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The Role and Status of Food and Nutrition Literacy in Canadian School Curricula

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The obesity epidemic in North America has given greater attention to food and nutrition literacy in Canadian schools. However, the review of relevant literature on food and nutrition literacy reveals quite a range of understandings of what such literacy means. This raises the question of what understanding of food and nutrition literacy is actually represented in Canadian curriculum documents, considering that it is the curriculum that primarily drives teaching and learning in schools? Using a document analysis approach, the study reported upon in this article inquires into this very question. While the study finds a range of conceptualizations represented across provinces, territories and subject areas, it identifies the preferred framing of food and nutrition literacy as being related to food consumption and health at the individual level.

L'épidémie d'obésité en Amérique du nord a attiré une plus grande attention vers les connaissances en nutrition et en alimentation dans les écoles. Par contre, un examen de la littérature sur le sujet a révélé toute une gamme d'interprétations de ce qu'est une éducation en nutrition et en alimentation. La question suivante se pose alors: quelle représentation fait-on de la nutrition et l'alimentation dans les programmes d'études au Canada, le curriculum étant surtout ce qui véhicule ces connaissances? S'appuyant sur une approche d'analyse de documents, la présente étude s'est penchée sur cette question. Les résultats indiquent qu'il existe un éventail de conceptualisations selon les provinces, les territoires et la matière à l'étude, et que le cadre préféré pour aborder la consommation alimentaire et la santé repose sur l'individu.

Food is the lifeline of human living. In developed countries, this has now become a double-edged sword. The traditional relationship has been that without food, there would be no human life. Now the reverse has also become true: with too much food or with too much of the wrong food, human life (in developed countries) has become threatened in light of illness and death linked to obesity and other food-related illnesses (Eisenberg, Atallah, Grandi, Windle, & Berry, 2011). Food literacy education has been suggested as one way of tackling the "obesity epidemic" in Canada and beyond (e.g., Colatruglio, 2015; Howard & Brichta, 2013; Slater & Falkenberg). With school education as society's most prominent tool for literacy education, the question arises how the Canadian school system is currently approaching food (and nutrition) literacy. This question identifies the general research problem for the study this article reports on. The specific focus of the study is the question of how food and nutrition literacy is conceptualized in relevant Canadian curriculum documents.

The next section reviews the relevant scholarly literature on the conceptualization of food and nutrition literacy. The conceptual structure resulting from this review will then provide the

theoretical lens through which the Canadian curriculum documents were analyzed.

Understanding Food and Nutrition Literacy

As expected, there is no common understanding of food and nutrition literacy in the literature we reviewed. The conceptualizations can be distinguished with respect to four aspects:

1. What food/nutrition literacy is all about;
2. What being food/nutrition literate involves;
3. Why food/nutrition literacy is important;
4. Food literacy versus nutrition literacy.

We explain and illustrate the range of food and nutrition literary conceptualizations with respect to each of these four aspects. (For the purpose of this review, we use the label "food/nutrition literacy" where we do not want to distinguish between the literature that talks about "food literacy", the one that talks about "nutrition literacy", and the one that talks about "food and nutrition literacy".)

Different Notions for Understanding Food/Nutrition Literacy: What Is Food/Nutrition Literacy All About?

We identified three notions that gave rise to different conceptualizations and understandings of food/nutrition literacy. One is the notion that food/nutrition literacy is about language literacy, i.e. it is about capacities linked to reading and writing text and, more generally, the understanding and acquiring of relevant knowledge. Interviewing 51 food experts, Fordyce-Voorham (2011) found that "food literacy was seen mainly as an individual's ability to read, understand, and act upon labels on fresh, frozen, canned, frozen (sic), processed, and takeout food" (p. 119). In Block et al.'s (2011) model, "food literacy has three main components: conceptual or declarative knowledge, procedural knowledge, and the ability, opportunity, and motivation to apply or use that knowledge" (p. 7).

A second approach to conceptualizing food/nutrition literacy that we identified in the literature takes its starting point in the notion that food/nutrition concerns are primarily health concerns. Accordingly, food/nutrition literacy is here understood as a special case of health literacy (e.g., Howard & Brichta, 2013; World Health Organziation, 2004). This starting point of conceptualizing food/nutrition literacy seems to be the most common in the food/nutrition literacy literature, which should not surprise, considering that "the concept of food literacy has emerged from the earlier use of the term health literacy" (Desjardins & Hailburton, 2013). Some conceptualizations are based on a combination of the first two approaches (e.g., Block et al., 2011).

Finally, a third notion underlying conceptualizations of food/nutrition literacy is the notion that food/nutrition literacy is about the relationship that people have or should have with food more generally, particularly with planning and managing, selecting, preparing, and eating food (e.g., Desjardins & Hailburton, 2013; Smith, 2009; Vidgen & Gallegos, 2011, 2012, 2014).

Being Food/Nutrition Literate: What Does That Mean?

Based on the literature, we can distinguish between three types of human capacities that the

literature suggests to characterize what it means to be food/nutrition literate. The first type of capacity linked to food/nutrition literacy is the ability to read properly, to know through reading, and to act upon that knowledge. In the realm of food/nutrition literacy, this means the capacity of food label reading and the knowledge needed to make good decisions in matters of eating food as outlined in the previous section (e.g., Association of Local Public Health Agencies, 2010; Block et al., 2011; Fordyce-Voorham, 2011).

The second type of capacity drawn upon in the literature to characterize what it means to be food/nutrition literate involves capacities relevant to our engaging with food, from the planning of meals, to the selecting and purchasing of food and meal ingredients, to the storing, handling, preparing and disposing of food, to the eating of food (e.g., Howard & Brichta, 2013; Vidgen & Gallegos, 2011, 2012, 2014).

The third type of capacity used to characterize food/nutrition literacy involves capacities linked to critical literacy (e.g., Slater, 2013; Smith, 2009), which, for instance, encompasses the "awareness of the four external resources and feeling able to access them as needed" (Desjardins & Hailburton, 2013, p. 69), where those external resources include literacy, numeracy, emotional support, youth engagement, food availability, income, employment and housing (Desjardins & Hailburton, 2013). Critical food literacy is derived from the notion of *critical literacy* as it has been used in language literacy (Nutbeam, 2000) and is used by the World Health Organization in its definition of health literacy, which asserts "that literacy is not simply a set of functional capabilities, it comprises a set of skills that enable people to participate more fully in society, and to exert a higher degree of control over everyday events" (Nutbeam, 2008, p. 2075). Some scholars talk about the importance of food literacy for people's "empowerment", but they do not directly include critical literacy into the actual conceptualization of being food literate (e.g., Vidgen & Gallegos, 2012, p. 72).

Rationales for Food/Nutrition Literacy

Being food/nutrition literate has a purpose beyond itself because it matters for something. What that something is differs among conceptualizations of food/nutrition literacy and, thus, defines different rationales for being food literate.

The most common notion or way of understanding food/nutrition literacy is the one that frames its conceptualization within the context of health literacy. Here, being food/nutrition literate is seen to be an important concept because of its relevance to living a (nutritionally) healthy life (e.g., Howard & Brichta, 2013). Even some of the literature that draws more from the perspective of our relationship with food seems to see the value of a good relationship with food in its relevance for our nutritional health: "In defining food literacy and identifying its components, this study provides an insight into the everyday practicalities of meeting nutrition recommendations" (Vidgen & Gallegos, 2014, p. 57; see also Slater, 2013).

A second rationale for why food/nutrition literacy is important would include, but goes beyond concern for, people's health status: being food/nutrition literate is about people's agency and their empowerment to live a healthy life. Here, food/nutrition literacy is important because it provides "the scaffolding that empowers individuals, households, communities or nations to protect diet quality through change and strengthen dietary resilience over time" (Vidgen & Gallegos, 2014, p. 54; see also Smith, 2009).

A third rationale for the importance of food/nutrition literacy is derived from its relevance in the larger context of the school subject of home economics: "Articulating a conception of food

literacy is just a beginning. For Home Economics, we need to fit this into a larger conception of domestic/family literacy" (Smith, 2009, p. 60). Here, being food/nutrition literate is important because it concerns one aspect (food) of a set of capabilities that are considered important for a person's quality of life within the domestic/family sphere.

The first three rationales for the importance of food/nutrition literacy—health, empowerment, and quality of life within the domestic/family sphere—focus primarily on the individual and domestic sphere of a person's life. The fourth rationale looks beyond the individual to the social and beyond the domestic/family domain to the communal domain. For instance, Slater and Falkenberg (in prep.) have developed a concept of food/nutrition literacy that has been developed through the framework of "sustainable well-being", where the importance of food and nutrition literacy is rationalized as a human capacity needed for individual and communal well-being, which includes concerns for sustainable living and social justice. The latter concern can be found in the literature on food sovereignty (e.g., Wittman, Desmarais, & Wiebe, 2011), but generally not in the literature on food/nutrition literacy, although some of the critical literacy approaches to food/nutrition literacy link this form of literacy to aspects of communal well-being (e.g., Desjardins & Hailburton, 2013; Slater, 2013).

Distinguishing between Food and Nutrition Literacy

The food/nutrition literacy literature can also be divided by the label that approaches are using to name the type of literacy: "food literacy" or "nutrition literacy". Although exceptions exist, we made the following observations. First, those using the label "nutrition literacy" primarily (a) subscribe to the notion that nutrition literacy is a special case of health literacy, (b) focus primarily on the understanding of nutritional aspects of eating, for instance on the understanding of nutrition labels (e.g., Carbone & Zoellner, 2012; Gibbs & Chapman-Novakofski, 2013; Patel et al., 2013), and (c) see the rationale for being nutrition literate primarily in its contribution to people's health. However, in a few cases the three features are also true where authors use the label "food literacy" (e.g., Howard & Brichta, 2013).

More often than not, those authors using the label "food literacy" (a) take their starting point in people's relationship with food and eating and (b) have a more complex notion of food/nutrition literacy based on the complexity of that relationship (e.g., Desjardins & Hailburton, 2013; Slater, 2013; Smith, 2009; Vidgen & Gallegos, 2014), and (c) see food literacy in larger contexts like (domestic) life quality (Smith, 2009) and human well-being more generally (Slater & Falkenberg, in prep.).

The Understanding of Food/Nutrition Literacy in Canadian School Curricula: A Research Problem

With the now much broader notion of multiliteracies (Cimbaro, 2008; New, London, & Group, 1996; Turkki, 2015)—including mathematical literacy, scientific literacy, media literacy, and so on—one can say that developing literacies is one of the primary objectives of the K-12 school system in Canada. School curricula specify the general and specific learning outcomes for achieving these literacies. Considering the general life-relevance of food/nutrition literacy, one can expect that Canadian school curricula would give consideration to developing this form of literacy. Thus, the following research problem arises: in light of a diverse conceptualization of food/nutrition literacy in the relevant scholarly literature, what conceptualization of

food/nutrition literacy is reflected in Canadian school curricula? Since such conceptualization shapes the focus of teaching objectives and practice, the problem is quite relevant to the current active discourse in Canada about the role of schools in addressing obesity and nutrition/food related health issues.

In order to address this problem, we undertook a curriculum analysis study for which our literature analysis of conceptualizations of food/nutrition literacy provided us with a framework. Drawing on the literature analysis, we will use the following four aspects of understanding food/nutrition literacy for the curriculum analysis:

- A1. being able to read and understand food labels and to act accordingly (focus on domain-specific language literacy);
- A2. understanding findings from the nutritional sciences and how those link to one's health (focus on the link between nutrition and health);
- A3. having agency in one's engagement with food (focus on planning, managing, selecting, preparing and eating food);
- A4. having critical literacy concerning the role of food, food production, food consumption, etc. for one's own well-being, and the well-being of communities and other living beings more generally (focus on food as part of people's and communities' well-being and as issues of social justice and sustainability).

From the literature review we understand that some conceptualizations will include all four aspects/foci, but some might focus exclusively or primarily on just one of the four. We used this framework to inquire into the research problem that we now turn to.

The Study

Research Question and Purpose

To address the research problem identified above, our study was undertaken with the following research question: how is food/nutrition literacy conceptualized in Canadian curriculum documents relative to the aspects of the framework outlined above?

Students' learning experiences in schools that contribute to their development of any kind of literacy are influenced by many educational factors, like the in-class activities, the readings used, the means of assessment used, the curriculum, and many more. In our study we focused on the curriculum documents, because these express the provincially mandated objectives for food/nutrition literacy and, thus, should frame students' learning experiences in school intended to contribute to the development of their food/nutrition literacy. It is from this specific status of curriculum documents that our study derives its potential impact. Our study is designed to deepen our understanding of Canadian school curricula in terms of their conceptualization of food/nutrition literacy in light of a scholarly literature that shows quite a range of conceptualizations of food/nutrition literacy. Thus, our study has the potential to clarify the current status quo of curricular understanding of food/nutrition literacy in light of alternative possibilities.

As the Methods section below makes clear, we needed to give consideration to curriculum documents from a number of different school subject areas, because aspects of food literacy are embedded in all of these.

Methodology

Curriculum documents rarely define concepts; instead, these are typically implicit in these texts. In order to interpret curriculum documents at the level of implicit conceptualizations, we rely on qualitative document analysis (Altheide, 2000; Bowen, 2009; Schreier, 2012) and frame analysis (Benford & Snow, 2000; Goffman, 1974) as our methodologies. We begin by discussing qualitative document analysis because frame analysis exists within the context of document analysis.

Qualitative document analysis involves generating and analyzing meaning from documents or texts. In our study, these texts are the relevant curriculum documents available online from the Canadian ministries of education. The process involved in qualitative document analysis includes careful, focused reading and re-reading of the texts (Bowen, 2009). As Altheiede (2000) suggests, qualitative document analysis is about discovery and description including searching for contexts, underlying meanings, patterns, and processes. Bowen (2009) describes document analysis as a systematic review in order to "elicit meaning, gain understanding, and develop empirical knowledge" (p.27). Qualitative document analysis is an excellent fit for our study because we aim to examine underlying conceptualizations within curriculum documents.

Our approach to document analysis involves careful and purposeful mining of texts to generate data, which we then analyze using frame analysis. Frame analysis (Benford & Snow, 2000; Goffman, 1974) is useful for investigating implicit assumptions in texts by way of systematically isolating key concepts across a body of documents (Lombardo, Meier, & Verloo, 2009). An important feature of frame analysis as applied to our study is the idea of examining frames across provinces and territories. This "coast to coast" approach to the framing of food/nutrition literacy across the provincial and territorial curriculum texts allows us to comparatively analyze these framings. Such comparison offers a richer analytic potential for our document analysis.

By attending to the frames in which food/nutrition literacy is positioned, we aim to reveal the implicit assumptions that underpin those conceptualizations. In the end, how a concept such as food or nutrition literacy is conceptualized in a curriculum text will direct and limit (frame) the ways in which the concept is taken up by teachers as a curricular outcome in their teaching practice. In other words, educators promote particular "takes" on concepts by how those concepts are framed in the curriculum texts. Take for example the conceptualization of food/nutrition literacy as the ability to interpret food labels. Included in this frame are implicit understandings of food as purchased and processed and of food/nutrition literacy as unrelated to the availability, affordability, and suitability of food. Such portrayals or uptake of curriculum content affects the ways students eventually come to understand these concepts. For these reasons, we decided to critically examine the conceptualizations of food/nutrition literacy across relevant Canadian curriculum documents using the methodologies of qualitative document analysis and frame analysis.

Methods

We narrowed our investigation to the curriculum areas of health, physical education, home economics, and science, which we deemed to be the relevant curriculum areas for our study. In

one instance (Ontario), the home economics curriculum appeared within the context of the new Social Sciences and Humanities curriculum. For the purpose of this study, we broadly defined home economics inclusive of the curriculum areas as foods, nutrition, family studies, and personal or life management. Our preliminary examination of one province's curriculum documents (Manitoba) showed that these four curriculum areas were the ones mostly related to food and nutrition outcomes. Our approach to data generation followed summative content analysis, which includes manifest content analysis and latent content analysis (Hsieh & Shannon, 2005). We accessed the websites for each provincial and territorial ministry/department of education twice (2012 and 2014) in order to locate curriculum documents available in English on those websites. We did not include curriculum documents written in French. We included for the analysis not only curriculum outcomes but also any suggestions for teaching, where provided. Every province and territory had some curriculum documents available online, although not every territory appears in our data set. We address this later in the delimitations section. Some exceptions to online availability included out-of-date or in-revision curriculum texts, which most often occurred with home economics.

We began by searching all relevant curriculum documents for key terms, including "health", "nutrition", and "food". This led us to learning outcomes related to those key terms. We then mined the curriculum documents for content that related to food/nutrition literacy. These included characterizations within the curriculum documents of healthy behaviours, descriptions or definitions of eating well, and plans for comprehensive school health programs, for example. We considered as evidence curricular outcomes, instructional elaboration suggestions, and preface-type exposition related to the curricula orientation. All documents we analyzed included curriculum outcomes, very few included instructional elaboration suggestions, and most included some kind of preface-type curriculum orientation content. We then coded all of our data using a priori codes (Strauss & Corbin, 1990) generated from the four conceptualizations of food/nutrition literacy

Delimitations

We delimit our study to K-12 curriculum documents in English available on governmental websites of every Canadian province and territory. Each territory has adopted at least one curriculum of a province or another territory: Yukon has adopted all of British Columbia's curricula; the Northwest Territories have adopted Alberta curricula in the areas of physical education and science; and Nunavut has adopted curricula from Manitoba and the Northwest Territories. In all those cases, we only considered the document for the adopted province or territory but not the adopting territory. In practical terms this affects Yukon, Nunavut, and Northwest Territories. Yukon does not appear in our study because it exclusively adopts British Columbia curricula. Nunavut adopts curricula from various provinces, but it also adopts the Pan Canadian Science Curriculum. As such, only that science curriculum is considered as unique to Nunavut given the parameters of the study. Northwest Territories does not have data in the areas of physical education and science because they adopt Alberta curricula in those areas.

Three of the four Atlantic Canada provinces—New Brunswick, Nova Scotia, and Prince Edward Island—subscribe to the *Atlantic Canada Science Curriculum*, although not all to the same degree. Prince Edward Island and Nova Scotia subscribe to the *Atlantic Canada Science Curriculum* from grades 1-12 and primary grade (presumably kindergarten) to grade 12 respectively, while New Brunswick only adopts the *Atlantic Canada Science Curriculum*

beginning in grade 3 through grade 10. After grade 10, available New Brunswick science curricula reflect specialized sciences including chemistry, biology, physics and environmental science. What this effectively means is that the same references appeared from the *Atlantic Canada Science Curricula* for grade 5 and 8 in New Brunswick, Nova Scotia, and Prince Edward Island.

We collected references that related to food/nutrition literacy thereby excluding biology-specific references to cell nutrition, for example. While the key term *nutrition* did appear frequently within those science curricula, we did not include those types of examples in our data because we determined these were unrelated to food/nutrition literacy conceptualizations.

Some caveats about additional inclusions and exclusions surround BC's *Planning 10*, Alberta's *Framework for Kindergarten to grade 12 Wellness Education*, Quebec's *Broad Areas of Learning* and Manitoba's *Education for a Sustainable Future*. We delimited this study to curricula, exclusive of curricula resource or support documents. We included *Planning 10* because it is an integrated resource package meaning that there is no separate curriculum for *Planning 10*. The curriculum is integrated into the resource document. We did not include Alberta's *Framework for Kindergarten to grade 12 Wellness Education*, Quebec's *Broad Areas of Learning*, and Manitoba's *Education for a Sustainable Future*, because each of these is exclusively a support or resource document.

Findings

Our study's research question asks how food/nutrition literacy is conceptualized in Canadian K-12 curriculum documents. To answer this question, we used the framework presented above, which provides four aspects relevant to conceptualizations of food/nutrition literacy in the relevant literature (repeated here):

- A1 being able to read and understand food labels and to act accordingly (focus on domain-specific language literacy);
- A2 understanding findings from the nutritional sciences and how those link to one's health (focus on the link between nutrition and health);
- A3 having agency in one's engagement with food (focus on planning, managing, selecting, preparing. and eating food);
- A4 having critical literacy concerning the role of food, food production, food consumption, etc. for one's own well-being, and the well-being of communities and other living beings more generally (focus on food as part of people's and communities' well-being and as issues of social justice and sustainability).

Using this framework, we analyzed Canadian curricula for their conceptualization of food/nutrition literacy and present the findings in two sections. Considering that (a) education in Canada is under provincial jurisdiction and (b) food/nutrition literacy is addressed in a number of different subject areas, we have structured our findings first by province and then by subject area.

Food/nutrition Conceptualizations in Provincial Curricula

The Appendix provides an overview of the province-specific curricula we considered and the

conceptualization of food/nutrition literacy that appeared in the respective document.

As the Appendix shows, every Canadian province and territory has curricula that reflect various conceptualizations of food/nutrition literacy. By far the most common conceptualization is that of understanding findings from the nutritional sciences and how those link to one's health. In rare, but important instances, we found evidence of conceptualizations based on having critical literacy concerning the role of food, food production, food consumption, etc. for one's own well-being, the well-being of communities, and other living beings more generally. Those findings tended to be located in curricula with more recent publication dates (2010, 2013, 2014) with two exceptions (2002 and 2007).

The Alberta curricula indicated mostly health-related conceptualizations of food/nutrition literacy with one curriculum containing evidence of the broader context (Alberta, 2014). The British Columbia curricula showed evidence of all four types of conceptualizations, with the health-related being most prominent. Only one curriculum from British Columbia provided evidence of the broader conceptualization (British Columbia, 2007). Manitoba curricula contained evidence of 3 of 4 types of conceptualizations, had the health-related type as the prominent type, and had no evidence of the broader context type. New Brunswick only provided evidence of the health-related conceptualization of food/nutrition literacy. Curricula from Newfoundland revealed all four types of conceptualizations, with the health-related as the most prominent. Newfoundland also had three curricula that reflected the broader context conceptualization (Newfoundland, 2002, 2007, n.d.), which was noteworthy in comparison to the remaining provinces and territories. The one Northwest Territories curriculum with findings revealed conceptualizations related to health and food preparation. Curricula from Nova Scotia only indicated health-related conceptualizations. Nunavut's curriculum revealed a health-related conceptualization. Ontario curricula included evidence of all four types of conceptualizations, with health-related as the predominant one. The sole curriculum from Ontario that included evidence of the broader context conceptualization (Ontario, 2013) was exemplary in this regard (more on this in the next section). Findings from Prince Edward Island show predominantly a health-related conceptualization with other findings showing evidence of A1 and A4 types. The only Quebec curriculum with evidence of food/nutrition literacy (Quebec, n.d.) provided a health-related perspective. Curricula from Saskatchewan revealed three of the types but did not include conceptualizations of food/nutrition literacy that extended to the broader contexts. The next section provides examples that illustrate the findings presented in the Appendix.

Food/nutrition conceptualizations within subject area curriculum documents. In Canadian schools, subject areas structure educational instruction. In the higher grades, often starting in higher middle years, those subject areas are taught by different teachers, making integrated learning experiences for students, for instance with respect to food/nutrition literacy, less likely. For that reason, it is important in addressing our first research question to understand how food/nutrition literacy is conceptualized within subject area curricula. This is the question we now turn to.

The four curriculum areas most commonly associated with food and nutrition-specific outcomes and learning are the areas of health, physical education, home economics, and science, although we will see that in a few cases other subject areas contribute to the education of food/nutrition literacy as well. The national comparison we undertook shows that the extent of nutrition-related content and literacy within these curriculum areas varies widely. Although Canada does not have nation-wide curricula, there are many similarities between all of the

provincial and territorial curriculum documents in the four curricular areas. As discussed in the previous section, some provinces and territories have a more comprehensive notion of food/nutrition literacy than others and that the most common representation of food/nutrition relates almost exclusively to individual health in relation to food consumption (A2). We now look more closely at these variations through the lens of each of the four subject areas.

Science curriculum documents. Science curricula across Canada tend to include examples of nutrition literacy mainly as it relates to cell/organism nutrition, including human cell nutrition. Of the science curricula we considered, Alberta's *Science grades 7–8–9 Program of Studies* (2014) is the only one that includes a broader conceptualization of food/nutrition literacy. Alberta's 7-8-9 science curriculum describes the following attitudinal outcome related to stewardship:

> Demonstrate sensitivity and responsibility in pursuing a balance between the needs of humans and a sustainable environment (e.g., show interest in the health of individuals in their family and community; assume personal responsibility for the impact of their actions on the health of others and for the welfare and survival of other living things). (Alberta, 2014, p. 14)

We discuss this example further in the section in which we address question two because it is one of the few examples reflecting a broader conceptualization of food/nutrition literacy in Canadian curriculum documents.

The most common way in which science curricula conceptualized nutrition is exemplified in Nova Scotia's *Atlantic Canada Science Curriculum: Biology 11*: "explain the importance of nutrition and fitness to the maintenance of homeostasis" (Nova Scotia, 2000, p. 19). The focus here is on the role of nutrition for the proper physiological functioning of living organisms, including cells. The literature that we reviewed did not consider food/nutrition literacy in this general sense of nutrition. However, where such physiological focus extends to humans, the focus shifts to the role of nutrition for maintaining healthy bodies, which reflects focus on aspect A2 (health) of our curriculum analysis framework. For instance, there is a common unit related to maintaining a healthy body in many grade 5 science curricula, including those from New Brunswick, Newfoundland, Manitoba, Nova Scotia, Ontario, Prince Edward Island, and Saskatchewan. A common aspect of these curricula is the role of nutrition in maintaining a healthy body.

Health curricula. Newfoundland, Saskatchewan, and Ontario provide a health curriculum across all grades. Four other provinces and territories provide a health curriculum for grades 9 or 10. Specifically, Alberta, British Columbia, and Prince Edward Island provide a health curriculum for grade nine, and Manitoba supports a health curriculum for grade 10. Many provinces and territories end their health curricula in grade five, including New Brunswick, Northwest Territories, and Nunavut. Other provinces and territories extend their support of a health curriculum to grade six, including Nova Scotia, and to grade seven, respectively, including British Columbia and, by proxy, Yukon, which adopts British Columbia's curricula.

The ways in which food/nutrition literacy is conceptualized within many of the provincial health curricula reflect a focus on aspects A1 and A2 of our analysis framework. The former is exemplified in Saskatchewan's grade 1 health curriculum. One outcome related to decision making states: "Examine initial steps (i.e., Stop, Think, Do) for making basic choices regarding healthy behaviours; healthy brain, heart, and lungs; healthy relationships; pedestrian/street

safety; and a healthy sense of self" (Saskatchewan, 2010a, p. 18). Despite being about health broadly understood, the term nutrition appears for the first time only in the grade 7 curriculum in Saskatchewan's Health education curricula which states, "Evaluate personal food choices and needs by applying accurate and current nutritional knowledge (e.g., content labels)" (Saskatchewan, 2010b, p. 18). The focus on framework aspect A2 is exemplified in the statement about personal health in the grade 4 health education curriculum of Prince Edward Island:

> Optimum nutritional health is dependent on a diet that provides a wealth of nutrients in balanced proportion. Using Eating Well with Canada's Food Guide as a template can help simplify this task. When followed consistently, an eating plan based on Canada's Food guide will provide most Canadians with all the nutrients needed for good health. (Prince Edward Island, 2009, p. 22)

Another example of an A2 conceptualization of nutritional literacy being related to personal health comes from Nova Scotia's (1998) *Foundation for active, healthy living: Physical and health education curriculum* (Nova Scotia, 1998) which highlights the connection between nutrition choices and well-being understood as personal health.

Newfoundland is one of the provinces that links locality, availability, and accessibility of food to overall health. One of Newfoundland's curricula has this grade six learning outcome: "students will (a) discuss how food choices are affected by many factors including culture, tradition, religion, food availability, eating patterns and habits, and (b) social influences and customs, and realize that there is adequate food to feed the world, but distribution of it is uneven" (Newfoundland, n.d., p. 39). Newfoundland is a stand out province in the area of health literacy because it includes a definition of health literacy and its importance to personal health and wellness in its grade 9 health curriculum (Newfoundland, 2008). Further, within Newfoundland's *Healthy Living 1200* curriculum (Newfoundland, 2002), socioeconomic and environmental factors are indicated as affecting health, but there is no mention of nutrition. Food security, however, does appear as a unit of study with focus on extending understanding into areas related to society and environmental impacts. We discuss more of this finding in relation to research question 2.

The Northwest Territories' *Grade Four Health* curriculum offers one of the few explicit statements regarding food and nutrition beyond consumption and choice given the outcome "various factors affect food choices" which is exemplified with suggestions such as high costs of transporting food to the north and the timing/seasons that food is available for delivery to North West Territories' communities (Northwest Territories, 1991, p. N 4.30).

Ontario's curriculum *Health and Physical Education K-8* (Ontario, 2010) indicates in its grade three strand that students "demonstrate an understanding of how food origins affect its nutritional value and environmental impact" (p. 108). Throughout this Ontario curriculum, we find the following outcome: "demonstrate the ability to make connections that relate to health and well-being—how their choices and behaviours affect both themselves and others, and how factors in the world around them affect their own and others' health and well-being" (Ontario, 2010).

Physical education curricula. All provinces and territories provide some kind of physical education curriculum. Some of these provinces and territories (Manitoba, Nova Scotia, Nunavut, and Quebec) provide a combined curriculum of "physical education and health", while the other provinces and territories have discrete physical education curricula that do not include "health" in their title. These physical education curricula often include, however, health related outcomes. We found evidence of food/nutrition literacy in every province and territory's

physical education curriculum, regardless of whether that curriculum includes health in its title.

A typical conceptualization of food/nutrition literacy within physical education curricula can be found in the New Brunswick physical education curriculum, which includes the following as a knowledge principle within physical education: "Well-being: nutrition, rest/relaxation, regular physical activity, stress management, functional fitness" (New Brunswick, 2000, p. 8) This knowledge principle is then connected to student learning outcomes that suggest students will, "explain the relationship between good nutritional habits and personal well-being" (p. 43) as well as "identify nutritional needs related to physical activity" (p. 58). Similarly, the Manitoba physical education/health education curriculum includes knowledge strand C which is comprised of: 1) Healthy eating and 2) Food and fluid for active bodies (Manitoba, 2000). Both of these knowledge sub-strands are outcomes for Kindergarten through grade 4, grade 6, grade 8, and grade 10. In the grade 10 curriculum, the knowledge strand C outcome "nutrition" exemplifies the focus of the most common conceptualization of food/nutrition literacy in Canadian physical education curricula: "Explain the importance of daily food choices for health promotion at various life stages and for the prevention of chronic disease" (Manitoba, 2000, p. 163). Food/nutrition literacy in Canadian physical education curricula is almost always focused on physical health at the individual level (Aspect A2).

Home economics curricula. British Columbia has *Home economics: Foods and nutrition 8 to 12*; Manitoba has *Middle years home economics/Industrial arts* and *Senior years family studies*; New Brunswick has *Nutrition for healthy living 1200*; Newfoundland has *Family studies: Nutrition 2200*; Ontario has *Food and Nutrition 9-10* and *Food and Nutrition sciences 112*; Saskatchewan has *Food studies 10, 30*. We suspect that other provinces and territories also have home economics curricula, but ministries of education may choose not to include these curricula on their website because they are out-dated or are an optional course. The publication dates of the documents we were able to locate ranged from 1999 (Saskatchewan) to 2013 (Ontario).

The first statement from the British Columbia home economics curriculum of the goals of home economics exemplifies most of our findings from this curriculum area in terms of the understanding of food/nutrition literacy. In the description for the goals of *Home Economics: Foods and Nutrition 8 to 12*, the British Columbia curriculum indicates that:

> Through their participation in Foods and Nutrition, students will be encouraged and enabled to: 1) develop the knowledge, skills, and attitudes necessary to use a variety of food-preparation techniques to prepare nutritious, tasty, attractive foods in a cost- and time-effective manner, 2) access information and support relevant to Foods and Nutrition topics, 3) apply the principles of nutrition to their own food preparation. (British Columbia, 2007, p. 5)

The focus is clearly on aspect A3 of our analysis framework: helping students to develop agency in their engagement with food as far as planning, managing, selecting, preparing and eating food as a basis for a good diet.

However, while aspect A3 characterizes the most prominent focus in education for food/nutrition literacy in the Canadian home economics curricula that we were able to access, what the Appendix also shows is that the home economics curriculum documents we considered (a) have each at least two aspects that they consider (with the exception of the home economics curriculum in Prince Edward Island) and (b) that almost all home economics curricula (and that includes family studies curricula) consider Aspects A3 or A4 as part of their conceptualization of

food/nutrition literacy.

Other curricula. More than any other curriculum we considered, *The Ontario Curriculum Grades 9 and 12 Social Sciences and the Humanities* (2013) referenced most frequently the conceptualization of food/nutrition literacy that focuses on the development of students' agency. (We included this curricular document in this section because it is this document that includes curriculum outcomes for the Family Studies and Food and Nutrition courses.) This Ontario curriculum document also includes an example of the rarely found conceptualization A4 (critical literacy concerning the role of food, food production, food consumption, etc.) in the list of specific outcomes for grade 9 and 10 food and nutrition: "D1. Availability of Food: demonstrate an understanding of where various foods are produced; D2. Food and Environmental Responsibility: demonstrate an understanding of how various food-purchasing choices and food-preparation practices affect the environment; D3. Food Security: demonstrate an understanding of issues related to food security" (Ontario, 2013, p. 159). Much more than being about individual health concerns, this conceptualization of food/nutrition literacy is about the interrelatedness of how individual food choices impact the environment and humankind.

Discussion

In this section we discuss the following three core findings of the study:

- that the most dominant aspect that characterizes the conceptualization of food/nutrition literacy in Canadian curriculum documents is Aspect A2 and that Aspect A4 is rarely found in any of the considered curricula;
- that the different conceptualizations are more diversely distributed across subjects than across provinces; and
- that there are differences across provinces and territories in how food/nutrition literacy is conceptualized in curriculum documents.

Linking Individual Nutrition-Focused Food Consumption to Health of the Individual

Across all Canadian curriculum documents we considered, A2 was by far the dominant conceptualization of food/nutrition literacy; the predominant focus of food and nutrition literacy education is on students' individual food consumption as it is related to their individual health. Our findings suggest that few provinces/territories and even fewer curricula within those include outcomes of food/nutrition literacy beyond the understanding of nutritional processes and their relationship to one's health. At least as far as Canadian curricula are concerned, Canadian students are not exposed to other important aspects of food/nutrition, like food politics (e.g., Nestel, 2013; Patel, 2007), the ethics of food consumption (e.g., Singer & Mason, 2006), the environmental impact of food production and consumption (e.g., Worldwatch Institute, 2011), the issues of food security and food sovereignty (e.g., Wittman, Desmarais, & Wiebe, 2011), and, more generally, the cultural dimensions of food (e.g., Fieldhouse, 1996; Watson & Caldwell, 2005). By generally keeping food/nutrition literacy so narrowly focused on individual health concerns, Canadian students are unlikely and ill prepared to recognize, be concerned about, and actively engage in addressing issues of sustainability, social justice, and food security as they are linked to the food we produce, import, buy, and discard in Canada. By

keeping the primary focus of food/nutrition literacy mostly on reading labels and calorie consumption consequences, Canadian schools all but ensure that Canadian students will likely be unaware of the significant impact their food choices, their food availability, and their nutritional knowledge can play in their community, in Canada, and around the world.

Another core concern that arises from our study is that in nearly all curriculum documents across Canadian provinces and territories, nutrition is conceptualized as consumption and choice with little regard for factors that may affect one's ability to choose, or how one's nutritional choices have global impact. Food/nutrition literacy as it predominantly exists in Canadian curriculum documents presents a narrow and individualistic view of food and nutrition choices.

Linked to this last point is another issue: nearly every curriculum document supports *Canada's Food Guide* and presents this guide as widely applicable across Canada. Ontario's grade 1-8 *Health and Physical Education* curriculum does, at least, make special mention of the *Eating Well with Canada's Food Guide: First Nations, Inuit and Métis versions*. The concern of a blanket support for *Canada's Food Guide* is that it suggests common food access across Canada, which is not the case. Fruits and vegetables play a significant role in the food pyramid in *Canada's Food Guide*, and yet enormous areas of the nation are environmentally inhospitable to supporting local growing of fruits and vegetables. This means those huge areas rely on the import of fruit and vegetables, which is further impeded by the geographic distances between the places requiring access to fruit and vegetables and the places able to produce them. Worse yet, when fruits and vegetables are available in these more remote places they arrive at a cost that is generally beyond the financial means of those living in those remote areas.

What our study has also revealed is that there are very few Canadian curriculum documents that conceptualize food/nutrition literacy in a broader sense that includes Aspect A4. Since those curricula that actually do so are differently distributed across provinces and territories, we discuss this point below where we consider cross-provincial differences.

The Spread of Food/Nutrition Literacy across a Range of Subject Areas

The section above discussed the findings structured by provinces and then by subject areas. Looking across these two parts, we note a greater range in distribution of types of conceptualization across the subject areas than it is across provinces. The curriculum areas of health and physical education tend to focus primarily on the health and nutrition aspect (A2), while home economics tend to focus on the development of agency in students' engagement with food (A3), which in a number of cases extends to include Aspect A4. The natural sciences tend to focus on nutrition as a cellular nutrition; where science curricula included conceptualization of food/nutrition literacy beyond that of cellular nutrition, they do so from the perspective of health and nutrition (A2). In the rare cases where curricula from other than those four subject areas engaged with education for food/nutrition literacy, e.g., the Ontario grade 9 and 12 Social Sciences and the Humanities Curriculum from 2013, these cases tended to embed food/nutrition literacy into the social and global aspects of human living more generally. This notion of embedding food/nutrition literacy into these broader, pressing concerns of human living also reflected one of the richest conceptual approaches to food/nutrition literacy in any subject area.

This spread of focus on the different aspects of food/nutrition literacy across these subject areas should not surprise, considering the way in which these subject areas have been

traditionally conceptualized. Biology and chemistry as natural sciences have been practiced as analytical disciplines, which focus on the "components" of food, leading to a nutrition-focused perspective. The health sciences (particularly medicine) have been historically clustered with the natural sciences with a focus on human health, and so a prominence of the nutritional perspective on human health in the corresponding school curricula is understandable. The same applies to kinesiology (the science physical education is usually based upon), which seems to be generally understood as a subject area about physical health. While in these subject areas food and nutrition tend to be approached from an analytical paradigm, home economics courses tend to focus on "food" and students' agency in practical matters of eating and preparing food; therefore, it is understandable that the few home economics curricula we were able to consider focus on developing students' agency in their engagement with food.

Aside from the difference in focus across subject areas, there is another aspect of this finding that needs discussing, namely that there are so many different subject areas that contribute substantially to education for food/nutrition literacy in Canadian schools. Considering other literacies that the Canadian school system educates for, like language literacy, mathematical literacy, science literacy, it is noticeable that each of these literacies is primarily educated for in one specific subject area, while food/nutrition literacy is spread across a number of subject areas that are quite different in nature.

This spread across different subject areas provides a big challenge to the education for food/nutrition literacy in the school system. As the findings about the quite different conceptualizations across different subject areas suggests, there is what one could even consider a paradigmatically different approach to food/nutrition literacy across some of the subject areas that contribute to education for food/nutrition literacy. These paradigmatic differences make it difficult for a complementary approach to food/nutrition literacy, especially considering that in the Canadian school system isolated subject area teaching, especially at the middle years and senior years level, seems to still be the most widespread approach to schooling.

Differences across Provinces

As the Appendix shows, an understanding of food/nutrition literacy based on Aspect A2 is the most prominently found in the curriculum documents within each province and territory. What distinguishes some provinces from others is the degree to which a broader, more systemic understanding of food/nutrition literacy (critical food/nutrition literacy) can be identified, which we find reflected in Aspect A4. Most provinces and territories do not consider Aspect A4 in the conceptualization of food/nutrition literacy in their curriculum documents. Some, however, do, and they tend to be more recent curriculum documents that link food and nutrition matters with, for instance, matters of sustainability. In the Alberta *Science grades 7–8–9 Program of studies* (2014) the following outcome can be found: "Demonstrate sensitivity and responsibility in pursuing a balance between the needs of humans and a sustainable environment (e.g., show interest in the health of individuals in their family and community; assume personal responsibility for the impact of their actions on the health of others and for the welfare and survival of other living things)" (Alberta, 2014, p. 38). Yet that is the only place within that curriculum document where we located emerging evidence of this broader conceptualization of food/nutrition literacy.

A broader consideration to Aspect A4 can be found in curriculum documents in Ontario and Newfoundland, where more than one document gives consideration to Aspect A4. For instance,

Ontario's Social Studies and Humanities Curriculum states: "Students will also explore the environmental impact of a variety of food choices at the local and global level" (Ontario, 2013, p. 152); and Newfoundland's *Towards a Comprehensive School Health Plan* states: "realize that there is adequate food to feed the world, but distribution of it is uneven" (Newfoundland, n.d., p. 39). What sets these exemplars apart is the way each one relates food choices to human sustainability.

That it is more recent curricula that reflect a greater consideration of issues like environmental sustainability and social justice should not surprise, considering the greater importance of those issues in Canadian society at large. On the other side, that so few curricula give consideration to Aspect A4 might reflect the slow process of curriculum review and renewal more generally that is at work in Canadian provinces.

Conclusions

The purpose of this study is to understand how the Canadian school system currently approaches food and nutrition literacy. This problem is of interest because school education has been suggested as a way of addressing "the obesity epidemic" (Eisenberg et al., 2011) in Canada and beyond. The literature review and the conceptual analysis of the Canadian curriculum documents suggest that there is a broad understanding of food and nutrition literacy in use, which goes beyond health and obesity concerns to include matters of food security, social justice, and sustainability. In light of an increasing globalization of human living, food and nutrition literacy needs to include the understanding that:

> global hunger and obesity are symptoms of the same problem and…the route to eradicating world hunger is also the way to prevent global epidemics of diabetes and heart disease, and to address a host of environmental and social ills. (Patel, 2007, p. 1)

Our study has pointed to the importance of the question of conceptualizing food and nutrition literacy for understanding these symptoms and addressing the underlying problem. It has pointed to some shortcomings in the current conceptual approach to food and nutrition literacy in the Canadian school system, but it has also shown curricular possibilities that exist and can be used and extended.

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Appendix: Food/Nutrition Literacy Conceptualization in Canadian Curricula

Province/Territory	Curriculum Documents	Evidence and Type of a Conceptualization of Food/nutrition Literacy
Alberta retrieved from http://education.alberta.ca/teachers/	(2000) *Physical education K-12*.	A2
	(2002). *Health and life skills Kindergarten to Grade 9*.	A2
	(2014) *Science grades 7–8–9 Program of studies 2003 (updated 2009, 2014)*.	A2, A4
	(2014). Biology 20-30 Program of studies 2007 (updated 2014).	Nil
	(2002) *Career and life management (senior high)*.	A2
British Columbia retrieved from http://www.bced.gov.bc.ca/irp/all.php?lang=en	(2007) *Home economics: Foods and nutrition 8 to 12: Integrated resource package*.	A3 and A4
	(2005) *Health and career education 8 and 9: Integrated resource package*.	A1, A2, A3
	(2006) *Health and career education k to 7: Integrated resource package*.	A2
	(2006) *Physical Education K-7: Integrated resource package.*	A2
	(2008). *Physical Education 8 to 10: Integrated resource package*.	A2
	(2007) *Planning 10: Integrated resource package.*	A2
	(1997) *Physical Education 11 and 12: Integrated resource package.*	A2
	(2005) *Science K to 7: Integrated resource package.*	Nil
Manitoba retrieved from http://www.edu.gov.mb.ca/k12/cur/	(2000) *Grades 5-8 science: Manitoba curriculum framework of outcomes*	A2
	(2010). *Grade 11 biology: A foundation for implementation*	A2
	(2003). *Middle years home economics/Industrial arts: Linking learning to living: A support document for teachers*.	A1, A2, A3
	(2000). *Kindergarten to S4 Physical education/health education: Manitoba curriculum framework of outcomes for active healthy lifestyles: Healthy lifestyle practices.*	A2
	(2004). *Senior years family studies: Manitoba curriculum framework of outcomes.*	A2
New Brunswick retrieved from http://www.gnb.ca/0000/anglophone-e.asp#cd	(2002). *Atlantic Canada Science 5 curriculum*.	A2
	(2002). *Atlantic Canada Science 8 curriculum*.	A2
	(2005). *Nutrition for healthy living 120*.	A2
	(2001). *Health education curriculum Kindergarten–grade 5*.	A2
	(2000). *Elementary physical education curriculum Kindergarten–grade 5.*	A2
Newfoundland retrieved from http://www.ed.gov.nl.ca/edu/k12/curriculum/index.html	(n.d.) *Kindergarten health curriculum guide: Interim edition*.	A2
	(2010). *Health grade 1 curriculum guide: Interim edition*.	A2
	(2011). *Health grade 2: Interim edition*.	A2

Province/Territory	Curriculum Documents	Evidence and Type of a Conceptualization of Food/nutrition Literacy
	(2008). *Health grade 9: Interim edition*.	Nil
	(n.d.) *Towards a comprehensive school health program: A primary health curriculum guid*e.	A1, A2
	(n.d.) *Towards a comprehensive school health program: An elementary health curriculum guide*.	A2, A4
	(n.d.) *Adolescence: Healthy lifestyles: Health and personal development curriculum guide: Intermediate*.	A2
	(2002). *Healthy living 1200: A curriculum guide*.	A2, A4
	(n.d.) *Home Economics: Intermediate: Foods and Nutrition Module.*	A1, A2, A3
	(2007). *Family studies: Nutrition 2102 and 3102 curriculum guide: Interim edition.*	A1, A2, A3, A4
	(2011). *Physical education: Intermediate curriculum guide: Interim edition.*	A2
	(2011). *Physical education: 2100 & 2101 curriculum guide: Interim edition.*	A2
	(2012). *Physical education: 3100 & 3101 curriculum guide: Interim edition.*	Nil
	(2002). *Science: Elementary curriculum guide: Grade 5 Life Science: Meeting Basic Needs and Maintaining a Healthy Body.*	A2
	(2013). *Science: Grade 7 curriculum guide.*	Nil
	(2002). *Science: Biology 2201 curriculum guide: Interim edition.*	A2
	(2004). *Science: Biology 3201 curriculum guide.*	A2
Northwest Territories retrieved from http://www.ece.gov.nt.ca/early-childhood-and-school-services/school-services/curriculum-k-12	(1991). *K-9 NWT school health program*	A2, A3
	(2004). *K-6 science and technology curriculum.*	Nil
Nova Scotia retrieved from https://sapps.ednet.ns.ca/Cart/index.php?UID=20150711175953206.45.199.161	(1998). *Foundation for active, healthy living: Physical and health education curriculum.*	A2
	(2003). *Health education grades 4-6.*	A2
	(2000). *Atlantic Canada science curriculum: Biology 11 (Implementation Draft, June 2000).*	Nil
	(2008). *Atlantic Canada science curriculum: Science 5.*	A2
	(2001). *Atlantic Canada science curriculum: Science 8.*	A2
Nunavut retrieved from http://www.gov.nu.ca/education/information/curriculum-learning-resources-0	(1997). *K to 12 common framework of science learning outcomes.*	A2
Ontario retrieved from	(2010). *The Ontario curriculum grades 1-8 health and physical education: Interim edition.*	A2, A4

Province/Territory	Curriculum Documents	Evidence and Type of a Conceptualization of Food/nutrition Literacy
http://www.edu.gov.on.ca/eng/	(2007). *The Ontario curriculum grades 1-8 science and technology.*	A2
	(1999). *The Ontario curriculum grades 9 and 10 health and physical education.*	A2
	(2013). *The Ontario curriculum grades 9 and 12 social sciences and the humanities.*	A1, A2, A3, A4
	(2000). *The Ontario curriculum grades 11 and 12 health and physical education.*	A2
	(2008). *The Ontario curriculum grades 11 and 12 science.*	A2
Prince Edward Island retrieved from http://www.gov.pe.ca/eecd/	(n.d.). *Atlantic Canada science curriculum: Grade 2*	A2
	(n.d.). *Atlantic Canada science curriculum: Grade 5*	A2
	(2006) *Prince Edward Island health curriculum: Grade 3*	A1, A2
	(n.d.). *Atlantic Canada science curriculum: Grade 8*	A2
	(2010). *Atlantic Canada science curriculum: Biology 521a*	A2
	(2009). *Prince Edward Island health curriculum: Grade 4*	A2
	(2006). *Prince Edward Island health curriculum: Grade 1*	A1
	(2009). *Prince Edward Island health curriculum: Grade 5*	A2
	(2006). *Prince Edward Island health curriculum: Grade 6*	A1
	(2007). *Prince Edward Island health curriculum: Grade 8*	A2
	(2007). *Prince Edward Island health curriculum: Grade 9*	A2
	(2002). *Prince Edward Island curriculum: Intermediate home economics curriculum guide*	A2
	(2008). *Kindergarten integrated curriculum document*	A2
	(2011). *Prince Edward Island curriculum: Physical education k-6*	A2
	(2012). *Prince Edward Island science curriculum: Agriscience 801a/621a*	A4
	(2007, revised 2009). *Atlantic Canada science curriculum: Human biology 801a*	A1, A2
Quebec retrieved from http://www1.mels.gouv.qc.ca/sections/programmeformation/primaire/index_en.asp	(2001). *Quebec education program: Preschool education, elementary education: Chapter 9: Physical education and health.*	Nil
	(n.d.). *Quebec education program: Secondary cycle one: Chapter 8: Mathematics, science and technology.*	Nil
	(n.d.). *Quebec education program: Secondary cycle one: Chapter 9: Personal development.*	Nil
	(n.d.). *Quebec education program: Secondary cycle two: Personal development: Physical education and health.*	A2
Saskatchewan retrieved from http://www.curriculum.gov.sk.ca/#	(2010). *Saskatchewan curriculum: Kindergarten.*	Nil
	(2010). *Saskatchewan curriculum: Health education* 1.	Nil
	(2010). *Saskatchewan curriculum: Health education 2.*	Nil

Province/Territory	Curriculum Documents	Evidence and Type of a Conceptualization of Food/nutrition Literacy
	(2010). *Saskatchewan curriculum: Health education 3.*	A2
	(2010). *Saskatchewan curriculum: Health education 4.*	A2
	(2010). *Saskatchewan curriculum: Health education 5.*	A2
	(2010). *Saskatchewan curriculum: Health education 6.*	Nil
	(2010). *Saskatchewan curriculum: Health education 7.*	A1
	(2010). *Saskatchewan curriculum: Health education 8.*	Nil
	(2010). *Saskatchewan curriculum: Health education 9.*	A3
	(2010). *Saskatchewan curriculum: Physical education 1*.	Nil
	(2010). *Saskatchewan curriculum: Physical education 2.*	Nil
	(2010). *Saskatchewan curriculum: Physical education 3.*	A2
	(2010). *Saskatchewan curriculum: Physical education 4.*	Nil
	(2010). *Saskatchewan curriculum: Physical education 5.*	Nil
	(2009). *Saskatchewan curriculum: Physical education 6.*	Nil
	(2009). *Saskatchewan curriculum: Physical education 7.*	A2
	(2009). *Saskatchewan curriculum: Physical education 8*.	Nil
	(2009). *Saskatchewan curriculum: Physical education 9.*	Nil
	(2012). *Saskatchewan curriculum: Wellness 10*.	A2
	(1992). *Science: A curriculum guide for the secondary level: Biology 20/30.*	A1
	(1999). *Food studies 10, 30: Curriculum guidelines: A practical and applied art.*	A2, A3
	(2011). *Saskatchewan curriculum: Science 2.*	A2
	(2011). *Saskatchewan curriculum: Science 5.*	A2
	(2009). *Saskatchewan curriculum: Science 7.*	Nil
	(2009). *Saskatchewan curriculum: Science 8.*	Nil
	(2014 draft). *Saskatchewan curriculum: Health science 20.*	A2