From nutrients to food literacy

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From nutrients to food literacy

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Introduction
This paper is based on a webinar broadcast by the Home Economics Institute of Australia in 2015. I should make clear at the outset that I will be discussing the academic literature, particularly that relating to nutrition education and food literacy that reports studies with measured outcomes. This may seem ‘last century’ to many Australian home economics teachers who long ago moved from teaching about nutrients to education about dietary practices. However, in nutrition science there has long been a fascination with the possible effects of education about nutrition on disease risks and outcomes. There has been an expectation among health researchers and governments that education should reduce disease risks and promote wellbeing among young people. I think this view is too narrow and unrealistic in contrast to more holistic approaches such as those of home economics and the emerging area of food literacy.

In this brief overview I will discuss four areas to do with the emerging area of food literacy education. First, I will discuss the emergence of a broader view of food and dietary patterns in the nutrition sciences and the reasons for this. Secondly, I will explore the competing assumptions behind ‘education’ versus those of ‘health promotion’ and public health, followed by different disciplinary views of the emerging area of food literacy with its emphasis on competencies. Finally, I will explore some interesting new developments in food literacy education.

1 Renaissance of interest in food and dietary patterns
In the academic literature the limitations of traditional nutrition education are becoming more apparent than ever. There are several reasons for this—consider, for example, how nutrition science is changing, how increased affluence has influenced the food that is available and the influence of the public health sector.

Changing nutrition science
Since the beginning of the 20th century (and even earlier), nutrition science has worked in a ‘depletion’ paradigm. People’s diets were missing vital ingredients (hence vitamin and mineral deficiencies); nutrition science identified the missing nutrients and how these could be added to the diet, often by supplementation or fortification. Many millions of impoverished people around the world still suffer from nutrient deficiencies; this is a serious issue that challenges the world (and the Australian) community. It has not gone away.

The depletion paradigm seemed to make sense for many decades. However, lately its effectiveness has been questioned (Ruel, Alderman, & Maternal and Child Nutrition Study Group, 2013; The Update team, 2015). The prevailing view now is that this form of nutrition science is useful for the assessment of nutrition status of poor populations, but in the absence of poverty amelioration in the form of financial and business development, general primary and secondary education (for girls in particular), water and sewerage provision, and other forms of community development, nutrient-based interventions alone do not ameliorate the effects of poverty and its associated ill-health effects (Ruel et al., 2013). This is not to say that single nutrients are unimportant—nutrient deficits certainly are important even in affluent societies—but the human body and its social contexts are much more complex than was envisaged at the outset of the depletion paradigm.
This narrow view of nutrition—that the health contributions of single nutrients can be assessed in isolation from other nutrients—overemphasises single nutrients rather than foods, meals and dietary patterns. The ways nutrients function in the body depend on many factors, including the presence of other nutrients and many bioactive compounds. Jacobs and Tapsell (2007) refer to this as ‘food synergy’.

The effect of this ‘nutritionism’ (Scrinis, 2013) was that much nutrition education focussed on single ‘bogeyman’ nutrients (like salt, saturated fats, sugar, iron, calcium) or sometimes single foods (like meat, whole milk, eggs, meat). A lot of educational effort went into trying to change small aspects of people’s diets with little health benefit and often with a great deal of inconvenience to families’ lives and school teaching programs. Again, this is not to say that certain nutrients, like salt, fats or sugars are not important for the public’s health but they are only limited aspects of people’s diets.

**Increasing affluence**

A second major change in nutritional thinking is associated with affluence. All over the world populations have become materially more affluent. This change appears to be associated with several factors. These include: the commodification of food and its generally lower prices in terms of proportions of household income needed to acquire it (though certainly not in the case of low-income groups); the intensive marketing of energy-dense, nutrient-poor products such as confectionery, cake, biscuits and sugar-sweetened beverages; the globalisation of food and the concentration of ownership of food production and retailing (see, for example, Moodie et al., 2013). At least one third of the average Australian’s daily energy intake is now in the form of highly processed energy-dense, nutrient-poor products (National Health & Medical Research Council, 2013); it is only a decade or so since these products were termed as ‘occasional foods’ in the Australian Dietary Guidelines, now they are daily fare.

The health consequences are huge in the form of the epidemics of obesity and non-communicable disease like heart disease, type 2 diabetes, some cancers and other disease. In Australia and in other countries nutritional imbalances contributing to excess energy intakes now account for the highest proportion of the populations’ burden of disease. What accounts for this excessive energy consumption? At one abstract level it is excessive consumption of fats, sugars and alcohol. But in the daily lives of most of us, it is the consumption of more snacks (two more per day than a generation ago) and larger and optimal servings of many foods and drinks but especially those energy-dense, nutrient-poor products mentioned above.

This has begun to change the focus of nutrition in affluent societies where there are relatively few pronounced nutrient deficiencies; instead there is a surplus of energy from many sources. This has led nutrition researchers to focus on the foods that people consume, particularly their meals, snacks and dietary patterns (for example, McNaughton, Ball, Crawford, & Mishra, 2008). In turn, this has led to the dissemination of dietary guidelines that are more food based than before (for example, the revised Australian Dietary Guidelines, see Box 1) and to a more mature focus on people’s dietary practices. So nutrition education may become more a form of food education. It shifts from the old emphasis on nutrient knowledge, for example, of vitamins and minerals, to more consideration of people’s food competencies, thereby helping people know how to acquire, prepare and consume foods—that is, a shift from ‘what is’ and ‘why’ (dissemination of declarative knowledge) to ‘how’ (dissemination of competencies). This is music to home economists’ ears!

A nice example of food-based dietary guidelines is the Brazilian Dietary Guidelines (for a short summary see http://www.fao.org/nutrition/education/food-dietary-guidelines/regions/brazil/en/). The Brazilian guidelines emphasise the consumption of fresh whole foods and warn against food advertising and the consumption of highly processed foods. Further criticisms of overly reductionist approaches to nutrition are to be found in Scrinis (2013, and in a shorter version, 2016). A more radical, holistic view of nutrition is to be found in a series of papers in *World Nutrition* (for example, the Update team, 2015).

**Public health influence**

A final objection to the traditional conceptualisation of nutrition education comes from the health sector itself, particularly from public health. This approach has a long history of success in combating infectious and parasitic diseases (McNeil, 1998). It is based on quite a different view of humanity to that held by educators; public health tends to see people as if they are billiard balls whose life trajectories have to be ‘knocked’ towards health goals through changes in social
structures and environments (see Furedi, 2002, and Furedi, 2009, for discussion of this view of human passivity). Public health emphasises the influence of environments and settings (political, social and physical, for example, Lobstein et al., 2013) over human volition; in contrast, education is more about building human agency and capacity (Bandura, 2006; Yamazumi, 2007). Public health workers often point out in relation to nutrition and other forms of health education that: ‘Just because people know what they should do, doesn’t mean they will do it!’ That is, they consider it as narrow and ineffectual. However, this is certainly not true of Australian home economist educators who take a broad, critical enquiry approach to nutrition education (see, for example, Bradley & Patterson, 1995; Australian Curriculum, Assessment and Reporting Authority, 2015). As a debating point, this objection may be true enough—people often know what is healthy to eat but may not have access to food or may not like the food, or may not have the skills to act on their nutrition knowledge. Nevertheless the

**Australian Dietary Guidelines** (National Health and Medical Research Council, 2013)

**Guideline 1: To achieve and maintain a healthy weight, be physically active and choose amounts of nutritious food and drinks to meet your energy needs**
- Children and adolescents should eat sufficient nutritious foods to grow and develop normally. They should be physically active every day and their growth should be checked regularly.
- Older people should eat nutritious foods and keep physically active to help maintain muscle strength and a healthy weight.

**Guideline 2: Enjoy a wide variety of nutritious foods from these five groups every day**
- Plenty of vegetables, including different types and colours, and legumes/beans
- Fruit
- Grain (cereal) foods, mostly wholegrain and/or high cereal fibre varieties, such as breads, cereals, rice, pasta, noodles, polenta, couscous, oats, quinoa and barley
- Lean meats and poultry, fish, eggs, tofu, nuts and seeds, and legumes/beans
- Milk, yoghurt, cheese and/or their alternatives, mostly reduced fat (reduced-fat milks are not suitable for children under the age of 2 years)

And drink plenty of water.

**Guideline 3: Limit intake of foods containing saturated fat, added salt, added sugars and alcohol**

a. Limit intake of foods high in saturated fat such as many biscuits, cakes, pastries, pies, processed meats, commercial burgers, pizza, fried foods, potato chips, crisps and other savoury snacks.
   - Replace high-fat foods that contain predominantly saturated fats such as butter, cream, cooking margarine, coconut and palm oil with foods that contain predominantly polyunsaturated and monounsaturated fats such as oils, spreads, nut butters/pastes and avocado.
   - Low-fat diets are not suitable for children under the age of 2 years.

b. Limit intake of foods and drinks containing added salt. Read labels to choose lower sodium options among similar foods. Do not add salt to foods in cooking or at the table.

c. Limit intake of foods and drinks containing added sugars such as confectionary, sugar-sweetened soft drinks and cordials, fruit drinks, vitamin waters, energy and sports drinks.

d. If you choose to drink alcohol, limit intake. For women who are pregnant, planning a pregnancy or breastfeeding, not drinking alcohol is the safest option.

**Guideline 4: Encourage, support and promote breastfeeding**

Breastfeeding is the ideal food for infant growth and development. Breastfeeding provides many benefits for mothers as well as infants, both now and into the future.

**Guideline 5: Care for your food; prepare and store it safely**

We have a reliable, safe and nutritious food supply in Australia. But food poisoning happens too frequently.
practice of nutrition education is under scrutiny by health and nutrition researchers; Box 2 lists some of the main criticisms.

In summary, the obesity epidemic, the steady change in the focus of nutritional thinking from nutrient deficiencies to meals, dietary patterns and excess energy, and dissatisfaction with narrow knowledge-focussed approaches are changing thinking about traditional forms of nutrition education. This has led to calls for broader forms of food and nutrition education that enable people to put their knowledge into practice through the acquisition of food competencies, which is becoming known as food literacy education and helps people do what they need to do.

2 Education and public health

What is education?

At some risk of being a layperson teaching expert practitioners to suck eggs, I think it worth taking stock of what education is about so that it is clear how its agenda differs from health practitioners’ ideas of health promotion and ‘education’ (a favoured approach of policy makers to health problems is to ‘educate’ the children). Education and community development aim to build human capacity and agency. Education has long-term and general effects (Ippolitto, 2003) that are often difficult to predict. Most importantly, school-based education builds several of the social determinants of health and social equity; educators disseminate social and conflict-resolution skills, along with basic numeracy and literacy and a variety of other skills that are essential for employment in contemporary society.

What is education? It is worth taking a couple of minutes to think about what you think education means. How do you define or see it?

John Dewey (1944), one of the founders of liberal education in the USA, defined it thus:

‘Education is the process of facilitating learning. Knowledge, skills, values, beliefs, and habits of a group of people are transferred to other people, through storytelling, discussion, teaching, training, or research. Education frequently takes place under the guidance of educators, but learners may also educate themselves in a process called autodidactic learning (p. 4).’

Narrowly defined goals or outcomes, such as reducing saturated-fat intake, seem to be absent here!

A more conservative, European-educated commentator, Frank Furedi, sees education as a

**BOX 2.**

Some public health objections to traditional approaches to nutrition education

1) The emphasis has been on WHAT (declarative knowledge) rather than HOW; for example, the importance of low-fat diets; low-meat diets, high salt consumption, key vitamins, etc. Most people often know what healthy diets are, but they don’t know HOW to adopt them; for example, ‘How do I prepare a healthy, tasty meal every day by 6pm?’

2) There is too narrow a focus on individuals’ healthy eating and not enough coverage of the environmental factors that influence individuals’ food consumption such as food availability, insufficient incomes and food marketing and little discussion of ways to cope with or change them. Put simply, there is too much emphasis on people as consumers and not enough on their citizenship roles.

3) Claims of lack of effectiveness: ‘Just because someone knows what to eat doesn’t mean they will.’ This is true; other factors like availability, motivation to eat well and food competencies all influence people’s food practices BUT if people don’t know what a healthy diet is, then they have little chance of following one. These claims that, ‘It doesn’t work’, which may be translated as, ‘It doesn’t deliver the outcomes included in health policies’, that is to make people eat healthier foods. This illustrates the strong emphasis on behavioural outcomes in public health and nutrition research and the expectation that education activities should be evaluated in terms of their effectiveness in meeting health goals. A useful approach to thinking about the factors involved in behaviour (and dietary) change is the Behaviour Change Wheel (Michie, van Stralen, & West, 2011).

Of course it is difficult to assess these claims as school education is rarely evaluated in terms of health outcomes but see Worsley, Wang, Yeatman, Byrne, and Wijayaratne (2015) for evidence that home economics education may have long-lasting influence on the population’s nutrition knowledge.
form of transmission of knowledge and wisdom from past generations to the present young generation:

In education you continually come across the argument that the old is bad; we have an obsession with novelty. Almost every government policy document opens with the statement that ‘we live in a rapidly changing world’, and goes on to imply that everything we have done in the past is useless. This is a destabilising process, particularly for education. The result is that education ceases to have an intergenerational dynamic, where older generations communicate their insights with the young (my emphasis). (http://www.frankfuredi.com/site/article/the_crisis_in_education/)

This is not a very specific definition; certainly it doesn’t seem to include many job-ready skills!

These two definitions show that education has its own agenda that is quite distinct from that of the health sector. So it is unfair and disingenuous for outside observers to hold education to account against the criteria of public health and health promotion. They are different forms of human endeavour and have their own roles to play in society.

**What is nutrition education?**

This brings us to nutrition education. Contento, perhaps the leading authority in nutrition education, defines it like this:

Nutrition education is any combination of educational strategies, accompanied by environmental supports, designed to facilitate voluntary adoption of food choices and other food- and nutrition-related behaviors conducive to health and wellbeing. Nutrition education is delivered through multiple venues and involves activities at the individual, community, and policy levels (Contento, 2007).

This is a broad definition that certainly fits with Dewey and Furedi’s views. She acknowledges the importance of environments and settings and also the wide-ranging potential of nutrition across three levels of society. Nevertheless, this definition still harks back to the origins of late-19th-century US public health with its mention of, ‘conducive to health and well being’. A concern with health is reasonable but there are other important social concerns, such as social and gender equity and environmental sustainability.

Should a broad food education include more than healthy eating? You might like to think of your own definitions of nutrition or food education? What is its purpose? Is it needed? Why might we need it? And most importantly, who decides the content of the curriculum—who are the stakeholders and what are their needs?

In an early paper, Gussow and Contento (1984) tried to answer this last question. Box 3 is my adaption of their list of stakeholders’ needs. I have outlined a few of the stakeholders who are often involved in setting the content of nutrition education in Box 3. Some of these stakeholders often have no voice in the design of curricula and food communications; others have a loud, persistent influence!

This difference in approaches between (nutrition) education and public health reflects their time scales. The latter is about fixing or preventing specific life-threatening problems as quickly as possible through legislation and regulation (for example, ‘fat taxes’), policies, and lately, social marketing. This approach has worked in infectious disease control but so far

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**BOX 3.**

**Examples of common needs of (some) stakeholders** (based on Gussow & Contento, 1984)

- **Parents** – ‘My child won’t eat carrots. Can you help us to get her/him to eat them? How do I avoid allergens?’
- **Family food providers** – ‘How do I satisfy my children? How can I do it conveniently and inexpensively? How can I make my meals healthier?’
- **Children and adolescents** – ‘What sorts of foods should I eat? How can I look good? Which skills will I need in adult life? Can I have what my friends have?’
- **Consumers – slimmers** – ‘How do I lose weight? How do I avoid genetically modified foods, How can I feed...?’
- **Governments** – ‘This obesity epidemic is really bad and expensive. How can we stop it?’
- **School principals** – ‘How can my school provide better food for kids?’
- **Nutritionists** – ‘How can we help children to understand nutrition science properly?’
- **Food industry** – ‘How can we get people to consume more of our products?’
has had limited success in reducing the obesity epidemic. In contrast, education takes a longer-term view (as one education colleague noted, ‘change in education is slow, nothing happens in under seven years’). It assumes people can be free to fulfil their personal and social expectations rather than the demands of the health advocates unless they are ‘reasonable’. That is, the two approaches have different assumptions and goals about society and humanity. Both are valid points of view and can play complementary roles (as expressed in The Ottawa Charter); indeed, public health policies are more likely to be adopted by government when an educated constituency exists to demand and support them (Huang et al., 2015; Field, 2014). The efficacy of pedagogies used in nutrition education in primary schools has been reviewed recently by Dudley, Peralta, Cotton, & Baxter, 2015). This review emphasises the importance of experiential learning.

Towards a broader food education

Perhaps the changes that are occurring in this area today can be summarised as equipping students with a broad grounding in food and society and encouraging them to take charge of their learning for their own purposes. In contrast to other approaches, food educators aim to build human agency and capacity, rather than to treat humans as passive and helpless.

The need for this slower, more expansive approach to community development is manifest in the failure of recent food policies (for example, TV food advertising to children), which has been claimed to be due to the absence of an educated community constituency (Field, 2014). That is, enduring structural changes in society depend (in part) on the existence of an educated population willing to support such change. Indeed one aim of food education is to create an ‘educated palate’ in the population; the sales of high-quality foods depend on there being a demand from a population that appreciates a diversity of tastes in foods. If children are fed sugary, fatty, salty, bland mush then they can’t be expected to demand or appreciate high-quality foods. A major step towards building the appreciation of fresh, real foods can be seen in the new Australian Dietary Guidelines (NHMRC 2013, Box 1) which have become more food based rather than nutrient based (as in earlier versions).

3 Emerging definitions of food literacy

It is important to recognise that the area of food literacy is still emerging. The area is derived from Home Economics (and Home Economics includes a number of literacies in addition to food literacy, such as financial literacy and social literacy). The recent definitions are mainly provided by home economics teachers and nutritionists and have a decided domestic, daily-life focus (Box 4). However, there are authors from other parts of the food system who have also defined food literacy, often in very broad terms, for example, chefs and cooks, agriculturalists, ecologists, consumer advocates and others (Box 5). Cullen et al. (2015) provide a recent and very comprehensive account of the various definitions of food literacy.

The renewal of interest in food literacy is partly a response to the narrowness of nutrition education, and especially calls for the restoration

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**Box 4.**

Some revised domestic definitions of food and nutrition literacy

‘[N]utrition literacy… the degree to which individuals can obtain, process, and understand the basic health (nutrition) information and services they need to make appropriate health (nutrition) decisions’ (Silk et al., 2008, p. 4).

‘Food literacy is 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. This can simply be interpreted as the tools needed for a healthy lifelong relationship with food’ (Vidgen & Gallegos, 2014, p. 54).

‘Food literacy is the ability of an individual to understand food in a way that they develop a positive relationship with it, including food skills and practices across the lifespan in order to navigate, engage, and participate within a complex food system. It’s the ability to make decisions to support the achievement of personal health and a sustainable food system considering environmental, social, economic, cultural, and political components’ (Cullen et al., 2015, p. 144).
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“Renewal of interest in food literacy is partly a response to the narrowness of nutrition education.”

of practical foods skills education as one response to the obesity crisis. Lichtenstein and Ludwig’s (2010) call to re-establish Home Economics in the US school curriculum is one noted call, as are the efforts of media personalities (notably Jamie Oliver) and the mass media in the UK. Most probably this accounts for political sensitivity about this area in the UK; cooking is now compulsory for every child in England (Department for Education, 2013). Indeed food provided by all schools in England must be in accordance with the British dietary guidelines (Department for Education, 2014). The new General Certificate in Secondary Education in Food Preparation and Nutrition requires students to learn a repertoire of enjoyable, healthy meals (Department for Education, 2016). In this curriculum nutrition is taught in the context of food preparation and healthy eating, not as a special subject by itself.

For the present school curricula in Australia, Vidgen and Gallegos’ definition has a lot to recommend it, particularly from a health and wellbeing perspective. They note:

Food literacy has emerged as a term to describe the everyday practicalities associated with healthy eating...The term is increasingly used in policy, practice, research and by the public; however, there is no shared understanding of its meaning (p. 51).

Further discussion of food literacy education is provided by Slater (2013).

4 Interesting recent developments in ‘food literacy education’

There are three recent teacher-relevant innovations related to food literacy:

- **The Food Teachers Centre, UK**
  http://www.foodteacherscentre.co.uk/
  This centre was founded by Louise Davies, a home economist. It provides advanced cooking expertise and strategic advice and updates for teachers via short courses and webinars. It has two Facebook sites: one open to the public, the other for teachers only. Around 2500 teachers in England have been involved with the centre.

- **The British Nutrition Foundation (BNF)**
  http://www.nutrition.org.uk/foodinschools/teachercentre.html
  Roy Ballam, a home economist, is director of

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**BOX 5.**

**Food system-wide definitions of food literacy from players in other areas**

**From an agriculturalist:**
‘Food Literacy is a multi-faceted concept that comprises three integrated components:
1. Food, nutrition and health.
2. Agriculture, environment and ecology.
3. Social development and equity.
4. Improving the general level of food literacy in society will have benefits within domains, but the real challenge is to successfully integrate across domains to realise new synergies in environment, agriculture, food, health, and community development’ (Bellotti, 2010, p. 33).

**A sociological view**
‘Food has become an abstract idea and over time the general public has lost consciousness of the connection between food and the land and nature. The ideologies of individualism, industrialization and corporate capitalism prevail with food as a commodity that is taken for granted’ (Smith, 2009, p. 48).

**A more extensive definition**
‘The ways we interact with our food [have] an impact on the environment, on society, on our political system, on our financial system, and how we interact with other individuals. This concept explores the socio-cultural-spiritual significance and enjoyment of sharing food and eating together’ (Cleland, 2013, p. 11).

Perhaps the broadest of all is this definition of food wellbeing:
‘A positive psychological, physical, emotional, and social relationship with food at both the individual and societal levels. As such, FWB (Food Well-Being) is necessarily influenced by the cultural, environmental, and legal factors that govern people’s food attitudes and behaviors’ (Block et al., 2011, p. 6). Block et al. note this is: ‘a richer definition of food, one that has stronger connections to other academic fields, such as anthropology, and to current societal trends, such as the Slow Food Movement and the rise in popularity of culinary arts’ (p. 6).
the BNF’s education programs. These include lesson plans for teachers in the four countries of the UK. These and other ‘fit for classroom’ materials are free for teachers. The BNF led the development of the European food framework that outlines the key nutrition knowledge goals for children aged between 3 and 18 years.

• **Refresh.ED: Food and Nutrition curriculum support materials**

The primary goal of this Western Australian project is to increase knowledge and skills in nutrition, healthy eating and related food literacy issues amongst Western Australian children aged 4–16 years. As explained on its website the key objectives are to:

- increase teachers’ awareness of and positive attitudes towards their potential role in facilitating children’s healthy eating in the school environment
- increase teachers’ positive attitudes towards and involvement in healthy eating, food selection and food-preparation-related classroom activities for children
- increase the proportion of teachers incorporating nutrition, healthy eating, food selection and food preparation into curriculum and school-based activities
- increase children’s knowledge about food, nutrition and healthy eating.

**Summary of key points**

Times are changing! Older approaches are being questioned. Home economics is more relevant than ever, particularly the transformation of its food and nutrition programs into food literacy.

Educational approaches have major roles in promoting community health.

It important food education and health promotion focus on assisting people to address the daily problems in their lives as well as on their roles as citizens.

Nutrition science is important as one component of food literacy; understanding of people’s food practices is another.

**References**


