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The role of home economics teachers in enhancing adolescents' food literacy to develop healthy dietary behaviours

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Abstract

Food literacy education is a potential public health strategy to support adolescents to have healthy dietary behaviours. In most high schools in Australia home economics teachers are well positioned to teach food literacy. However, there is limited understanding of the contribution of home economics teachers towards educating adolescents to develop food literacy and healthy dietary behaviours. This study explored high school home economics teachers' understanding of food literacy and their role in developing adolescents' food literacy and healthy dietary behaviours. Qualitative study design was used. Semi-structured interviews were conducted with 22 high school home economics teachers in Australia. The interview questions focused on the teachers' understanding of food literacy, their background in food literacy, and their role in enhancing adolescents' food literacy and healthy dietary behaviours. Data were analysed using the thematic data analysis method. Overall, home economics teachers displayed an understanding of food literacy that broadly consisted of food and nutrition knowledge and food skills. They discussed two levels of food literacy: basic food skills and macro topics such as environmental sustainability. Many home economics teachers recognised the potential impact of food literacy on food choices and health outcomes. Finally, the teachers also described their responsibility and that of other teachers to be positive role models to further impact on the food literacy and healthy dietary behaviours of adolescents.

Keywords: Food literacy, adolescents, high school, home economics, food educators

Introduction

Over one-quarter of Australian adolescents are overweight or obese (Australian Bureau of Statistics, 2015). Excess weight is a significant

risk factor for type 2 diabetes, cardiovascular disease, hypertension, osteoarthritis and some cancers (Dhir & Ryan, 2010). Furthermore, excess weight can reduce adolescents' self-esteem, induce social isolation and discrimination, and hinder academic performance (Dhir & Ryan, 2010; Kalra, De Sousa, Sonavane, & Shah, 2012). Unhealthy dietary behaviours are one of the main causes of overweight and obesity (Rennie, Johnson, & Jebb, 2005). Dietary behaviours of adolescents in developed countries have evolved over the last decade, with increased consumption of takeaway and highly processed foods that are associated with poorer diet quality (Colatruglio & Slater, 2014; Kramer, Coutinho, Vaeth, Christiansen, Suratkar, & Gittelsohn, 2012; Lai-Yeung, 2007; Van Der Horst, Brunner, & Siegrist, 2011; Australian Bureau of Statistics, 2014). A lack of food and nutrition knowledge and skills has been identified as a potential contributor to increased consumption of unhealthy foods and consequently development of overweight and obesity (Jaffe & Gertler, 2006; Lichtenstein & Ludwig, 2010; Scrinis, 2007). Recently, the concept of food literacy has emerged as a promising approach to help support initiatives that reduce overweight and obesity among adolescents (Colatruglio & Slater, 2014; Howard & Brichta, 2013).

Food literacy is described as, 'the scaffolding that empowers individuals, households, communities or nations to protect diet quality through change and strengthen dietary resilience over time. It is composed of a collection of inter-related knowledge, skills and behaviours required to plan, manage, select, prepare and eat food to meet needs and determine intake' (Vidgen & Gallegos, 2014, p. 54). The Australian school curriculum provides an opportunity for food literacy education for students from foundation to Year 10 (Australian Curriculum, Assessment

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and Reporting Authority, 2015). This is important due to the association between increased adolescent food literacy including food and nutrition knowledge (Da Rocha Leal, Paz Mendes de Oliveira, & Pereira Rodrigues, 2011; Pirouznia, 2001; Tsartsali, Thompson, & Jago, 2009; Venter & Winterbach, 2010) and food skills (Caraher, Seeley, Wu, & Lloyd, 2013; Hersch, Perdue, Ambroz, & Boucher, 2014; Larson, Perry, Story, & Neumark-Sztainer, 2006) and healthier dietary behaviours (Vaitkeviciute, Ball, & Harris, 2015). In Australian secondary schools that have a home economics department, the responsibility to increase adolescents' food literacy is typically within the area of home economics. However, in some schools, the health and physical education department may also contribute to this.

The International Federation for Home Economics *Position statement—Home Economics in the 21st century* indicates that home economics, 'facilitates students to discover and further develop their own resources and capabilities to be used in their personal life, by directing their professional decisions and actions or preparing them for life' (International Federation for Home Economics, 2008). A comprehensive home economics curriculum supports the dissemination of food and nutrition knowledge and skills (Pendergast & Dewhurst, 2012; Worsley, Wang, Yeatman, Byrne, & Wijayaratne, 2015), which provides an opportunity for adolescents to develop capabilities and enhance personal empowerment to act in the daily context of food and nutrition (Colatruglio & Slater, 2014; Lichtenstein & Ludwig, 2010; Pendergast, Garvis, & Kanasa, 2013). As noted by Fordyce-Voorham (2011), home economics teachers have a significant role to play in adolescents' lifelong learning about healthy dietary behaviours. They have the nutritional background and pedagogical expertise to provide food literacy education to adolescents, including a background in practical food preparation skills, which makes them well placed to enhance adolescents' food literacy (Fordyce-Voorham, 2011; Pendergast & Dewhurst, 2012).

An Australian study has explored the perceptions of community members regarding the inclusion of food preparation skills in the high school curriculum (Pendergast, Garvis, & Kanasa, 2011). The study revealed that the wider community might not realise the potential of home economics in supporting

adolescents to develop food literacy. A more global study has shown that home economists are in agreement about the need for food literacy in the school curriculum (Pendergast et al., 2013). For decades home economics teachers have been responsible for providing food and nutrition knowledge and skills to adolescents in school settings. However, the concept of food literacy only recently emerged. Therefore, it is important to explore home economics teachers' understanding of food literacy and their role in providing food literacy education to adolescents. A better understanding of these teachers' perceptions of providing food literacy education at high schools is subsequently needed to clarify the ideal role they have in supporting healthy dietary behaviours of adolescents. This understanding will help to clarify the conjecture in the literature, and identify areas to better support this important area of learning. It is in this context that this study explored home economics teachers' understanding of food literacy and their role in enhancing adolescents' food literacy and healthy dietary behaviours at high schools in Australia.

Methods

Participants

This study utilised a semi-structured interview approach to collect data. An introductory email was sent to home economics teachers (n=60) using a randomised selection who had participated in a survey on food literacy in schools (Ronto, Ball, Pendergast, & Harris, 2016) and provided consent to be contacted again (n=91). Twenty-seven teachers responded to the email sent by the research team. An information sheet and a consent form were then emailed to potential participants. Twenty-two home economics teachers subsequently scheduled interviews.

Instrumentation

Data were collected via semi-structured face-to-face (n=2) and telephone (n=20) interviews with home economics teachers across Australia. Interview questions were developed to explore key areas of investigation and participants were encouraged to expand on those key areas (Table 1). The key questions focused on:

- participants' background and interest in food literacy
- participants' understanding of food literacy
- participants' role in enhancing adolescents' food literacy levels and healthy dietary behaviours.

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Inquiry logic	Interview questions
Explore home economics teachers' background and interest in food literacy	'Please tell me about your teaching background, including the reason you became a home economics teacher'.
Explore home economics teachers' understanding of food literacy Explore home economics teachers' role in enhancing adolescents' food literacy and healthy dietary behaviours	'What is your understanding of food literacy?' 'What role does home economics education have in teaching food literacy in your school?' 'Thinking about your teaching on food literacy, to what extent do you feel this influences the dietary behaviours of your students?' 'Do you think there are any consequences of not having food literacy education?'
Provide opportunity for open expression of views by home economics teachers	'Is there anything else you would like to add?'

Table 1. Interview questions for the participants (home economics teachers)

Procedure

Semi-structured interview questions were piloted with two home economics teachers using face-to-face interviews. Minimal modifications to wording were made and no questions were removed or added. Pilot data were included in the present analysis. Data were collected between January and February 2015. Teachers were informed that the interviews would be audio-recorded and that the information provided would remain confidential. All interviews were conducted by a single interviewer. Each interview lasted between 15 and 30 minutes.

Ethical approval was granted from the Griffith University, Human Research Ethics Committee (Reference number MED/57/14/HREC). All participants provided informed consent to participate in the study.

Data analysis

Theoretical saturation was reached at Interview 18, after which no new data or constructs of interest emerged (Draper & Swift, 2011). However, the researcher interviewed all participants who consented and scheduled time to participate in the interview (n=22). Interview recordings were professionally transcribed and one researcher reviewed the transcripts for accuracy against the original audio recordings (Braun & Clarke, 2006). Participants' names were removed from the transcripts and the numbers of the interviews were substituted to ensure confidentiality (e.g., 'I1').

Thematic data analysis was applied for identifying, analysing, interpreting and reporting themes within the data (Braun & Clarke, 2006). The investigators followed five phases of thematic data analysis suggested by Braun and Clarke (2006). First, interview transcripts were read and re-read to gain data familiarisation. Second, one investigator coded interview transcripts

systematically across the entire data set. Third, the research team, comprising four professionals from different disciplines, including home economics, nutrition and dietetics and public health, met on a regular basis to review the codes and to identify and review themes. In the regular meetings, investigators discussed any differences in coding and theme identification until the final agreement was reached. Investigator triangulation helped to prevent the personal or disciplinary biases of a single investigator from excessively influencing the findings (Giacomini & Cook, 2000). Fourth, the research team refined each theme and extracted quotes from the data set to support each theme.

Results

Four key themes emerged regarding home economics teachers enhancing adolescents' food literacy and healthy dietary behaviours:

1. Home economics teachers have varying degrees of understanding of food literacy and its importance, but broadly have a good understanding of the concept.
2. Some home economics teachers have interests and/or skills related to those of dietitians and chefs.
3. Home economics teachers build competent citizens.
4. Home economics teachers believe that they should act as role models.

Understanding and importance of food literacy

Home economics teachers described the concept of food literacy as 'evolving', 'fairly broad', and 'multi-faceted'. Some respondents were more familiar than others with the existing definition of food literacy, with some indicating that food literacy was a fairly new concept to them. Understanding of the meaning of food literacy varied among teachers, with most stating that it consisted of two components:

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- food and nutrition knowledge
- food skills.

These two components were seen as being equally important, as being related to each other, or one being superior to the other. However, some teachers stated that food literacy is largely a cognitive skill, which refers to only knowledge and understanding, for example:

“I see food literacy as more of a declarative skill. I see food literacy more as the preoperational skills before the hands-on preparation and cooking of food” (I1).

and

“[P]robably looking at people having both the knowledge, skills and ability to be able to make healthy food choices. But it is more than just knowing what to eat. It’s actually having the skills and ability to go and find healthy food and prepare it” (I11).

The teachers indicated that they believed that food literacy consists of many aspects, including food and nutrition knowledge and skills required for planning, selecting and preparing food; eating food in social ways; and cleaning up. More specifically, aspects of food and nutrition knowledge consisted of understanding and being aware of healthy and unhealthy foods, nutritional value of food, nutrients, origins of food, hygiene and safety practices, food labels, recipes and environmental sustainability. They perceived that food skills encompassed the application of food and nutrition knowledge. Also, many teachers indicated that in order to be food literate, a higher level food literacy involving critical thinking is very important, including questioning societal norms, nutrition information in the media and marketing strategies, as evident in the following comment:

“I’d like to think that after teaching students, they can walk into a supermarket and be completely confident that there are marketing strategies and tactics that are used in relation to trying to get them to buy particular products. I’d like them to be able to go in and recognise that there are particular marketing trends that are attempting to get them persuaded towards a particular product. But they can obviously critically analyse that and be able to put that into perspective in a realistic and educated manner” (I7).

The home economics teachers recognised the impact of food literacy on food choices and health outcomes. They indicated that food literacy increases food and nutrition knowledge, which helps people to:

- make informed food choices
- enhance or maintain good health
- maintain weight
- avoid diet-related diseases such as overweight and obesity, type 2 diabetes and high blood pressure.

Food literacy was thought to build confidence, leading to improved food preparation behaviours, which can have long-lasting effects. In line with this, the home economics teachers reported that low food literacy levels of adolescents could lead to poor dietary behaviours, including consumption of takeaway, fast and prepacked food. For example:

“I listen to a lot of students when they come back for their old scholars’ dinners and that. Yes, it’s interesting listening to them—and I guess it might be because I’m there as their home economics teacher—saying, ‘I’m glad that I did cooking’, or, ‘I have remembered some things from cooking and I can cook’, or, ‘My wife thinks it’s great that I can cook’” (I6).

Interests and/or skills related to dietitians and chefs

Many respondents reported being personally interested in food and good health, expressing a desire to teach others about food, nutrition and cooking. This was evidently one of the main drivers to becoming home economics teachers. Some teachers had a very close relationship with the hospitality industry—for example, having been a chef before starting a career as a teacher. Many home economics teachers also associated their passion for cooking with their careers as a home economics teachers, with the following comment an example of this:

“I came to home economics because I was very much interested in food and enjoying food and taking on home economics, it was something that I could teach people how to cook as well as enjoying it myself” (I1).

Some teachers were more interested in food and nutrition rather than practical components of food literacy such as cooking or teaching others food preparation skills. Some chose home economics teaching as an alternative to the nutrition and dietetics professions—for example, Interviewee 3 stated, *“I actually wanted to do dietetics but I wasn’t that great at chemistry, so I looked at other alternatives”.*

Building competent citizens

Food skills

The home economics teachers emphasised the importance of adolescents developing basic food

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skills that equip them for independent lives. The development of basic food skills referred to:

- transferable skills that adolescents could use at home
- time-saving skills that would enable adolescents to prepare meals in 30 minutes
- food skills that would enable adolescents to adapt recipes and prepare meals with available ingredients including improvising with ingredients.

The teachers were strategic in their teaching of food literacy; they adapted familiar recipes that are culturally acceptable to adolescents, such as spaghetti bolognese or stir fry, so that they became healthier; as Interviewee 1 stated: “[B]ecause we compete against other subjects in the school, we need to work smarter and work efficiently and be strategic in being able to cover the essential skills and develop and include recipes that build in these food literacy and food skill components”.

Many emphasised the importance of teaching adolescents food skills required to accommodate people with different food-related health issues such as food intolerances or allergies. Food-borne health issues related to food hygiene and safety were seen as learning priorities for adolescents.

Adolescents' gender was seen as an influential factor in food preparation. Males and females were regarded as having different nutrient requirements and interests. Some teachers stated that female adolescents were more interested than male adolescents in food and nutrition knowledge, whereas male adolescents were more interested than female adolescents in practical components of food literacy such as food preparation skills. Therefore, the home economics teachers stated that they should tailor classes appropriately in order to enhance the learning experience of students.

Social experiences

Teachers also emphasised social eating experiences to be an essential part of food literacy. Such skills include knowledge on how to behave in social events, such as learning social etiquette and table manners, and participating in social eating experiences. The teachers believed that such social interactions are currently lost in some families. This concept was explained by Interviewee 7:

“[W]e also prioritise social etiquette as well and table manners. So they'll literally prepare the meal, set the table, learn how to set a table properly. Then we give them a few basic etiquette

tips and then we get them to sit in groups of four and five and they have to eat the meal with each other every time they cook, which I think is a really good thing, promoting that social etiquette [because family time is decreasing] in terms of sitting in front of the television and not really enjoying family time during dinner or whatever”.

Critical thinking

Many teachers stated that having basic food and nutrition knowledge and skills is insufficient to be an informed consumer. Critical thinking and knowledge about macro aspects of food literacy were deemed to be essential, such as awareness of environmental sustainability concepts, including food wastage, food deserts, recycling and degradation, and animal welfare; and economic aspects such as dollar-wise decisions. This was explained by the following interviewee:

“[I]t also includes some of the consumer decisions regarding environmental sustainability, as we were saying before, making decisions about choosing a vegetarian diet, using resources, such as the Internet, accessing meatless Monday websites to choose recipes, looking at complementary protein sources. Children make very moral decisions about, say, choosing between free-range eggs and caged eggs and what's that all about” (I1).

Furthermore, critical analysis of media messages and marketing techniques regarding food and nutrition was seen to be an important skill to learn in order to be a knowledgeable consumer. Many teachers believed they were ideally placed to provide adolescents with accurate information in order to correct many misconceptions in the media regarding food products and diets, as Interviewee 5 explained: “[W]e try to incorporate a really good discussion about the sort of myths around how things are packaged and how things that are low fat can sometimes be high sugar and just trying to teach those critical thinking skills in people”.

Home economics teachers as role models

Many of the respondents were convinced that to have credibility teachers should be positive role models for adolescents with regards to healthy dietary behaviours. As one teacher stated: “[I]f you're going to be a teacher or an educator of these things, you have to practise what you preach and actually be a positive role model for those kids” (I7). However, some were concerned that other teachers, including fellow home economics teachers, were overweight or obese and/or promoting unhealthy dietary behaviours.

Many respondents explained that the teaching approach of food literacy depends on the teachers' personal attitudes towards healthy dietary behaviours and teachers' ability to adapt to new teaching techniques. They believed that home economics teachers influence the food preparation skills developed and the foods that are prepared in home economics classes and in some cases it could be unhealthy options. As one teacher explained: "[W]ell, my friend's children go to [xxx] school and I think it depends very much on the home economics teacher, very much, because what they cook in their home economics classes, I would never cook in my classes" (I2).

Some of the interviewees stated that some home economics teachers have 'an old-fashioned' approach in teaching adolescents food literacy. They reported that this approach involved unhealthy food preparation behaviours such as baking cakes and biscuits. As one teacher stated: "[P]eople have old-fashioned ways of teaching. I'm not young, but there are certainly plenty of people out there who are just teaching cakes all the time in their home economics classes" (I11).

Discussion

The aim of this study was to explore home economics teachers' understanding of food literacy and their role in enhancing adolescents' food literacy and healthy dietary behaviours at high schools in Australia.

Home economics teachers' background and interest in food literacy

In this study, home economics teachers reported that they were personally interested in food, nutrition and cooking. Some had an extensive history of using the practical components of food literacy, such as working in the hospitality industry as a chef before becoming a home economics teacher. A combination of the roles of a chef and nutrition educator is very useful in order to successfully translate nutrition knowledge and healthy food preparation skills into sustainable dietary behaviours of adolescents (Condrasky & Hegler, 2010). Some studies that have involved a chef and dietitian collaborating to deliver an educational program have shown positive outcomes in terms of cooking confidence, intention to change dietary behaviours, gains in food skills, asking for healthy ingredients to be purchased at home, increased preparation and consumption of fruit and vegetables, and increased awareness of healthy dietary guidelines (Caraher et al., 2013; Condrasky, Griffin, Catalano, & Clark, 2010).

Nutrition knowledge can bring a change in dietary behaviours but it has also been suggested to include experiential knowledge of food and food skills to bring about behaviour change (Worsley, 2002). Food skills on their own can improve cooking confidence but this will not necessarily translate into healthy cooking (Condrasky & Hegler, 2010). Therefore, both food and nutrition knowledge and food skills are needed in order to increase the food literacy of adolescents.

Home economics teachers' understanding of food literacy

The home economics teachers' understanding of food literacy aligned with current definitions of food literacy, indicating that the concept consists of mainly food and nutrition knowledge and food skills required to have healthy dietary behaviours (Cullen, Hatch, Martin, Higgins, & Sheppard, 2015; Desjardins & Azevedo, 2013; Kolasa, Peery, Harris, & Shovelin, 2001; Vidgen & Gallegos, 2014). Teachers identified many different aspects of food literacy required to plan, select and prepare food, and to eat food in social ways and clean up, which aligns with other studies (Fordyce-Voorham, 2011; Fordyce-Voorham, 2015; Pendergast & Dewhurst, 2012; Vidgen & Gallegos, 2014). This comprehensive understanding of food literacy is important in order for home economics teachers, as health educators, to deliver effective food literacy education within the home economics learning area at high schools in Australia.

Home economics teachers' role in building competent citizens

The home economics teachers reported a relationship between food literacy and health outcomes. They stated that lack of adolescent food literacy was linked to inadequate food and nutrition knowledge and food skills that consequently influenced dietary behaviours and contributed to the development of overweight and obesity. Few studies have indicated that food literacy may have an impact on dietary behaviours (Larson, Story, Eisenberg, & Neumark-Sztainer, 2006; Laska, Larson, Neumark-Sztainer, & Story, 2012; Utter, Denny, Lucassen, & Dyson, 2016; Vaitkeviciute et al., 2015), including food-related preferences and attitudes (Hersch et al., 2014), family connections and mental health (Utter et al., 2016). Therefore, it is possible that food literacy education could be an important strategy to combat childhood obesity by increasing adolescents' knowledge and skills of healthy dietary behaviours, which would help them to make informed food choices.

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The home economics teachers in this study emphasised two levels of food literacy that are required in order to be food literate:

- basic food skills
- higher-order thinking.

Food skills

Food skills were viewed as necessary for day-to-day living. The teachers focused on:

- basic food preparation techniques such as cooking with available ingredients, adapting recipes and improvising with ingredients
- time-saving skills such as preparing meals in 30 minutes
- food safety and hygiene practices
- social eating experiences.

This finding aligns with another study involving home economics teachers where the researcher perceived basic food skills as being the most important for students to make healthy meals and snacks (Fordyce-Voorham, 2016). The practices of home economics teachers in this study align with those in other studies:

- The perception of time required to prepare family meals has been recognised as the main reason for the consumption of away-from-home meals (Fulkerson et al., 2011; Robson, Crosby, & Stark, 2016).
- Some studies have shown that parents would prefer to have interventions that focus on the development of food skills using quick, inexpensive and healthy recipes and facilitate time management techniques in regard to food preparation (Fulkerson et al., 2011; Robson, Crosby, & Stark, 2016; Worsley, Wang, Ismail, & Ridley, 2014).
- A systematic review found that family meals have been positively associated with healthier dietary behaviours, normal body mass index and increased family connectedness (Hammons & Fiese, 2011; Robson, Stough, & Stark, 2016).

Higher-order thinking

Although basic food skills are crucial for day-to-day living, the home economics teachers stated that these are not enough in order to be food literate. The second level of food literacy reported by the home economics teachers referred to higher-order skills beyond basic food skills. This included addressing macro aspects of food literacy such as environmental sustainability, animal welfare, food deserts, food wastage, recycling and degradation. The teachers reported that these skills are required in order to develop knowledgeable and competent consumers. This finding aligns with Fordyce-Voorham's (2016) study.

This level of food literacy uses an inquiry approach and includes interpretative learning and critical thinking about contemporary food issues, and questioning the information behind food and nutrition messages within the media. This level of food literacy has been described as important to have a deeper understanding of the food issues and increases adolescents' motivation and enthusiasm (Pendergast & Dewhurst, 2012; Fordyce-Voorham, 2015; Renwick, 2013). Subsequently, food literacy levels and dietary behaviours of adolescents could be also influenced by school environment, with this aspect warranting further investigation (Lobstein et al., 2015).

Home economics teachers as role models

The home economics teachers in this study believed that school staff should be positive role models and have positive attitudes towards healthy dietary behaviours, as adolescents learn by observing others. Australian adolescents have previously stated that positive role modelling of healthy dietary behaviours could help them to make informed food choices and to consume healthier foods (Stephens, McNaughton, Crawford, & Ball, 2015). However, interviewees were concerned that some teachers, including fellow home economics teachers, were not providing positive role models. A recent Australian study concurs with this finding, revealing that only 26% of home economics teachers agreed that school staff are good role models in regard to healthy dietary behaviours (Ronto et al., 2016). Therefore, it is essential to create a healthy school environment with teachers as effective role models for adolescents in order to encourage them to make healthy food decisions.

Limitations

A number of study limitations should be acknowledged:

1. First, participation bias may have occurred as the findings are based on self-reported data and the home economics teachers may have provided socially desirable responses (Brenner, Billy, & Grady, 2003). However, given that participants openly discussed negative role modelling, this suggests that desirable responses were minimised.
2. Second, the study interviewer used a telephone interview method, which could have disadvantages such as a lack of visual cues; for example, facial expressions and changes in body language. However, phone interviews were necessary as participants

were recruited from across Australia. Also, interviews took place at times convenient for participants, allowing participants to plan in advance and minimise distractions.

3. Third, only one researcher coded the data, so a potential bias in identification of codes may exist. To minimise this, the co-authors met on the regular basis to identify and interpret emerging themes.

Conclusion

Home economics teachers have a good understanding of food literacy that broadly consists of food and nutrition knowledge and food skills. They also have expertise and backgrounds in nutrition, food knowledge and cooking, which position them well to develop adolescent food literacy. Teachers indicated there are two levels of food literacy:

- basic food skills, which are very important for adolescents to develop for independent life
- higher-order skills—home economics teachers argue for a complex, higher level of food literacy that includes critical thinking about contemporary food issues in order to develop knowledgeable and competent consumers.

They also indicated the importance of teachers being role models to adolescents' food literacy and healthy dietary behaviours. However, they also stated that some high school teachers, including some home economics teachers, are not positive role models for healthy eating.

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