grains - has not changed in more than 50 years and is consistently supported by ongoing research. On the other hand, people seem increasingly confused about what they are supposed to eat to stay healthy. (Nestle, 2000 as quoted in Scrinis, 2008, p. 39)

In order to reduce “nutrition confusion” it is imperative to re-emphasize the importance of whole foods and re-establish sensual, cultural and ecological connections to food (Lang, 2001; Pollan, 2007; Scrinis, 2008). Food literacy holds promise to re-establish lost knowledge, skills, attitudes and values that can restore our relationships with food.

Conceptualizing Food Literacy: A Review

Clearly there have been major changes to what and how we eat as outlined above and challenging paradoxes exist between citizen desires, health status and environmental impact. Although there is no clear way forward, researchers are looking to more fundamental ways of promoting engagement with food to regain health and well-being. These go beyond “health promotion” and “lifestyle education” to encompass holistic and sustainable food knowledge, including “traditional” food and cultural food pedagogies taught through theoretical, critical and

applied methods. This encompasses the importance of cultural knowledge, environmental stewardship, and family connectedness.

There is considerable evidence to support the notion that many people lack the necessary knowledge, skills, attitudes and values to make choices that facilitate an overall healthy relationship with food. The concept of “food literacy” has emerged as a possible framework and promising approach to re-define what people need to know and be able to do with respect to food for individuals, families and communities to be healthy and live well within our current food world and preserve it for future generations. However, food literacy is increasingly being used in policy and practice without a generalized meaning or understanding of what it is. Table 1 below illustrates current definitions of food literacy found in the literature.

<i>Author/Program</i>	<i>Definition</i>
Vidgen & Gallegos (2011, 2012)	A collection of inter-related knowledge, skills and behaviours required to plan, manage, select, prepare and eat foods to meet needs and determine food intake”, as well as, “the scaffolding that empowers individuals, households, communities or nations to protect diet quality through change and support dietary resilience over time” (Vidgen & Gallegos, 2012, p. vii).
European Food Literacy Project (Schnögl et al., 2006)	Food Literacy is defined as “the ability to organize one’s everyday nutrition in a self-determined, responsible and enjoyable way” (n.p.). The objective is to develop food literacy as a “personal core competence”.
Slater (2013)	Functional food literacy: basic communication of credible, evidence-based food and nutrition information, involving assessing, understanding and evaluating information; Interactive food literacy: development of personal skills regarding food and nutrition issues, involving decision making, goal setting and practices to enhance nutritional health and well-being; Critical food literacy: respecting different cultural, family and religious beliefs in respect to food and nutrition (including nutritional health), understanding the wider context of food production and nutritional health, and advocating for personal, family and community changes to enhance nutritional health.
Desjardins (2013)	A set of skills and attributes that help people sustain the daily preparation of healthy, tasty, affordable meals for themselves and their families. Food literacy builds resilience, because it includes food skills (techniques, knowledge and planning ability), the confidence to improvise and problem solve, and the ability to access and share information. Food literacy is made possible through external support with healthy food access and living conditions, broad learning opportunities, and positive socio-cultural environments.
Association of Local Public Health Agencies (2009)	The ability to cook healthy meals from scratch, grow food, read food labels correctly, as well as knowing where one’s food comes from.

East Carolina University: Food Literacy Program (http://www.ecu.edu/cs-dhs/dph/Community-Initiatives.cfm)	Focus is on food and nutritional well-being. Topics include: weight management, dietary supplements and information about diseases often associated with obesity.
Harvard University Dining Service: The Food Literacy Project (http://www.dining.harvard.edu/flp/index.html)	Aim is to cultivate an understanding of food from the ground up. The focus is on four areas of food and society: agriculture, nutrition, food preparation and community. The goal is to promote enduring knowledge, enabling consumers to make informed food choices.

Table 1. Food literacy definitions & programs.

The first four definitions above are more comprehensive in scope, and will be used to explore food literacy education as a means to address and ameliorate the issues raised in this chapter's first section (Rationale for a new approach to food).

Vidgen and Gallegos (2011, 2012) developed a conceptual framework that consisted of four descriptors/capabilities of a food literate person (Table 2). They purport that food literacy serves to improve nutritional outcomes due to its ability to make food intake more certain (predictable), more pleasurable, and provides more informed choice. The extent that this will improve diet quality is mediated by social determinants of health (i.e., social exclusion, poverty, social support, geography and transport).

Planning and Management	<ul style="list-style-type: none"> • Prioritizes money and time for food • Can access food through some source on a regular basis irrespective of changes in circumstances or environment by planning (formally and informally) their food intake • Makes feasible food decisions which balance food needs (eg nutrition, taste, hunger) with available resources (eg time, money, skills, equipment)
Selection	<ul style="list-style-type: none"> • Knows that food can be accessed through multiple sources and the advantages and disadvantages of these sources • Knows how to determine what is in a food product, where it came from, how to store it and use it • Can judge the quality of food
Eating	<ul style="list-style-type: none"> • Understands food has an impact on personal well-being • Demonstrates self-awareness of the need to personally balance food intake. This includes knowing foods to include for good health, foods to restrict for good health and appropriate portion size and frequency • Can join in and eat in a social way

Preparation	<ul style="list-style-type: none"> • Can make a good tasting meal from whatever food is available. This includes being able to prepare commonly available foods, efficiently use common pieces of kitchen equipment and having a sufficient repertoire of skills to adapt recipes (written or unwritten) to experiment with food and ingredients • Knows the basic principles of safe food hygiene and handling
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Table 2. Components of individual food literacy (Vidgen & Gallegos, 2011; 2012).

Each dimension of food literacy in this framework encompasses a wide spectrum of food related activities which can potentially rectify knowledge deficits and “deskilling” issues. For example: adequate management and prioritization of money and time around food is essential for moving away from “convenience” orientated food decisions, which can also facilitate less reliance on processed, nutrient-poor and energy-dense food options. This could improve overall diet quality and improve health outcomes. Their definition of food literacy, while still primarily focused on individual physical health outcomes, does not focus on nutrient acquisition/avoidance and extends to understanding where food comes from and the impact food has on personal well-being (i.e., social connectedness, food security, and ethical and sustainable food choice).

Schnögl and colleagues (2006) see food literacy as contributing toward the sustainable, democratic development of citizenship. Table 3 elaborates on their definition: “the ability to organize one’s everyday nutrition in a self-determined, responsible and enjoyable way”.

A person organizes their everyday nutrition in a self-determined way:	<ul style="list-style-type: none"> • Is aware of his/her nutritional behaviour and understands it in connection with his/her biography, • Knows about the social, cultural and historic influences on eating habits and understands their respective effects, • Shows sufficient knowledge of nutrition and food in order to be able to critically question statements given in the media and made by experts, • Knows his/her personal needs in nutrition and • Is able to organize nutrition in a way that has a good effect on him/her.
A person organizes their everyday nutrition in a responsible way:	<ul style="list-style-type: none"> • Understands the effect of nutrition on his/her health condition, the environment and society as a whole and understands the respective connections between them, • Knows about food production, processing, transport and disposal, • Is informed about the composition of food and can judge its quality, • Is able to select appropriate products within the framework of his/her personal budget, • Makes decisions as a consumer that are quality-oriented and effectively develop his/her style of living.

A person organizes their everyday nutrition in an enjoyable way:	<ul style="list-style-type: none"> • Can feel for himself/herself what is good and what provides personal pleasure, • Realizes that conscious perception using all the senses and a varied experience of taste is a condition of enjoyment, • Appreciates cooking and eating as an aspect enriching everyday life, • Regards dealing with food as an elementary part of human culture and • Is open to other culinary cultures.
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Table 3. European food literacy definition (Schnögl et al., 2006).

Their concept revolves around the notion that cultural, social, emotional, personal and practical factors must be at the centre of nutrition communication and education. Facilitating food literacy education based on these principles would address several concerns around changing values and norms around food, such as loss of food cultures and pervasive isolated eating practices. As well, by educating people to “critically question statements given by the media and made by experts” (p. 12), this will allow consumers more control over their food choices and minimize nutrition confusion. A key and distinguishing feature of their conceptualization of food literacy is their emphasis on the enjoyment or pleasures around cooking, eating and experiencing food as an aspect enriching everyday life. Schnögl et al. (2006) feel strongly that food literacy is much more than recommending nutritional guidelines (“nutritionism”); rather they seek to empower individuals and communities to make decisions in complex food environments, and provide essential basic competencies around food and nutrition.

Slater (2013) argues that in light of current obesity and diet-related chronic disease rates, complex foodscapes, citizen “de-skilling” and changing social norms, re-evaluation of educational practices in public school systems is required. This is underscored by concern that theoretical and applied food and nutrition related learning opportunities are under threat, particularly through the decline in home economics courses. In response, Slater has proposed a food literacy framework that identifies three aspects of food literacy:

Functional food literacy	Communication of credible, evidence-based food and nutrition information, involving assessing, understanding and evaluating information
Interactive food literacy	Development of personal skills regarding food and nutrition issues, involving decision making, goal setting and practices to enhance nutritional health and well-being
Critical food literacy	Respecting different cultural, family and spiritual beliefs in respect to food and nutrition (including nutritional health), understanding the wider context of food production and nutritional health, and advocating for personal, family and community changes to enhance nutritional health

Table 4. Aspects of food literacy (Slater, 2013).

This framework needs to be matured conceptually to examine and propose methods and tools for building food literacy capacity and translating food literacy to individuals.

Desjardins (2013) has conducted a study that examined food literacy from the perspective of disadvantaged young adults. In comparison to the other definitions presented in this chapter, this study explicitly discusses food literacy as food preparation skills, which are defined as:

Food skills that are necessary to provide regular, healthy meals for one’s household and/or one’s self comprise a combination of techniques (ability to use cooking implements and appliances, handle food ingredients); knowledge (nutrition for good health, interpreting food labels, following/understanding instructions, ingredients and recipes; food safety; awareness of food origins and characteristics, and growing foods if possible); and planning ability (organizing meals; food budgeting, shopping and storage). (Desjardins, 2013, p. 70)

Table 5 below describes the measurable outcomes of food literacy determined from results of this study.

Personal skills and attributes related to food preparation	External determinants	Potential outcomes (as expressed by young people themselves)
<ul style="list-style-type: none"> • Food skills (techniques, knowledge, planning) • Self-efficacy and confidence • Ability to improvise and problem-solve • Ability to find and use social & other supports 	<ul style="list-style-type: none"> • Socio-cultural environment • Learning environment • Food access, cooking facilities • Living conditions (income, employment, housing) 	<ul style="list-style-type: none"> • Preparation of healthier meals and greater likelihood of consuming a healthier diet • Feeling better, physically & mentally • Greater connectedness to others with respect to food and eating • Improved response to change • Feelings of satisfaction in preparing food for themselves and others • Attraction to culinary training and job opportunities (for some) • Improved household food security

Table 5. Measurable components of food literacy (Desjardins, 2013).

Both Desjardins (2013) and Vidgen and Gallegos (2012) examined food literacy from the perspective of disadvantaged young adults, a population that will benefit from enhanced food literacy. The authors of this review suggest that food literacy is also critical for the health and well-being of all members of society, regardless of their age and socio-economic position.

Food Literacy & Well-Being

The authors of this chapter argue that being food literate is a vital aspect to living well, beyond individual physical health. Just as food literacy is emerging as a promising way to re-establish our connection and relationship to food, new well-being frameworks are being developed to re-evaluate how to measure the quality of one's life. These emerging well-being frameworks are worth examining for their potential to include dimensions of food literacy.

Although the definitions of well-being vary, the Canadian Index of Wellbeing (CIW) (Canadian Index of Well-Being, 2012) currently defines it as:

The presence of the highest possible quality of life in its full breadth of expression focused on but not necessarily exclusive to: good living standards, robust health, a sustainable environment, vital communities, an educated populace, balanced time use, high levels of democratic participation, and access to and participation in leisure and culture. (n.p)

The CIW has created a comprehensive composite index of indicators to measure social progress and quality of life as opposed to the current system which uses Gross Domestic Product (GDP) as the measure of prosperity. These include living standards, community vitality, education, health, time use, environment, democratic engagement, and leisure and culture.

Each component of the CIW is interconnected with food literacy. For example, "time use", which measures the use of time, how people experience time, what controls its use, and how it affects well-being directly effects what people choose to eat. This is just one example of why a new approach to food based on food literacy should be seen within the larger context of new well-being frameworks.

Another organization, the New Economics Foundation (New Economics Foundation, 2013), aims to improve quality of life by promoting innovative solutions that challenge mainstream thinking on economic, environmental, and social issues. They seek to answer the question: what would politics look like if promoting people's well-being was one of government's main aims? NEF has created a "well-being manifesto" that urges the government to redefine policy to shape the culture and society in which we live to support well-being through eight key areas (Aked et al., 2009):

1. Measure what matters: produce a set of national well-being accounts;
2. Create a well-being economy: employment, meaningful work and environmental taxation;
3. Reclaim our time: improve work-life balance;
4. Create an education system that promotes flourishing;
5. Refocus the health system to promote complete health;
6. Invest in the very early years and parenting;

7. Discourage materialism and promote authentic advertising;
8. Strengthen civil society, social well-being and active citizenship.

Again, food literacy resonates with many aspects of this well-being framework. For example, creating an education system that promotes flourishing and a health system that promotes complete health would necessitate the development of food literate citizens. Food literacy education would strengthen the other pieces of this framework, for example: invest in the very early years and parenting; improve work-life balance; and refocus the health system to promote complete health. Additionally, not only does food literacy compliment the social environment reflected in this well-being definition, it extends to the natural environment. To be “well” society needs to exist within a healthy social and natural environment.

While food literacy is not explicitly embedded within the frameworks discussed, they provide an important heuristic device for thinking about the role of food literacy in well-being. And while empirical work is required to examine the linkages between food literacy and well-being more closely, the authors of this chapter argue that food literacy can be seen as an integral “thread” running through conceptualizations of well-being, profoundly influencing the quality of individual and community life.

Further Research

The literature reviewed in this chapter has advanced the wider understanding of food literacy as a concept, and for beginning to think about educating for food literacy and well-being. Research is required to further explore the scope and boundaries of food literacy and embed the components of food literacy into a holistic framework of “food literacy for well-being”. In addition, research is required to empirically measure the linkages and pathways between food literacy and well-being. Finally, further work is needed that examines how to best translate food literacy through family, cultural, educational and private sector institutions.

Conclusion

This chapter has reviewed the impetus for a new relationship to food in the context of poor health, growing concern over current food systems, and loss of foundational food knowledge, skills and culture. Food literacy, as an emerging concept, holds promise for fostering this relationship, but needs to be further examined, theoretically and empirically, including its relationship to “well-being”. Emerging concepts of well-being go beyond individual health behaviours to include citizenship engagement, work/life balance, and flourishing education. A recent report, “Health care in Canada – what makes us sick?” (Canadian Medical Association, 2013), identified nutrition and food security as one of four major threats to health and well-being in Canada, underscoring the importance of connecting food literacy and well-being. Food literacy for well-being is an important concept that can help researchers, practitioners, planners and educators create new ways of thinking and educating about food and nutrition. Food literacy can provide a foundation for creating policies and programs to prevent disease, promote complete health and flourishing, and sustain environments and cultures.

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