PEER-REVIEWED RESEARCH PAPER

Food Literacy in Australian Secondary Schools—Views of Young Adults, Parents, and Teachers

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Abstract

Renewed interest in secondary school food and nutrition education has highlighted the need to determine the food knowledge and skills important to include in the secondary school curriculum. This study explores the views of home economics teachers, young adults and parents of adolescents about the food knowledge and skills that should be included in secondary school food education programs. Semi-structured interviews were conducted in 2014-2016 and were audio-recorded and transcribed verbatim. Nine key themes were identified. Four main themes are presented: practical cooking skills, planning and resource management, nutrition and healthy eating and consumer skills. Overall, these themes were important among the three groups, although there were differences between groups for some of the more specific skills. Teachers highlighted the importance of basic food preparation and cooking skills, modifying and adapting recipes, and emphasising more technical skills. Understanding food labels and food advertising and marketing were mentioned more by the young adults and parents, as well as budgeting skills for parents. Teachers believed that only basic nutrition and healthy eating concepts were required, while parents felt that it should be quite detailed. These findings will help to inform the development of an ideal food curriculum that is relevant within the current foodscape.

KEYWORDS: **FOOD EDUCATION; CURRICULUM; FOOD LITERACY; HOME ECONOMICS; COOKING SKILLS; SECONDARY SCHOOL; QUALITATIVE**

Introduction

Poor food choices and eating behaviours are key determinants of overweight and obesity, as well as for several chronic diseases including cardiovascular disease, Type 2 diabetes, and some forms of cancer (Australian Institute of Health and Welfare, 2012, 2019). The development of healthy eating habits is largely dependent on the life skills developed throughout childhood and adolescence (Hawkes et al., 2015). In the past, most adolescents learnt their cooking skills from their mothers (Caraher et al., 1999; Lavelle et al., 2019). However, with the number of dual-income families increasing significantly over the last few decades (Australian Bureau of Statistics, 2011; Hayes et al., 2010), perceived lack of time (Jabs & Devine, 2006), and reliance on pre-prepared foods (Bava et al., 2008), many parents do not spend as much time teaching their children important food and other life skills (Lavelle et al., 2019; Lichtenstein & Ludwig, 2010; Short, 2003). Furthermore, many parents themselves are practising cooking skills less frequently (McCloat et al., 2017; Soliah et al., 2012), relying more on convenience and pre-packaged foods (Bava et al., 2008; Lichtenstein & Ludwig, 2010).

There has been renewed interest in food education and food literacy in recent years (Vidgen & Gallegos, 2014). Schools provide a useful setting for food skills education (Bucher Della Torre et al.,

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2010; Story et al., 2009). Having continuous contact with students, school food and nutrition curricula has the potential to effectively communicate healthy eating messages and to reach all adolescents and their families (Boddy et al., 2019; Burton & Worsley, 2014; Lloyd et al., 2011). However, there is currently no clear syllabus regarding food education within the Australian secondary curriculum (Pendergast et al., 2011), meaning that there is a lack of consistency in the content being taught across different schools (Home Economics Institute of Australia, 2010). In Australia, nutrition education is split between two domains. *Health and Physical Education* includes the teaching of nutrition principles, and *Design and Technology* includes food skills, such as cooking (Australian Curriculum Assessment and Reporting Authority, 2016). Home economics is not a compulsory subject in Australian secondary schools, as curriculum requirements can still be met without it (Home Economics Institute of Australia, 2010). This curriculum structure is similar to what is found in Canada (Slater, 2013), Hong Kong (Lai-Yeung, 2011) and India (Rathi et al., 2017), while in Sweden (Weichselbaum & Buttriss, 2014), Wales, Northern Ireland (Weichselbaum & Buttriss, 2014), Japan and Finland (McCloat & Caraher, 2020) subjects such as home economics and food studies are compulsory. While most Australian secondary schools offer food and nutrition subjects, they are generally limited to the lower secondary years (i.e., Years 7 and 8) (Home Economics Institute of Australia, 2010). Time spent in food education in Australia varies from none to one or two hours per week. With a somewhat crowded and constrained curriculum (Ballam, 2018; Home Economics Institute of Australia, 2010; Department of Education, 2015), it is likely that some important content is being left out. Therefore, it is important to identify essential food knowledge and skills that adolescents should learn throughout secondary school.

Some previous research has explored the views of home economics teachers (Eiser et al., 1998; Fordyce-Voorham, 2016; Nanayakkara, Margerison, et al., 2018; Pendergast & Dewhurst, 2012; Ronto et al., 2016b; Slater et al., 2018,) and other food and health professionals such as dieticians (Fordyce-Voorham, 2011; Parrish et al., 2016; Sadegholvad et al., 2017; Slater et al., 2018), community educators (Fordyce-Voorham, 2011; Parrish et al., 2016; Sadegholvad et al., 2017), health professionals, food marketers (Parrish et al., 2016), and chefs (Fordyce-Voorham, 2011), as well as adolescents (Ronto et al., 2016a). In addition, in a previous study, we presented the views of food consumers (Burton et al., 2018). In general, these studies found that nutrition knowledge, food preparation and cooking skills, and food safety and hygiene were viewed as the most important topics for everyone to know. However, only five of these studies asked participants which food knowledge and skills should be taught in secondary schools (Eiser et al., 1998; Fordyce-Voorham, 2016; Nanayakkara, Margerison, et al., 2018; Pendergast & Dewhurst, 2012; Sadegholvad et al., 2017), and only one of these used qualitative research methods (Sadegholvad et al., 2017). The aim of this study was to qualitatively explore the views of home economics teachers, young adults who have begun living independently, and parents of adolescents about the food knowledge and skills that they think should be included in secondary school food education programs. The views of these stakeholder groups are important given that they all have either direct or indirect experience with food education in secondary schools. No previous studies have explored the views of secondary students' parents or recently graduated secondary students. The findings from this study have important implications for all relevant stakeholders, including Government authorities, curriculum developers, and home economics teachers.

Materials and methods

Participants and recruitment

Through the phenomenological framework, researchers aim to understand the perceptions of the participants of the situation or phenomenon being examined (Creswell & Poth, 2016; Marshall & Rossman, 2011). Purposive sampling was used to ensure that participants exhibited the characteristics of interest and had experience with the phenomenon under investigation (Ritchie et al., 2014).

Home economics teachers were invited to participate in this study as they have a background in nutrition and practical food preparation skills (Fordyce-Voorham, 2011; Pendergast & Dewhurst, 2012), as well as the pedagogical expertise to understand young people and their worlds (Backman et al., 2002; Fordyce-Voorham, 2011). They are also primarily responsible for teaching food education in secondary schools. An email was sent to a selection of 35 Home Economics Victoria members (a teacher training organisation and advocate for food skills education within Victoria, Australia),

inviting them to participate. To provide flexibility, participants were given the option of doing the interview either face-to-face at the school where they taught, or over the phone. Interviews were conducted with 12 home economics teachers (11 face-to-face, one by phone), by which point data saturation was reached.

Parents who had adolescents currently attending secondary school were invited to participate because they are generally aware of the capabilities of their adolescents and have an investment in their future lives and future health outcomes. They have also had their own experience of moving out of home during young adulthood and having to learn how to look after themselves and prepare their own meals. Young adults who had recently completed secondary school (aged 18-25 years) and who had since moved out of the family home, were selected because they have had recent and direct experience of school food education (or the lack of it) and then becoming responsible for purchasing and preparing their own food. Parents of adolescents and young adults were recruited via a Facebook page that was promoted within several Facebook community groups. For parents of adolescents, data saturation was reached by the thirteenth phone interview, while data saturation was reached after 14 phone interviews with young adults. Both groups received a $20 shopping voucher to thank them for their time.

Interview questions and procedure

The interviews were semi-structured, lasted between 7 and 70 minutes and were conducted between 2014 and 2016. All interviews were conducted by the lead researcher (MB) and were audio-recorded with the participants' permission. The participants in all three groups were asked the question, "What food skills do you think should be included in secondary school food education programs to prepare adolescents for adulthood?" which is the focus of this paper. They were also asked questions related to their specific role in food education (i.e., teacher, parent, former student), as well as questions about the participants' demographic and other characteristics. The interviewer was guided by the participant and asked follow-up questions as required (Hsieh & Shannon, 2005).

Data analysis

A professional transcription service was employed to transcribe the interviews verbatim, and participants were given the chance to review their transcript to confirm accuracy. All identifying information was removed and replaced with pseudonyms, and each transcript was given a unique identification number to maintain anonymity. MB listened to the audio recordings in order to clean and check the transcripts for accuracy. This process provided MB with the opportunity to become familiar with the data (Mason, 2002; Spencer et al., 2014a, 2014b), and to start identifying preliminary themes and subthemes (Brooks & King, 2012). Using Nvivo 11 (QSR International, 2015), sections of the transcripts, such as key concepts and phrases, were assigned codes (Mason, 2002; Spencer et al., 2014b) and the themes were further refined through an iterative process. A second researcher (AW) coded a selection of the transcripts to ensure inter-rater reliability. Any differences in coding between the researchers were discussed and the final themes and subthemes were mutually agreed on.

Ethics

Ethics was granted by Deakin University Faculty of Health Human Ethics Advisory Group (HEAG-H 149_2014, HEAG-H 20_2016).

Results

Participant characteristics

All 12 of the home economics teachers were female with teaching experience ranging from two to 30 years. The teachers taught in a range of school types including Government (n = 6), private (n = 3) and Catholic (n = 3). Seven teachers taught at co-educational schools, while four taught at all-female schools and one at an all-male school.

Of the 13 parents of adolescents, 12 were female and one was male. Eight of the parents lived in a two-parent household and five were single parents. Seven parents had completed a university degree, four had a TAFE (Technical and Further Education) qualification, and two did not complete secondary school. The majority of parents lived in Victoria (n = 10); however, three lived in New South Wales.

The young adult participants consisted of 11 females and three males who had completed secondary school between 2011 and 2015. Most lived in shared housing (*n* = 8), while others lived either on their own (*n* = 3), with a partner (*n* = 2), or in one case, with a family member. Thirteen of the respondents were studying full-time, six of whom were also working part-time. One participant was in full-time employment.

Views about the food knowledge and skills that should be taught in secondary schools

Analysis of the qualitative data from the interviews with 12 home economics teachers, 13 parents of adolescents and 14 young adults, revealed nine key themes. These nine themes and their sub-themes are shown in Table 1. This paper will present, in detail, the four themes that were most identified by participants: *Practical cooking skills*, *Planning and resource management*, *Nutrition and healthy eating*, and *Consumer skills*. The remaining themes are presented in detail elsewhere (Burton, 2018).

Table 1 **Major Themes and Sub-Themes of Important Food Knowledge and Skills for Secondary School Food Education**

Major themes and sub-themes	Number of participants who mentioned theme/sub-theme as important		
	Home economics teachers (*n* = 12)	Parents of adolescents (*n* = 13)	Young adults (*n* = 14)
1. Practical cooking skills (Theme 1)	**12**	**12**	**13**
Basic food preparation and cooking skills	10	5	9
Easy, fast, cheap meals	6	8	7
Identifying and using kitchen equipment and utensils	5	5	5
Modifying and adapting recipes	7	-	6
Different cooking methods	6	2	4
Extending meals	3	5	2
Create a meal from available ingredients	-	5	3
Adding flavour	4	-	1
Measurement of ingredients	5	-	-
Cleaning up	2	2	-
Following a recipe	3	-	-
2. Planning and resource management (Theme 2)	**10**	**12**	**13**
Meal planning	9	9	11
Budgeting skills	7	9	7
Writing a shopping list	1	2	5
Managing time in the kitchen	-	-	1
3. Nutrition and healthy eating (Theme 3)	**9**	**12**	**12**
4. Consumer skills (Theme 4)	**7**	**12**	**13**
Understanding food labels	5	10	12
Shopping skills	6	7	7
Food advertising and marketing	2	7	6
5. Environmental issues and ethical food choice	**6**	**11**	**10**
Environmental issues	5	11	10
Ethical food choice	4	4	3
World food problems	-	1	-

Note: Themes identified from thematic analysis of interviews with home economics teachers, parents of adolescents and young adults

Legend ■ = popular themes, ■ =less popular themes, ☐ = sub-themes

Table 1 (continued).

Major themes and sub-themes	Number of participants who mentioned theme/sub-theme as important		
	Home economics teachers (*n* = 12)	Parents of adolescents (*n* = 13)	Young adults (*n* = 14)
6. Kitchen safety and food hygiene	**8**	**9**	**9**
Food hygiene	7	8	8
Kitchen safety	6	3	2
7. Food production and processing	**5**	**6**	**11**
Domestic food production	-	5	9
The origin of food	4	2	3
Food processing	1	2	3
8. Confidence and resilience	**7**	**5**	**5**
Confidence and resilience	5	2	5
Food exposure	5	5	2
9. Cultural foods	**5**	**1**	**-**

Note: Themes identified from thematic analysis of interviews with home economics teachers, parents of adolescents and young adults

Legend ■ = popular themes, ■ =less popular themes, ☐ = sub-themes

Theme 1: Practical cooking skills

Basic food preparation and cooking skills

Ten teachers, five parents and nine young adults felt that basic food preparation and cooking skills were essential to include in secondary school food education. The general belief of the teachers was that by providing students with the opportunity to learn how to prepare a range of different basic foods such as eggs, pasta, fish and vegetables, they would then have the ability to adapt these basic skills and apply them to different recipes or dishes. General concern was evident among the parents about the lack of basic cooking skills among school-leavers. They thought that adolescents should learn how to prepare and cook foods that are commonly used in family meals, such as eggs, chicken and steak. Some of the young adults felt that basic food preparation and cooking skills were the most important skills for adolescents to learn at school.

Easy, fast, cheap meals

Easy, fast and cheap meals was a common theme among all three groups. The teachers acknowledged that, for adolescents, food is all about convenience. They felt that teaching students the skills to make a variety of quick healthy meals and snacks would be a good strategy for helping them to understand that convenience does not always have to mean eating out and buying fast food. Some of the young adults also thought that it would be beneficial to show students that cooking does not have to take a lot of time. One young adult said:

> I feel like they probably don't teach you life skills … like, once you've finished school, I think you become increasingly time-poor. They don't really teach you how to make healthy nutritious food on the go. (Y7)

Low-cost meals were most frequently mentioned by the young adults, emphasising the need to teach adolescents how to cook healthy meals on a small budget. One young adult said:

> I think if you've got a small budget, it can be pretty hard to cook some of the things that they teach you to cook in school. (Y9)

Identifying and using kitchen equipment and utensils

Home economics teachers believed that the identification and use of different utensils and equipment should be one of the first things that students are taught when they are introduced to the

school kitchen. Teachers identified specific equipment such as the oven, stove, microwave, electric beaters, grill, knives, as well as knowing the different types of pots.

The parents and young adults were not as specific when discussing the types of equipment. Two parents highlighted the importance of knowing how to select the best equipment or tools to use for preparing or cooking particular foods, while a few young adults believed that learning how to use different appliances would help adolescents to feel more confident in the kitchen.

Modifying and adapting recipes

The home economics teachers (*n* = 7) and young adults (*n* = 6) highlighted the importance of being able to modify and adapt recipes based on factors such as individuals' dietary needs, likes or dislikes, or the foods that are available to them:

> Letting them be a little bit flexible and creative with their own dishes … Because there'd be times when you want to cook a recipe, but you've got more people or you are gluten intolerant and you want to change an ingredient or you want to substitute something for another thing, because you don't like it. (Y11)

Some parents acknowledged that this was an important skill for adolescents to learn but did not consider it as important as other skills. Some also questioned whether it was something that should be taught at home, rather than at school.

Different cooking methods

Participants from all three groups discussed the ability to use different cooking methods, however it was identified by more home economics teachers (*n* = 6) than parents (*n* = 2) and young adults (*n* = 4). The teachers spoke about learning different cooking methods and providing adolescents with the competence to apply those methods to many different foods and recipes, highlighting frying, baking, boiling, steaming, rubbing-in, and dry and moist cooking methods. They also felt that it was important to teach adolescents how the different cooking methods can affect the healthiness of foods and to give them the skills to be able to determine which methods are best to use in different preparation scenarios. Participants in all three groups agreed that learning different methods of cooking gives adolescents the ability to adapt to the cooking facilities available to them:

> Simple things that you can make with really basic items… Just stuff that people have around their home, like you just cut up with knives, or just mix with spoons instead of electric mixers and stuff, because everyone doesn't have that kind of stuff. (Y6)

Extending meals

The ability to extend meals, either by learning a range of different bases that can be added to, or learning how to use leftovers for another meal, was viewed as an important skill by several parents (*n* = 5) and the home economics teachers (*n* = 3). One teacher gave an example of a basic tomato and meat sauce that could then be used to create several different meals:

> ...how they can actually take a simple Bolognese sauce… You can take out the tomato, add maybe some grated carrots, put some mashed potato on top, pop it into the oven and there's your Shepherd's Pie. You can add some drained red kidney beans, add some oregano, touch of chilli and voila, you've got the centre for burritos or Chilli con Carne, for example. You can put it between layers of pasta with a white sauce and you've got a lasagne. (T6)

Create a meal from available ingredients

Several parents (*n* = 5) and young adults (*n* = 3) believed that students should be taught how to create a meal out of ingredients already available in the fridge or pantry, giving them the confidence to improvise. They also explained that it was a good way to use up foods and, therefore, create less waste and save money. None of the home economics teachers mentioned this as an important skill.

Adding flavour

Being able to add flavour to food and meals appropriately was identified as important mainly by the home economics teachers (*n* = 4), but also one parent. The teachers believed that it was important to be able to identify the types of flavours within a meal and decide what else could be added to create more flavour. Adding salt was a common concern voiced by the teachers and they highlighted

the importance of teaching adolescents that food can be flavoured using other ingredients such as herbs or spices.

Measuring ingredients, following a recipe and cleaning up

Several home economics teachers mentioned the importance of learning how to measure ingredients accurately and how inaccurate measurements can adversely affect the outcome. They also believed that learning how to carefully read and follow a recipe was a key skill for creating a successful outcome and for giving adolescents the confidence to pick up any recipe and cook it. Two each of the teachers and parents, but none of the young adults, thought that students should learn correct cleaning up processes, such as washing the dishes—using hot soapy water, washing the cleanest dishes first and inverting them to drain effectively.

Theme 2: Planning and resource management

Meal planning

The majority of participants in all groups discussed the importance of meal planning skills. The teachers highlighted skills such as knowing how to plan meals for a week and how to work out food quantities needed to feed different numbers of people. Parents stressed the importance of learning a range of different strategies and skills for effective meal planning. For example, knowing which staple ingredients to keep in the pantry and fridge so that a meal could be made without going to the shops:

> Be able to look in the cupboard … if they don't want to formally plan a menu, at least think about what they'd like to eat for the week, or understand what basic protein, vegetables you could have in the fridge that you could just whip something up out of without it then causing you too much stress. (P7)

The parents believed that meal planning was an essential life skill because it could help to reduce waste and save money by using home-stocked ingredients or by organising meals so that ingredients could be used for multiple meals. All groups emphasised the importance of teaching adolescents how to utilise the freezer effectively for planning meals, for example, cooking bigger quantities and freezing in portions or preparing a variety of meal bases that could be frozen and then added to, at a later date. Some of the parents and young adults explained that having the skills to plan meals would help young people to save time and money, and also reduce the likelihood of making poor food choices.

Budgeting skills

Being able to budget for food and having some knowledge of food costs were cited as important aspects of meal planning by all groups. Teachers mentioned the importance of understanding the different factors that can affect food prices, such as seasonality, while knowing how to shop on a budget was mentioned as an important skill by the parents and young adults:

> A lot of uni students don't really know how to cook on a budget, and I know myself and a lot of my friends end up just cooking … like 2 minute noodles, because that's cheap and quick and easy. (Y9)

The young adults also talked about the common misconception that healthy food is expensive and felt that it was important to make students more aware of the value of different foods. One young adult suggested that budgeting should be taught along with other life skills such as how to do your taxes and how to apply for a job, stating that basic life skills, in general, was an area needing more attention in secondary schools. However, there was one participant in each group who was unsure about the importance or the effectiveness of teaching budgeting skills at school.

Writing a shopping list

Several of the young adults thought that learning how to write an effective shopping list and the benefits of using them was important to teach in secondary schools. Only one home economics teacher and two parents identified shopping lists as important, with others feeling that it may be a bit irrelevant due to the increase in the number of consumers participating in online shopping.

Theme 3: Nutrition and healthy eating

Nutrition and healthy eating were mentioned by participants in all three groups but were most frequently mentioned by the parents (*n* = 12) and young adults (*n* = 12). The young adults felt that nutrition education should not be too detailed because it would be overwhelming for adolescents. They believed that it should provide basic knowledge of healthy eating and food groups rather than focus too much on specific nutrients and their functions.

In contrast, parents generally believed that food education at school should include as much detail as possible, with some stating that they thought it was the most important food topic to teach at school, mainly because it was something that most parents were not able to teach their adolescents at home. The beliefs of home economics teachers appeared to sit somewhere between those of the parents and the young adults. The teachers and parents thought that adolescents should be taught about the key nutrients, their role in the body and food sources of specific nutrients. In addition, parents also thought they should learn about recommended daily intakes and appropriate serving sizes.

Food models, such as the *Healthy Eating Pyramid* and *The Australian Guide to Healthy Eating* were mentioned by participants in all groups as important guides for adolescents to understand. They felt that it was important to know the right balance of the food groups and to understand what *one serve* of different types of food looks like. Some of the teachers and parents also thought that adolescents should be made aware of the difference between fresh and processed foods and the different natural and artificial additives that they may contain. The link between nutrition and health, such as the benefits of healthy eating and the consequences of consuming a poor diet, was identified as important by all groups. One teacher suggested that nutrition information taught in secondary schools should be highly relevant to the adolescents' worlds, incorporating the key nutritional challenges that adolescents face, such as skipping meals, cutting out food groups, body image concerns and energy drinks.

Some of the home economics teachers explained that it was important in food education not to ignore foods that are typically described as "unhealthy". They suggested that these foods should be discussed in terms of "celebration foods" and that they are okay to eat occasionally as they contribute to food enjoyment. Another teacher also explained that allowing students to cook celebration foods enables students to realise what actually goes into those types of foods, thus making them become more conscious and able to appreciate healthy food more.

Theme 4: Consumer skills

Understanding food labels

Almost all of the parents and young adults felt that adolescents should be taught how to read food labels at school. They spoke about the importance of knowing how to interpret the nutrition panel and ingredients list. Many young adults discussed the benefits of understanding food labels. They generally believed it would give them more control over their own health and also that consumers would be less likely to believe misleading front-of-packet claims if they understood what was written on the labels.

Several parents also explained that they struggled to understand food labels themselves, and this contributed to their belief that it is a crucial skill for young people to have, and that it was important to learn at school, given their own lack of understanding. Only five of the home economics teachers mentioned food labels as an important topic.

Shopping

Food shopping was perceived as an important skill set for secondary school food education by several participants in all three groups. In general, the parents and young adults believed that adolescents should be made aware of the different places to shop for food (e.g., supermarket, farmers' market, greengrocer, butcher), and be taught how to compare and select foods based on factors such as price, quality and ripeness. The home economics teachers also thought it would be useful for adolescents to be taught how to navigate their way around a supermarket, while parents and young adults talked about learning how to get value-for-money and understanding supermarket catalogues in terms of comparing items and budgeting.

A few participants from each of the groups suggested that it was less of a priority to teach shopping skills at school compared to other food-related topics, given the limited amount of time allocated to food education in the timetable. Some of the young adults also believed that a lot of these skills were ones that young people could gain once they started shopping for themselves. One young adult suggested that it be integrated into other topics, rather than it being taught explicitly as a separate topic.

Food advertising and marketing

Only two home economics teachers discussed food advertising and marketing as an essential topic for secondary school food education. However, they both felt very strongly about the importance of it as a key skill for health literacy. They expressed their concerns about the amount of misleading information that exists (i.e., on food labels, in the media, supermarket advertisements and billboards), and believed that adolescents should be taught how to critically evaluate food messages along with which sources of information to trust. One teacher explained that this was especially important because adolescents are particularly vulnerable to images portrayed as favourable by the media.

The majority of parents and young adults emphasised the importance of having a good understanding of food advertising and marketing. Some of the parents and young adults had similar views to the teachers and felt that it was vital for adolescents to learn how to be sceptical of food messages and how to identify misleading information. They also believed that adolescents should be taught awareness of the motives behind advertising and marketing schemes, for example, the role of product placement in stores.

However, some parents questioned whether it should be taught in food subjects as opposed to other subjects. For example, one parent noted that food is not the only product area that warrants an understanding of marketing and advertising and, therefore, suggested it should be covered more broadly in a different school subject such as media. One young adult believed that this was a topic that should be reserved for the more senior secondary school years, after the more rudimentary skills have been learned. In contrast, two of the parents thought that the foundations of the topic should be introduced in late primary school because a lot of food advertising and marketing strategies were targeted towards young children. One parent also suggested that if food education focused more on providing adolescents with an in-depth understanding of healthy eating and good nutrition, then that may offset the impact of food advertising and marketing schemes and make it less of an essential topic in food education.

Discussion

The home economics teachers, parents of adolescents, and young adults shared several common themes in terms of the types of food knowledge and skills that should be taught in secondary school food education. Four themes

a) Practical cooking skills
b) Planning and resource management
c) Nutrition and healthy eating and,
d) Consumer skills

were universally important among each of the three groups. However, there were also some clear differences between the groups with regards to their views about the importance of some of the more specific skills.

Within the *Practical cooking skills* theme, the home economics teachers and young adults tended to favour the importance of *basic food preparation and cooking skills*. Food, nutrition and health teachers have previously reported that their lessons aimed to teach practical cooking skills, along with encouraging healthy food choices and developing lifelong healthy eating habits (Boddy et al., 2019). However, fewer parents mentioned this subtheme, perhaps because they consider it to be obvious due to their long history of family meal preparation. The parents believed that it was more important for students to learn how to cook meals that are easy, fast and cheap, which is not surprising given that many parents claim to be time-poor (Jabs & Devine, 2006).

Learning to modify and adapt recipes according to a variety of contextual factors was viewed as important by the home economics teachers and the young adults. These skills have previously been

identified as important by home economics teachers (Fordyce-Voorham, 2016; Nanayakkara, Margerison, et al., 2018) and food system professionals (Nanayakkara, Margerison, et al., 2018). However, Ronto et al. (2016a) found that adolescents viewed these skills among the *least* important aspects of food literacy. Similarly, in the present study, most parents were not convinced that it was an important skill for adolescents to learn at school. Some said it was not a skill set that they used themselves, and so they deemed it unnecessary, while several other parents suggested that it was something that should be taught at home, rather than at school. This belief frequently emerged throughout the parent interviews; they believed they could teach certain skills at home and, therefore, they do not need to be taught at school. This phenomena was also seen in a previous study of readers' comments to a newspaper article about the inclusion of cooking in the school curriculum (Pendergast et al., 2011). Thirty-six percent of readers suggested that developing adolescents' food literacy should only be the parents' responsibility rather than the school's (Pendergast et al., 2011). However, whether it is the school's or the parents' responsibility to teach children about nutrition and healthy eating has been a topic of debate over recent years (Lai-Yeung, 2011; Pagnini et al., 2009; Patino-Fernandez et al., 2013; Pendergast et al., 2011;). In the current study, it appeared that parents who believed that certain skills should be taught at home, were more likely to think that schools should be teaching them about nutrition and the environment; things that they did not feel qualified to teach their adolescents themselves.

Being able to create a meal using ingredients available in the pantry or fridge is an essential skill that has been identified by home economics teachers (Ronto et al., 2016b), other food professionals (Fordyce-Voorham, 2011; Parrish et al., 2016), and adolescents (Ronto et al., 2016a). However, in the current study, while some of the parents mentioned it as an important skill, few young adults and none of the home economics teachers thought so. It is possible that the teachers in this study considered its importance in relation to other topics, given their limited contact time with the students and the need to prioritise what they teach. The fact that it was not mentioned by the majority of young adults may be due to their limited experience in food provision compared to parents. This was also evident in the *Planning and resource management theme*, where more young adults than teachers and parents believed it was important to learn how to write a shopping list and to learn how to manage their time in the kitchen when cooking. These findings provide evidence that these are skills that adolescents would benefit from learning prior to leaving school and becoming responsible for their own food provision.

The home economics teachers put a lot of emphasis on the importance of teaching specific techniques such as how to measure ingredients correctly, follow the steps in a recipe, and the correct way to clean up. *Measurement of ingredients* and *following a recipe* were not mentioned by any of the parents or young adults. This may be because they believed that it is a skill that is easily acquired, or perhaps they do not understand the importance of such skills. Furthermore, it may be that home economics teachers feel the need to make skills more concrete in order to teach them, whilst parents and young adults do these things unconsciously. However, it could also suggest that home economics teachers may be focusing on skills that are less relevant to adolescents' lives, given that the parents and young adults did not share the same beliefs about the more technical aspects of food preparation.

All three groups discussed the importance of teaching *basic skills*, rather than more complex skills. In particular, focusing on basic meal and snack recipes and teaching a variety of cooking methods using basic equipment found in most homes, rather than expensive, high-tech appliances that many people do not have access to. They felt that it was important for adolescents to be able to cook a basic meal regardless of the equipment available to them. Similar views have previously been reported by home economics teachers (Fordyce-Voorham, 2016) and food experts such as chefs, homemakers, home economists and dieticians (Fordyce-Voorham, 2011).

Planning and resource management was viewed as an important aspect of school food education, in particular, *meal planning* and *budgeting skills*. Participants seemed to recognise and embrace the fact that people consider themselves to be increasingly time-poor and believed that having some good meal planning and management skills would help to alleviate the influence that lack of time has on meal preparation. This is an interesting finding as it has previously been reported that only 23% of Australian main meal preparers plan their meals for the week ahead, while 42% plan their meals on the day (Meat & Livestock Australia, 2011). Perhaps, for the parents, meal planning is something that they feel they do not do very well, and therefore, believe it to be more important for adolescents to learn. In a previous study by the authors, it was found that 71.7% of Australian food consumers believed that meal planning skills were important for all consumers to have, while

budgeting skills were viewed as *essential* by 88.1% of Australian food consumers (Burton et al., 2018). However, Ronto et al. (2016b) found that 65.4% and 52.7% of Australian home economics teachers reported spending little to no time on planning and managing *time for food shopping* and *budgeting for food*, respectively. Thus, the mismatch between the common belief of the importance of meal planning and resource management, and the amount of time spent teaching these skills in secondary schools, warrants further investigation.

While nutrition and healthy eating was viewed as an important topic by all of the groups, there were some key differences between the groups as to how detailed it should be. Home economics teachers mostly believed that adolescents only require a basic understanding of nutrition and healthy eating, a view also shared by various food-related professionals (Sadegholvad et al., 2017). In contrast, the parents felt that adolescents should be taught as much detail as possible, with many suggesting that it was the most important topic to cover in food education. This difference in views could be due to the expertise of home economics teachers and their awareness of the fact that there are many other knowledge and skill sets that influence food literacy. It may also be that they know nutrition is also covered in other subjects in the curriculum (i.e., Health and Human Development). In addition, it became clear that many of the parents did not feel confident about their own nutrition knowledge, which may be why they felt it was so important to teach adolescents at school. Parents' views could also relate to the fact that they are invested in the wellbeing of their own adolescents and believe that nutrition has a direct relationship to their health.

The young adults believed that the focus should be on healthy meals, rather than sweet foods and baking, however, several home economics teachers felt that it was also important to include some baking to keep students interested and for them to understand that occasional foods are acceptable to have every now and then. This is quite an alarming finding, given the increasing obesity rates, but is in line with another study which reported that 37.6% of home economics teachers across Australia spend only a moderate amount of time or less teaching students about healthy and unhealthy foods (Ronto et al., 2016b). Perhaps this is a view that warrants more research, as the need to teach students how to cook energy-dense, nutrient-poor foods is questionable. Given that 35% of total energy consumption in Australia comes from discretionary foods, and that this proportion is even higher (41%) among 14–18-year-olds (Australian Bureau of Statistics, 2014), it must be considered whether these foods should be included in a food education program. In fact, discretionary foods in schools are actively discouraged in the UK, as set out by the Department for Education (2016).

*Consumer skill*s was a major theme in all groups but was most frequently discussed by parents and young adults. The parents mentioned skill sets that they could relate to, as many use them in their own day-to-day lives. However, in other studies, perceived importance of consumer skills has been mixed. In a cross-sectional study of Australian home economics teachers, 91.4% agreed that *How to select and buy quality and value for money food* was important (Fordyce-Voorham, 2016). However, in other studies, adolescents (Ronto et al., 2016a) and food professionals (Ronto et al., 2016b) rated it as one of the least important skills. Perhaps this is because many consider it to be an important skill set, but not so much when comparing it to other types of skills. This appeared to be the case for the home economics teachers, as they considered the limited amount of time students spend doing food education.

Fewer of the home economics teachers, compared to parents and young adults, mentioned food labels as an important aspect. In accordance with the parents and young adults, a previous study of consumer views, found that *how to read food labels* was the fourth most essential food-related knowledge or skill required by food consumers (Burton et al., 2018).

Overall, parents' consideration of their own adolescents appeared to play a role in their beliefs. For example, they talked about food safety to prevent illness and kitchen safety to prevent injury, and some were also concerned about the health effects of pesticides and additives in processed foods. Many parents also believed that the important topics were the ones in which they either lacked themselves or did not feel confident to teach their adolescents themselves. The young adults often spoke about the knowledge and skills that they were, or were not, confident with, as well as which ones they believed have helped them to live independently. Most of the home economics teachers could not put aside the fact that they do not get enough time to teach the students about every important aspect of food. This burden led many of them to discuss the importance of different aspects relative to others, meaning that some aspects may actually be more important to them than they let on. Previous research has also shown that sociodemographic and psychosocial factors such as *age*

Nanayakkara, Burton, et al., 2018), *gender* (Burton et al., 2018; Lai-Yeung, 2007; Nanayakkara, Burton, et al., 2018), *personal values*, *food knowledge* and *food mavenism* (Burton et al., 2018) may influence individual views about the importance of food-related knowledge and skills.

This study has made a significant contribution to our understanding of three different stakeholders' views on this subject. The inclusion of these stakeholder groups has provided an in-depth understanding of the subject from people who have experience with it, either directly or indirectly.

Most participants in all three groups were female which may be perceived as a limitation. However, as the majority of home economics teachers and main household food shoppers and preparers remain female (Burton et al., 2017; Reid et al., 2015), this is not perceived to be a major problem. Although, it should be taken into consideration when interpreting the findings of this study. It must also be noted that most of the young adults were current university students, some of whom were studying food and nutrition, and most had studied home economics or a similar subject in secondary school. However, this could be perceived as a strength of the study, as the aim was not to provide findings that could be generalised to the wider population but rather to simply explore the various views that exist on the topic in order to inform the nature of future research. A limitation of this study was that the interviews of the three groups were conducted over a two-year period due to a career break of one of the authors. It is possible that individual views may have changed during this time.

Future research and implications for educational practice

Given that several parents believed that there were certain skills that should or could be taught at home rather than at school, it would be useful to explore the amount of food-related activities that children and adolescents are involved in at home. It would also be useful to ascertain the views of other stakeholder groups, such as current secondary school students. Current students could provide insight into their interests, as well as the food knowledge and skills that they feel they need to learn prior to leaving school. It would be particularly interesting to understand the views of students who choose not to continue with a food subject into the higher years of school to determine what puts them off and what would make food education more interesting.

These findings have important implications for secondary school food education programs in the future. Currently in Australia, there is no standard curriculum for food education in secondary schools, and this may be partly due to the uncertainty about which knowledge and skills are essential for young adolescents to learn. The three stakeholder groups interviewed in this study can be considered key informants on this topic, and therefore, their views provide valuable insights and take us one step closer to creating an ideal food curriculum for secondary schools. Understanding key stakeholders' views about which skills they believe are essential in food education in secondary schools is important for Government authorities and curriculum developers, who could use this information to improve the food education curriculum in secondary schools in Australia. This information is also useful for home economics teachers so that they can make their classes more engaging by focusing on the topics that are valued by the parents, past students, and most consumers. Home economics teachers could also use this information to advocate for time and physical resources within their own school environment.

Conclusion

Each of the three stakeholder groups held similar views about the range of food knowledge and skills essential for secondary school food education programs. Overall, the most commonly mentioned themes were *practical cooking skills*, *planning and resource management*, *nutrition and healthy eating*, and *consumer skills*. However, the different groups placed different levels of importance on the various sets of knowledge and skills and appeared to be motivated by different factors. The findings make a significant contribution to the research in this area and have a number of implications for the future of food education in Australian secondary schools.

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