Is cooking dead? The state of Home Economics Food and Nutrition education in a Canadian province

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Food literacy, food skills, health promotion, home economics, nutrition, youth.

Abstract
High population rates of obesity and nutrition-related chronic diseases warrant an examination of the role of food and nutrition education in health promotion. Using a mixed-methods approach, this study explored student enrolment trends in, and perceptions of, Home Economics Food and Nutrition education in a Canadian province. Enrolment in Home Economics Food and Nutrition courses for grades 7–12 was examined from 2000 to 2010 using administrative data. Perceptions of Home Economics Food and Nutrition education by home economics teachers and superintendents were investigated through in-depth interviews using a grounded theory approach. Results revealed that, although enrolment, including boys, increased slightly over the study period, the majority of children do not take Home Economics Food and Nutrition classes. Further, enrolment decreased significantly from grades 7 (45.77%) to 12 (7.61%). Home Economics Food and Nutrition education faces significant challenges to its future viability. These include: many school administrators, non-home economics teachers and some parents do not value Home Economics Food and Nutrition education; Home Economics Food and Nutrition education is seen as less valuable than math and science for future career planning; outdated curriculum and teaching infrastructure; reduced numbers of new home economics teachers; decreasing student food knowledge and skills; and changing social norms regarding food and eating (increased use of convenience foods across population groups, a youth ‘fast food culture’ and fewer family meals). Results also indicated that Home Economics Food and Nutrition education is seen as critically important for youth, given that one third of Canadian children are now overweight or obese, fast and highly processed foods make up an increasing proportion of Canadians’ diets, and there are increasing dilemmas being faced with food production and food safety. These results signal a growing tension between societal trends towards technological solutions in education and everyday living, and the growing acknowledgement of the externalities associated with these trends including poor health and environmental impacts. Consequently, evidence-based food and nutrition education that is relevant for today’s food environment and busy lifestyles is warranted to improve the health of current and future generations. This should be based on a comprehensive food and nutrition framework including functional, interactive and critical ‘food literacy’. Policy measures are urgently required to ensure all youth have access to food literacy education.

Introduction
There has been a reduction in food and nutrition knowledge and skills in the general population, which has contributed to serious public health concerns including obesity and other nutrition-related chronic diseases (Caraher and Lang, 1999; Cutler et al., 2003; Jaffe and Gertler, 2006; Øvrebø, 2011). This collection of knowledge and skills is frequently conceptualized as ‘cooking’ and its diminished societal role has led to a culinary ‘de-skilling’, which has arisen in part from changing social norms regarding food, ‘time-poverty’, greater participation in the paid workforce by women, longer working hours, and less in-home food mentoring (Caraher and Lang, 1999; Jabs et al., 2007; Slater et al., 2012). These trends have arisen concurrently with, and are reinforced by, proliferation of ultra-processed (Moubarac et al., 2012), convenience and fast foods (Kant and Graubard, 2004; Seracoon Management Consulting, 2005; Larson et al., 2008; Bauer et al., 2009), which have reduced the need for in-home food planning and preparation from fundamental ingredients (Guthrie et al., 2002). These phenomena have significantly altered the way we eat, and our relationship with food.

Girls, and more recently boys, traditionally received pedagogical training in ‘cooking’ through home economics courses. These were offered through the public school system and strived to
include theoretical and applied elements. There is concern, however, that these opportunities are under threat, and this may be contributing to decreased food and nutrition knowledge and skills (Lichtenstein and Ludwig, 2010; Smith and de Zwart, 2010). There is also concern that there is less home-based food and nutrition mentoring occurring, rendering current and subsequent generations increasingly dependent on mass-produced convenience and fast foods (Larson et al., 2006; Beagan et al., 2008; Fulkerson et al., 2011; Höijer et al., 2011). These trends have been speculated to be linked with serious public health issues, most notably, unprecedented adult and child obesity, and extremely high rates of nutrition-related chronic diseases (Swinburn et al., 2011; Roberts et al., 2012; Statistics Canada, 2012).

Given the important role of food and nutrition education on health, it is critical that in-depth research be undertaken in this area. There appears to be limited data within Canada and internationally, which examine the state of, and changes to, food preparation skills within populations, children and families (Chenhall, 2010). Consequently, this study was undertaken to examine trends in, and perceptions of, Home Economics Food and Nutrition (HEFN) education in a Canadian province.

Methods

This mixed-method study was conducted in 2010 in the province of Manitoba, Canada using administrative records and in-depth interviews. The study analyzed student enrolment in HEFN classes over a 10-year period. The study also examined the experiences and perceptions of HEFN programming by teachers and school officials. Enrolment data was anonymized, and interview participants signed a consent form. The study received approval from the Research Ethics Board at the University of Manitoba.

Student enrolment in home economics courses

Data on student enrolment in grades 7–12 in all public schools in Manitoba were obtained from the Professional Certification and Student Records Unit of Manitoba Education (provincial department of education) for the years 2000–2010 inclusive. Enrolment in HEFN courses was determined using specific course codes assigned by Manitoba Education. HEFN programming is offered almost exclusively in grades 7–12. In 2010, there were 498 public schools with grades 7 and/or higher in Manitoba. Enrolment data were extracted into a SAS database for analysis.

At the provincial level, mean annual student enrolment in HEFN and the female : male (F : M) enrolment ratio by grade for the years 2000–2010 were calculated. The data were also divided into three provincial subregions: ‘Winnipeg’ (four school Divisions within the province’s largest city); ‘Northern and Remote’ (four school Districts/Divisions in the province’s far north and remote areas); and ‘Rural and Other’ (all other rural and smaller urban school Districts/Divisions primarily in the southern portion of the province). At this level, the mean annual student enrolment and the F : M enrolment ratio were calculated by year and grade.

Experiences and perceptions of HEFN programmes

Experiences, beliefs and perceptions of HEFN public school home economics teachers, and school division superintendents were examined using a qualitative approach based on grounded theory (Glaser and Strauss, 1967). Grounded theory focuses on social processes and human interactions, and is suited to investigating practical social problems as proposed in this study (Sbaraini et al., 2011). In-depth, semi-structured interviews were conducted with individuals, pairs or triads (Ritchie and Lewis, 2003).

Sample

A total of 13 teachers and three superintendents were interviewed. Participants from these groups were selected because they are different stakeholders in HEFN education, within the same system (public schools). As the purpose of the study was primarily exploratory, participants were chosen through convenience sampling techniques. Participants were notified through e-mails and telephone calls.

All teachers were female; 5 were from urban schools; 6 were from rural schools; 2 were from northern/remote schools; 9 had more than 10 years of experience teaching HEFN, while 6 had more than 20 years of experience; and 11 of the teachers self-identified as having specialist training in home economics. Two of the superintendents were from urban school divisions, while one was from a rural school division.

Qualitative data

Semi-structured interviews were conducted by the author. Field notes were taken by a research assistant. Guide questions were developed to focus the interviews around concepts and features of interest (Glaser and Strauss, 1967). Sample guide questions are shown in Table 1.

All interviews were recorded and transcribed verbatim by a research assistant. Data analysis was inductive, as the study sought to understand perceptions of HEFN rather than conform data to preconceived categories or theories (Hewitt-Taylor, 2001). Qualitative data analysis began after the first two interviews using the constant comparison method (Glaser, 2002). Transcripts were read...
and re-read and compared with field notes to gain familiarity with the data. Initial notes, ideas and thoughts were recorded manually. Data were broken down, examined, compared, conceptualized and categorized using open coding (Corbin and Strauss, 1998). This process was done using NVivo 7 software (QSR International, 2008). Theoretical sampling was employed to focus further data collection and find further incidents of the categories of focus.

Memos were constructed around the categories being explored. These focus categories were systematically compared and grouped into more complex themes. Data from new cases were compared with existing cases, and categories and themes were revised (Dye et al., 2000). Emergent theories were developed until no new themes emerged and saturation was reached (Charmaz, 2006). Rigour was demonstrated through the use of verbatim transcription, constant comparison, member checking, exploration of negative cases and reflexive journaling.

Results

Quantitative results

Student Enrolment in HEFN Courses

Between 2000 and 2010 the average enrolment in HEFN classes in Manitoba was 26.90%, with the enrolment increasing by year from a low of 25.67% in 2000 to a high of 29.75% by 2010 (Table 1). Enrolment increased throughout the time period for all grade levels with the exception of grade 8, with grade 10 showing the largest enrolment increase over the study period (15.71% in 2000 to 24.69% in 2010). Rates of HEFN enrolment decreased significantly by grade level, from a high of 46.32 and 48.74% in 2000 and 2010, respectively, in grade 7, to a low of 6.03 and 10.55% for the same years in grade 12.

HEFN enrolment also varied by region (Table 2), with the average highest enrolment rates (all grades) over the study period occurring in Winnipeg (27.80%), followed by Rural and Other Urban (25.50%), and Northern and Remote regions (17.63%). HEFN enrolment increased in regions over the study period, with the largest increase occurring in the Northern and Remote area, doubling from 12.84 to 24.45% between 2000 and 2010 respectively. By 2010, enrolment in the Winnipeg, and Rural and Other Urban regions were almost equal (29.02 vs. 28.87%), while enrolment in the Northern and Remote regions was slightly lower (25.5%).

The F : M ratio (all grades) for the study period averaged 1.32, with the F : M ratio observed to increase by grade level and decrease by ascending study year (Table 2). Over the 10-year study period, the F : M ratio for grade 7 students averaged 1.05 compared with 1.49 for grade 12 students. However, between 2000 and 2010, the F : M ratio was observed to narrow in all grade levels, from 1.06 to 1.0 in grade 7 students, and 1.85 to 1.16 in grade 12 students. By 2010, the F : M ratio for all grades combined had dropped to 1.12 from a high of 1.48 in the year 2000. Across regions, the F : M ratio was observed to be the highest in the Rural and Other Urban region (1.22), and the lowest in the Northern and Remote region (1.15). In all regions, the F : M ratios were observed to narrow by year, decreasing by the year 2010 to 1.01 in the Winnipeg region; 1.15 in the Rural and Other Urban region; and 1.19 in the Northern and Remote region (Table 3).
Qualitative results

Three major themes emerged from the interview data. Firstly, there exist significant external challenges to HEFN programming, which threaten its continued viability and effectiveness. Secondly, there has been a reduction in food and nutrition knowledge and skills in students over the past two decades, which makes HEFN education more difficult and challenging to implement. Thirdly, HEFN programming is more important than ever to prepare youth to effectively navigate the increasingly complex modern foodscape in a healthy way. These are described later.

Theme 1: significant challenges to HEFN programming

HEFN education is undervalued

It was felt strongly that HEFN education is not valued. Teachers identified that it is undervalued by school administrators (principals), other teachers and some parents. Superintendents also reported that many parents and other teachers do not value HEFN education. One of the main reasons is that HEFN is perceived as a ‘non-academic’ subject that teaches ‘lower-level’ skills unlike math and science, which are considered important for future career options. Further, where offered, HEFN education is optional in grades 9–12, reinforcing the idea that it is less important.

‘Do we still have the same stereotypes of these courses being less important? I think we’re changing that. I don’t think we’re there yet. I think we’ve got some work to do, and part of it is educators themselves who have opinions that maybe the Western Civilization course is more important than the Nutrition course’. (Superintendent)

‘I find students are very thirsty for this subject area, but I feel they’re really being drawn to the other sciences and math, because their parents say, “Well this will keep your options much more open.” ’ (Teacher)

Even though HEFN education is compulsory in some middle-school grades (7 and 8), there has been pressure from the growth of other optional programming, and the number of classes and duration of classes has decreased in recent years.

I used to be able to teach a full, like a half-year. . . . That has now been watered down, because they’ve decided to trimester courses. So now you’re going down to half a year to a third of a year’. (Teacher)

Teachers felt that administrators did not understand the purpose and outcomes of HEFN education. One stated that her principal described it as a ‘frill’ while another reported a school where HEFN was offered over the lunch hour.

‘I see a definite trend of devaluing it. And . . . the last principal . . . how he devalued it. He did not understand what was going on. He thought we would be catering some activity, and it just hit me, you know, how he didn’t understand’. (Teacher)

‘Cause this should be familiar stuff! Everybody, anybody can do this, come on! I mean, we do this in our daily life, right? Anybody can teach cooking. . . . And you’ll hear those words’. (Teacher)

Several teachers felt their classes were a ‘dumping ground’ for behaviourally and intellectually challenged students.

A few participants did report instances where HEFN education was seen as valuable. One superintendent described a case where parents organized a letter-writing campaign to the School Board asking that a non-permanent Home Economics teacher be made permanent.

‘In our School Division we do a mall display every three years . . . and like, many people came and said . . . this is great. This is so good that the kids are learning this. And, I had parents that, “Well, why is my child not learning this?” . . . And, you know, I remember this one man saying, “I want my child to have this!” ’ (Teacher)

All participants stated that traditional gender stereotypes about HEFN education had largely, but not completely, disappeared. Most teachers felt that their profession was still viewed as almost exclusively a career choice for women.

HEFN curriculum renewal has been neglected

All participants stated that the curriculum was outdated (more than 20 years old) because HEFN is not viewed as an important subject

### Table 3 HEFN enrolment and gender ratio by region

<table>
<thead>
<tr>
<th>Year</th>
<th>Winnipeg A</th>
<th>Rural and Other</th>
<th>Northern and Remote</th>
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<td>% Enrolled</td>
<td>% Enrolled</td>
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<td></td>
<td>in HEFN</td>
<td>F : M ratio</td>
<td>in HEFN</td>
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<tr>
<td>2000</td>
<td>26.24</td>
<td>1.30</td>
<td>23.74</td>
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<td>2001</td>
<td>27.82</td>
<td>1.33</td>
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<tr>
<td>2002</td>
<td>24.36</td>
<td>1.24</td>
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<td>2003</td>
<td>24.95</td>
<td>1.17</td>
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<td>2004</td>
<td>26.67</td>
<td>1.27</td>
<td>24.16</td>
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<td>2005</td>
<td>31.12</td>
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<td>2007</td>
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<tr>
<td>2008</td>
<td>30.39</td>
<td>1.12</td>
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<td>2009</td>
<td>28.66</td>
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<td>2010</td>
<td>29.02</td>
<td>1.01</td>
<td>28.87</td>
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<td>All years</td>
<td>27.80</td>
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area by the provincial Ministry of Education. It was felt that the curriculum needed revising to reflect changes in nutrition knowledge and societal trends, as well as the learning needs of diverse students (i.e. ‘life skills’ to more advance science and techniques). It should also have both theoretical and applied aspects.

‘I think . . . that the [provincial] government has not had respect for the [HEFN] curriculum. And if you look at the dates on the curriculum that we are using . . . it’s very hard to argue that we are valued . . . or we’d have a new curriculum!’ (Teacher)

‘If the [HEFN] curriculum were updated to reflect society right now, that would be very helpful’. (Superintendent)

A major challenge identified by several teachers was that HFN programming ‘lost ground’ to physical education when it became a mandatory core subject in the mid-2000’s and added nutrition content.

Teachers were concerned about fewer new teachers entering the field. They also described poor career counselling at the provincial university, difficulty in recruiting new HFN teachers, especially in northern and remote communities, and were worried that more programmes will be shut down. They felt the shift by some schools to ‘food services’ or ‘culinary arts’ programming, which do not have a nutrition focus, was a concern.

The wider food and nutrition landscape undermines HFN education

Teachers felt that the wider food and nutrition landscape, including family/home and school environments, had a significant impact on perceptions of HFN education, and what happened in their classrooms.

Family/home food environment: Teachers reported many students coming from homes with dual-income parents, one-parent or blended families, and many were in extracurricular activities and had jobs. This contributed to family food norms, which centre on greater use of convenience and fast foods; decreased time spent preparing foods; fewer family meals; and decreased mentoring of children in food skills.

‘No one has a stay-at-home parent anymore. So, everybody’s going home tired and hungry, feed the kids, get them off to soccer, so there’s no time where parents are spending time with their kids in the kitchen’. (Teacher)

‘But they’re coming up with those products, and I think, you know, it’s kind of a catch-22. They’re coming up with those products, all of the processed, all of the ready to eat, ready to heat, you know, crap. Because people are so busy. And so, it’s kind of the consumer’s driving what’s being offered. And we’re getting into this vicious cycle where that’s all we’re eating, because that’s what’s available’. (Teacher)

‘I remember one boy saying “this is how you eat, right?” I said “what do you mean?” He goes “I don’t know, I always sit in front of the TV.”’ (Teacher)

School food environment: Teachers described the school food environments as contradicting or undermining what they were trying to teach, which negatively affected student and staff attitudes towards HFN. For example, school celebrations frequently featured high sugar/fat/salt foods (baked goods, salty snacks, soft drinks, pizza and other fast food) and teachers and principals often use ‘junk’ food as rewards.

Theme 2: reduction in student food related knowledge, skills and attitudes

All but one teacher who had taught for more than 10 years identified that many more students are entering HFN classes with no or little knowledge of food, food preparation, basic equipment usage and food-related hygiene compared with the past.

‘Kids have a harder time. The basic cooking skills – when I first started out, the student was the exception who didn’t know basic operation in the kitchen. And now, it’s coming around where kids that have good solid strong skills in the kitchen stand out. And what I’ve noticed in the last couple years, that the cleanliness is more of an issue . . . I find that kids don’t come in with as many of those skills form home’. (Teacher)

Teachers indicated that there has been a decrease in food exposure and mentoring at home. Many of their students were not permitted to use equipment (stove/oven, knives) at home because parents may be working and viewing the kitchen as unsafe, or it is too much work to clean up after them. Further, many homes lacked basic equipment, leaving students unable to translate the knowledge and skills they learned to the home environment. One teacher described how a student did not know what a ‘pitcher’ was, because all beverages in his house came ready-to-drink in disposable packaging.

‘Now, many students don’t know how to read a recipe; have never used a knife; don’t know how to use the stove’. (Teacher)

‘Parents say “I know I should do that with them, but it’s just quicker if I can get it done myself. And I can clean up.”’ And in the same token, you’re getting ticked because your kids and your husband aren’t helping you out!’ (Teacher)

Some teachers described that these changes in family food norms and expectations negatively impacted their standards of teaching and evaluation.

‘Well, one of the projects I give the grade nines, is they have to cook . . . a meal at home and do a write-up and plan the menu . . . make the grocery list. And every year it’s getting harder and harder to get them to do that. I found myself accepting ramen noodles. That was the end of it for me! Ha ha! But I’m finding it harder to get the kids to do that and do the write-up. And you know, mom says it’s too much trouble’. (Teacher)

Several teachers described exceptions, such as students choosing healthy snacks and lunches (i.e. grapes and snap peas), and one superintendent felt that students were more nutrition-conscious than in the past. One teacher described her students being ‘thirsty’ for the knowledge and skills they were gaining in HFN class, because they were not learning this at home.

Theme 3: HFN education is critically important for preparing students to navigate the modern foodscape

All participants felt that HFN education was important for Manitoba youth, but needs to reflect current food and nutrition knowledge, issues and contemporary lifestyles. Increasing rates of nutrition-related chronic diseases and obesity (especially in
children), as well as dilemmas being faced with food production and food safety, were cited as important indicators of why HEFN education is critically important.

‘If obesity’s an epidemic in the world, it’s an epidemic in Manitoba, and we’re death last’. (Superintendent)

Teachers expressed that HEFN education was essential for developing important life skills that included food planning, preparation and hygiene, following directions, financial management, teamwork, but went beyond these to include food and nutrition science, and awareness of more complex food system issues (i.e. effects of food production on the natural environment). They also felt that many students may not be learning these skills at home, and that HEFN education should start early and be mandatory in at least some grades.

‘They’re not learning those basic things at home. They’re not learning how to eat properly . . . and there is more of a need, even though there’s less opportunity for them to take it’. (Teacher)

‘Yes, it should be mandatory. It should be mandatory and it should be available in every building. And in my school it is not available for anyone above grade 10. Grade 10! I have no time on my timetable’. (Teacher)

‘Young people who have taken optional courses in Human Ecology or Home Ec over the senior years are leaving with life skills that have them prepared to be better citizens. We need to offer young people experiences where they learn to work with others as they do in Home Ec. Where they learn to develop a skill that’s going to be there for their life’. (Superintendent)

Discussion

The results of this research demonstrate that Manitoba children may be at significant risk of not acquiring the food and nutrition knowledge and skills they require to navigate the contemporary foodscape in a healthy manner. The majority do not have an opportunity to receive HEFN education or do not avail themselves of it. They also do not appear to be adequately mentored at home. Although, overall, HEFN enrolment, including boys, has increased slightly over the past decade in Manitoba, enrolment decreased dramatically from grades 7 to 12. The breakdown in transfer of critically important food knowledge and skills, which this study suggests is now occurring, may be predisposing youth to significant negative health issues as they become increasingly reliant upon nutritionally poor mass-produced convenience and fast foods. The fact that one-third of Manitoba youth are now overweight or obese highlights the gravity of the current situation (Yu et al., 2010).

Provincial education ministries establish educational policies in Canada. The high variability of HEFN education programming throughout Manitoba is likely due to differential priorities, teaching resources and facilities at the Divisional level. Greater increases in the North may reflect Divisional policies towards promoting optional programming. The more equitable enrolment between boys and girls in urban centres observed may reflect more progressive societal attitudes towards male involvement in food-related activities (Harnack et al., 1998; Sayer, 2005; Marshall, 2006).

This study provides a number of clues into why ‘cooking’ and HEFN education have become diminished, as well as why their revival may be necessary. First, it appears that HEFN is seen as less important than subjects such as math and science, which are considered essential for future career options. These views have been observed in other Canadian provinces (Smith and de Zwart, 2010) and other countries including Britain where attempts to make home economics a ‘foundation subject’ were not successful (Murphy, 2011). Secondly, the Manitoba HEFN curriculum has not been updated in over 20 years, and does not reflect current nutrition knowledge. Thirdly, the wider food and nutrition landscape is inundated with nutritionally poor fast and convenience foods, which support busy family lifestyles, yet diminishes interest in and valuing of home food preparation skills that are core to HEFN education. As a result, students entering into HEFN programmes increasingly do not even have the most basic of food preparation skills to build upon. Finally, results paradoxically indicate that HEFN education is overwhelmingly viewed as critically important for maintaining the long-term health and well-being of Manitoba’s children.

The devaluing of HEFN education found in this study reflects wider societal norms regarding food. Reduced time spent planning and preparing food in the home, ubiquitous use of ultra-processed convenience foods increasingly consumed outside traditional meal structures, school food practices that contradict healthy eating guidelines, and the ‘fast food culture’ of youth all present significant challenges to the transfer and promotion of ‘cooking’ and fundamental food skills. And while HEFN can be a potential solution to ‘home deficiencies’ with regard to food skills (Höijer et al., 2011), it can also be seen as less relevant in the context of the modern foodscape. A vicious cycle ensues that threatens to accelerate the loss of fundamental food and nutrition knowledge, further distancing students from educational opportunities and critical knowledge and skills (Caraher and Lang, 1999). While there is not a causal relationship between lack of ‘cooking’ skills and obesity, there is growing evidence that the lack, or sporadic availability of, school- and home-based food and nutrition education is detrimental for youth health and should be revitalized (Larson et al., 2006; Lichtenstein and Ludwig, 2010; Smith and de Zwart, 2010; Lai-Yeung, 2011; Øvrebø, 2011). Øvrebø (2011) cautions, however, that course content must be relevant and address both nutrition theory and practice.

Results of this study suggest an emerging tension between societal trends towards technological solutions in education and everyday living, and the growing acknowledgement of the externalities associated with these trends. The current discourse on career and academic success favours achievement (especially female) in subjects like math, science and computer technology (Alphonso, 2012). At the same time a technology-driven food system is increasingly being recognized for its detrimental effects on human health (Guthrie et al., 2002; Larson et al., 2008; The Conference Board of Canada, 2012). HEFN education might seem a nostalgic nod to the benefits of ‘home cooking’ that is out of step with a fast-paced world of different priorities, were it not for the deeply concerning state of health among Canadian youth. Overweight and obesity rates in 5–17-years-olds are at an all-time high of 31.5% (Roberts et al., 2012), and only 5% of male and 7% of female grade six students meet the minimum servings for four food groups (Rossiter et al., 2012).
At the nexus of this tension is the need to examine the role of fundamental skills and technologies that can help re-balance health and socio-economic imperatives. These results highlight the need to ‘close the loop’ between food and nutrition education, and health and well-being, and the need to reinvigorate discussions on how to best translate these essential knowledge and skills. Home economics education is a suitable vehicle for this knowledge translation, as home economics emphasizes critical thinking and holistic approaches to solving complex social problems (Smith and de Zwart, 2010). Therefore, cooking does not appear to be ‘dead’, but is in serious need of resuscitation and transformation to fit with today’s lifestyles, and food and education environments. One step in this direction would be the development of a food and nutrition curriculum based upon a comprehensive food and nutrition framework encompassing applied and theoretical aspects of functional, interactive and critical ‘food literacy’ (Table 4).

Limitations
This study has several limitations. Firstly, the study participants provided perspectives from the view of teachers and superintendents, while other stakeholders, including students and parents, may have different perspectives. Secondly, there were some errors in the enrolment data provided by Manitoba Education including missing data that had not been submitted to the Professional Certification and Student Records Unit. This missing data, however, represented a small portion of the overall data and likely do not impact the trends observed. Finally, the enrolment data did not include independent schools or First Nations on-reserve schools.

Future research should include in-depth examination of food and nutrition education practices in homes and schools, as well as perceptions of youth and other stakeholders regarding key focus areas for food and nutrition education and subsequent curriculum development. In addition, other policy measures to augment HEFN education should be examined including restricting advertisement of low-nutrient foods to children and subsidizing healthy food options.

Conclusion
The contemporary foodscape is growing more complex and difficult to navigate in a healthy way. This study lends evidence to the growing body of literature suggesting that rapid proliferation and normalization of fast and convenience foods, paired with a time-impoverished and increasingly de-skilled population threaten the health of current and future generations. While by no means a single solution, it is essential that young people are equipped with the knowledge and skills to interact with this foodscape through appropriate educational opportunities in order to have self-determination over their food and health. These opportunities must not be left to chance, choice or to the corporate food sector. School-based food and nutrition education, as a cornerstone of health, should be promoted as being of equal importance to math and science, and essential for long-term academic and career success. Unfortunately, too many children are missing out on the opportunity. Leadership from provincial governments and education authorities, and appropriate policy measures are urgently required to ensure all youth have access to foundational, evidence-based education in food literacy.

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