Understanding preadolescent nutrition literacy in a low socio-economic region of South Australia

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Contents

Thesis summary

Health literacy, briefly defined as the ability to access, understand and use health information, has been identified as a key public health goal in Australia and internationally. A unique health literacy discourse has emerged within the academic research community over recent years, encompassing multiple definitions, components and conceptualisations. From a health promotion perspective, conceptualising health literacy as an asset highlights the importance of fostering a health literate youth for the benefit of future generations. Yet research is largely limited to examining adults' and older adolescents' health literacy. This qualitative research embraced a child-centred approach to research, with children acting as the sole participants. The research broadly aimed to explore the concepts of health and nutrition literacy, from the perspectives of 38 preadolescent children living in a disadvantaged region of Adelaide, South Australia. This study specifically addressed questions around the construction of children's nutrition literacy, by exploring the ways in which children access, understand, evaluate, and use nutrition information in their everyday lives.

I conducted a series of focus groups and individual semi-structured interviews in order to listen to the voices of 11–12-year-old boys and girls. At the time of the interviews, all of the children were attending one of three state primary schools within the selected region. The study comprised two parts. The first component utilised a semi-structured interview technique to discuss and uncover aspects of health and nutrition literacy. Conversely, the second component specifically investigated the children's perceptions and responses to three Australian food advertisements produced by leading Australian food companies (termed *media nutrition literacy*). After viewing the commercials, participants were asked a series of eight structured questions that related to the commercial content. The study employed social constructionist and socio-ecological frameworks as a lens through which to explore nutrition literacy from the child's perspective, and to uncover the ways in which the children's experiences reflected broader social norms and discourses. Keeping with the nature of qualitative research, data analysis proceeded inductively, using the thematic approach outlined by Braun and Clarke (2006).

The socio-ecological nature of this research placed emphasis on the dynamic connections between various interpersonal agents and organisational structures in shaping children's nutrition literacy. The first four themes that arose through data analysis related to mainstream health discourses, the home setting, the school setting, and traditional and non-traditional media, which all constituted key influences on health literacy. Based on the children's narratives, the school was arguably the most influential setting, particularly in regard to developing health-related knowledge and skills, and facilitating or negating healthy choices. Some children reported difficulty in finding congruency between choosing healthier alternatives and limited family budgets, or unsupportive environments, while others were provided with opportunities to become health literate. The development of child nutrition literacy was influenced by many factors, and the findings suggest that some children might influence the health literacy of significant others, namely families.

The second part of this study elicited two additional themes relating to media nutrition literacy, specifically scepticism towards advertising, and misconceptions around nutrition. These findings further confirm that media serve an influential role in the lives of children and that young people need to be equipped with a wide-ranging skill set to deal with the complexities of health in a contemporary sociocultural environment that promotes unhealthy lifestyles.

This research outlines the contextual nature of child nutrition literacy and offers the following conclusions. First, this study emphasises the importance of more integrated strategies to promote nutrition literacy amongst younger populations. Second, while functional nutrition literacy remains a fundamental task, children need opportunities across diverse settings, including schools, to develop and practise interactive and critical health literacy skills. Based on these understandings, this thesis provides recommendations for further research. Overall, greater interaction between researchers working within the field of nutrition literacy is needed to encourage methodological approaches that capture the evolving nature of this concept.

Declaration

I certify that this thesis does not incorporate without acknowledgement any material previously submitted for a degree or diploma in any university; and that to the best of my knowledge and belief it does not contain any material previously published or written by another person except where due reference is made in the text.

Signed ..... Date .....

Acknowledgements

The trees that are slow to grow bear the most fruit

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Glossary

ABS	Australian Bureau of Statistics
BMI	body mass-index
DECD	Department of Education and Child Development
EDNP	energy-dense nutrient-poor
HALS	Health Activities Literacy Scale
HeLMS	Health Literacy Management Scale
HLQ	Health Literacy Questionnaire
IGA	Independent Grocer of Australia
IRSAD	Index of Relative Socio-economic Advantage and Disadvantage
KFC	Kentucky Fried Chicken
METER	Medical Term Recognition Test
NLAI	Nutrition Literacy Assessment Instrument
NHMRC	National Health and Medical Research Council
NVS	Newest Vital Sign Test
OECD	Organization for Economic Co-operation and Development
PISA	Programme for International Student Assessment
REALM	Rapid Estimate of Adult Health Literacy
SES	socio-economic status
S-TOFHLA	Shortened Test of Functional Health Literacy for Adults
TL	Traffic Light (system)
TOFHLA	Test of Functional Health Literacy for Adults
WHO	World Health Organization

CHAPTER 1: INTRODUCTION

This research is an investigation into the concept of health literacy, and more specifically nutrition literacy, as it relates to preadolescent children living in a low socio-economic metropolitan region of South Australia. This chapter discusses the background to the study, providing an introduction to Australian children's food patterns, the key concepts and their associated frameworks, and the significance of the research. The chapter ends by describing the structure of the remaining thesis.

Food and nutrition

Food is central to our lives and it is for this reason that a large body of research has focused on people's diets and the ways that they make choices about "what (not) to eat, where (not) to eat, and with whom (not) to eat" (Ward, Henderson, Coveney, & Meyer, 2012, p. 2). Discussions about food lead naturally to questions around food choices and their effects at personal, national, and global levels. At a personal level, nutrition is gained from key nutrients in foods that contribute towards growth and development. Good nutrition plays a key role in promoting physical and mental health throughout the lifespan, and the primary way of obtaining nutrition is by consuming a balanced diet (National Health and Medical Research Council, 2003). Although the concept of health is subject to varying definitions, the World Health Organization's definition is presented at the forefront of this thesis, given its emphasis on the wide-ranging elements that constitute health (World Health Organization, 1986):

> Health is a state of complete physical, social and mental wellbeing and not merely the absence of disease or infirmity … Health is a resource for everyday life, not the object of living. It is a positive concept emphasizing social and personal resources as well as physical capabilities.

In exploring the link between nutrition and health, research has confirmed that dietary practices are particularly important during the early years of life to promote immune function and support the rapid physical growth and cognitive development that occurs during this phase, whilst helping children to develop healthy lifelong behaviours (Craigie, Lake, Kelly, Adamson, & Mathers, 2011; Victora, 2009) . In addition to these benefits, children's dietary patterns are closely linked to specific educational outcomes. For example, a healthy diet is shown to support optimal

learning capacity and cognitive ability, and enhance concentration, IQ scores, and academic performance (Florence, Asbridge, & Veugelers, 2008; Northstone, Joinson, Emmett, Ness, & Paus, 2012; Nyaradi et al., 2013). Nutrition is evidently important during the developmental years, and researchers consequently strive to better understand children's diets and the factors that shape their dietary preferences early in life, in order to maximise future health outcomes.

In an effort to optimise children's health, the Australian Government has developed a number of public health guidelines that provide advice in relation to dietary practices. Dietary guidelines have, and continue to play, a key role in Australia's preventive health efforts. The *Dietary Guidelines for Children and Adolescents in Australia* were established to provide advice for Australian healthcare professionals to effectively promote the benefits of a healthy diet. The original report published by the National Health and Medical Research Council (NHMRC) in 2003 focused on the role of different food groups as part of the total diet, whilst further outlining the scientific rationale behind the recommendations provided (National Health and Medical Research Council, 2003).

Upon release, it was recommended that these guidelines be reviewed in conjunction with the NHMRC's *Nutrient Reference Values for Australia and New Zealand Including Recommended Dietary Intakes*, which provide details of daily nutrient requirements (i.e. macronutrient, vitamin and mineral requirements) for healthy adults to sustain or avoid deficiency states (National Health and Medical Research Council, 2006). However, following an extensive review of the scientific literature the guidelines were updated and published in 2013 as the *Australian Dietary Guidelines* for adults and children. These guidelines encompass an increased focus on food and food groups as well as physical activity, rather than placing emphasis on nutrients, in an attempt to improve usability (National Health and Medical Research Council, 2013). As with the 2003 publication, the new guidelines identify different age groups and specific recommended servings for each of the food groups. *The Australian Guide to Healthy Eating* specifically translates dietary recommendations into general food and lifestyle patterns for Australian consumers in an easy-to-read pictorial format (Smith, Kellet, & Schmerlaib,1998). The food selection guide visually displays five core food groups on a plate and outlines the importance of

consuming foods in appropriate amounts each day by providing information relating to sample serves and a range of practical suggestions for a healthy diet.

The *Australian Dietary Guidelines* have consistently encouraged children aged four to 18-years to consume a nutritious diet enriched with vegetables, legumes, fruit and cereal (National Health and Medical Research Council, 2003; 2013; Smith et al., 1998). It is recommended that lean meat, fish, poultry and dairy products are also included. Conversely, saturated fat and salt must be kept to a minimum, and sugar should only be consumed moderately. It is recommended that water be the primary source of fluid intake and that soft drink consumption is limited, as such beverages offer little nutritional value and contain large amounts of sugar. Once classified as *extra foods*, foods that do not fit into the five core foods groups are now termed *discretionary choices*. Discretionary foods are characterised by high energy density and a lack of essential nutrients, and include items such as:

> most sweet biscuits, cakes, desserts and pastries; processed meats and sausages; ice-cream and other ice confections; confectionary and chocolate; savoury pastries and pies; commercial burgers; commercially fried foods; potato chips, crisps and other fatty and/or salty snack foods; cream, butter and spreads which are high in saturated fats; sugar sweetened soft drinks and cordials, sports and energy drinks and alcoholic drinks (National Health and Medical Research Council, 2013, p. 144).

Although these foods may form part of a balanced diet, it is recommended that they are kept to a minimum and consumed in small amounts in order to maintain good health, avoid excess energy intake, and reduce the risk of chronic disease. This idea is reinforced in the pictorial food selection guide, where it is recommended that they are consumed only sometimes and in small amounts (Smith et al., 1998).

Children's nutrition in Australia

Despite the recognition that nutrition is paramount to health and wellbeing, many Australian children are not fulfilling selected dietary requirements, including daily recommended intakes for fruits and vegetables. The *2007 Australian National Children's Nutrition and Physical Activity Survey* provides a nationally representative sample of children that can be used to examine the food and energy intake of children aged two to 16-years, at a national level (Department of Health and Ageing, 2008). Further data have been published more recently from the general

2011/12 *Australian Health Survey* (Australian Bureau of Statistics, 2013a). Noteworthy is the widely observed tendency for people to under-report food intake in national nutrition surveys in light of dietary habits that are deemed *desirable*, which should be considered in the interpretation of results (Australian Bureau of Statistics, 2014a). First, in reviewing the 2007 survey it was evident that over 60% of children aged four to eight-years and approximately 50% of nine to 13-year-olds met the recommended guidelines for daily fruit consumption (Department of Health and Ageing, 2008). Conversely, only 3% of children aged between four and eight and 2% aged between nine and 13 met the recommended guidelines for vegetable consumption, excluding potatoes in the count. In 2011/12, children aged five to 11-years generally ate more fruit compared to adolescents. Almost seven out of 10 children aged five to 11 (68.6%) ate two or more serves of fruit on a usual day, compared with 54.4% of 12–17-year-olds. Conversely, adolescent children generally ate more vegetables than those aged five to 11. Approximately 5.2% consumed five or more vegetables per day compared to 3.8% of younger children. Similar consumption patterns were noted for boys and girls (Australian Bureau of Statistics, 2014a).

Fruit and vegetables aside, Australian children are consuming a diet that is characterised by increased consumption of foods with limited nutrient content, compared to their predecessors. A substantial decline in milk intake has also been reported amongst Australian children over time, reflecting an increase in sweetened beverage consumption (Australian Bureau of Statistics, 2014a). In 2007/08 non-compliance with the guidelines was high for saturated fat and sugar, and excess consumption was evident for various macronutrients, with only a minority of children reporting a limited intake of sugar and dietary sodium in line with recommendations (Department of Health and Ageing, 2008; Grimes, Campbell, Riddell, & Nowson, 2011). This has been further reflected in 2011/12 results (Australian Bureau of Statistics, 2014a). Rangan, Kwan, Flood, Louie, and Gill (2011) also provide insight into Australian children's nutritional status, through their review which compares the 2007 survey data on *extra* food consumption to data obtained through the Australian Bureau of Statistics (ABS) *1995 National Nutrition Survey*. The study reconfirms that a high proportion of extra foods were consumed by children across all age groups during the 2007 survey period, contributing to

approximately 35% of energy intake. Although a small reduction in extra food consumption was observed between 1995 and 2007, children were still well exceeding the 5-20% recommendation outlined in the *Australian Guide to Healthy Eating*, which is problematic (Rangan et al., 2011). Very recent data around total energy intake from discretionary foods reinforce the significance of this issue for Australian children. In 2011/12, discretionary foods on average constituted 37% and 39% of total intake for four to eight-year-olds and nine to 13-year-olds in Australia respectively. For these age groups, items including cakes, muffins, scones and cake-type desserts were the largest food contributors (Australian Bureau of Statistics, 2014a).

Consequences of poor dietary practices

The last decade has witnessed considerable concern about children's diets and health outcomes, both nationally and globally. Imbalances in the relative proportion of macronutrient intake, and excessive consumption of certain forms of fats and carbohydrates in the form of discretionary choices, have contributed to the early onset of chronic disease (National Health and Medical Research Council, 2006). Unhealthy dietary practices have been shown to promote ill-being amongst children, and increase the risk of prevalent diet-related non-communicable conditions including obesity and type 2 diabetes (Rosen et al., 2014). Overweight and obesity are most commonly assessed in terms of body mass index (BMI) (Frankenfield, Rowe, Cooney, Smith, & Becker, 2001). According to the ABS (2009b), BMI is defined as weight in kilograms divided by the square of height in metres, and adult overweight and obesity are most commonly defined as having a BMI above 25 or 30 respectively. During childhood, BMI changes with age and can differ across genders, therefore separate BMI classifications have been produced for the paediatric population, with different thresholds based on age and gender (Cole, Bellizzi, Flegal, & Dietz, 2000).

In 2007/08, 17% of five–17-year-old children were overweight, and 8% were obese (Australian Bureau of Statistics, 2009b). The most recent data from the 2011/12 survey period indicate similar figures; 18.2% of two–17-year-olds were shown to be overweight and 6.9% were obese (Australian Bureau of Statistics, 2013a). Although it appears that childhood obesity rates in Australia have stabilised to a certain degree

(O'Dea, Nguyen Hoang, & Dibley, 2011), overweight and obesity remain high. The *Australian Health Survey* findings are extremely significant considering the association between BMI in childhood and adulthood (Gill et al., 2009). The presence of excess weight represents a number of physical and psychosocial threats to health. Childhood obesity is associated with the incidence of co-morbidities including type 2 diabetes and cardiovascular disease (Goran, Ball, & Cruz, 2003), as well as orthopaedic problems, sleep apnoea, non-alcoholic fatty liver syndrome and gall stones (Lee, 2009). Lee (2009) also outlines a number of psychological consequences of childhood obesity, including poor body image and low self-esteem.

Dietary sodium is another factor that warrants consideration with respect to diet-related health outcomes. Data indicate that dietary sodium can influence blood pressure levels amongst children and contribute to hypertension if consumed in high amounts (He, Marrero, & Macgregor, 2008a), which may also lead to raised blood pressure throughout adulthood (Mitsnefes, 2006). Excess dietary sodium intake poses additional health risks through an alternative mechanism, since it is shown to be an important determinant of sugar-sweetened soft drink consumption during childhood (Grimes, Riddell, Campbell, & Nowson, 2013; He, Marrero, & MacGregor, 2008b). The contemporary trend of over consumption of soft drinks may therefore lead to greater energy intake that may encourage excess weight gain and obesity, as indicated in several research studies and two systematic reviews (Malik, Schulze, & Hu, 2006; Vartanian, Schwartz, & Brownell, 2007), as well as increased risk for insulin resistant type 2 diabetes (Vartanian et al., 2007).

The health consequences listed not only have an immediate effect on children, but also impact health in adulthood. Such conditions, if left unattended, may also exert financial pressure on the future healthcare system. Costing data indicates that overweight and obese individuals tend to have greater medical costs than their normal weight counterparts, and the increased expenditure is attributed to obesity's influence on numerous co-morbidities (Withrow & Alter, 2011). In an Australian context, the increased healthcare costs attributed to overweight are mainly accrued through the use of prescription medication, hospitalisation and ambulatory services (Colagiuri et al., 2010).

The broad determinants of food choice

Research that focuses on dietary practices is traditionally grounded in psychological schools of thought that overemphasise agency and focus on individual food choice. Schubert (2008) explains that understanding dietary patterns can become problematic if the sole focus lies on individual health-related knowledge and beliefs. Despite widespread admonishments about victim blaming, many food preferences and personal food choice ideologies are limited in that they concurrently fail to acknowledge broader sociocultural influences, societal norms, and key social determinants (Ristovski-Slijepcevic, Chapman, & Beagan, 2008; Schubert, 2008). This highlights the importance of considering health in terms of socio-economic circumstances, and knowledge and beliefs that are "grounded in the context of people's daily lives" (Williams, 1995, p. 580). Factors that contribute to poor diet are complex and widespread, requiring an interdisciplinary approach that acknowledges the social context of health. In addition to personal food preferences, diet should be considered in the context of social, cultural, and environmental factors (Sobal & Bisogni, 2009).

The sociocultural food environment

How can we describe the food environment in which contemporary children reside, and how do physical, social and cultural factors influence food practices, including production, distribution, and consumption? Today, these types of questions are commonly discussed with respect to the evolution of a sociocultural food environment. Food is central to social life and also carries symbolic meaning and connections to key social events and experiences. Food plays a role in building and maintaining relationships, which emphasises the sociocultural functions of food beyond mere sustenance and nourishment (Ikeda, 2004). A sociological exploration of food reminds us that food choice extends beyond individual preferences, by highlighting the relevance of past events, cultural values, and structural factors that shape food practices. Based on this understanding, there is a near unanimous recognition that food choice reflects an interplay between structural influences and human agency (Germov & Williams, 2008).

The contemporary social appetite largely reflects a sociocultural food environment that provides a surfeit of processed, high-fat, energy-dense nutrient-poor (EDNP)

foods for consumption (Popkin, Duffey, & Gordon-Larsen, 2005; Stanton, 2006). Such discretionary choices are frequently promoted through television advertisements (Chapman, Nicholas, & Supramaniam, 2006; Roberts, Pettigrew, Chapman, Quester, & Miller, 2014) and other popular forms of media, including the internet (Mehta, Coveney, Ward, & Handsley, 2014). As a result of mass production and globalisation, these foods are ubiquitous (Germov & Williams, 2008). Research consistently indicates that the environment children are exposed to, namely food advertisements, has a negative effect on children's diets (Cairns, Angus, Hastings, & Caraher, 2013; Osei-Assibey et al., 2012). For younger children, this commonly occurs through mechanisms of pester power, and sometimes by misleading children through the promotion of unhealthy foods within the health discourse (Mehta et al., 2010). When examining the sociocultural environment, it is also important to consider the proliferation of fast-food restaurants offering inexpensive products, alongside the normalisation of larger portion sizes and sugar sweetened beverages (Osei-Assibey et al., 2012; Young & Nestle, 2002).

Disparities in nutrition are evident amongst diverse socio-economic groups, with strong scientific data indicating correlations between socio-economic disadvantage and poorer dietary choices for adults (Darmon & Drewnowski, 2008; Thornton, Bentley, & Kavanagh, 2011) and children (Cameron et al., 2012; O'Dea & Wagstaff, 2011) alike. This prompts consideration of broader *social determinants of health*, defined by the WHO Commission on Social Determinants of Health (2008) as "the conditions in which people are born, grow, live, work and age". These conditions are shaped by the distribution of money, power and resources at global and local levels (Commission on Social Determinants of Health, 2008). The basic premise of a social determinants perspective is that inequities, both within and between countries, arise from social and structural inequalities. For example, in considering preadolescent children's health, robust evidence indicates that health outcomes are largely shaped by structural determinants such as income and access to education, in addition to family and peer support (Viner et al., 2012).

If we examine dietary behaviours, specifically, disparities are often attributed to a range of factors including the increased cost of healthier alternatives (Wong et al., 2011), food insecurity (Law, Ward, & Coveney, 2011; Ramsey, Giskes, Turrell, &

Gallegos, 2011; Widome, Neumark-Sztainer, Hannan, Haines, & Story, 2009), local food environments that clearly promote cheaper EDNP foods (Ball, Timperio, & Crawford, 2009; Cameron, Thornton, McNaughton, & Crawford, 2013; Reidpath, Burns, Garrard, Mahoney, & Townsend, 2002), and other individual factors relating to nutrition knowledge and skills (Hendrie, Coveney, & Cox, 2008; Thornton, Jeffery, & Crawford, 2013). Ultimately, people on lower incomes are least able to eat a balanced, nutritious diet (Wilkinson & Marmot, 2003). This is further reflected in broader relationships between health and socio-economic status (SES) in Australia (Glover, Hetzel, Glover, Tennant, & Page, 2006) and globally (Murasko, 2009; O'Dea, 2008; O'Dea & Dibley, 2010; Sutherland, Finch, Harrison, & Collins, 2008), whereby children living in disadvantage are more likely to face chronic diseases such as obesity. Today there is a global recognition that concern with health inequalities must take into account social structures, in conjunction with human agency. Consequently, when examining the wide ranging determinants of food choice, one must consider broader social determinants (Wilkinson & Marmot, 2003).

Key influences

In considering children's diets more generally, it is the role of parents that has been extensively researched, given the recognition that parents serve important health-related roles and are responsible for establishing a healthy home environment (Anzman, Rollins, & Birch, 2010). Parents are ubiquitously perceived to be the agents of greatest influence over children's diets and they are consequently the target audience of many public health campaigns (Mitchell, Farrow, Haycraft, & Meyer, 2013). Research focusing on the influence of parents has emanated from a traditional model of intergenerational health that emphasises the transmission of adults' health-related attitudes to subsequent generations of children (Modin, Koupil, & Vågerö, 2009; Rimal, 2003). Rimal (2003, p. 11) reinforces this notion of intergenerational transmission by highlighting parents' potential to create healthier lifestyles that can promote sound behaviours and shape children's dispositions towards health. Parental responsibility is often conceptualised in terms of decision-making, exposure, and role modelling (Mitchell et al., 2013). First and foremost, the household unit is commonly recognised for its role in mediating structural influences upon the provision of food and food-related experiences (Schubert, 2008). Golan and Crow (2004a, 2004b) explain that parents invest directly in their children's health by supplying and

preparing food for the home and selecting where the family goes out to dine. Campbell et al. (2013) argue that parental healthy eating practices may influence children's diets through the availability of healthier foods within the home.

Other studies support the notion that the availability of healthy foods, including fruit and vegetables, influences the dietary intake of school-aged children. When healthy foods are more readily available for consumption, dietary intake for these foods often increases (Cullen et al., 2003; Ding et al., 2012). Parents also serve as role models of a healthy lifestyle for their children and their own food preferences and behaviours inextricably influence those of their children (Anzman et al., 2010; Benton, 2004; Patrick & Nicklas, 2005; Ventura & Birch, 2008). Modelling positive behaviours and encouraging the consumption of healthy foods at meal times can also impact upon children's dietary intake (Golan & Crow, 2004a). In a modern sociocultural environment, scholars explain that role modelling may be compromised due to increased parental employment, busy work schedules, and other competing factors that can lead to lack of time for shopping or domestic food preparation (Maubach, Hoek, & McCreanor, 2009; Möser, 2010).

The role of schools with respect to children's diets has similarly been well established, upon recognition that schools provide a promising avenue to diffuse health information, through their continuous contact with children outside of the home (Drummond, 2010). The *Health Promoting Schools Framework* (World Health Organization, 1998) advocates that school community environments may foster health and learning through a whole-school approach. As part of this approach, schools play a critical role in the development and delivery of a comprehensive health curriculum that aims to provide children with vital knowledge and develop important health-related skills (Kickbusch, 2009; St Leger, 2001). Traditionally, teachers have been acknowledged for their role in educating children about health issues, as well as facilitating the development of certain health-related skills through classroom-based activities (Burke, 2002; Peterson, 2001; St Leger, 2000). Teachers can also serve as role models by portraying positive attitudes towards health that may lead to greater enthusiasm and receptivity to healthy eating concepts (Drummond, 2010). However, in conjunction with health education, the school ethos and environment should be conducive to healthy eating, through effective policies and a

commitment to positive community partnerships and engagement (Burke, 2002; St Leger, 2000, 2001). A healthy school canteen serves as a key example (Burke, 2002; Drummond, 2010; Perez-Rodrigo & Aranceta, 2003). Educational settings may also support healthy behaviours by encouraging students to understand and act on the health and social issues that exist within their communities. Drummond (2010) also draws our attention to the potential for children to exert positive influence on their fellow peers within the school environment with respect to healthy eating patterns.

Positioning nutrition within a health literacy framework

Amidst the current debate about how to address issues around poor dietary practices in light of chronic disease concerns, researchers are starting to consider nutrition within the context of *health literacy*. Significant academic discourse dedicated to the concept of health literacy has emerged in recent years, particularly within the fields of public health, health promotion, and health education. Most simply, health literacy encompasses:

> the cognitive and social skills which determine the motivation and ability of individuals to gain access to, understand and use information in ways which promote and maintain good health (Nutbeam, 1998, p. 357).

Health literacy has been identified as a key public health goal within Australia. For example, the National Health and Hospital Reform Commission recommends future strategies which build on consumer health literacy in Australia (National Health and Hospitals Reform Commission, 2009). The Australian Commission on Safety and Quality in Health Care (2014) similarly highlights the importance of developing health literate individuals, organisations and environments, as part of Australia's national approach to safety and quality improvement. In Australia, the first attempt to measure health literacy at a population level took place in 2006 as part of the *National Literacy Survey*. Results of this survey indicated that approximately nine million (59%) of Australians did not meet the minimum standards required to navigate their way through the complex demands of everyday life (Australian Bureau of Statistics, 2008b).

Health literacy is a complex concept and the last decade has seen many debates around its specific constituents. Baker (2006) states that a lack of consensus on a central definition is potentially problematic, but at the core of current

conceptualisations lies the aim of empowerment to improve health outcomes. In this sense, health literacy lends itself to a health promotion approach, by eliciting positive attitudes and behaviours that extend beyond individual knowledge to consider the role of deeply-rooted sociocultural norms. Health literacy as a concept reflects the overarching principles of the *Ottawa Charter for Health Promotion*. The charter is one of the best known summaries of health promotion, and it highlights the importance of enabling individuals to take control over and improve their health by means of several action areas (World Health Organization, 1986). From a *salutogenic* perspective (Antonovsky, 1996), examining health literacy can shed light on salutary factors that are constructive for health. Although health literacy is embedded within a health promotion framework, there are specific challenges inherent in its classification and measurement. These issues are discussed in-depth in Chapter 2.

Health literacy is context specific, and the field has welcomed the emergence of distinct health literacy forms. These include, but are not limited to; mental health literacy (Jorm, 2000), nutrition literacy (Carbone, 2013), eHealth literacy (Norman & Skinner, 2006), and media health literacy (Levin-Zamir, Lemish, & Gofin, 2011), which all constitute unique skills and capabilities. Nutrition literacy as a specific domain is of particular interest to this research. While the majority of health literacy research does not explicitly focus on food or nutrition, a small body of research has emerged within the nutrition literature over the last six years. Several authors conceptualise nutrition literacy as one's ability to access, interpret and utilise nutritional information (Blitstein & Evans, 2006; Neuhauser, Rothschild, & Rodríguez, 2007; Silk et al., 2008; Watson et al., 2012). As with health literacy, scholars continue to debate the specific skills and capabilities that actually constitute nutrition literacy, which has implications for measurement. A lack of shared meaning and a limited international evidence base presents a clear gap for nutrition educators, practitioners and researchers (Carbone, 2013). To address this opportunity, this thesis is grounded in this developing field. Given that nutrition literacy emerges from the health literacy concept, the terms *health literacy* and *nutrition literacy* will be used interchangeably at times throughout this thesis, particularly in the context of this study's findings and contributions. For the purpose of this thesis, nutrition literacy is defined as *the degree to which individuals can access, understand, evaluate, and use*

nutrition information and resources in ways that promote and maintain good health. Chapter 2 of this thesis elaborates on the concept and its potential constituents, by drawing on Nutbeam's tripartite model of health literacy.

This doctoral research specifically aims to explore nutrition literacy as it relates to children. Given that health literacy as an important asset for adults, an emerging body of research is starting to investigate children's own health literacy. This is particularly important, given that most studies to date have focused on the important role of parents towards children's health literacy, rather than acknowledging specific health literacy skills that are relevant for children. In fact, limited research has investigated children's own health literacy. Addressing health literacy during childhood is essential in order to meet children's specific needs, including the delivery of information that can be easily accessed and understood by younger age groups (Borzekowski, 2009). Facilitating such skills early on plays a key role in developing adult health literacy and maximising health outcomes later in life (Driessnack, Chung, Perkhounkova, & Hein, 2014; Manganello, 2008). This research assumes that health literacy is advantageous to people in all age groups, including school-aged children (Paakkari & Paakkari, 2012).

Nutrition literacy skills arguably become more relevant as children transition into the *preadolescent* phase. This stage of human development is often conceptualised as the transition from middle childhood (age six to 11) to adolescence, however the point at which the child becomes an adolescent is either defined by the onset of puberty (Berk, 2006), or the beginning of the teenage years (Slee, 2002). Field's (2007) definition of preadolescence includes children from ages eight to 12, in contrast to Daniels' (2004) description which designates it from 10 to 12-years. American literature also utilises the term *preteen* to designate this life phase (e.g. Adelmann, 2005; Rosen et al., 2014). Regardless of the definition employed, this significant life phase is marked by a number of physical, cognitive, and psychosocial changes (Berger, 2006). In the context of food-related decision making, being a preadolescent child in contemporary society is associated with considerable autonomy and independence (van der Horst et al., 2007). This corresponds to greater access to money, and more opportunities to purchase foods outside of the home (McKinley et al., 2005).

Only a small number of health literacy studies have explicitly used a preadolescent sample (e.g. Brown, Teufel, & Birch, 2007; Chari, Warsh, Ketterer, Hossain, & Sharif, 2014; Schmidt et al., 2010; Sharif & Blank, 2010). This research aims to address this gap by exploring the contextual nature of nutrition literacy amongst preadolescent boys and girls. Importantly, this study also acknowledges current health and nutrition disparities within South Australia, by utilising a sample of children aged 10 to12 living in a socio-economically disadvantaged region, based on links between health, nutrition, and socio-economic disparities outlined earlier in this chapter.

Aim

To explore the concept of nutrition literacy among preadolescent children living in a socio-economically disadvantaged region of southern Adelaide

Research questions

1. What are preadolescent children's attitudes and perceptions of health and nutrition?
2. How do preadolescent children access, understand, evaluate, and use nutrition information from various sources?
3. How do preadolescent children respond to food-oriented television advertisements?
4. What are the facilitators and barriers surrounding health and nutrition literacy within a socio-ecological framework?

Significance of the study

A child health literacy framework fundamentally recognises that children are citizens in their own right (Paakkari & Paakkari, 2012) and this research has the potential to contribute to an emerging field. Although children's dietary behaviours are clearly influenced by various interpersonal agents and structures, including family, children are still active agents in their social contexts and can participate in the management of their own health. By employing complementing social constructionist and socio-ecological perspectives, this study seeks to explore key factors that influence children's interactions with nutrition information, skills, and resources in a variety of

contexts. In response to recommendations within the literature, this research seeks to capture “the various information opportunities and decisions that impact upon health every day” (Peerson & Saunders, 2009, p. 289).

Health promotion initiatives should be grounded in research and the field highlights the need to engage people within the context of their own communities and design programs in partnership with target populations, including children (Caraher & Drummond, 2007; Potvin, Cargo, McComber, Delormier, & Macaulay, 2003). This study has the potential to shape emerging research literature by gaining insight into the specific nutrition literacy skills that are relevant to preadolescent children. Talking to children about their needs and interests is the first step in understanding how they think about health, which can provide valuable information to enable practitioners and organisations to provide better services for children through targeted interventions (Caraher & Drummond, 2007; McKinley et al., 2005; Perez-Rodrigo & Aranceta, 2003). Policy makers also need to understand diverse communities’ capacities and abilities to access, understand and use health information, in order to develop effective policies (Kennedy et al., 2011). By interviewing children and hearing their voices, the research aims to uncover facilitators and barriers surrounding preadolescent nutrition literacy, to better understand strengths and areas for improvement in the field.

Thesis outline

This introductory chapter has provided a background to the state of children’s nutrition in Australia. An introduction to the relevance of health and nutrition literacy has also been provided, leading to the purpose and significance of the study. Chapter 2 further discusses the research literature around health and nutrition literacy, by elaborating on the key conceptualisations adopted within this study. By positioning health literacy within a general literacy framework, the chapter also summarises the importance of developing children’s nutrition literacy. Chapter 3 details the methodological reasoning adopted for the research, by outlining the relevance of a social constructionist theoretical framework in conjunction with a socio-ecological framework for qualitative health research. Following the discussion on theory, the specific methods undertaken are described in Chapter 4, with an emphasis on child-focused research and special considerations that are relevant to this research.

Following thematic analysis, the findings of this research are discussed across two chapters of the thesis (Chapters 5 & 6). Based on familiarisation with the data and prior engagement with the literature on health literacy, six overarching themes are presented. The themes contain various subthemes that relate to children's views on health and the ways they access, understand, evaluate, and make use of nutrition information in their everyday lives. Following these themes is a discussion of the results as they relate to the research literature and the theoretical and conceptual frameworks (Chapter 7). Finally, based on the findings and discussion, concluding remarks and recommendations are provided in Chapter 8.

CHAPTER 2: LITERATURE REVIEW

At first glance, *literacy* would seem to be a traditional term the majority of people in contemporary Western society understand. However, this chapter discusses in-depth the distinct concept of health literacy and associated research literature. In doing so, the discussion examines the broad definitions of health literacy and their connection to a range of relevant skills and capabilities. The chapter proceeds to elaborate on the importance of developing children's health literacy, before exploring the research base. The second half of this chapter reviews the literature around *nutrition literacy*, as a specific health literacy domain.

Narrowing the scope: what do we mean by health literacy?

The United Nations Educational Scientific and Cultural Organization estimated that there were 775 million illiterate adults in the world in 2010 (United Nations Educational Scientific and Cultural Organization, 2012). Even within high-income countries, those facing social disadvantage are particularly affected by poor literacy skills. International data on student performance link low literacy to poor socio-economic circumstances, highlighting that children from socio-economically disadvantaged backgrounds are more likely to have lower reading scores on the Programme for International Student Assessment (PISA) reading literacy scale (Organization for Economic Co-operation and Development, 2011).

A poor foundation in literacy has many implications. Relevant to this thesis are the clear links between low literacy and health disparities throughout the lifespan, which have been well established on a global scale (Organization for Economic Co-operation and Development, 2010; 2013a; Schuller & Desjardins, 2007). Highly literate individuals are more likely to function in society and report better health outcomes, yet this relationship is a complex one (Kickbusch, 2001). While general literacy and education serve as key determinants of health, further examination of this relationship identifies important distinctions between the concepts of *literacy* and *health literacy*. The term literacy has certainly emerged and diversified over time. While early conceptualisations largely focused on individual abilities in reading and writing, more recent thinking points towards a broader scope of skills and capabilities beyond traditional print literacy. From a global perspective, the

Organization for Economic Co-operation and Development (OECD) frames literacy as a complex set of abilities that are required to use a wide variety of text types in various contexts and situations. For example, the broader approach to literacy adopted within PISA acknowledges the importance of developing citizens who are mathematically, scientifically, and financially literate, in addition to developing competencies in reading and writing (Organization for Economic Co-operation and Development, 2013b). Echoing leaders in the field (e.g. Kickbusch, 2001; Nutbeam, 2008), health literacy should be considered as a distinct form of literacy that encapsulates the significance of health-related knowledge and skills. In her review of the concepts over 10 years ago, Kickbusch (2001, p. 289) elaborated on this point by claiming that literacy in itself "is not sufficient to address the major health challenges facing developing and developed societies". While basic literacy skills certainly constitute a component of health literacy, it is essential that additional capabilities are acknowledged within a broader socio-ecological framework. A highly literate person can still be illiterate in health. This point becomes clearer in consideration of one's day-to-day interactions.

Health literacy is deemed a somewhat ambiguous concept, and what constitutes health literacy has been consistently contested within the literature. The last decade has seen many debates around its specific components and how it is best classified, and today health literacy is still subject to varying definitions and conceptualisations (Sørensen et al., 2012). This lack of theory means that studies vary significantly depending upon the definition employed (Squiers, Peinado, Berkman, Boudewyns, & McCormack, 2012). In traditional terms, health literacy research focused on reading, writing and comprehension skills within a medical context (Estacio, 2013). While these ideas were grounded in research acknowledging education and literacy as important determinants of health, the nature and scope of health literacy has widened from the realm of literacy and numeracy skills to encompass a health promotion perspective (Abel, 2008). Nutbeam (2008) comments that the concept has simultaneously evolved from two schools of thought; one that emphasises clinical research correlations between poor literacy skills and poor health outcomes, and one that highlights educational research into literacy. Accordingly, some work characterises low health literacy as a clinical problem that needs to be overcome. Conversely, positioning health literacy within a health promotion framework grounds

health literacy as an asset and capability, as opposed to a standalone risk factor (Chinn, 2011; Edwards, Wood, Davies, & Edwards, 2012; Nutbeam, 2008; Pleasant & Kuruvilla, 2008; Zarcadoolas, Pleasant, & Greer, 2005, 2006). In this way, health literacy is viewed as a resource that can facilitate healthier lifestyle choices and positive use of health services (Nutbeam, 1999). Kickbusch (2009) similarly frames health literacy as a critical capability in contemporary society. This particular conceptualisation forms the basis for understanding health literacy in this thesis.

Health literacy is now embraced as an important life skill that transcends traditional healthcare settings, as it focuses on people's ability to make decisions *about* health not only in medical contexts, but in everyday life, whether it be at home, school, work, or within the broader community (Kickbusch, 2009; Peerson & Saunders, 2009). Here one can reflect on the unique capabilities that interact to facilitate health within a contemporary sociocultural environment characterised by a wealth of accessible health information, alongside media messages that convey sociocultural norms promoting unhealthy lifestyles. Today individuals are increasingly being expected to manage their own health by accessing and sifting through these ever expanding quantities of information (Ward et al., 2012). In an era that highlights a growing delegation of risk management, health literacy represents more than knowledge; it urges consideration of the social context of health-related decision-making and the skills that empower people to manage health in different situations. In considering children's health literacy, it is also important to think about future healthcare demands that may arise (Paakkari & Paakkari, 2012).

Defining health literacy

Nutbeam's definition of health literacy (first presented in Chapter 1) provides a useful starting point for understanding the concept. Health literacy, as defined in the *Health promotion glossary*, constitutes:

> … the cognitive and social skills which determine the motivation and ability of individuals to gain access to understand and use information in ways which promote and maintain good health. Health literacy means more than being able to read pamphlets and successfully make appointments. By improving people's access to health information and their capacity to use it effectively, health literacy is critical to empowerment (Nutbeam, 1998, p. 357)

From a health promotion perspective, more recent debates elaborate that health literacy should focus on individuals' competencies:

> … to know about, to acquire and make best use of the external and internal resources available to them, to be active for health as individuals, families, neighbours and community members (Abel, 2008, p. 170).

Zarcardoolas, Pleasant and Greer (2005, pp. 196-197) offer perhaps one of the most inclusive definitions of health literacy, defining it as:

> the wide range of skills and competencies that people develop to seek out, comprehend, evaluate and use health information and concepts to make informed choices, reduce health risks, and increase quality of life.

In reviewing the definitions for the term, Sørenson et al. (2012, pp. 3, 10) similarly put forward an all-encompassing definition:

> Health literacy is linked to literacy and entails people's knowledge, motivation and competences to access, understand, appraise, and apply health information in order to make judgments and take decisions in everyday life concerning healthcare, disease prevention and health promotion to maintain or improve quality of life during the life course… Health literacy is in our understanding regarded an asset for improving people's empowerment within the domains of healthcare, disease prevention and health promotion.

Within the literature, the constituents of health literacy are broad: from health-promoting knowledge to information seeking, social skills, critical analysis skills, media literacy skills, problem solving skills, motivation, and self-efficacy. Although scholars continue to raise valid concerns around the lack of shared meaning for the term, in examining similarities across the field empowerment lies at the core of most current conceptualisations. This is further reflected in Nutbeam's well-established tripartite classification of health literacy, which outlines the importance of achieving health literacy at the functional, interactive, and critical levels (Nutbeam, 2000). These three cumulative levels are central to the field of health literacy research, by highlighting the development of capabilities beyond the accumulation of basic health knowledge. At the simplest level, functional health literacy is concerned with the use of general literacy skills, such as reading and writing, to understand basic health messages. While functional tasks such as recounting the benefits of good nutrition and reading health warnings on the front of cigarette packets are important, they only represent the first step in the chain. In recognising that health literacy requires more than the transmission of health information, interactive health literacy focuses on the

ability to understand and utilise information for prevention and self-management. In discussing the highest level, critical health literacy, Nutbeam (2000) emphasises the importance of improving individual and community capacity for social action to address barriers to good health, thereby framing health literacy as a social capacity, as opposed to a purely intellectual one, that develops through social interaction.

Recent discussions also highlight the need to include critical appraisal skills within the critical health literacy domain (Chinn, 2011). Although critically analysing information is a relevant skillset, it is important remember Nutbeam's emphasis on broader social skills that facilitate social and political actions that may address underlying structural influences (Sykes, Wills, Rowlands, & Popple, 2013). Drawing on social determinants and civic orientation, critical health literacy can be conceptualised as form of health citizenship, empowering individuals to join together in social and political processes that act to modify the underlying causes of health inequalities (Kickbusch, 2009). The Parents Jury (http://www.parentsjury.org.au/) serves as one example of community transformative action for health in an Australian context. This web-based collaborative network allows individuals to act together to promote children's health by working towards key issues. One key example includes lobbying against the marketing and promotion of junk foods to children in diverse settings, including media, schools and supermarkets. The online forum also provides an opportunity for parents and other community members to voice their views, share information, and raise awareness around health-negating influences. Advocating for change and challenging sociocultural norms in this way is one potential expression of critical health literacy.

Health literacy and health outcomes

Although health literacy is subject to various conceptualisations, evidence from the available measurement tools, albeit elusive, shows that health literacy is a key determinant of health (Mårtensson & Hensing, 2011; Smith, Nutbeam, & McCaffery, 2013). Overall, low levels of health literacy have a negative impact on the effective self-management of health conditions. Cross-sectional studies demonstrate a relationship between health literacy and use of healthcare services, and medication use and overall health status, internationally (Zarcadoolas et al., 2006). A systematic review of 96 relevant studies (Berkman, Sheridan, Donahue, Halpern, & Crotty,

2011) indicates that lower health literacy is associated with a range of outcome variables including higher hospitalisation rates, more health service use, less use of preventative health care, poorer understanding of health messages, poor adherence to medications and higher mortality amongst particular groups such as the elderly. Low health literacy also negatively impacts on chronic disease knowledge and management (Gazmararian, Williams, Peel, & Baker, 2003; Schillinger et al., 2002). In saying this, it is important to remember that health knowledge does not necessarily translate to changed health behaviours. Although it may be tempting to label a healthy individual as *health literate*, it is crucial to consider *motivation* and individuals' *inclination*, *abilities*, and *possibilities* to act on health information and use health resources in ways that promote and maintain health, as reflected in the *Health promotion glossary* (Nutbeam, 1998). Such considerations lend themselves to a socio-ecological orientation. As discussed in Chapter 1, the holistic essence of the term *health* also draws our attention to wellbeing beyond physicality, which embodies mental, spiritual and emotional aspects. This has resulted in the emergence of distinct health literacy forms which constitute unique skills and capabilities (e.g. mental health literacy; nutrition literacy etc.), in light of the recognition that health literacy is context and content specific (Campbell et al., 2013; Smith et al., 2013).

A discussion of health literacy also raises questions about antecedents for sound health literacy. Health literacy is influenced by multiple determinants. Various demographic, socio-economic and cultural factors might reasonably be expected to influence an individual's health literacy (Sørensen et al., 2012). For example, low health literacy is more common in low income groups. Being older, growing up in a household with limited literacy, having lower educational attainment, migrating from a non-English speaking country, and not having full citizenship all constitute additional factors that may limit one's health literacy, thereby highlighting the role of education, employment, income, age, race and ethnicity in the development and application of health literacy skills (Adams et al., 2009; Howard, Sentell & Gazmararian, 2006; Kreps & Sparks, 2008; Paasche-Orlow & Wolf, 2007). These studies also highlight that it is common for people to fall into several of these high risk categories.

Measurement of health literacy

As with more traditional forms of literacy, the emergence of health literacy raises important questions around how to best measure and monitor the concept. Measurement of health literacy is directly related to the ways in which health literacy is conceptualised (Smith et al., 2013). However, many of the measures to date are limited in their ability to capture the full breadth of attributes reflected in more recent definitions. The majority of studies have used validated quantitative tools such as the Rapid Estimate of Adult Health Literacy (REALM) or Test of Functional Health Literacy for Adults (TOFHLA) to measure health literacy. These tools were developed throughout the 1990s to test reading comprehension, word recognition and numeracy skills, and they are still employed today despite the evolving concept of health literacy. The REALM assesses health literacy by testing recognition and pronunciation of 66 medical words, in a matter of one or two minutes (Davis et al., 1991). Conversely, the TOFHLA measures reading fluency through a reading comprehension task, and also assesses individual capacity to interpret instructions for prescription vials and other health-related materials (Parker, Baker, Williams, & Nurss, 1995). A shortened version of this test takes approximately seven to 12 minutes to administer (Baker, 2006).

More recent measures of health literacy include the Newest Vital Sign Test (NVS) and more recently, the Medical Term Recognition Test (METER). The NVS, developed by Weiss et al. (2005), measures an individual's ability to analyse an ice-cream container nutrition label and then answer six related questions. The majority of the questions require individuals to interpret the information to calculate numbers related to caloric intake. In this way, the NVS places an emphasis on numeracy skills. The METER is another test that requires individuals to read through a list of medical terms and identify those they recognise as actual words (Rawson et al., 2010). Like the REALM, this test is limited as it exclusively measures vocabulary knowledge. Such clinical screening tests aim to identify difficulties in understanding health information such as medical labels and instructions. However, they fail to take into account the broader social context. As such, they provide little guidance for the development of meaningful interventions. By contrast, the Health Activities Literacy Scale (HALS) was developed to focus on prose, quantitative and document literacy in five health-related domains; health promotion, health protection, disease

prevention, health care and maintenance and systems navigation. A full-length version of the test takes approximately one hour to administer (Yin, Forbis, & Dreyer, 2007). While some researchers consider the HALS a more comprehensive measure of health literacy, Nutbeam (2008) argues that it still does not acknowledge that health literacy is an independent concept, dependent on a range of skills and attributes required for more complex tasks.

The prominent view within the literature is that these measures reflect a narrow conceptualisation of health literacy as a derivative of literacy, and only evaluate selected aspects of individual capacity without acknowledging the range of skills and attributes required for more complex tasks (Baker, 2006; Nutbeam, 2008). Health literacy is not consistently measured and there is no gold standard for measurement (Berkman et al., 2011; Darmon & Drewnowski, 2008). Australian research indicates that population levels do vary, depending on the specific measurement tool used and the ways in which health literacy is defined (Adams et al., 2009; Barber et al., 2009). For example, Barber et al. (2009) discovered that adequate health literacy levels varied across measurement tools within the same study population: 26% for the NVS, 10.6% for the REALM and 6.8% for the TOFHLA. In contrast, Adams et al. (2009) used the NVS as a measure of functional health literacy in a South Australian population and found that 24% of participants were at risk of limited health literacy and 21% were likely to have inadequate health literacy.

While many Australians are likely to have limited health literacy, the need exists for a more comprehensive measure, given the role of personal, cognitive and social skills, as well as the importance of motivation and activation (Baker, 2006; Jordan, Buchbinder, & Osborne, 2010; Nutbeam, 2008; Peerson & Saunders, 2009; Pleasant & McKinney, 2011). Furthermore, different health literacy measurement approaches and tools may be required to cater for diverse populations, in order to account for the varying social contexts in which health literacy is relevant. Accordingly, more recent Australian research has focused on the development of additional measures to measure an individual's ability to access, understand, appraise and use health information, resources and services. The Health Literacy Questionnaire (HLQ) (Osborne, Batterham, Elsworth, Hawkins, & Buchbinder, 2013) incorporates nine diverse health literacy domains to capture the needs and challenges faced by a wide

variety of groups, and the Health Literacy Management Scale (HeLMS) similarly reflects a broader understanding, by considering individual abilities in conjunction with other sociocultural factors (Jordan et al., 2013). During the development of these measures, the researchers conducted qualitative interviews with diverse patient groups to gain an understanding of relevant competencies from the patients' perspectives. While the HeLMS is limited to understanding health literacy within healthcare settings, it provides an exciting foundation for future health literacy research in Australia and internationally. Still, it should be acknowledged that health literacy research in Australia to date has largely focused on patients in clinical settings, lacking a broader picture of other sociocultural issues that are relevant to general health literacy skills within the private non-clinical realm.

A qualitative approach to health literacy research is also emerging within the field. Pleasant and Kuruvialla (2008) highlight the importance of qualitative health literacy research, in order to better understand people's perceptions of health issues. Edwards et al. (2012) encourage longitudinal qualitative research methods that can generate rich understanding around the development of health literacy over time. Jordan et al. (2010) warrant further mention, having conducted the first Australian qualitative study around the concept of health literacy from the patient perspective. Participants provided a number of different viewpoints regarding health literacy and identified a number of core abilities considered important to effectively seek, understand and use health information. The researchers categorised these abilities as "knowing when … [and] where to seek health information, verbal communication skills, assertiveness, literacy skills, capacity to process and retain information and application skills" (Jordan et al., 2010, p. 41). Buchbinder et al's paper on health literacy in a rheumatology context further highlights the relevance of various patient abilities needed to navigate health information and services. Evidently, from the patient perspective, health literacy is a complex phenomenon (Buchbinder et al., 2011).

Interesting data has also emerged from recent qualitative interviews relating to the roles of healthcare systems and the sociocultural dimensions of health literacy, beyond that which could be ascertained by using a methodological tool alone. From an international perspective, Britigan, Murnan and Rojas-Guyler (2009) used qualitative interviews to examine barriers to functional health literacy amongst

Latino residents in Ohio, which largely related to limitations in accessing healthcare information due to limitations in language. Harrison, Macker and Watkins' study (2010) aimed to provide a descriptive account of health literacy by exploring the healthcare experiences of 15 visually impaired women, and emerging themes around health literacy were directly related to the topic of visual impairments. For example, participants' perceived barriers to good health care, including communication difficulties, limited access to resources and issues with health workers, were all conveyed from the perspective of someone with permanent visual impairment, and in this way the study provided valuable context-specific data. A more recent health literacy model was put forward by Edwards et al. (2012), based on a longitudinal qualitative study with 18 participants in the United Kingdom. The study aimed to explore participants' experiences of learning to manage a long-term health condition, and their interactions with health professionals and the healthcare system. A framework approach was used to analyse data, and the results indicated that health literacy develops along a trajectory and is moderated by a range of motivations and barriers that determine whether patients can put their skills into practice. These generally relate to personal, emotional and healthcare system factors. In this way, this research builds on Nutbeam's model (2000) by highlighting progressive stages of health literacy and the gradual development of individuals' knowledge, health-related skills and informed decision-making over time. Furthermore, while this this theoretical pathway model was developed in the context of long-term health conditions, it can nonetheless be applied to generic health literacy as it develops over the course of a lifetime, highlighting that health literacy is a multidimensional construct that operates as both a process and a long-term outcome for people of all educational abilities.

In an Australian context, Briggs et al. (2010) conducted in-depth telephone interviews to explore health literacy from the perspectives of patients suffering from musculoskeletal disorders. This study elucidated participants' experiences in seeking, synthesising and utilising information in the context of chronic low back pain. Velardo and Drummond's research (2013) further highlights the usefulness of qualitative methods in understanding sociocultural factors associated with parents accessing, understanding and utilising physical activity and nutrition information related to children's health. Key themes emerged in relation to challenges associated

with navigating the contemporary online environment and understanding complex dietary information. Conversely, Arora, Liu, Chan, and Schwartz specifically explored the oral health literacy domain by using a semi-structured interviewing technique with immigrant Chinese mothers (Arora et al., 2012) and Vietnamese mothers (Arora et al., 2013) living in south-western Sydney, Australia. This research shed light on significant cultural barriers that immigrant women face in relation to understanding and utilising written health materials. For all of these Australian and international studies, the qualitative nature of the research, or the qualitative component in the case of mixed-method studies, encouraged the emergence of themes related to the role of healthcare systems and/or sociocultural factors with regard to health literacy. Some of these factors, including barriers to health literacy, cannot be ascertained by measuring health literacy using an existing methodological tool alone, thereby highlighting the significance of qualitative exploration within this field in the form of standalone studies or mixed methods research.

Child health literacy

Having summarised the broader health literacy literature, the next part of this chapter describes child health literacy. Living under the care and supervision of parents and caregivers, children are not often assumed to be active in decision-making and reflection about their own health. While some scholars might argue that children do not assume responsibility for the self-management of health, younger populations are shown to be health conscious and can begin to recognise basic health concepts, conveyed by means of familiar icons and images, at a very early age (Onyango Ouma, Aagaard Hansen, & Jensen, 2004; Piko & Bak, 2006). Studies have shown that young children are similarly able to identify healthy foods and articulate basic health concepts, whilst reflecting on facilitators and barriers to their health-related behaviours (Hesketh, Waters, Green, Salmon, & Williams, 2005; O'Dea, 2003; Protudjer, Marchessault, Kozyrskyj, & Becker, 2010). Consequently, as younger people become involved with managing aspects of their own health and wellbeing it becomes critical to consider their own health literacy.

The discourse dedicated to the definition and measurement of health literacy within younger populations has certainly escalated over the last few years. Paakkari and

Paakkari (2012, p. 136) offer their perspective on children's health literacy that comprises:

> a broad range of knowledge and competencies that [students] seek to encompass, evaluate, construct, and use … [including] theoretical knowledge, practical knowledge, critical thinking, self-awareness, and citizenship.

Meeting the specific health literacy needs of children, including the delivery of information that is easily understood by this age group, is recognised as an increasingly significant public health goal (Manganello, 2008; Sanders, Shaw, Guez, Baur, & Rudd, 2009). Borzekowski (2009) notes that physicians increasingly acknowledge the importance of a health literate youth, so children become functional consumers of health information who are capable of making health-promoting choices in a complex society driven by sociocultural norms. The proposal that children's own health literacy is significant to their future health and wellbeing is espoused by various researchers who support the notion that developing health literacy amongst school-aged children may prevent the emergence of health inequalities later in life (e.g. Borzekowski, 2009; Manganello, 2008; Paakkari & Paakkari, 2012). Researchers argue that health literacy develops over the life course, and that addressing health literacy at an early age is important in order to shape subsequent attitudes and behaviours that will likely endure into adulthood (Manganello, 2008; Yin et al., 2007).

Despite this understanding, most research to date has focused on the impact of parental literacy and health literacy on child health outcomes related to chronic illness management, rather than children's own health literacy (e.g. Arnold et al., 2001; DeWalt, Dilling, Rosenthal, & Pignone, 2007; DeWalt & Hink, 2009; Kumar et al., 2010; Miller, Lee, DeWalt, & Vann, 2010; Pulgarón et al., 2014; Richman, Huebner, Leggott, Mouradian, & Mancl, 2011; Ross, Frier, Kelnar, & Deary, 2001; Sanders, Thompson, & Wilkinson, 2007; Shone, Conn, Sanders, & Halterman, 2009). For example, DeWalt et al.'s well known study (2007) found that low parental health literacy was associated with increased incidence of emergency department visits, hospitalisations and days missed from school for children with asthma. Shone et al. (2009) also investigated the impact of parental health literacy on childhood asthma management, indicating that parents with limited health literacy had less

knowledge, worried to a greater degree and rated their children's health less favourably. A study that assessed the health literacy of pregnant women similarly demonstrated that low health literacy was associated with less knowledge regarding the adverse effects of smoking on children (Arnold et al., 2001). More recent American research has shown an association between low parental health literacy and difficulty in understanding medication labels (Yin et al., 2009), certain obesogenic infant care behaviours (Yin et al., 2014), and poorer glycemic control for diabetic children (Pulgarón et al., 2014). Scholars have also focused on the development of a specific measure of parental health literacy to identify parents who require better communication of health-related instructions (Kumar et al., 2010).

While the assessment of variability in children's health according to parental health literacy is significant, it is important to recognise that children can also serve as active participants in research that acknowledges their specific needs. Important questions remain unanswered, including: How can health literacy mediate children's own experiences with health-related resources? How do health literacy skills diversify and tier over the life course? What specific skills and competencies are relevant to children living within diverse socio-economic environments? In order to answer such questions, and to determine how to foster a health literate youth independent of parental health literacy, the field is now moving towards child-centred research with child participants that considers children's ability to meet the demands of future society (Abrams, Klass, & Dreyer, 2009).

A large body of research is progressively emerging around aspects of teenagers' health literacy, to better understand the ways in which adolescents make personal healthcare decisions whilst transitioning to adult self-care (e.g. Davis et al., 2006; Ghaddar, Valerio, Garcia, & Hansen, 2012; Gray, Klein, Noyce, Sesselberg, & Cantrill, 2005; Kilgour, Matthews, Christian, & Shire, 2013; Levin-Zamir et al., 2011; Massey et al., 2013; Sanders, Federico, Klass, Abrams, & Dreyer, 2009). These studies collectively indicate that a range of information sources influence adolescent health literacy, including friends, family, school, professionals and other media forms (Begoray, Wharf Higgins, & MacDonald, 2009; Gray et al., 2005; Paek, Reber, & Lariscy, 2011).

Fewer studies, however, have focused on the health literacy of preadolescent children or younger age groups. In examining the limited literature base for younger age groups, several recent studies advocate screening measures that can be used to identify low child health literacy in the clinical setting, including the NVS from age 10 onwards (e.g. Warsh, Chari, Badaczewski, Hossain, & Sharif, 2014) and age seven onwards (Chari et al., 2014; Driessnack et al., 2014), as well as the shortened version (S-TOFHLA) (e.g. Sharif & Blank, 2010). Sharif and Blank's study (2010) was particularly interesting since it aimed to examine a potential correlation between children's functional health literacy and BMI, using a cohort of 78 overweight children aged six to 19 from a disadvantaged population. Results indicate an inverse association between child health literacy and BMI, adjusted for age and gender. An additional study was conducted more recently, using the NVS as a screening tool for child health literacy, adolescent health literacy and parent health literacy. Results indicate that child obesity amongst school-aged children is associated with parental health literacy and parental obesity, while adolescents' own health literacy was a predictor of obesity (Chari et al., 2014). It is important to note that the cross-sectional design of both studies limits cause and effect inferences, and the link between health literacy and food choice remains unclear. Further, the S-TOFHLA, along with the NVS, remains limited in its ability to comprehensively measure health literacy beyond clinical settings due to close-ended questioning, task-performance orientation and a focus on numeracy/reading comprehension that particularly neglects the interactive and critical health literacy domains proposed by Nutbeam (Abel, 2008).

Conversely, other research has specifically focused on examining child health literacy through self-report measures. A large scale study conducted by Brown et al. (2007) around preadolescents' health information-seeking used a self-reporting survey method to determine the ways in which 1178 children aged nine to 13 access, understand, take interest in and apply valid health information. Eight original survey questions were developed and based on a literature review and prior surveys. Health literacy was defined by the researchers as "the ability to understand health information and to understand that actions taken in youth affect health later in life, combined with the ability to access valid health information" (Brown et al., 2007, p. 13). Findings highlighted the importance of preadolescents understanding the consequences of their health-related behaviours, and comprehending tailored health

messages. Students who demonstrated these qualities reported that they were more motivated to apply health information in their everyday lives. They were also more likely to report an understanding of health information if they came from higher income families, thereby highlighting socio-economic disparities. Paek, Reber, and Lariscy (2011) measured a form of self-reported health literacy, drawing attention to the role of friends, family, school and media influences in shaping children's health literacy, while another study attempted to measure children's behaviour, amongst additional domains, as a direct *component* of health literacy rather than viewing healthy behaviours as a direct *outcome* of improved health literacy (Schmidt et al., 2010).

Despite the escalating discourse dedicated to child health literacy, there is still no consensus on the ways in which health literacy should be viewed and defined in terms of the child or adolescent (Ormshaw, Paakkari, & Kannas, 2013). Albeit seemingly obvious, childhood health literacy research needs to be specific to *children*, taking into account their diverse social worlds and experiences. Many of the mainstream definitions and conceptualisations focusing on healthcare settings and adherence to medication are not relevant to the majority of preadolescent children, who are under the direct care of a parent or other primary caregiver. With the exception of some children who are involved in self-managing a specific disease such as type 2 diabetes or asthma, skills associated with health system navigation and medication adherence are irrelevant for many youth. Instead, a health promotion perspective should be adopted and carried forward in future research (Campbell et al., 2013). This could draw on children's daily life activities, their exposure to socio-economic conditions, and the pertinent role of pervasive media channels throughout different developmental stages. For example, the increased independence that marks the progression into adolescence lends itself to more unsupervised decision-making around food choice, physical activity participation and sleep patterns, so these factors would certainly warrant consideration when examining health literacy throughout these transitional years. Similarly, conceptions of sexual health literacy would become more relevant as adolescents mature (Cameron et al., 2013).

The question still remains around what components and learning objectives should be regarded as constituent parts of child health literacy, and there is no clear

definition of what exactly is to be measured independent of parental health literacy (Ormshaw et al., 2013). Most studies have utilised existing screening tools that are task-performance oriented, with close-ended questions. Given the focus on numeracy and reading, the majority of methods have neglected the interactive and critical health literacy domains proposed by Nutbeam (Abel, 2008). Ormshaw, Paakkari and Kannas' systematic review of the literature (2013) concludes that clear definitions and measurement tools are still required in order to expand the field further. Sharif and Blank (2010) echo this sentiment by emphasising the need for a measurement tool that accounts for children's cultural context and developmental differences throughout childhood and adolescence.

Nutrition literacy

Leading on from the debates around the constituent parts of health literacy, the final part of this chapter focuses on nutrition literacy as a specific health literacy domain. Aihara and Minnai (2011) liken nutrition literacy to the tools needed to make healthy food choices, thereby highlighting contemporary ideology that implores individuals to gain the necessary knowledge and skills about food that will empower them to *eat right* (Kimura, 2011). Gibbs and Chapman-Novakofski's (2012) recent conceptualisation of health literacy within a nutrition education setting is useful, as it highlights the diverse components of nutrition literacy from the perspectives of eight nutrition professionals. Knowledge around macronutrient intake, food groups and food compositions, as well as basic math and measurement competencies, were identified as important skills for consumers. The ability to understand health concepts was also perceived to be particularly significant if an individual presents with a disease with nutrition implications, namely diabetes and hypertension (Gibbs & Chapman-Novakofski, 2012). More simply, Kickbusch (2001, p. 131) emphasises that health and nutrition literacy "can mean many different things for different people: understanding the politics of food, gauging the sugar content of a bottle of coke and buying and preparing a healthy meal", thereby highlighting the complexities surrounding an absolute definition. There is no general consensus on the definition of nutrition literacy, and the ways in which it is measured depend upon the question of why it is being measured (Abel, 2008). Discussions of nutrition literacy resonate with Nutbeam's health literacy classification (2000) that highlights

functional, interactive and critical levels. These ideas are used to guide the conceptualisation for this thesis.

Functional nutrition literacy

At a basic level, nutrition literacy skills may encompass one's ability to obtain factual dietary information and develop an understanding of factors that can enhance or inhibit good health (Berman & Lavizzo-Mourey, 2008). Communicating health messages in a manner that is easily understood is a key goal for nutrition education (Carbone & Zoellner, 2012), and it is known that children access nutrition information from a variety of sources, including parents, schools, mass media advertisements, food packaging, health professionals and the internet, so these would all play a part within the functional domain (Brown et al., 2007; Freisling, Haas, & Elmadfa, 2010; McKinley et al., 2005; Paek et al., 2011; Valkenburg & Peter, 2007). It is important to note that independent online health information seeking has particularly become significant over time, with the internet often serving as the main source of health information for youth (Gray et al., 2005).

According to Edward et al.'s theoretical model (2012), the functional stage represents basic knowledge that is gained through interactions with individuals and health educators in diverse settings. This viewpoint is well noted within the literature, as health information and knowledge generally feature as important components within the key health literacy definitions (e.g. Nutbeam, 2000; St Leger, 2001; Zarcadoolas et al., 2005, 2006). Similarly, St Leger (2001) places nutrition knowledge at the functional level in his discussion of children's health literacy in school settings. The outcomes of this level of nutrition literacy could include improved knowledge of health risks, components of a healthy diet and the benefits of good nutrition. In psychological terms, knowledge can be classified as either declarative or procedural (Dickson-Spillmann, Siegrist, & Keller, 2011). Declarative knowledge is characterised by an awareness of facts and processes and *knowing that*. In contrast, procedural knowledge is knowledge of skills and strategies and *knowing how* to do something. With respect to nutrition literacy, declarative nutrition knowledge could encompass one's ability to identify foods that are high in sugar or fat, or to understand the health benefits of dietary fibre. Declarative knowledge thereby resonates explicitly with the features of functional nutrition literacy

discussed here. In contrast, knowing how to compose a healthy menu plan, or choose a low salt product, would demonstrate a degree of procedural knowledge, which can be conceptualised in terms of interactive nutrition literacy.

Interactive nutrition literacy

A health literacy framework acknowledges the importance of individuals moving beyond the basic acquisition of factual knowledge, by using knowledge in a meaningful way in the context of daily life (Marks, 2012). As a child's health literacy develops, more complex tasks may become achievable (Borzekowski, 2009; Sanders, Federico, et al., 2009). Accordingly, nutrition literacy is not just about gaining knowledge but also highlights the range of problem solving and practical skills needed to put knowledge into practice. At a basic level, it is difficult to translate knowledge that too much saturated fat is problematic into a positive dietary choice, if a consumer does not know how to identify a product that is low in saturated fat. In making this distinction, the researcher does not intend to undermine the broad sociocultural factors surrounding food choice, but rather to highlight that the progression towards the interactive level would encompass the development of personal skills, motivation and confidence in a supportive environment, with an improved capacity to manage health independently (Nutbeam, 1999; St Leger, 2001).

Blitstein and Evans (2006) emphasise the importance of nutrition literacy when developing discrete literacy and numeracy skills necessary for selecting wholesome foods to be included within the diet. Zoellner et al. (2009) envisage that this would typically involve using dietary guidelines. This could also extend to knowing about the origins and compositions of foods (Kickbusch, 2009). Several authors highlight the importance of comprehension by considering the readability of nutrition information presented in print or electronic format (Neuhauser et al., 2007), and the usability of information displayed on food labels and menus (Fordyce-Voorham, 2011; Lin, Mou, & Lagoe, 2011; Watson et al., 2012). This focus on food label interpretation within the literacy domain has marked the emergence of another concept within the health literacy literature, often termed *food label literacy* (Katz et al., 2011; Reynolds et al., 2012).

As children transition into adolescence, it becomes increasingly important to examine their interactions with health messages conveyed by contemporary media

(Paek et al., 2011). Current understandings suggest that one of the primary external forces affecting young people's health literacy is the popular media, including social media, web sites, magazines and television (Borzekowski & Rich, 2012; Wharf Higgins, Begoray, & MacDonald, 2009). Wharf Higgins et al.'s (2009) work in Canada consistently emphasises the importance of health literacy skills when engaging with media (Begoray et al., 2009; Wharf Higgins & Begoray, 2012; Wharf Higgins et al., 2009). While many children are exposed to nutrition information through media channels, it is possible that some messages are not properly understood. The potentially misleading health messages associated with commercially promoted foods should also be considered. Consequently, it is important to explore children's trust in various sources to understand what they believe to be credible and trustworthy as well as other factors that shape their capacity to interpret, critically evaluate and utilise such information (Freisling et al., 2010; Massey, Prelip, Calimlim, Quiter, & Glik, 2012; Neuhauser et al., 2007). Consider an advertisement that markets a discretional food as 'healthy', to which a child is exposed to through television viewing. Here it becomes imperative to acknowledge the importance of the child's ability to synthesise the content presented. For example, a commercial may market a product as nutritious through various health claims, when, in accordance to Australian guidelines, it is a discretionary choice that should be consumed in moderation. This idea can also be discussed in the context of, what Scrinnis describes as *nutritionism.* The paradigm of nutritionism highlights the conceptualisation of foods in terms of their nutrient profiles, rather than other ways of understanding food and dietary health (Scrinis, 2008). One of the clear implications of nutritionism within popoular food discourse is that people are constantly confronted with 'nutritional' marketing claims from the food industry, in order to promote certain foods within a health discourse. Here, nutritionism can clearly undermine the evaluation of foods and influence dietary choices (Scrinis, 2008).

The interface between health literacy and media literacy theory can offer some understanding about these health messages in the media that are relevant to children (Levin-Zamir et al., 2011). Levin-Zamir et al. (2011) term this *media health literacy*, and they argue that critical thinking skills might encourage reasoned choices and a health-promoting lifestyle. By contrast, Wharf Higgins and Begoray put forward the

term *critical media health literacy* to describe these capabilities (Wharf Higgins & Begoray, 2012). In a nutrition context, Peterson (2012) describes this specific competency as *food media literacy*, which comprises an individual's ability to critically respond to food-oriented media. She concurrently frames food media literacy as an important skill that can empower individuals to make positive food choices within a contemporary commercially-driven food landscape. Based on these varying conceptualisations, yet adapted to the concept of nutrition literacy, this construct will be termed *media nutrition literacy* throughout this thesis.

Critical nutrition literacy

In recent times the discussion of critical health literacy within the literature has tended to focus on critical appraisal skills. Without undermining the significance of critical appraisal skills, caution must be taken in ignoring the broader social skills that facilitate social action (Sykes et al., 2013). Nutbeam's emphasis on social skills (2000) draws attention to the significance of one's capacity to act on and influence the underlying social determinants of health, as the utmost level of health literacy. These higher level cognitive and social skills would reasonably need to facilitate critical awareness of structural inequalities and an ability to interact critically with powerful health and nutrition discourses. As Kickbusch (2009) illustrates, a community that lobbies against the establishment of a fast-food restaurant opposite a local school serves as an example of social action or *citizenship* that resonates with Nutbeam's notion of critical health literacy (2000), and the Ottawa Charter's call for strengthening community actions in health promotion (World Health Organization, 1986). Accordingly, critical nutrition literacy should encompass critical appraisal skills alongside increased awareness and participation in action to address barriers to good nutrition (Guttersrud, Dalane, & Pettersen, 2014).

Critique of the concept

The health literacy concept has been critiqued for its emphasis on the transmission of information and a simplistic understanding of knowledge and its impacts on behaviour (Nutbeam, 2000). Although most people implicitly accept the notion that nutrition knowledge will influence one's ability to choose a healthy diet (Zoellner et al., 2009), nutrition knowledge is important, though not sufficient, for dietary change (Hendrie et al., 2008; Hesketh et al., 2005). As Worsley (2002, p. S584) argues,

while the value of nutrition knowledge is irrefutable, what consumers choose to "do" with nutrition knowledge that is taught to them depends on a number of factors. Hendrie, Coveney and Cox (2008) note that nutrition knowledge does have some influence on dietary behaviours, but while there is evidence to suggest that better nutrition knowledge may lead to increased consumption of healthy foods, the same cannot yet be said for a reduction in unhealthy behaviours (De Vriendt, Matthys, Verbeke, Pynaert, & De Henauw, 2009; Dickson-Spillmann et al., 2011; Wardle, Parmenter, & Waller, 2000). Furthermore, no clear links have been established between nutritional knowledge and body weight variables amongst children, which suggests that poor eating habits are not solely attributed to a lack of knowledge (O'Dea & Wilson, 2006; Reinehr, Kersting, Chahda, & Andler, 2003). In a nutrition literacy context, two systematic reviews also report consistent improvements in health knowledge and health-related self-efficacy through nutrition interventions, although less evidence indicates enhanced health behaviours or biological improvements as specific outcomes (Carbone & Zoellner, 2012; Clement, Ibrahim, Crichton, Wolf, & Rowlands, 2009).

Berman and Lavizzo-Mourey (2008) argue that nutrition literacy is more than knowing how to decipher the nutrition label of a particular product, calculate associated caloric value and estimate portion sizes. Nutrition literacy is influenced by culture and society, and it is important to consider the role of deeply rooted sociocultural norms around health and eating, which may be implicitly linked to the motivation that Nutbeam articulates (1998). Peerson and Saunders (2011) elaborate on a number of factors that influence one's motivation to access, understand and utilise information in everyday life. Individuals who have simply acquired an understanding of health that is necessary for a healthy lifestyle are differentiated from people who are in a position to exercise such knowledge. For example, a person may understand the importance of consuming vegetables but may consume a nutrient-poor meal at dinner time due to cost or time limitations (Velardo & Drummond, 2013). This highlights the underlying importance of:

1. individuals having access to the *opportunity* to become health literate (Kilgour et al., 2013)

2. moving away from a simplistic interpretation of functionality, by emphasising the development of interactive and critical skills in addition to health-related knowledge
3. understanding health literacy as it relates to contextual sociocultural environments.

In considering the development of skills, the role of practical food preparation comes into play. Skills in food preparation are considered to be an essential component of translating nutrition knowledge into dietary practice, resonating explicitly with the features of interactive nutrition literacy (Pendergast, Garvis, & Kanasa, 2011). This leads into the discussion of the term *food literacy* that is often used interchangeably with nutrition literacy in the academic literature. Today, there is lack of consensus around a definition for food literacy. However, it appears that the concept emphasises the importance of linking nutrition information and with people's practical use of food to meet day-to-day needs (Brooks & Begley, 2013; Murimi, 2013). Vidgen and Gallegos (2014, pp. 50, 54) frame food literacy as:

> The everyday practicalities associated with navigating the food system and using it in order to ensure a regular food intake that is consistent with nutrition recommendations … food literacy is the scaffolding that empowers individuals, households, communities or nations to protect diet quality through change and strengthen dietary resilience over time.

Their definition is based upon the collective perspectives of food experts and disadvantaged young people aged 16 to 25, gained through the *Food Literacy Delphi Study* (Vidgen and Gallegos, 2014). The wide-ranging components of food literacy proposed through their qualitative study focused on the knowledge, skills and behaviours required to access, select, prepare and eat foods, and plan for meals. More specifically, competencies ranged from being able to choose foods within the available time, knowledge of food use and storage, knowledge of food preparation across core food groups, skills in using kitchen equipment, and knowledge of food hygiene practices. Fordyce-Voorham (2011) echoes this sentiment, whilst also acknowledging the importance of knowledge associated with identifying seasonal produce. When examining the food literacy literature, cooking is the component that is most commonly discussed, particularly in response to the demise of these essential skills and their devaluing in society. Consequently, in examining the literature on food literacy interventions targeted at young people, programs tend to focus on

improving practical cooking skills (Brooks & Begley, 2013). Within the *Food Literacy Delphi Study*, 79% of participants agreed that cooking is a fundamental component of food literacy, vital to meeting nutrition needs (Vidgen & Gallegos, 2011). Pendergrast et al. (2011) go so far as to say that that one's competence to use any dietary information is characterised by the acquisition of food preparation and cooking skills. This transition from knowledge to practice is often viewed as a vital component of food literacy, so much so that Smith (2009, p. 53) frames food literacy as an "encroachment on, typical home economics curriculum". St Leger (2001) also highlights the importance of food preparation skills in his elaboration of interactive health literacy.

Overall, the implied components of food literacy vary greatly. Some of the definitions have a wider scope that specifically captures the importance of knowing about food origins and sustainability. For example, Drummond (2010, p. 43) notes that the construct is linked to capacities to "grow, select, store, prepare, cook and serve food". Some interpretations are thereby grounded in progressive food approaches that emphasise the importance of "knowing where your food comes from" (Guthman, 2008, p. 1175), in order to empower citizens to know about food production and encourage sustainable food choice and consumption. This alternative healthy eating discourse is certainly starting to emerge in response to an emphasis on interactions within the food system, whereby food decisions may encompass moral and ethical values (Ristovski-Slijepcevic et al., 2008; Smith, 2009).This food literacy ideology is also reflected in the recent school kitchen-garden movement (Ozer, 2007). The Public Health Association of Australia (2009, p. 11) similarly suggests that food literacy skills encompass:

> not merely knowledge of basic nutrients essential for healthy growth and development, to minimize risk of chronic illness and nourishment of the aged and infirmed; but also understanding of the connections between food choices and impacts on our environment – including refrigeration, waste and basic safe food preparation.

While the current definitions of food literacy and nutrition literacy are not always consistent, there is evidently an overlap between the two terms, particularly regarding the selection of nutritious foods and other nutrition-related skills. A comprehensive conceptualisation of nutrition literacy should reflects key elements of health literacy *and* food literacy constructs

Measurement of nutrition literacy

Several studies have attempted to specifically define and measure nutrition literacy amongst diverse populations. For example, Zoellner et al. (2009) administered several surveys to assess nutrition literacy and dietary information-seeking behaviours amongst 177 adults residing in a low SES region of North America. Survey instruments included the NVS test to measure nutrition literacy, as well as an adapted version of a national health survey to evaluate exposure to nutrition information. Results indicated that rates of inadequate nutrition literacy were high amongst this population, and that higher nutrition literacy was associated with fewer perceived barriers to accessing information, and consequently more active information-seeking behaviours and a higher degree of trust in nutrition sources. Findings also identified that nutrition literacy increased with higher levels of educational attainment and income. An additional study conducted in this region that investigated the relationship between nutrition literacy skills (via the NVS test) and dietary consumption, also showed an inverse association between nutrition literacy scores and sugar-sweetened beverage consumption (Zoellner et al., 2011). Aihara and Minai (2011) attempted to measure nutrition literacy amongst an elderly Japanese population through a knowledge-based questionnaire related to dietary outcomes. Silk et al.'s (2008) investigation into the effectiveness of various nutrition education modalities similarly involved assessing nutrition literacy solely by means of knowledge outcomes relating to dietary recommendations, food safety and storage and pricing, as did a more recent study conducted within New Zealand (Wall, Gearry, Pearson, Parnell, & Skidmore, 2014).

In examining specific tools that are available, existing health literacy instruments such as the REALM and TOFHLA emphasise an individual's print literacy and/or numeracy. Accordingly, they do not comprehensively account for nutrition-related knowledge and skills (Gibbs & Chapman-Novakofski, 2012). Other health literacy measurement instruments that were developed for use in nutrition settings include the NVS (although commonly used as a general health literacy measure), the *Nutrition Label Survey*, and the *Nutrition Literacy Assessment Instrument*, which collectively focus on one's specific ability to effectively use food labels. As outlined earlier in this chapter, the NVS purports to measure numeracy to demonstrate an individual's ability to analyse an ice-cream container nutrition label and answer six questions

(Weiss et al., 2005). These specific questions require interpretation of the information to calculate numbers associated with caloric intake. Rothman et al. followed on to develop the 24-item *Nutrition Label Survey* that specifically assesses food label comprehension, by asking individuals to evaluate food content and compare different food items (Rothman et al., 2006). Reynolds et al. (2012) similarly developed and validated a food label literacy tool used to test primary school-aged children's ability in choosing healthier foods based on Nutrition Fact panels and ingredients list.

In addition to food label literacy tools, Diamond's *Nutrition Literacy Scale* is a 28-item measurement tool developed to assess adults' ability to understand nutrition information (Diamond, 2007). This tool largely reflects the reading and comprehension components of the S-TOFHLA, and requires an individual to fill in blanks to complete various food-specific sentences. It places emphasis on nutrition information, which limits its ability to test competencies aside from functional nutrition literacy. Furthermore, although validated, it is not yet published, and further information about the tool is warranted. Most recently, preliminary data has been released about a newly constructed tool, the Nutrition Literacy Assessment Instrument (NLAI) (Gibbs, 2012). The NLAI aims to ascertain people's understanding of the relationship between nutrition and health, knowledge of macronutrients, food measurement skills, label comprehension and identifying food groups. Although content validity has recently been established, several components require further investigation, and additional validation in terms of construct validity and reliability is required (Gibbs & Chapman-Novakofski, 2013).

In reviewing these studies, it is evident that existing nutrition literacy measurement tools tend to emphasise literacy and numeracy skills and/or nutrition knowledge. Although no single instrument would necessarily capture all aspects of nutrition literacy, existing approaches largely focus on functional and (limited) interactive components. The need to move beyond a functional understanding of nutrition literacy is evident, yet how this might 'look' or how we might 'measure' this requires further investigation. Within this study, utilising qualitative approaches that explore sociocultural dimensions of nutrition literacy may offer some potential towards achieving a

comprehensive approach that captures functional, interactive and critical dimensions in the naturalistic context of everyday life.

Chapter summary

As a relatively new idea, health literacy constitutes a discrete form of literacy that emphasises the ways in which individuals can become literate in health through their interactions with health information and resources. The concept has evolved through a worldwide effort to improve people's ability to act on key health messages in order to take action about their own and others' health, by addressing common modifiable risk factors that contribute to the growing burden of non-communicable diseases in developed countries. Much academic discourse dedicated to the concept has emerged in recent years, particularly within the fields of public health and health promotion. Heath literacy research traditionally focused on reading, writing and comprehension skills in the health context; however, over time the nature and scope of health literacy has widened. Nutbeam's tripartite model (2000), which acknowledges the advancement through different levels of skills, is central to the field.

The literature acknowledges the need for comprehensive health literacy measurement tools and methodologies that capture the essence of the concept across different groups (Peerson & Saunders, 2011). Qualitative methods are becoming increasingly popular, in recognition that in-depth interviews can elicit rich data around the sociocultural dimensions of health literacy in diverse settings. This literature review also demonstrates that children's own capacity and motivation to access, understand and use health information is significant; however, more research is needed in order to develop an in-depth understanding of health literacy as it relates to children (Ormshaw et al., 2013). In summary, this chapter points to clear gaps in the literature around:

1. the sociocultural aspects of health literacy
2. conceptualising children's own health literacy
3. child health literacy as it relates to younger populations
4. the emerging field of *nutrition literacy* as a specific health literacy domain.

These gaps highlight the importance of the current research for gaining an in-depth understanding of preadolescent health and nutrition literacy.

CHAPTER 3: THE PLACE OF SOCIAL CONSTRUCTIONISM AND SOCIO-ECOLOGICAL APPROACHES

This chapter discusses the utility of an interpretive qualitative approach to health research, which leads into the specific theoretical and conceptual frameworks for this study. The chapter elaborates on the complementary strengths of social constructionist and socio-ecological approaches, and their place within this study.

Qualitative methods in health research

A qualitative approach to research is useful in generating rich, detailed information in order to explain and interpret social phenomena (Bradley, Curry, & Devers, 2007; Pope & Mays, 2006). People are studied in their natural settings to "develop an understanding of the meaning and experience dimensions of [their] lives and social worlds" (Fossey, Harvey, McDermott, & Davidson, 2002, p. 717). When conducting research, it is essential to first consider the underlying nature of social entities, or the ontological position of the research in question (Bryman, 2008). A qualitative approach is rooted in the ontological position of constructionism that implies that social phenomena and their meanings are outcomes of the interaction between individuals. Instead of taking the view that there are pre-existing characteristics to the world, a constructionist stance views social objects and categories as socially constructed (Bryman, 2008).

Discussing the nature of reality leads naturally into considerations around the nature of knowledge, or the theory of knowledge; the epistemology (Crotty, 1998). Qualitative research is based on the epistemological perspective of interpretivism, whereby phenomena are interpreted in terms of the subjective meanings people bring to them (Bryman, 2008; Pope & Mays, 2006). In contrast to a positivist epistemology, which implies that empirical, objective means can be used to reveal the true nature of the world (Bryman, 2008), qualitative research does not aspire to predict outcomes (Willig, 2001), or discover truths (Crotty, 1998). Instead, as Bryman (2008) contends, taking an interpretative stance can in fact result in the emergence of surprising findings. The fundamental difference between the opposing epistemologies is that an interpretive approach is inductive in nature and is ultimately

concerned with the ways in which people make sense of the world (Bryman, 2008; Willig, 2001).

Within the realm of health-related research, qualitative methods are frequently compared and contrasted against quantitative techniques, which are concerned with generating testable hypotheses and using empirical means to reach conclusions (Bryman, 2008; Creswell, 2008). Rigorous and objective quantitative methods have traditionally been the driving force behind social scientific health research, due to the perceived value of quantification and enumeration (Malterud, 2001). However, qualitative methods are becoming increasingly common in health-related research, largely due to the recognition that quantitative methods may be ill-equipped to explore and interpret subjective experience and meaning in certain contexts (Bradley et al., 2007; Pope & Mays, 2006; Sofaer, 2002). Therefore, in some cases researchers choose to employ a mixed methods approach, whereby qualitative and quantitative methods complement each other to provide different perspectives and validate research findings (Pope & Mays, 2006). Pope and Mays (2006) claim that the qualitative approach may also stand alone to generate a deeper understanding of social phenomena that are not amenable to quantitative measurement. Pickler (2007) and Bradley et al. (2007) acknowledge that this is particularly important in health research to develop knowledge in poorly understood or complex areas that may relate to health values and beliefs, decision-making and health seeking behaviours. A qualitative approach was appropriate for this study in order to understand how preadolescent children access, understand and make use of nutrition information in the naturalistic context of everyday life. Exploring health and nutrition as it relates to children, through qualitative enquiry, provides a rich, descriptive account of health and nutrition literacy that is somewhat lacking within the research literature to date, as outlined in Chapter 2.

Social theory in research

Grbich (1999) and Malterud (2001) argue that it is essential to reflect on theoretical perspectives when conducting qualitative research, given that theory informs the framework for interpreting data and understanding the central phenomenon in question. As Silverman aptly states, “without theory there is nothing to research” (Silverman, 2006, p. 14). Malterud (2001, p. 486) likens the theoretical framework of

a study to “the reading glasses worn by the researcher when she or he asks questions about the material”. Kitto, Chesters and Grbich (2008) maintain that regardless of which theory is chosen as the framework for analysis, it is essential that the researcher justifies this choice in accordance to the research questions of the study. This research is based upon the theoretical perspective of social constructionism, which has drawn influence from the work of various theorists, including Berger and Luckmann (1966) and Gergen (1973).

Theoretical framework: Social constructionism

The theory of social constructionism is broadly concerned with the development of social phenomena through social processes and practices (Berger & Luckmann, 1966; Burr, 2003; Gergen, 1985). Consequently, social constructionism emphasises the importance of communication, interaction and a shared system of meaning (Burr, 2003). The theory has not emerged from a specific source, but instead draws influence from the works of numerous theorists from diverse disciplines (Burr, 2003). The term s*ocial constructionism* was first introduced into the literature through Berger and Luckmann’s eminent text, entitled *The social construction of reality: A treatise in the sociology of knowledge* (1966). Berger and Luckmann (1966) articulate that phenomena are socially constructed as people interact together in social systems. As individuals’ exchange their perceptions of reality, they are gradually reinforced, institutionalised and embedded in society. Institutionalisation of social processes occurs through the creation of norms gained through mutual agreement and reconfirmation of attitudes and behaviours, as categorisations are vicariously received and made to be salient. In this way, Berger and Luckmann (1966, p. 1) claim that “reality is socially constructed”. Social reality is legitimised and maintained through “maxims, morals, proverbial nuggets of wisdom, values and beliefs, myths, and so forth” (1966, p. 65). Language also allows “vast accumulations of meaning and experience … [to be] transmit[ted] to following generations” (Berger & Luckmann, 1966, p. 37). It is important to note that Berger and Luckman emphasise broad social constructions of meaning and knowledge, rather than focusing on the matter of individual cognitive processes and the “meaning-making of the individual mind”, thereby distinguishing the differences between a *constructionist* and *constructivist* standpoint, respectively (Crotty, 1998, p. 58).

Burr (2003) argues that it is difficult to provide an absolute definition of social constructionism. Instead, she provides a useful framework which outlines four basic assumptions of the social constructionist approach. The following discussion summarises these fundamental assumptions, with reference to Burr (2003) as well as other authors' contributions to the literature.

A critical stance on taken-for-granted knowledge

Burr (2003) contends that social constructionism encourages individuals to question the social roots of phenomena and challenge the view that there is an objective, determined nature to human beings and the world in which they live. From a constructionist perspective, phenomena are considered to be the products of culture and social processes, and experience is thus mediated historically, culturally and linguistically (Burr, 2003; Giles, 2006; Willig, 2001). Consequently, social reality is not established by nature (Berger & Luckmann, 1966; Hibberd, 2005). For this reason, social constructionism is often deemed the antithesis of positivism and essentialism, which have traditionally dominated science disciplines (Burr, 2003).

Historical and cultural specificity

Burr (2003) outlines that the ways in which people understand that the world is historically and culturally relative. This notion is largely based upon the work of Gergen (1973). In his renowned paper, entitled *Social psychology as history*, Gergen argues that knowledge is a product of historical and cultural circumstances. The language used to explain and interpret certain phenomena emerges from social interaction patterns, at a particular time and in a particular place. In this way, social life and people's understanding of the world is continually changing and context-dependent (Gergen, 1973, 1985).

Given the focus of this PhD thesis, the principle of historical and cultural specificity is applied the concept of childhood, to further demonstrate Gergen's point. Individuals are "born into a world where the conceptual frameworks and categories used by people in our culture already exist" (Burr, 2003, p. 7). Vgotsky's (1987) view of children as cultural participants, living in a particular community at a specific point in history, also suggests that the norms and values presupposed by the modern day child are dependent upon the social, moral, political and economic institutions prevailing in their specific culture at a given time (Burr, 2003; Gergen,

1985). While this suggestion, that childhood is a social construct, has been critiqued, using social constructionism provides clarity in understanding assumptions that we share about the nature of children (Finn, Nybell, & Shook, 2010). As Frønes (1993, p. 1), suggests:

> There is not one childhood, but many, formed at the intersection of different cultural, social and economic systems, natural and man-made physical environments.
>
> Different positions in society produce different experiences.

This tenet emphasises the social construction of childhood, by highlighting that there is no *universal* child or childhood experience. Indeed, historical investigation reveals that an alternative construction of the child existed in the past, when children were conditioned to behave in accordance to different social criteria (Gergen, 1985). By drawing upon artistic representations of children in the middle ages, Ariès (1962) makes the radical suggestion that childhood was once not recognised as a distinct phase of human life. Instead, he claims that children in medieval times were, for the most part, viewed as miniature adults "without any other difference in expression or features"(Ariès, 1962, p. 33). Ariès thereby contests the notion that childhood is a natural phenomenon, and argues that a shift in perception produced modern understandings of children. Johnny (2006) explains that these contemporary understandings frame young people as dependent and immature beings, within a world of vulnerable dependence and innocence. Holt's text (cited in James, 1998, p. 46) also draws upon this notion, by comparing Western childhood to a walled garden in which children are protected from the harshness of the outside world until they develop maturity to cope with the complexities of adult life, thereby highlighting the need to separate children from an adult world (Hendrick, 1997). By acknowledging these evolving ideas, childhood can be viewed as a social construct that is dynamic and ever-changing throughout time.

Cross-cultural differences can also be seen in the experiences and roles of children, and expectations about their social competencies. By discussing childhood in Japanese culture, Field (1995) provides a clear example of cultural variability in childhood ideologies. In Japan, a strict disciplinary regime, a focus on competition and an arduous study schedule, are central to children's education. Children are not necessarily afforded special treatment due to their age (James, 1998), which provides

a contrast to modern Western philosophies that highlight the importance of play amongst youth (Cross, 2013). It is important to note that children in developing countries also maintain adult-like roles that are more centred on wage labour and domestic work (Finn et al., 2010), where, children are viewed as fully participating members of the adult world and the community as a whole, largely due to socio-economic conditions that are culturally significant within a particular place (James, 1998).

Knowledge is sustained by social processes

People construct their shared knowledge of the world through social interactions in their everyday lives. This is an ongoing process, whereby individuals actively construct and reconstruct social reality between each other. Burr (2003, p. 8) claims that "the world gets constructed … when people talk to each other", as shared versions of knowledge are a product of ongoing social processes. Searle (1995) highlights the importance of language as a system of representation, by drawing attention to the linguistic components of socially constructed ideas. His claim that language is constitutive of institutional reality also likens certain elements of the constructionist stance to the sociological perspective of symbolic interactionism, which emphasises people's ongoing construction of meaning through the "human use of symbols in communication, most importantly language" (Burr, 2003, p. 205). Willig (2001) also draws attention to the importance of language in framing different ways of perceiving and understanding a particular phenomenon. She uses the simple analogy of a glass of water that can either be socially constructed as half full or half empty, dependent upon the context. If we consider the notion of a contemporary child, it can be argued that ongoing discussions around the nature of children as well as conceptualisations of children's needs have led to the institutionalisation of certain values over time. From a social constructionist perspective, it is out of these discourses that our shared understanding of childhood has emerged.

Knowledge and social action go together

Burr (2003) goes on to argue that social constructions of the world are defined by complex patterns of social actions. Social actions are either deemed permissible or inappropriate, based upon society's constructions of reality and the world. It is therefore argued that socially engrained "rules" may govern accounts of human

action (Gergen, 1985, p. 5). Again, drawing on the example of childhood, notions of the child have undergone significant change over time (James, 1998). Concurrently, cultural norms around childhood rights and responsibilities have shifted and it can be argued that childhood, as we know it, has become institutionalised as a result of specific legal and social changes. According to Johnny (2006), children often participated in work during the medieval and modern period, demonstrating that they were perceived to have the capability to engage in adult occupations. However, as the rise of industrialisation brought about child labour within factory settings, protectionist reformers opposed this practice, arguing that children were not fit for the austere factory environment given their innocence, frailty and vulnerability (Johnny, 2006). These ideologies surrounding childhood drove the child labour debates that took place in early 19th century England, leading to social change and welfare reform (Johnny, 2006).

Based on the notion that knowledge and social action go together, one can also examine more recent practices as they relate to children. Historically, many parents and guardians have engaged in physical punishment in order to discourage certain behaviours amongst children (Straus, 2010). In the past this kind of discipline was also reflected within the Australian school environment, where model behaviours were upheld using physical punishment (Teh, 2010). These common practices were legitimised through social norms and were consequently accepted in the wider community as morally correct actions. However, over time, social approval of physical punishment has experienced a decline across many groups (Douglas, 2010; Straus, 2010). It can be argued that these changes still reflect a dominant protectionist ideology. However, it is important to note their shift to consider children's autonomy, dignity and rights. In this way, they are more grounded in the child liberationist movement (Straus, 2010). Whilst the dominant conception of childhood innocence and dependence still prevails (Johnny, 2006), the United Nations Convention on the Rights of the Child serves as an example of how a legal document can start to reconceptualise childhood by granting participatory rights for children related to "matters affecting [them] … in accordance with … [their] age and maturity" (United Nations General Assembly, 1989, p. 4). These examples demonstrate the ways in which social actions are either deemed permissible or

inappropriate due to changing social understandings, thus re-emphasising the socially constructed nature of childhood, and reality, more broadly.

Qualitative methods and the social constructionist framework

Social constructionist research is unique in its assumptions about the nature of the data collected (Burr, 2003). Qualitative methods are preferred when employing this approach to research, given that the ontological position of constructionism is fundamentally concerned with social meaning (Blanche, Kelly, & Durrheim, 2008; Bryman, 2008; Burr, 2003; Willig, 2001). Traditionally, this has involved the analysis of interview transcripts or other written texts, which highlights the importance that social constructionism places on the social meaning attached to accounts and discourses (Burr, 2003). According to Burr (2003, p. 149), employing qualitative methods alongside a social constructionist framework means that researchers are "less likely to decontextualise the experience and accounts of respondents".

Consequently, qualitative enquiry was the appropriate tool for the study given that the theory of social constructionism was applied as the base framework for this research. Children continuously construct knowledge and beliefs through life experience and social interactions. Current social representations of health and notions of healthy eating are also dependent upon socially constructed assumptions and expectations. This social constructionist view of health challenges the biomedical model that dominates modern medicine by considering that health is a social matter that varies according to the norms and values of a particular group (Burr, 2003). Employing a social constructionist approach therefore enabled the researcher to examine the social context within which a group of children experience health, in order to understand how health-related practices are made to mean something to them. And ultimately, in order to understand children's constructions of the world, researchers should seek to include the child's own perspective (James, 1998). This idea is central to this PhD research, reflecting the constructionist aspiration to "give voice to those historically denied it" (Weinberg, 2008, p. 17).

Conceptual framework: Socio-ecological model

In attempting to deconstruct the purporting association between social features of the modern environment and poor dietary patterns, it is necessary to gain a broader understanding of the dynamic interplay between individual, interpersonal, organisational and environmental dimensions. An ecological orientation emphasises the relationships between people and their physical and sociocultural surroundings (Sallis, Owen, & Fisher, 2008; Stokols, 1992). Urie Bronfenbrenner's (1979) work draws attention to the relationship between the individual and their environment, whereby behaviour is seen to affect and be affected by multiple levels of influence. Specifically, Bronfenbrenner's system theory (1979) discusses environmental influence in terms of four interacting levels: microsystems, mesosystems, exosystems and macrosystems. While the microsystem refers to the most proximal influences in one's life, such as family and peers, progression towards the most distal level, the macrosystem, highlights the underlying influence of cultural beliefs and values within the broader environment, which underpin the various subsystems (Bronfenbrenner, 1979).

Contemporary health literature resonates with Bronfenbrenner's thesis by emphasising the need to explore health outcomes beyond the realms of traditional psychosocial frameworks (Elder et al., 2007; Wharf Higgins et al., 2009). Accordingly, the eminent socio-ecological model proposed by McLeroy, Bibeau, Steckler, and Glanz (1988), and its applied translations (e.g. Stokols, 1996), place health behaviour within a multi-layered context by considering the connections between individual, interpersonal, organisational, community and public policy factors. Overall, the model is founded on the interrelation between individual attitudes, behaviours and a range of social influences (Stokols, 1992, 2000). By employing the model in the context of children's health, examples of influential factors may range from individual characteristics, such as a child's health orientation and food preferences, to interpersonal relationships with family and with friends. Formal organisational structures and processes, including child care and schools, can also have a substantial influence on children's health, as can the community settings and the relationships that exist among organisations and groups. Finally, the effects of regulatory policies, procedures and laws, must not be discounted, given that public

policy is one of the defining characteristics of public health (McLeroy et al., 1988; World Health Organization, 1986).

Within each level of influence, there may also be facilitators and/or barriers to a health behaviour or action, which interact synergistically. Herein lies the model's strength; its ability to provide a complete account of the situational factors that can either enhance or hinder people's access to health and wellbeing (Sallis et al., 2008; Stokols, 1996). McLeroy et al.'s work is also exemplary in that the naturalistic context of people's everyday lives is considered in relation to multiple settings and domains, rather than solely focusing on individual-level characteristics (Sallis et al., 2008). From a health promotion perspective, this paves the way for more comprehensive and effective programs that are typically able to incorporate "multi-channel interventions, and establish collaborative coalitions spanning several different sectors of the community" (Stokols, 1996, p. 293).

Healthy environments and supportive public policy have long been fundamental to health promotion (Richards, Guavin, & Raine, 2011; World Health Organization, 1986). Accordingly, the socio-ecological model has been widely accepted in social health research to understand health behaviours and outcomes (Dwyer, Higgs, Hardy, & Baur, 2008; Elder et al., 2007; McLeroy et al., 1988; Sallis et al., 2008; Stokols, 1992, 1996). Renowned policy documents, including the WHO *Global strategy for diet, physical activity and health*, which emphasises the importance of improving environments and policies, also highlight an international acceptance of ecological models within the field (World Health Organization, 2004). This is also evident amongst strategies directed at the national and local state levels in Australia, including the National Preventative Health Taskforce technical report *Obesity in Australia: A need for urgent action* (National Preventative Health Taskforce, 2009) and the *Eat well be active strategy for South Australia 2011-2016* (South Australia Department of Health, 2011).

Sallis et al. (2008) contend that it is extremely important to conduct research studies that consider multiple levels of influence, in order to lay the foundations for sophisticated multi-level strategies. Edwards (2012) also advocates for a socio-ecological approach in qualitative health research, in order to take action on prevailing health inequities. Such research should attend to context, by studying

phenomena in their natural settings and considering the needs of specific groups (Wharf Higgins et al., 2009). By acknowledging that children's health attitudes, abilities and behaviours are dynamic constructions informed by a range of variables, a socio-ecological model was employed as the conceptual framework for this study (Elder et al., 2007; Stokols, 1996). It is a comprehensive and valuable framework for understanding children's health and nutrition literacy and has already been employed as a framework to explore adolescent health literacy in recent studies. Wharf Higgins, Begoray and MacDonald (2009) first discussed the utility of a socio-ecological model to guide a conceptual understanding of health literacy in 2009. The model was employed on the premise that a range of social and environmental factors interact to determine health understanding and health literacy amongst adolescents. The same research group has published another two papers supporting the use of the model in qualitative research to better understand the interrelationships amongst children, schools, parents, peers and media and health literacy (Begoray et al., 2009; Wharf Higgins et al., 2009).

Chapter summary

Qualitative health research seeks to elicit in-depth, descriptive data relating to a particular phenomenon or lived experience. In the case of this research, qualitative methods will provide a descriptive account of the nature of child health literacy from the child's perspective. Social constructionist theory emphasises the shared meaning that results from sociocultural processes. This orientation is well removed from the objectivism inherent in a positivist approach, by highlighting the need to understand the social and contextual nature of meaning and knowledge. Ecological models posit that individual, interpersonal, organisational and community factors interact to shape children's health experiences and health literacy. A socio-ecological orientation complements the social constructionist theoretical framework that is central to this study. Contemplating the ways in which behaviours and attitudes are socially constructed removes an unreasonable attribution of responsibility from the individual, by considering the broader sociocultural context in which health-related practices occur and are reinforced (Burr, 2003). In this way, research should be concerned with identifying the various ways that people construct social reality and the consequent implications on social practices at various levels (Willig, 2001).

Kingry-Westergaard and Kelly's ecological approach also emphasises the importance of the researcher working with participants to "construct a mutual understanding of their shared context" (1990, cited in Richards et al., 2011, p. 310). Accordingly, complementing social constructionist and socio-ecological frameworks were both useful in guiding the data collection and analysis strategies for this research.

CHAPTER 4: CHILD-FOCUSED RESEARCH

This chapter outlines the research design for this study. It describes in detail the methods undertaken, whilst providing the rationale for employment of the relevant approaches. The elements discussed include recruitment, research ethics, data collection, data analysis and quality in qualitative research. Given the nature of this thesis, particular emphasis is placed on child-focused research and special factors that warrant consideration when conducting qualitative research with youth. Central to these ethical discussions are issues relating to assent, consent and the unique researcher/participant relationship that emerges within child-focused research settings.

Listening to the voices of children

This research embraced a child-centred approach to research, with children acting as the sole participants. Article 12 of the *United Nations Convention on the rights of the child* states that "young people have a right to participate in matters affecting them" (United Nations General Assembly, 1989). While this statement advocates that children are given a voice at all levels of decision-making, children have often been excluded from child-related research due to traditional views that assume children as incompetent individuals who are unable to provide valid, reliable data in the research arena (Morgan, Gibbs, Maxwell, & Britten, 2002; Scott, 2000). These perspectives also reflect the broader positioning of children in society and the social construction of children as dependent beings under the moral and economic responsibility of their elders (see Chapter 3) (Johnny, 2006). As a consequence, research about children's health has been overshadowed by adult accounts and research conducted *on* children, with children often remaining invisible (Caraher & Drummond, 2007; Darbyshire, MacDougall, & Schiller, 2005; Hill, 2006; Morgan et al., 2002; Panter-Brick, 1998; Scott, 2000).

In spite of these challenges, a growing body of research advocating children's empowerment and participatory rights has generated interest in accessing and representing children's perspectives through child-centred qualitative research, in order to overcome the marginalisation of children's voices (Birbeck & Drummond, 2007; Caraher & Drummond, 2007; Darbyshire et al., 2005; Hill, 2006; Mishna,

Antle, & Regehr, 2004; Nixon, 2013). Listening to children's voices, or researching *with* children, as it is methodologically termed, has been precipitated by the gradual recognition that childhood is a unique phase in the human experience that should not be compared to adulthood (Brooker, 2001; Warming, 2011). A clear shift in ideology is evident, with children now more commonly recognised as active and competent research participants who are capable of engaging in interviews and proving insights to matters affecting them, through reliable responses. Accordingly, children should also be regarded as research partners with a right to be heard, who are worthy of study in their own right (Mishna et al., 2004; Söderbäck, Coyne, & Harder, 2011). This approach acknowledges children as autonomous individuals rather than incompletely-formed adults (Brooker, 2001; Spencer & Flin, 1993).

Qualitative research with children is irrefutably valuable and rich, in that it allows for new perspectives to emerge by tapping into children's unique social worlds and learning about their own beliefs, attitudes and experiences. Children's own meanings and experiences of childhood are extremely significant. As Mischna, Antle, and Regehr explain (2004, p. 450), listening to children's voices through qualitative interviewing allows researchers to "step outside the bounds of adult thinking and discover unexpected differences in the perceptions of adults and children". Similarly, Nixon (2013, p. 188) eloquently describes qualitative interviews as a "window into children's lives". Children are capable of communicating their perspectives and proving important insights into issues that are relevant to their lives, particularly around health (Birbeck & Drummond, 2007; Caraher & Drummond, 2007; Darbyshire et al., 2005; Drummond, Drummond, & Birbeck, 2009).

Sampling

Patton (2002) describes purposive sampling as involving deliberate selection of participants who have direct experience with the research question under scrutiny, in order to gain information-rich cases. Qualitative sampling methods are often purposive, as opposed to probability-based techniques typically employed in quantitative enquiry (Curtis, Gesler, Smith, & Washburn, 2000). Purposive sampling was the chosen sampling technique for this study, because it allowed children to be selected who met specific criteria related to the particular phenomenon of interest (Creswell, 2008; Patton, 2002). Children were invited to participate in the study if

they were aged 11 to12-years, representing the upper end of middle childhood, which normally spans from age six to 11 (Berk, 2006). Both boys and girls were invited to participate in the research, in order to provide a range of perspectives and a gain a detailed account of health and nutrition literacy. Overall there were 38 children who participated, comprised of 14 boys and 24 girls. Although there are no set minimums for sample size in qualitative research, the sample needs to be sufficient to generate rich information so that significant themes can be identified. As Fossey et al. propose (2002, p. 726), "sufficient depth of information needs to be gathered to fully describe the phenomena being studied". Sampling for this study continued until the point of theoretical data saturation, which indicated that the concepts emerging from the data were fully developed (Bryman, 2008; Patton, 2002). The final number was also reflective of the number of children who took a genuine interest in the study and wanted to participate by free will.

As outlined previously, the basis for the recruitment 11 and 12-year-old children was largely related to the increased independence and food-related decision making (van der Horst et al., 2007). By examining the broader sociocultural context, we can reflect on children's relationships with food in contemporary society and its relevance to the research. Today, children are provided with many unique opportunites to exercise personal autonomy by selecting, preparing and purchasing foods, and influencing other aspects of family food consumption within a contemporary food environment (Rose, Boush, & Shoham, 2002). Additionally, children at this age are likely to be in the same school class and can reflect on similar educatinal experiences. These considerations reinforce the strength of using a preadolscent sample within this study.

Participants were Year 6/7 students attending one of three Department of Education and Child Development (DECD) primary schools in Adelaide. Participating schools were specifically selected from the Hackham West region of southern Adelaide, as this was identified as a particularly disadvantaged area in metropolitan Adelaide, and also within Australia more broadly (Australian Bureau of Statistics, 2008a, 2013b; Glover et al., 2006). The Index of Relative Socio-economic Advantage and Disadvantage (IRSAD) helped to inform the selection of this research area. IRSAD is a product developed by the ABS to determine relative disadvantage and advantage,

based on factors such as income, occupation, education and home internet connection (Australian Bureau of Statistics, 2013c). The *Australian Census of Population and Housing* identified Onkaparinga (Hackham) as one of the bottom 10 ranked statistical local areas in Greater Adelaide, in accordance to this measure (Australian Bureau of Statistics, 2013b). An area level indicator proved to be useful for this study since it was not feasible to collect individual level data, such as income or education (Galobardes, Lynch, & Smith, 2007). Still, in employing an area-level measure of SES, the complex nature of SES should be highlighted, since no single measurement approach can be assumed to cover all potentially important aspects (Braveman et al., 2005). Galobardes et al. (2007) emphasise that care must be taken and justification provided when employing indicators that aggregate individual-level measures to an area level, as these may not necessarily reflect a given resident or household in that region.

Research ethics

Social research involving humans should be undertaken in an ethical manner, in order to respect the rights of research participants (Nixon, 2013). A number of ethical issues are of particular importance when conducting qualitative research, including anonymity, confidentiality and informed consent (Goodwin, 2006). According to Coady (2001), conducting research with child participants warrants further consideration of ethical factors, since children cannot legally give informed consent and legal guardians need to provide consent on behalf of the child. Birbeck and Drummond (2007) echo this sentiment by emphasising the importance of researchers reviewing the implications of their methodologies as they relate to the needs and experiences of the child. An adult researcher is expected and obligated to prevent harm when working with children (Nixon, 2013). Accordingly, a range of issues were closely considered in this research project, under the guidance of two primary ethics committees. Ethics committees play an important role in reviewing, guiding and, where appropriate, granting approval for proposals of research (Draper & Wilson, 2007). Approval for this project was sought from the Flinders University Social and Behavioural Research Ethics Committee, as well as the South Australian government DECD Research Unit, given that data for the proposed study was collected from three DECD state primary schools. Final ethics approval was granted by Flinders University and DECD in January 2012. The DECD Research Unit was

especially committed to deriving benefits from research conducted in DECD sites, and specifically requested that the researcher outline the ways in which project could respond to community needs whilst contributing to new knowledge. The researcher agreed to meet with each school principal at the conclusion of the study to provide feedback about the research findings, as they relate to the whole-school community.

Obtaining consent and assent

Following Flinders University and DECD ethics approval, the researcher approached principals of three primary schools within the Hackham region with details of the project and an official letter of introduction tailored to school administration (See Appendix 1). The DECD Project Manager concurrently made contact with the principals to inform them of the research. Schools indicated their interest and willingness to be involved in the project by informing the researcher directly. In total three schools participated in the research, which offered enough data to provide a variety of perspectives from diverse school environments.

The recommendations provided by Nixon (2013) were used as a guide for undertaking ethical research with children. Some ethical guidelines refer to children's assent, rather than consent, since the child cannot provide legal informed consent before the age of 18 (Nixon, 2013). Still, while parents may consent to participation, children can still refuse to participate (Mishna et al., 2004). Once the researcher identified participating schools and the principal had consented to the research, the researcher visited the respective Year 6/7 classroom to speak to the students and classroom teacher about the research, before inviting them to participate in either focus group or individual interviews. In line with ethical recommendations, the researcher clearly informed the children about the nature of the research, as this could have influenced their willingness to participate in the study.

In order to facilitate children's ability to assent, participants were provided with clear information about the study, in verbal and written format (See Appendix 4). In both cases, information about the study and its purpose was communicated to potential participants in child-friendly language, with the researcher avoiding technical or complex wording. Thereafter, a letter of introduction and information sheet outlining project details, the time and effort requirements of participants, and the importance of the research was also sent home for parents/caregivers. Copies of the introductory

letter and the project information sheet for parents/caregivers are included in Appendices 2 and 3. Signed consent was sought from parents/guardians before the child was permitted participate in an interview (See Appendix 5). Those children who returned signed consent forms were either eligible to participate in a focus group or individual interview, as indicated via the parental consent form. Each child was also required to sign the consent form before commencing the interview sessions, affirming their understanding of the project and their agreement to take part on their own accord (See Appendix 5). It is crucial that a researcher constantly considers safety and offers the child the right to withdraw at any time (Brooker, 2001; Gibson, 2007). Importantly, the researcher ensured free consent by repeatedly emphasising that the children were not obligated to participate and that they could change their mind to stop participating or have a break at any point. Children were also offered the right to pass and refrain from answering any specific questions for which they did not want to provide a response.

Confidentiality

An ethical risk identified early on related to the maintenance of confidentiality (Mishna et al., 2004). Within focus group settings participants are not anonymous and confidentiality cannot be guaranteed. The information sheet clearly stated the limits to confidentiality, and the researcher restated them at the start of each focus group. The researcher also addressed this risk by gaining verbal agreement between all participants that they would maintain the confidentiality of the discussion and the anonymity of other participants. Children were specifically requested not to disclose the content of the focus group discussion to other non-participants within the class. Furthermore, the transcription data were retained and not made available for general view; only the researcher and primary supervisor had access to the completed interview transcripts. In accordance with university policy, this data will be stored in a locked filing cabinet at Flinders University for a period of seven years, after which it will be destroyed.

Safety

In line with the recommendations made by Coady (2001), children were closely monitored during the course of the research in order to ensure that they were safe and not experiencing distress. Additionally, the researcher had the phone numbers of

trained professionals should any child appear to be experiencing negative effects. These included the South Australian Kids Help Line and Beyond Blue.

Data collection

Qualitative research interviews aim to elicit participants' perspectives and feelings around diverse experiences (Fossey et al., 2002). Both focus group and individual interview strategies were employed for data collection within this research. The benefits and disadvantages of each method are now outlined, along with specific details as to how the interviews were conducted with children.

Focus groups are facilitated group discussions that aim to explore a set of research issues (Fossey et al., 2002; Grbich, 1999). Previous research indicates that the focus group method is a flexible and economical data collection tool, which is well suited to research surrounding health-related attitudes and experiences (Kitzinger, 2006; Sofaer, 2002). Patton (2002) reinforces the strength of the focus group methodology by outlining its capacity to encourage participants to consider their own views in the context of others' voices and opinions. This may lead to the emergence of viewpoints that might have otherwise been subdued (Kitzinger, 2006). The distinguishing feature of the focus group methodology is the use of group processes to encourage individuals to exchange rich, dynamic ideas and comments (Freeman, 2006; Kitzinger, 2006). Interaction between participants may stimulate the emergence of additional feelings and experiences related to the topic, which helps participants explore and elaborate on their similarities and differences (Subramony, Lindsay, Middlebrook, & Fosse, 2002). Participants may portray their attitudes and experiences in diverse ways, through the use of common language, anecdotes and jokes. In this way, group dynamics may encourage the emergence of views that might have "remain[ed] untapped by other forms of data collection" (Kitzinger, 2006, p. 22). For these reasons, focus groups were very well suited to this qualitative research, as they allowed participants to communicate to generate rich, descriptive data through the exchange of ideas and comments (Freeman, 2006; Kitzinger, 2006).

Moreover, focus groups have been shown to be an extremely effective data collection method for childhood research, since children are often familiar with the process of a group discussion in school (Gibson, 2007; Morgan et al., 2002). Focus groups are

particularly child-friendly because they offer a less formal interview setting and the supportive company of peers, which may be particularly enticing for shy children (Darbyshire et al., 2005; Punch, 2002a). In this study, children knew the other participants since they were all school peers. Children commonly perceive group discussions to be fun, especially when they contain interesting questions, activities and exercises. Specifically, preadolescents represent a good age group for focus group participation. Within the 11 to 12-year age bracket, children are likely to possess sufficient cognitive skills to be actively involved in focus groups, whilst not being too far into adolescence to exercise caution in airing their views in a public manner (McKinley et al., 2005).

The focus group methodology does carry some disadvantages. Kitzinger (2006) outlines that the presence of other participants in a focus group discussion may compromise confidentiality and children may also become reluctant to contribute if a potentially sensitive topic is the focus of the discussion (Morgan et al., 2002). Grbich (1999) similarly alludes to the possibility of some participants dominating the focus group discussion, thereby limiting the range of viewpoints reflected in the data. Conversely, individual interviews offer a confidential setting to share private feelings and opinions. Like focus groups, individual interviews have been shown to be a very useful tool in generating rich data around people's opinions and experiences (Grbich, 1999). While most children usually express a preference for the group mode of communication, some children are not forthcoming in a group and prefer to engage in a private discussion (Punch, 2002a). Accordingly, Punch (2002b) suggests that incorporating a range of research methods can assist in addressing some of the methodological issues of child-centred research. Using multiple methods also serves as a form of methodological triangulation to cross-check data. Triangulation involves the corroboration of evidence from multiple data sources, data collection methods or theories, to substantiate findings in qualitative research (Kitto et al., 2008). Triangulation enhances the rigour and quality of a qualitative study and can serve to increase internal validity, by examining whether consistent findings are evident across the data forms (Mays & Pope, 2006). This is especially important when conducting research with children, to cross-check findings (Brooker, 2001). Through triangulation, any inconsistencies that emerge through the data can also provide insight into alternative aspects of the central phenomenon (Kitto et al., 2008).

In considering these factors, this research utilised in-depth individual interviews as an additional data collection method. Consequently, semi-structured focus groups and individual interviews served as two different methods of data collection that were used as the basis of triangulation in this study (Mays & Pope, 2006). By employing two methods of data collection the researcher was able to "examine as many aspect of the research issue as possible" to develop a more comprehensive understanding of the research findings (Fossey et al., 2002, p. 728). Furthermore, the incorporation of subsequent individual interviews allowed the researcher to pursue salient issues that emerged from the initial focus groups (Fossey et al., 2002).

Procedure

Participants were offered the choice to participate in either a group or one-to-one interview. There were mixed preferences; while some children opted to participate in the individual interview, others thrived in a group setting. Girls displayed more interest in the study overall, which was reflected through the gender imbalance in participation. Ideally, there would have been a gender balance, but the final number of 38 participants was comprised of 24 females and 14 males. A total of six focus groups were completed; four with girls and two with boys. Eight individual interviews were subsequently completed with girls and the remaining six with boys. It is possible that this gender skew could also reflect broader gendered stereotypes related to health and wellbeing (Courtenay, 2000). See Table 1: *Summary of data collection.*

Table 1: Summary of data collection

Children (aged 11 to12)	**School**	**Children attending each school**	**Focus groups**		**Individual interviews**	
N = 38 Boys N = 14 Girls N = 24	**A**	N = 12 Boys N = 2 Girls N = 10	**1**	Male N = 0	**8**	Boys N = 2
				Female N = 1		Girls N = 6
	B	N = 11 Boys N = 6 Girls N = 5	**2**	Male N = 1	**3**	Boys N = 2
				Female N = 1		Girls N = 1

	C	N = 15 Boys N = 6 Girls N = 9	**3**	Male N = 1 Female N = 2	**3** Boys N = 2 Girls N = 1

The literature recommends that separate focus groups should be held for boys and girls in the preadolescent phase, in order to avoid distraction and to take into account gender-specific issues (Hennessy & Heary, 2005; Morgan et al., 2002; Stewart, Shamdasani, & Rook, 2007). Consequently, all focus groups were homogenous with respect to gender. Childhood focus groups should optimally contain between four and five participants (Hoppe, Wells, Morrison, Gillmore, & Wilsdon, 1995; Morgan et al., 2002). This is large enough to generate sufficient data, but small enough to maintain an interactive, meaningful discussion (Kitzinger, 2006; Morgan et al., 2002). The focus groups comprised four participants.

It is important that children are made to feel comfortable throughout data collection, which can be achieved by conducting interviews in a familiar environment (Brooker, 2001). Consequently, the focus groups and individual interviews took place in the school setting. In an effort to maintain child protection without over protecting and compromising privacy, the interviews were conducted in school rooms where the children were within vision of a teacher, yet not within hearing range. For example, some interviews were conducted in the school library, within vision of another staff member who was not the classroom teacher. The researcher aimed to create a relaxed atmosphere by setting up the rooms in particular ways, limited by each school's resources. It is known that group cohesiveness may be promoted by organising a circular seating arrangement (Gibson, 2007). In one room the furniture was rearranged so that the children and researcher sat in an informal circle on the ground, with comfortable pillows. However, in other schools the availability of spare rooms was limited and the interviews sometimes needed to be conducted within a formal meeting room within the school office.

Based on Gibson's (2007) recommendations, ground rules were established between the group members before the commencement of the focus group, in order to clarify expectations. This provided an excellent opportunity to involve the students, who led the activity and agreed conditions such as "only one person talking at a time",

"respecting others' views", and "not distracting other group members". The researcher wrote down these ground rules and they were placed in the centre of the group, so that children were reminded of their significance throughout the session.

Morgan et al. (2002) recommend that focus groups and interviews conducted with children should last no longer than 45 minutes. Each focus group lasted approximately 45 minutes to prevent the participants from becoming disengaged. In line with the focus group rationale, the duration of the in-depth individual interviews also ranged from 30 to 45 minutes. In order to prevent young participants from becoming disengaged, Morgan et al. also recommend:

> breaking up a session with group activities and refreshments … Our experience indicates that two sessions of about 20 minutes, separated by a break for refreshments (during which the tape recorder can be kept running) are probably optimum for 7–11-year-olds (Morgan et al., 2002, p. 10).

In acknowledging the concentration demands placed on children who are required to sit down for 45 minutes, as well as the behavioural issues apparent for some children, these recommendations were used a basis for structuring the interviews. The children were encouraged to stand up, stretch and move around halfway during each interview, and they were also invited to drink water throughout the session. Furthermore, most of the interviews were conducted during the morning, in order to prevent lapses in concentration. These strategies all worked to minimise restlessness and boredom amongst the group. However, light refreshments were only provided at the conclusion of each group and individual interview session, as to prevent children providing biased responses based on the nature of the nutritious foods provided; namely fruit, vegetables and dip. To their surprise, participants were also rewarded with a promotional bag from Flinders University, which contained university stationery, a bottle of water, a box of sultanas and a piece of fruit. The bags were provided at the conclusion of each interview. These incentives were generally well received by the group.

A semi-structured approach to interviewing was employed for focus groups and individual interviews. Semi-structured interviewing is beneficial as it allows for questions to be adjusted in response to significant ideas that emerge during the course of the interviews (Bryman, 2008). While the same topics are covered within each interview, there is flexibility in the ordering of questions as well as the wording.

Moreover, the approach allows certain topics to be expanded upon depending on participants' specific responses (Stewart et al., 2007). Interview guides form an integral part of a semi-structured technique, by determining the important topics to be explored within each interview, without setting rigid questions that cannot be altered. Further, they can assist researchers to organise their time appropriately within the interview (Patton, 2002). Interviews should be based on a consistent, well-structured guide with clearly formulated questions to provide direction for discussions (Freeman, 2006; Sofaer, 2002; Stewart et al., 2007). The researcher developed the interview guide in conjunction with the existing literature pertaining to health and nutrition literacy (See Appendix 6). She based the topics for the interviews specifically on the degree to which children access, understand and use nutrition information in the naturalistic context of their everyday lives, and gave the children opportunities to discuss their interest in learning about health and nutrition, as well as their perceptions of their own health and nutrition. Similar questions were used across focus groups and individual interviews, however data from the initial focus groups played an integral role in refining some of the wording of the subsequent interview guide to assist children's understanding of the concepts (Patton, 2002).

An additional challenge that arose in the interviews was children's provision of "I don't know" type responses to the questions, combined with varying levels of literacy within the sample. Male participants were also more reluctant to provide in-depth responses. As Punch (2002b) contends, clarity of wording is vital when working with children. Age-appropriate questioning that takes into account the emotional and social maturity of the children interviewed is important (Brooker, 2001). While the use of open-ended questioning encouraged participants to elaborate on their experiences in their own terms, the researcher was still required to constantly reflect on children's feedback by rewording or posing additional questions in an effort to maximise the children's ability to express themselves.

It quickly became apparent what types of words were relevant and meaningful to a Year 6/7 cohort and some questions were gradually refined, as stated earlier. Pause and probe techniques were also purposefully utilised to elicit further responses and gain a deeper understanding of the phenomenon (Subramony et al., 2002),

The researcher/participant relationship

Child-focused research must consider the attitudes, motivation and actions of children, as they formally engage in the research. Children interpret external researchers and respond to questions according to their perceptions of the adult researcher's expectations (Hill, 2006). Considering the position of the researcher as a young and privileged university researcher who openly expressed interest in chatting about health and nutrition, it is possible that some participants might have felt a social or moral obligation to similarly demonstrate an interest in a healthy lifestyle. This typically occurs when children are questioned by non-parental adults, when "they may say what they think the researcher wants to hear … [in] fear [of] giving what is perceived as an 'incorrect' response" (Nixon, 2013, p. 93). Children are often taught to please adults, which may translate into the interview setting, particularly with research conducted at an adult-led organisation such as school whereby children may feel increased pressure to provide *correct* answers to interview questions. These issues also highlight the subordinate position of children within contemporary society, based on the prevailing social constructions of childhood. Children have less power relative to adults, and an additional ethical consideration relates to the inherent power differentials between the researcher and participant (Nixon, 2013).

In considering the implications for an adult researcher conducting qualitative research within a school setting, certain actions were taken based on the literature. To lessen the potential power imbalance between the researcher and participants, the researcher dressed informally and avoided the formal title of *Ms* (Nixon, 2013). Morgan et al. (2002) similarly encourage facilitators to refer to themselves by their first name, in order to reduce the inherent hierarchical adult-child relationship. The researcher generally adopted a lesser adult role within the interviews by occupying a position that did not mirror that of an authoritative figure such as a teacher. At the same time, however, it was important to maintain order within the focus groups to ensure that all of the children were provided with opportunities to respond and contribute. Children are less likely to alter responses once the researcher has taken time to establish an open relationship with participants (Punch, 2002b). In order to minimise the potential for biased question-and-answer exchanges in the limited time available, the researcher worked to build rapport and establish a trusting relationship (Nixon, 2013; Punch, 2002a, 2002b). She actively emphasised to participants that she

was not there to act as their teacher, but simply to listen as an outside observer. The researcher also reassured children that there were no right or wrong answers to the interview questions and openly encouraged honesty in the interviews (Punch, 2002b).

Mingling informally outside the classroom in the lead up to the interviews and having a warm and approachable demeanour also re-emphasised the intentions of the researcher and minimised the use of power. The first part of the interview was strategically designed to incorporate open-ended getting-to-know-you warm up questions, focusing on children's interests and likes. For example, the first question, "Tell me what you like to do in your own time" allowed children to discuss diverse factors related to different programs and activities that they were interested in, some of which related to health. This part of the session was specifically designed to establish a rapport and build trust between the facilitator and the children. Overall, the interview sessions were informal and encouraging, with no signs of tension evident, and participants were generally enthusiastic about taking part in the study. It also became evident that the experience of being interviewed by a stranger was a novelty for many children, who also enjoyed the opportunity to miss class during school time.

Integration of media clips

Exploring preadolescent children's media nutrition literacy comprised the second part of this study, specifically addressing Research Question 3. This distinct component of the research involved children discussing their perceptions of three television food advertisements produced by leading Australian food companies. The choice to include several advertisements that promoted diverse food products also allowed for a more in-depth analysis of children's media nutrition literacy. The advertised foods included an iconic takeaway product, a popular breakfast cereal and a children's snack spread. The media clips were selected for the research because of the likely familiarity of the products to children and that the foods were promoted within the health discourse, despite bearing unhealthy connotations. The content and plot of each commercial was initially analysed by the researcher to identify health themes and key health discourses. After repeatedly viewing the recorded material and reading the transcribed commercial scripts, recurrent food and health-related

themes and essential concepts were identified for each advertisement. Throughout this process, the researcher was able to discern the ways in which the commercials were constructed to appear credible, by specifically marketing the food products within the health discourse. A brief analytical summary of the specific advertisements, with an outline of their synopses, is provided in Chapter 6.

The food advertisements were played to the children towards the end of each focus group and individual interview, after all of the other topics had been discussed. All commercials were played on an ASUS E-Pad Tablet, in their original format, whilst the children gathered around closely to observe. At the start of many interview sessions children excitedly enquired, “When will we get to use the tablet?” Accordingly, the researcher set clear limits around the use of the device and outlined that it was only going to be used towards the end of the interview process, to prevent students becoming distracted. The duration of each segment ranged between 30 and 31 seconds. After each respective advertisement was shown, the discussion was first guided by asking the children to share their initial thoughts about the commercial, by responding to the question, “What do you think of the ad?” Participants were then asked a series of eight follow-up questions to further elicit responses (See Appendix 6, Part Two, Questions 1–8). These questions were formulated in response to the existing literature pertaining to media literacy (Primack & Hobbs, 2009), media health literacy (Levin-Zamir et al., 2011), critical media health literacy (Wharf Higgins & Begoray, 2012), and food media literacy in the context of television advertisements (Mehta et al., 2010; Peterson, 2012; Phillipson & Jones, 2008). Questions were based on the specific categories of content, identification of health messages, critical analysis of messages, understanding of advertising intent and perceived influence on behaviour. Levin-Zamir et al.’s model of media health literacy was a particularly useful guide for this study, along with Mehta et al.’s research that utilised qualitative interview methods to gauge preadolescent children’s perceptions of food advertisements in a South Australian context (Levin-Zamir et al., 2011; Mehta et al., 2010).

Integrating media clips within this study proved to be method that was sensitive to children’s particular interests. This component of the research also helped to prevent boredom and disengagement, and maintained the children’s interest in the topic,

acting as a springboard for interesting discussion. Innovative research methods are often perceived to be fun by children (Punch, 2002b) and the participants related well to the tablet as a form of contemporary technology that was seen to be “cool”. Incorporating media into the study also assisted the researcher during the recruitment phase, as some children were eager to participate since they had the opportunity to engage with an exciting portable media form. Overall, the children found this method to be fun and interesting, particularly since they were already accustomed to engaging with such media. The technique made the interviews more dynamic without relying solely on verbal exchanges.

Data Analysis

Thematic analysis followed the data collection stage. Thematic analysis is a popular and flexible method in qualitative research that serves to identify patterns within the data and facilitates the organisation of the key ideas (Braun & Clarke, 2006; Grbich, 2013). More specifically, a latent analytical approach was adopted in an attempt to uncover meaning beyond the surface level of the data (Braun & Clarke, 2006). Thematic analysis is also compatible with the constructionist theoretical framework that seeks to interpret meaning in a broader sociocultural context, by examining the ways in which experiences reflect broader social norms and discourses. Thematic analysis within a constructionist paradigm does not focus on individual psychologies, but instead examines the social factors that influence the individual accounts provided (Braun & Clarke, 2006). Consequently, while data were analysed inductively, with themes emerging from the raw material collected, the theoretical framework nonetheless informed the ways in which meaning was theorised.

Procedure

Data were analysed at two distinct points. First, following the six initial focus groups, the researcher immediately read and thoroughly examined this data in its entirety to obtain a general overview of its contents (Bradley et al., 2007). The researcher then undertook a cursory analysis to gain a preliminary understanding of the key issues. This was particularly beneficial, as it played an integral role in shaping the wording for individual interview questions to ensure collection of increasingly relevant information and deeper and more precise enquiry (Grbich, 2013; Patton, 2002). For example, the researcher noted an emergent discourse around

fatness that she was able to touch upon within the subsequent interviews. The second point of data analysis occurred once all of the interview data had been collected. In ascertaining the material relevant to each research question, the data was categorised. It was particularly important that the data set exploring media nutrition literacy could be separately analysed, in order to uncover themes relating to this standalone component of health literacy. Accordingly, two key data sets were independently analysed. The first was derived from a combination of the focus group and individual interview segments relating to the general line of questioning (Appendix 6 – Part One, Questions 1–28). The second solely comprised the responses that children provided in relation to the three television food advertisements (Appendix 6 – Part Two, Questions 1–8). Importantly, the same analytical procedure was undertaken for each data set, outlined below.

Braun and Clarke's model of thematic analysis (2006) helped to guide the analysis procedure for this study. Although their analytical method is discussed in the context of qualitative psychology, it was nonetheless useful for providing a step-by-step guide that could be followed in the following format: familiarising yourself with the data, generating initial codes, searching for themes, reviewing themes, defining and naming themes and producing the report. The researcher also referred to the stages of qualitative data analysis outlined by Grbich (2013) which emphasise the procedure of coding data, categorising the codes based on similarities and differences, and then conceptualising the broader categories and sub-categories.

All of the interviews were audio recorded and transcribed verbatim by the researcher, which allowed for authentic representation of participants' verbal contributions (Halcomb & Davidson, 2006). This was also a means for the researcher to immerse herself in the data. Researchers must become immersed in the data so they can ascertain meaning and identify relevant material when addressing the research questions, crystallising the most significant aspects (Malterud, 2001). Key thoughts and ideas were categorised by free coding particular phrases and text segments (Fossey et al., 2002; Grbich, 2013). Coding enabled the researcher to organise the data and link similarly labelled segments in order to identify patterns and connections between them to present a rich, detailed account of the entire data set (Bradley et al., 2007). Data can be manually coded, or alternatively coding can occur

via a computer management program such as NVivo. The data in this research was coded manually so that the researcher could further familiarise herself with the key ideas. In generating initial codes, the researcher adopted the method of physically underlining and highlighting interesting features of the data on the printed interview transcripts, whilst recording descriptive comments in the margin, where applicable (Grbich, 2013). This allowed for easy identification, retrieval and amalgamation of the codes. Whilst coding, each child's response was labelled to identify the child's school, gender, and the respective focus group or interview. Accordingly, the total number of responses and the spread of responses were recorded. Data relevant to each code was matched with other similar segments across the data set.

The researcher worked systematically through the entire data collection. Each interview transcript was also revisited and recoded in order to ensure that all pertinent data was identified. Several transcripts were also coded by a member of the supervisory team, to cross-check codes as a form of inter-rater reliability (Freeman, 2006; Kitto et al., 2008). This helped to ensure that key points had not been overlooked, by providing a more complex understanding of the possible interpretations of the data.

After coding all of the interviews, a coding list was assembled. Once codes were verified, categories surfaced by clustering codes together depending on their similarities and related links. Categories were then grouped into broader themes. Braun and Clarke (2006, p. 86) define a theme as capturing "something important about the data in relation to the research question … [A theme] represents some level of patterned response or meaning within the data set". Themes were developed from ideas that were shared across the data set by focus group and individual interview participants. Initially, the researcher found this process to be somewhat challenging, as some text segments appeared to fit into many codes (for example, ideas relating to gender), and some categories and themes were consequently found to overlap. The data was first organised into eight initial themes, however the researcher felt that there was not enough data to sustain certain themes. An ongoing process of reviewing and revising ideas became particularly important, in order to reduce the codes into clear, distinct themes and sub-themes that cohered together meaningfully to provide an in-depth understanding of the data. As a result of the refinement

process, the eight preliminary themes were reconceptualised and collapsed into six final themes, with relevant sub-themes also identified. Two out of the six themes related specifically to media nutrition literacy. Within the final stage of analysis, themes were conceptualised in relation to existing ideas around health literacy, nutrition literacy and media literacy, within a broader social constructionist and socio-ecological framework. Chapters 5 and 6 elaborate the key themes derived from the data analysis.

Quality in qualitative research: Final considerations

In their discussion of quality in qualitative research, Kitto, Chesters, and Grbich (2008) compare and contrast the differences in methodological criteria for quantitative and qualitative methods of enquiry. While quantitative research studies refer to validity, reliability and empirical generalisability, the quality of qualitative health research can be discussed in terms of "rigour (thoroughness and appropriateness of the use of research methods), credibility (meaningful, well presented findings) and relevance (utility of findings)" (Kitto et al., 2008, p. 243). Furthermore, in quantitative studies validity is dependent on the measurement instrument, to ensure it measures a concept accurately. In contrast, the quality of qualitative research is directly influenced by the researcher who drives the study. Consequently, the skill, competence and rigour of the researcher must also be considered (Patton, 2002).

According to Mays and Pope (2006, p. 99), rigour in qualitative research relates to "systematic and self-conscious research design, data collection, interpretation and communication". The subject of rigour has emerged throughout this chapter, with reference to the significance of methodological triangulation, inter-rater reliability and descriptive validity achieved through verbatim transcription. Furthermore, the researcher demonstrated evaluative rigour by ensuring the ethical and political aspects of the research were addressed (Kitto et al., 2008), a point particularly relevant when working with children. The specific measures employed to enhance the credibility of the study have also been outlined, including the importance of establishing rapport with children and ensuring that the participants and researcher have equal standing. Building on the points discussed thus far, Mays and Pope (2006) suggest that qualitative researchers should aim to provide a detailed account

of their research methods in order to enhance procedural rigour. This ensures that another skilled researcher could conduct the research and analyse the data in the same way, and essentially reach the same conclusions. Malterud (2001, p. 486) similarly affirms that "a thorough, well prepared, and well documented analysis is what distinguishes scientific approach from superficial conjecture". In line with these recommendations, an extensive description and justification of the proposed research methods and theoretical framework is provided in this chapter. By outlining details related to data collection, methodological procedures and how the data were analysed, another researcher could reasonably follow the methods utilised in this study. This process also assisted the researcher in demonstrating theoretical rigour, by further reflecting the ways in which the research design and framework appropriately addresses the research problem (Kitto et al., 2008). Qualitative researchers should also provide a plausible explanation of the central phenomenon in question (Mays & Pope, 2006). This was addressed within this study through a thorough review of the literature related to children's health literacy and nutrition literacy.

It is imperative that the qualitative researcher is reflexive in their approach. Reflexivity is taken into account by the researcher through the identification and open acknowledgement of any preconceptions brought into the research, and considering ways in which personal views may shape the research process and findings (Malterud, 2001; Patton, 2002; Willig, 2001). In this way, the researcher acknowledges the impossibility of remaining uninvolved, or neutral (Willig, 2001). In order to maintain reflexivity and account for any inherent biases, Malterud (2001) suggests that the effect of the researcher should be assessed and reported through all stages of the research process, particularly during the interpretation phase. In considering the researcher's previous experiences and beliefs, it was important to consider several factors throughout the duration of this study. These included the researcher's personal interest in health and nutrition and the value she places on this in her day-to-day life. The researcher also embarked upon this study having experienced a privileged upbringing and the opportunity to undertake undergraduate, honours and postgraduate studies. Having conducted an honours project investigating the health literacy of parents living in a disadvantaged region, she did bring some personal understanding of issues around socio-economic disadvantage, although this

certainly did not constitute an intrinsic, lived experience. She also did not have any prior experience in researching with children. It was also important that these reflections were shared with the supervisory team throughout.

Chapter summary

Listening to children's voices is a valuable way of capturing their perspectives on matters that affect them. With the goal of understanding how children construe their social worlds and experiences, an empowerment perspective emphasises the importance of working *with* children, on the basis that children themselves are the best informants to provide such information. This research embraced this perspective and employed qualitative data collection methods of focus groups and in-depth individual interviews to explore aspects of preadolescent children's health and nutrition literacy. Participants were 14 boys and 24 girls aged 11 to 12-years, attending one of three DECD schools in Adelaide, South Australia. Special attention was paid to the methodological and ethical implications of conducting meaningful research with child participants. In keeping with the nature of qualitative research, data were analysed inductively and organised into broad themes, which form the basis of Chapters 5 and 6.

CHAPTER 5: RESULTS – PRIMARY THEMES

This chapter outlines the four primary themes that emerged from interviews with the children involved in this research. Participants were aged 11 and 12, and were enrolled in either Year 6 or Year 7 at one of three state primary schools in the Hackham region of metropolitan Adelaide, South Australia. Overall, six focus groups and 14 individual interviews were conducted involving a total of 38 children, comprising 14 males and 24 females. This chapter introduces the most pertinent points that arose from the interview data. The themes presented in this chapter emerged collectively from the focus group and individual interviews. They relate to the principal components of health and nutrition literacy outlined in Chapter 2. The data also illuminate children's perceptions of health and nutrition, in line with broader contemporary discourses and social constructions of wellness. Primary themes included mainstream health discourses, the home setting, the school setting, and traditional and non-traditional media. Several sub-themes were also identified within each broader theme.

Theme 1: Mainstream health discourses

A healthy lifestyle package

The first prominent theme to emerge from the data related to the children's conceptualisations of health and nutrition. When questioned about the meaning of the word *health*, children discussed the importance of eating healthy foods and being physically active through sport or other forms of exercise; they inextricably linked the concept of health to diet and physical activity. Participants commonly used adjectives such as *fit, active*, and *sporty* to express their understandings of a healthy lifestyle. When questioned about what they were currently doing to maintain health, all children discussed that sport provided them with opportunities to maintain a healthy lifestyle. They excitedly described their physical activity efforts, in some cases listing specific sports they played, such as football, netball and tennis. Many participants discussed walking to school with their siblings or parents, or riding their bikes, to maintain an active lifestyle. The majority also reported living in close vicinity to the school and local amenities including shops and local delicatessens, and tennis courts, which facilitated physical activity efforts. The following responses

provide evidence for the most dominant perceptions of health arising from the interviews, relating to physical activity and food respectively:

> Healthy is where you are fit and you can run around.
>
> Healthy keeps your heart beating, it keeps you fit, and it keeps you in the right shape … it's the way that you move your body.
>
> Fresh stuff is healthy, like fruit and veg. Salads are very healthy too. Something nutritious is definitely not going to be deep fried in oil.
>
> Healthy stuff is inside your food, like strawberry yoghurt and watermelon and carrots and strawberries and apples.

Participants perceived this construction of health as a simple understanding that reflected a healthy lifestyle package combining diet and physical activity. They predominantly spoke of healthy eating in general terms, such as eating the *right foods*, by identifying specific foods that traditionally embody health including fruit, vegetables and water. Overall this understanding of healthy eating was largely limited to fruit and vegetables, with bread, wheat, meat, dairy foods, fish and nuts cited by some participants less frequently. They acknowledged breakfast as a particularly important meal for maintaining good health, and many participants reported that they ate breakfast on a daily basis, with the most popular choices being cereals, juice and toast. They saw healthy foods as the antithesis to *junk* foods, which the children described as foods high in *fats*, *oils*, *sugar* and *salt*. Junk foods were often conceptualised as takeaway products including McDonald's (often referred to as Maccas), Hungry Jack's, Kentucky Fried Chicken (KFC), pizza, and fish and chips, in conjunction with snack foods such as chips, chocolate and lollies. These were commonly distinguished by their delicious taste, in contrast to other perceived healthier alternatives. As one focus group[1] discussed:

> A: Some things you can tell are unhealthy. Like if you bit into a cream bun the cream in it is sweet so they must have put sugar in it, and you can taste that it wouldn't be healthy.
>
> B: And with McDonald's the meat tastes really nice but then you can taste all the sugar and salt in it.

[1] I use A, B, C and D when the discussion occurred in a focus group, and differentiation is required between participants. However, the identifiers are not exclusive to one participant. I use R to indicate my dialogue.

Despite their desirable taste, takeaway foods were commonly described as *fatty*, *greasy*, *salty* and *oily* by the children, while snack foods were additionally associated with a high sugar content. They were also described as *addictive* if consumed in excess. Children expressed a number of concerns in relation to the difficulty in choosing healthy alternatives while consuming a diet high in junk foods:

> If you eat junk food you might want it every day and you forget about all the healthy stuff. When I have the sugary stuff you're too busy worrying about how much junk food you want.

Children discussed particular food chains within the interviews. They provided mixed responses in relation to the popular food chain, Subway. While they categorised Subway sandwiches (subs) as a takeaway food, participants discerned that their nutrition status was dependent on the specific fillings selected by the consumer. For example, many children explained that subs containing lettuce and vegetarian fillings were a healthy choice, whereas meatball fillings were laden with fat and extra calories, and therefore constituted junk food. Subway was commonly compared to other junk food alternatives, although children shared the opinion that it was a healthier choice. In this way, it was often conceptualised as *half healthy*, as demonstrated by this child's perspective:

> Well Subway is better than McDonald's and Hungry Jack's and all those fatty foods, but there's one thing about Subway … the bread! The bread isn't very healthy but it's what you put on it that's healthy, like lettuce, tomato, stuff like that. And what sort of meat you have, say it's tuna, ham or turkey. So it depends on what you put on there and the bread.

Participants indicated that knowing how to achieve a healthy diet was based on consuming the *right foods* outlined earlier, namely fruit and vegetables, combined with the limitation of energy-dense fatty junk foods. Participants reflected this through the use of terms such as *everyone knows*, to describe their understanding of health and nutrition. As one child stated:

> You just know if something is healthy if it's got fruit in it. If you go into the shop there's the veggie part and then there's the lolly aisle.

This viewpoint was reflective of the group, reinforcing their understanding that the basic components of health were simple to comprehend. A mainstream notion of health was further reflected in children's perception that they had some control over future health outcomes. In response to the question, "How much can you do now to

grow up to become a healthy adult?" most participants answered positively. All children within the group referenced the importance of keeping fit and active. Boys predominantly referred to being active and keeping up with sporting endeavours such as football, while girls discussed their relationships with food to a greater extent. The following quote serves as a common example of girls' collective responses:

> I want to be really healthy when I grow up so I don't have anything wrong with my body. So I always care about the food I eat and I do sport. You can do a lot to be more healthy!

Children also employed the terms *balance* and *variety* to describe key components of a healthy lifestyle. Many children recognised that junk foods should be consumed in moderation in order to maintain a balanced diet, although the meaning of moderation varied across genders. It is noteworthy to identify boys' views in relation to the notion of balance, as they did not necessarily align with official dietary guidelines. Conversely, girls appeared more cautious about over-consuming takeaway foods and treats. The following dialogue between the researcher and one of the boys' focus groups captures this sentiment, highlighting a limited understanding of recommendations for extra foods:

> R: Would you buy a Big Mac?
>
> A: Yeah, it does taste good, but I wouldn't overdo it because I don't want myself to get fat.
>
> B: You know heaps of people are obese because of McDonald's, because they eat too much unhealthy stuff.
>
> R: In your opinion, how often can you eat McDonald's?
>
> B: I have it once a week.
>
> C: About twice a week.
>
> D: About five times a month.
>
> A: Yeah once a week.

Two additional perspectives followed:

> You can only have McDonald's a little bit, like once a week.
>
> We don't have junk foods a lot, once a week maybe … Sometimes Hungry Jack's or Subway or Maccas.

Conceptions of nutrition

Although the children were familiar with the basic components of maintaining a healthy lifestyle, they were less familiar with the term *nutrition* and many participants found it somewhat difficult to articulate their ideas around its meaning. Consequently, the interview question often shifted to, "What you have to do to have good nutrition?" Responses primarily centred on eating healthy foods and acknowledging the *healthy stuff inside food,* as demonstrated through the following quotes:

> Nutrition is healthy eating, like if it's nutritious it's good for you.
>
> It's what's inside the foods, so fruit has fibre which makes it healthy. And I have skim milk inside my cereal because I reckon it's healthier than dairy milk.
>
> Healthy foods build your body naturally … I think because they have stuff in it … They have vitamins to build your cells and some fruits or vegetables can help your heart. Last term at school we learned about fruits and that they can protect against heart disease.
>
> Wholegrain bread is healthier because it's got the grains in it still. They're not all plucked out like white bread and they put other vitamins in.
>
> White bread is healthy but not that healthy, we just get told that by Miss [classroom teacher]. She reckons we should eat multigrain bread because it has like grains and seeds in it and stuff.

Overall, the children demonstrated a basic understanding of nutrition by outlining that they should aim for a diet filled with fresh fruit and vegetables, whilst limiting fatty and sugary foods, in an effort to stay healthy. An interesting theme to emerge was participants' discussion of nutrition in relation to the origins of foods. Boys and girls interpreted natural ways of producing foods as healthier. Nutritious foods were commonly deemed to *come from the ground*, *grow in the garden* and were able to be *freshly picked*. The perceived nutritional aspect of fruit was invariably associated with its *natural* sugar. Some children also described fruits as having *their own sugar* and vegetables as having *lots of water*. Other participants loosely referred to vitamins such as vitamin C inside these foods. As one girl suggested:

> Fruits and vegetables come from a plant and foods from plants are healthy, they have water in them and natural sugar.

Followed by another boy:

> Healthy foods come from the trees and some come from grass.

In some cases, however, certain foods appeared to carry nutritional credibility through their marketing as fruit products. Children's reference to *roll ups* and *fruit chocolate* is noteworthy, given the nutritional profile of these sugar-laden snacks and their conceptualisation as healthy alternatives. Children's interpretation of nutrition was also shaped by their own experiences surrounding the consumption of diverse foods. They considered certain foods as more nutritious through observations of the effects of the foods on their mood. For example, children discussed the energising effects of fruit and vegetables by using phrases such as *feeling good* and *ready to go.* As the following focus group dialogue highlights, the children commonly distinguished between healthy and unhealthy foods by drawing on the provision of energy, both in home and school settings. These thoughts were consistently described by both girls and boys:

> A: When I eat healthy foods I feel more energy than when I eat foods like Maccas. When I eat fruit and veg I feel all ready to go and if I eat junk food I feel all not ready to go.
>
> B: If you eat junk food you feel sick and bloated but when you eat healthy you're just ready to go! And you feel like you can concentrate more at school as well

This paralleled another participant's view:

> When you eat healthy foods you're feeling good because you know you're eating healthy. You get so much energy from eating fruit!

In contrast to the sustained energising effects of healthy foods, the following quotes epitomise shared opinions regarding the *draining* effects of junk foods. Participants commonly reported that these foods provided them with an initial burst of energy that soon depleted. Thus, the children perceived junk foods as promoting physical inactivity, resulting in a lazy demeanour by making people feel sleepy. This collection of quotes from four separate interviews illuminated these shared opinions regarding the effects of less healthy food choices:

> Chocolate gives you energy but then it takes it away. Healthy foods give you more energy, to keep the energy.
>
> Sugar makes your body be really energised but then it just goes down after, especially in energy drinks and drinks with heaps and heaps of sugar.

> Processed sugars just stay inside you … They give you a burst of energy and then that burst just goes.

> If you have too much sugar you can get hypo and I can get very hypo, I normally just run around a lot and then I sleep.

Children's shared understanding that nutritious foods kept them feeling *awake* and *energised* emerged into a more specific discussion around nutrition and fitness. Children consistently cited healthy food consumption alongside sports participation. Building on the ideas reported earlier, participants concurred that certain foods facilitated physical endurance and that nutritious foods helped to keep them fit and healthy. As one boy reflected:

> Sugar makes you unfit and unhealthy, but nutrition will keep you fit … If you're doing sport you think, "If I'm working hard I'm going to be fit and healthy". Sometimes our PE teacher says you need to keep fit and when people are eating the bad foods they can't run as fast in the beep test.

These ideas were often reinforced by school teachers, perhaps in an effort to encourage children to select healthier food options. They also reflect the broader social promotion of dietary behaviours to maximise sport performance, particularly in the lead up to major sporting events. Some children went on to explain that eating well alongside regular physical activity helped them establish a meaningful health routine that was reciprocally beneficial, which also reinforces the notion of the healthy lifestyle package. Nutrition was deemed extremely significant to sport, and children acknowledged that active individuals should eat a nutritious, balanced diet to fuel their bodies. Some children articulated that sporting participation encouraged healthy eating, and this proved to be a motivating factor for some who engaged in club or school sport. For instance, one boy reported:

> You need good nutrition to be fit, like to do sports. Sometimes bad food can weigh you down. Sport needs a lot of good nutrition because you need to use up a lot of energy.

Another girl concurred, by specifically referring to improving dietary behaviours while engaging in sport:

> Eating fruit, vegetables and grains makes you fitter and makes you more energised to go do fitness … If I was still playing soccer it would make me eat more nutritious so I was energised before a soccer game.

This discussion also evoked boys' opinions about popular sport drinks such as Powerade and Gatorade and their role in restoring electrolyte balance and promoting general sporting performance. This is noteworthy, given the perceived nutritional and physiological benefits of these beverages. Perspectives included:

> Powerades are good if you're dehydrated because they get you hydrated. If we play on a hot day it helps me get my fluids back up.

> Dad has it (Gatorade) because he plays football with the club. He has it a lot before the games because he wants to get more energy and he has it in training. It's good before sports because you need more energy and stuff.

Whether such ideas influenced beverage consumption beyond the sporting arena was not ascertained; however, children noticeably sought specific health benefits from these drinks, engaging in seemingly health-conscious decisions. A smaller number of boys also referred to Milo as a nutritious sports beverage that provided them with protein and energy. Although the children collectively cited the relationship between fitness and nutrition, a minority provided conflicting opinions when referring to the post-match food environment, characterised by the consumption of high-fat calorie dense foods. Examples ranged from the unhealthy food options available from sporting club canteens, to some families' preference to treat children with takeaway after mid-week training sessions. This extract provides one key example of poor post-game dietary practices which appear to be normalised within the junior sporting environment described. This contrasts the previous perspectives around sport, food and health, warranting further investigation.

> I usually eat not much healthy foods at sports. We have chips after footy from the canteen. And there's bacon and eggs and sausage rolls and pies. Everyone does that … it helps to get your food contents back into you from what you burnt off.

Perceived importance of nutrition

One of the main perceived benefits of healthy eating related to the provision of sustainable energy, which made the children feel good and also served to facilitate their physical activity. Participants also discussed the connection between different types of foods and other physical implications for the body, emphasising diet as a resource for preventing the onset of disease. At a basic level, the children were able to articulate the effects of fruits and vegetables in relation to the enhanced function of the heart and the body as a whole. Key ideas centred on healthy foods making

individuals stronger and preventing sickness. Phrases such as *help the blood pump, keep the heart healthy* and *helps you grow* represented the collective ideas shared by the group. One girl reflected:

> Fruit and vegetables has vitamins that give you stronger bones and help your body run.

More specifically, calcium in dairy products was perceived to assist in growth and bone development and a few boys excitedly reported that protein aided muscle development. Although children agreed that nutrition was important for their hearts and bodies, the majority did not necessarily understand *how* nutrition facilitates wellbeing. A variety of interesting responses were provided. These ranged from, "I think carbon hydrates [*sic*] are good because they can hydrate you" to other discussions around the nutrition inherent in fruit and vegetables. For follow-up questions around the nutrition associated with fresh foods, common responses ranged from:

> R: What makes fruits, vegetables and salads nutritious?
>
> The nutrition in it.
>
> R: What do you mean by that?
>
> Because it's healthy for your body.
>
> R: Which parts of your body?
>
> I don't know. Maybe they help you not get sick.

To more taken-for-granted understandings of food, health and nutrition:

> R: What makes fruit nutritious?
>
> Fibre and cholesterol.
>
> R: What do they do?
>
> I don't know, I just heard it somewhere!

Similarly, the children frequently commented that foods high in salt and oil were unhealthy choices, yet they did not understand the ways in which these foods specifically contribute to ill health. A clear gap exists in children's understanding of the ways in which foods *cause* obesity and other diseases. Some clear misnomers were evident in discussions around dietary sodium, with selected participants

hypothesising a relationship between salt and *getting fat* and *burning the heart.* High-fat and high-sugar foods were perceived as signifiers for heart disease, diabetes and obesity, although the children were unsure as to how this occurred within the body. They agreed that all of these conditions could somehow lead to death, which influenced some children's intentions to limit junk food intake and maintain health in the long-term. This attitude towards food as a means to illness prevention was evident across the group, and was more dominant than an alternative health discourse focusing on the positive aspects of food. In this way, healthy eating was deemed important to prevent potential risks to future health. As one girl reflected:

> You actually want to get old, you don't want to die young and you want to stay healthy. Healthy foods make me a little bit happy because everything you eat that's healthy will help you when you're older.

Another girl echoed this sentiment:

> After learning what's in some foods and I said, "I'm not eating that again!" Like this cream bun thing, it was yummy but I'm not having it again because of all the sugar in it. All the sugar can make your heart beat faster and you can have a heart attack and die.

One boy took the opportunity to discuss a personal experience with illness that his father had encountered. After suffering from a heart attack, the father and son dyad was more health conscious in their decision-making in an effort to prevent further health complications. This awareness took the form of consuming more vegetables and limiting junk foods such as KFC that were previously consumed in excess. While some ENDP were still reportedly consumed by the son, including schnitzel and oven fries, the father evidently perceived these to be healthier choices compared to previous dietary habits, thereby highlighting a greater orientation towards health in response to illness. In describing the scenario the young boy explained:

> Dad liked to get KFC and stuff but then Dad had to go on a diet because they said he had a heart attack or something, he had tingling in his left arm and I think that's one of the symptoms. Now we have a lot of spaghetti bolognaise and that's my favourite. We have chips, like the oven chips, and we don't cook them from potatoes because it's more fattening that way. So we get the oven ones you can buy from the shop. They're healthier. So we'll get those, we normally have schnitzel and mixed veggies cooked up.

Another key word that arose in discussions around food and health was diabetes. Children concurred that excess sugar consumption was invariably associated with diabetes. This was frequently mentioned in the focus group and individual

interviews, and diabetes was generally acknowledged as a serious illness. Some children even discussed the need for diabetics to prick themselves to check blood sugar levels. Most significant, however, was the concern expressed about weight gain and obesity, as a result of unhealthy food consumption. Indeed, the term *fat* was used in every focus group and individual interview, thereby highlighting the significance of this issue within children's worlds. Participants emphasised two significant defences against overweight; being physically active and consuming a healthy diet. There was consensus that obesity in the early years of life was particularly detrimental because it often equated to excess weight in adulthood and additional challenges in shifting weight. One of the key ideas around obesity centred on the health and physical implications of weight gain, namely sickness and death. Again, there was confusion as to the specific physiological mechanisms that can result in death, demonstrated through this focus group dialogue:

> A: If you get fat you can get obese and die from that.
>
> B: You can get really sick.
>
> R: But how do you actually die from obesity?
>
> A: Because you ate too much unhealthy stuff which makes you sick and fat.

This was echoed by other boys, who declared:

> It's important [to eat healthy foods] because if not you could turn out being big. You get fat and it might stop you going outside and walking and then sometimes you can die because your inside can burst.
>
> Well if you eat a lot of junk food it can catch up with you. You can just like eating it and eating it and you'll just get really big and then you'll just realise you're sick.

Other participants explained overweight and obesity in relation to its role in sickness and ill effects on the circulatory and respiratory systems, albeit at a basic level. These ideas reflect socially constructed notions of health and the ways in which the body can be affected by different foods. A range of responses were provided, including the following perspectives:

> If you are obese you have less time to live … you die … it's harder to breathe … you have a badder heart.

> I've learned that if you eat too much sugar you could get really fat and you'd probably die because you'd stop breathing … Because you'd eat so many things it would make you stop breathing … but I'm not fat.

> You can just get addicted to chocolate and then you eat it and eat it and then it gets you fat, like Macca's and you'll lose your breath heaps.

Fatness

Although the children mentioned the health implications of weight gain, discussions largely focused on body shape, aesthetics and physical appearance. For example, when asked what this healthy person would look like, one of the boys stated, "It's where you have abs, like a six pack". Being thin and fit was clearly a definer of being a healthy individual in the eyes of these children, who overemphasised the correlation between body size and health, failing to recognise that being thin does not necessarily ensure health, for example:

> I know a boy who is lucky because he can eat whatever he likes, he doesn't get fat.

This stereotype has clear implications for health and nutrition, since children may forego good eating habits and nutrient dense foods in the absence of obesity. In direct contrast to the thin ideal, adjectives including *fat*, *large*, *big*, *lazy* and *sick* were used to describe overweight individuals, thereby constructing a fat body as unhealthy, unproductive and unsatisfactory. The following dialogue between the researcher and one of the boys truly captures the essence of the interviews:

> If you don't eat nutritious foods you're going to get lazy and be sitting on the floor, and get a big belly like Homer! You have to eat the right foods, like not junk foods like chocolate, donuts and takeaway.

The reference to the famous *Simpsons* character is noteworthy, given the ways in which Homer is frequently depicted in mainstream television and media. He is ubiquitously portrayed as an overweight and ignorant middle-aged father who is well known for his excessive drinking habits and love of high-fat foods. Homer is most commonly seen sitting on the lounge and watching television, and lazing around at work. He is constantly ridiculed and his neglectful tendency towards his own health is a representation of contemporary obesity discourse. O'Dea (2005, p. 259) elaborates, highlighting the labelling of overweight individuals as "failures, deviants or moral outcasts" who are consequently subjected to much shame and humiliation. Such discourse markedly emphasises negative attributes through pejorative

portrayals of overweight individuals as physically lazy and undesirable. Participants echoed these ideas in their discussions of obesity as a physical limitation that reduces a person's ability to exercise:

> A: You could get really sick eating sugar by getting really big and fat, then you can't run as fast as you usually could.
>
> B: Yeah you can't be all fat and try and do a cartwheel because you just won't do it!

Similar statements confirmed this, with another participant claiming:

> Too much fat can be a bad thing because fat will make you less fit. I don't want to get overly large and I have to stay fit if I want to keep doing taekwondo.

It is concerning that children frequently referred to the aesthetic elements of the body, and associated self-esteem issues, in relation to overweight and obesity. The benefits of healthy eating to appearance and weight control were discussed across both genders; however, female students most frequently cited these ideas. Some girls alluded to certain expectations attached to several sports, whereby they regarded a slim frame as a pre-requisite for inclusion and success. These sports included gymnastics, ballet and netball. A small group of girls also specifically referred to an interest in modelling, which influenced their own dietary attitudes as evidenced by the following interview excerpt:

> If you get a job like modelling then you have to eat fruit. A few times when I was looking for what foods you have to eat for modelling I saw that you have to eat fruit and vegetables and stuff so that you stay thin and that you're healthy.

While some boys did refer to weight gain and associated psychosocial issues, they predominantly framed this in this context of being fit and having muscles. Overall nutrition did not constitute a health issue that concerned most of the young boys, while eating well to maintain health and a healthy *slender* frame was significant for many girls. Weight control, physical appearance and body image were themes that universally emerged from the girls' focus groups and individual interviews. When provided with the opportunity to discuss their perceptions of health and nutrition, several conversations arose, highlighting key attitudes associated with the maintenance of a slender body. As one girl stated:

R: Is nutrition important to you?

Well yes, knowing how to pick something healthy because I want to pick something healthy, not fatty.

Another discussion further reinforced this notion:

R: Where else do you find nutrition information?

D: Well on the boards at like KFC, Maccas, Fasta Pasta.

R: What do they have up there?

C: For the ones that I go to, in the menu it has like the nutrition foods in sections.

R: Do you guys ever look at that?

All: Sometimes.

B: Like when you're on a diet.

C: When you're looking at weight and stuff.

The girls within a separate focus group further elaborated on the point of fatness, by discussing psychosocial implications:

A: You want to stay in the right size and not get overweight because you look better.

B: And then people judge you.

C: And you can get obese and die.

B: When you keep on eating something unhealthy you could become really fat, my brother says that.

D: My mum says if you eat more vegetables you'll not grow up so fat.

The final passage particularly reinforces current prejudicial beliefs and the resulting emergence of potential weight concerns and body image issues amongst young females. The gender differences in obesity narratives from this research are related to broader social expectations around femininity and feminine beauty ideals and practices. They also link to broader societal discourses, including government messages that emphasise weight loss and weight management in response to the problem of obesity, thereby highlighting the notion of risk and an individually focused approach. The following quotes, collected from three separate interviews,

show that many children accept the notion that people should be in control of their own health and take responsibility for healthy choices to prevent fatness.

> Well it's your choice if you want to look at the [food] label and see if you want to keep fit.
>
> Eating healthy just makes you feel better. I used to be really chubby before and then I just felt better when I was eating the right foods and stuff.
>
> Well it's people's choice if they want to eat too much McDonald's but they could get more diseases. Like big skin.

The children's teachers and parents used weight as a bargaining tool for a healthier diet, which appeared to be more of a motivating factor for some girls who clearly wanted to prevent fatness. A diversity of responses further reinforced this prominent sub-theme:

> My mum teaches me stuff like when me and my brother want to get something really unhealthy she keeps on talking about getting really fat and that we should get something healthy.
>
> Well when you keep on eating something unhealthy families are like, "Don't eat that because you'll become really fat", like my brother says that.
>
> My mum says if you eat more vegetables you'll not grow so fat.

Socially constructed food experiences

A problem-focused approach to obesity was further reflected in the interviews through the classification of foods. The children had a tendency to categorise foods in terms of straight alternatives, such as good or bad. Healthy foods were deemed *good* and described as the *right* choices, and the children frequently used adjectives such as *bad* or *naughty* to describe junk foods, implying feelings of guilt attached to their consumption. Describing foods as naughty specifically implied that children felt the need to be disciplined to resist the temptation of these foods. Children's admission that they sometimes felt guilty eating unhealthy foods further suggests that they demonstrate a sense of personal responsibility in relation to food, reflecting broader risk and weight control discourses. One girl reinforced this notion of good versus bad foods in describing how she felt consuming healthy alternatives:

> Well I feel healthier, I feel like I'm doing something good.

However, it is important to note that the categorisation and judgement of foods was associated with myriad factors, and some naughty foods were more acceptable in

certain situations. It is interesting to consider the social constructions of diverse foods and food-related experiences. For example, children frequently cited dessert as a legitimate time to indulge in extra foods such as ice-cream and chocolate. Although EDNP foods were socially constructed as *sometimes* foods, children also consistently reported consuming more of these items over the weekend. This was accompanied by a shift in attitude related to the weekend and its association with fun and enjoyment. For many, consuming treats and trading off health was part of this enjoyable experience, and participants reported eating potato chips, chocolate and confectionary items to a greater degree, as well consuming more takeaway meals with families and friends. One of the prime requirements for a weekend snack was that it should taste good, reflecting the social construction of the weekend as an enjoyable, carefree experience.

The participants were provided with regular opportunities to make independent decisions about food consumption, with nearly reporting access to pocket money. These funds were often used during the week at the school canteen, whereas on the weekends many children purchased food from local food delicatessens and shopping centres. Children frequently discussed purchasing energy dense snacks with their pocket money, including confectionary, potato crisps, ice-cream and energy drinks. For young boys, weekend activities largely centred on riding bikes around the neighbourhood, visiting the local skate park, and going out *with the boys* to eat in large groups. One boy detailed his weekend leisure time and its connection to food, talking about time spent eating with friends:

> On the weekends I don't care. I'll just go to my mate's house and I'll have what's there. We'll just have chips and stuff … and sometimes we go riding to the school in Hackham West. We'll get hot chips and normal chips.

Another boy described the close vicinity of takeaway outlets to the skate park:

> Subway is in the shopping centre and Hungry Jack's and Maccas are just out of it so they're really close to the skate park.

While close friends were not frequently cited as an influence on dietary choices and preferences, many children, like this boy, reported spending time with friends on Saturday or Sunday. These weekend outings typically involved purchasing a lunchtime meal or snack from the local shopping mall, or the small neighbourhood delicatessen or Independent Grocer of Australia (IGA). Interestingly, the IGA is also

located directly adjacent to one of the schools, which further establishes it as a popular choice for snacks purchased during the week. Girls also reported spending time with friends and frequenting both of these locations over the weekend. Again, food formed an integral part of these experiences and consuming unhealthy foods was a normalised behaviour. For some children a trip to the shopping mall was associated with fast food from McDonald's or KFC:

> Sometimes we get takeaway for lunch on the weekend or just when we are going to [the mall]. I get a McDonald's Happy Meal and Mum gets the KFC chicken burgers from the food court

The social construction of *comfort* foods was also another key finding that emerged from the focus groups and individual interviews. The girls in particular consistently demonstrated a positive reaction to chocolate, based on its taste and feel-good qualities. This could certainly be attributed to the marketing of foods to evoke emotion, for example confectionary items offering comfort and joy (Pulgarón et al., 2014). Many girls reported eating chocolate as a comfort food to improve their mood or general wellbeing, as evidenced by these comments:

> If you're sad you eat ice-cream and chocolate. Like fruit doesn't really do anything, sometimes you can't really taste it when you're crying, but you can definitely taste the chocolate and ice-cream because it's got so much sugar in it.

> Whenever I feel sad I eat chocolate. Chocolate makes me happy.

This idea was echoed in one of the boys' focus groups:

> A: When you're feeling bad you eat chocolate to make you feel better, or ice-cream. It makes you feel awesome, it makes you relax.

> B: Yeah if I'm in a bad mood I like to eat chocolate.

> C: It's actually proved that it makes you feel better.

Other children elaborated to discuss the correlation between mood and food cravings, thereby highlighting that some children may trade off health in response to emotions and feelings. This proved to be a key finding within this study, which raises questions about the implications of these socially constructed ideas.

> Sometimes I care about health when I go to the shop, but not always. I can't explain it but sometimes I just really want something that's yum. I like to see what's healthier only if I'm in the mood.

Theme 2: The home setting

The children developed health literacy through various interpersonal networks and broader societal influences. In examining positive influences on preadolescent children's nutrition literacy, parents and family certainly warrant mention. The home setting was integral to children's interaction with health information and practices and parents represented a key influence through numerous pathways. These included educating children about nutrition, acting as role models, encouraging the development of health-related skills, and creating a home environment that either supported or negated health.

Transmission of health knowledge

Many parents and caregivers were responsible for developing children's functional nutrition knowledge, which largely took the form of discussions around health, the importance of consuming a nutritious diet, and the effects of different foods. Communicating with parents often proved to be a valuable method of obtaining relevant nutrition information, as parents were perceived to be *experienced* and *right.* In describing how they came to learn about health and nutrition, common responses from included:

> My mum and dad taught me what foods are good to eat, like what to eat more of.
>
> My dad teaches me lots. He says you shouldn't have McDonald's because it's not good for you and he says it's good to eat your broccoli. He teaches me never to have too much chocolate or stuff like that.
>
> With bread there's some you can get that are better, like my dad told me the multigrain one is better for you.

While these specific examples also reference fathers, children predominantly credited their mothers as being more open and knowledgeable about nutrition. There was a strong gendered association with food and nutrition within the home, and this was certainly one of the key sub themes that emerged from the data. Overall, the responsibility for food within the household predominantly rested with mothers, not fathers. Many of the children identified their mother as the gatekeeper to health, responsible for the majority of food purchasing, preparation and cooking within the home. In many cases, this included preparing their school lunches and recess snacks each day.

These examples reinforce the notion that mothers play a pivotal role in food-related decision-making for their children, even as children are becoming more independent and progressing towards the adolescent phase. The findings also shed light on traditional gendered stereotypes within contemporary families, with women typically fulfilling cooking responsibilities. It was evident that some children thought very highly of their mothers, describing their unique role within the family. For these children, mum was seen to be a role model who took care of the family by selecting wholesome foods and preparing nutritious meals. Children also reflected on the influence of mothers on their health literacy, in terms of encouraging healthy attitudes that cued them into thinking about nutrition. Numerous examples were provided, including:

> Weetbix is one of the healthiest cereals because it doesn't have too much sugar in it. That's why Mum picks it, because she wants us to live a healthier life when we're older.

> Mum always eats healthy and she wants to get really fit for summer and she's going to the gym every day except the weekends, because I've got tennis on the weekends. Having role models to help makes other people feel like you can do it; if they're doing it then you can do it too. So my friend bought ice-cream for us and when they asked if she wanted one she said, "Nope, I don't want one". She only has a treat every once in a while and I want to be like her. It will keep you healthy when you're older and you won't die.

> I think it's easy because they are encouraging me to eat healthy, so it helps me along. And I feel good when I see them eating healthy foods because I know that they're keeping fit and healthy!

Similar statements confirmed this, with another participant commenting on the ways in which her mother encouraged her to try new fruit and vegetables:

> My mum likes buying ingredients for lunch and she likes designing our lunch. She likes working out and eating all sorts of fruit with me, like today we tried star fruit.

In conjunction with role modelling and preparing healthy foods, some mothers passed on nutritional messages to their children. This finding was mainly cited within the girls' interviews, a few of whom went on to explain:

> Mum mainly packs healthy food like my fruit, my lunch and maybe a bit more fruit. And at home we have a book that tells you what foods are healthy and why you should eat them. It has recipes so Mum uses it for dinner. She made a chicken noodle omelette with eggs and noodles.

> Well I've learned what's healthy from what my mum cooks because she always cooks healthy stuff, never bad stuff. I always watch her and I know vegetables are healthy and she always puts vegetables in there. And Dad cooks healthy too.

Food availability

Mothers were similarly perceived to be more involved in monitoring children's dietary intake. Some children explained that their mothers often reminded them about consuming a balanced diet and moderating the intake of EDNP foods, which could have ill effects on health. As one girl stated:

> I've learned mostly from my mum. She tells me that's healthy or that's not. Mum usually watches and she says things like "Don't eat that, dinner's ready soon" … I think she's had a lot of time to get to know it all. So chocolate isn't healthy but you can still eat some, but not heaps. Having it sometimes makes you think, "I'm still allowed it" so you can keep eating it but you don't need to give up all your foods if you want to stay healthy … you get one treat and one treat only.

This paralleled another girl's view, who claimed that:

> When I'm around my mum, if I buy too much unhealthy stuff she'll make me save most of it and only have just a tiny bit, like the lollies. And if I'm having a snack I'll ask Mum if I can have it first and if she says, "Wait until after dinner" then I'll wait.

A similar discussion evolved throughout one of the girls' focus group interviews:

> R: Do you try to follow what you have learned about nutrition?
>
> A: Sometimes. I'm not really allowed to drink raspberry stuff or Fanta because Mum said it has too much sugar in it, so I only drink it sometimes.
>
> B: Well we are only allowed to have fruit after school, not snacks.

It was particularly interesting to learn about the ways in which healthy choices became normalised within some households. Participants highlighted the significance of having healthy food options within the home, explaining that the sheer presence of such foods often reminded them about nutrition and encouraged consumption. It is also important to note that access to healthy foods provided the children with an opportunity to make informed choices and exercise health literacy skills. The children who engaged in such discussions largely attributed food availability to their mothers, who were most often responsible for purchasing the household foods. Interestingly, the following three examples specifically draw on fruit as a popular snack choice:

> If your mum makes you have a piece of fruit every day that you take to school, I sometimes want to eat fruit all the time.
>
> Whenever there is fruit there I will go home and eat it, like a banana or mandarin.
>
> You know when I have a snack now I just grab a fruit and I don't even realise!

Another boy supported this idea, discussing the usefulness of having a range of healthy food options available within the fridge:

> It's kind of easier because healthy foods is all we have in the fridge. It would be harder if there was other stuff there.

Evidently, food availability can be considered to be a key moderator of nutrition literacy within this context. Conversely, other narratives provided a stark contrast to these positive experiences. It quickly became evident that some homes were less conducive to nutritious choices, as the children explained the difficulties they faced with respect to food choice. It was not the intention of this study to categorise children's home environments as *good* or *bad*; however, it appeared that there was a mixture of home settings with varying influences on children. While some homes supported nutrition, others were less conducive to healthy choices. Unhealthy dietary behaviours exhibited by parents, coupled with a lack of nutritious foods, appeared to deter some children's motivation for learning about nutrition. Similarly, it prevented them from exercising nutritious food choices within the home context and also within the school environment, in cases where parents had packed lunches. In response to the question, "Is it always easy for kids to eat nutritious foods", responses included:

> No because families spoil us with pizza and takeaway and they pay for it and stuff.
>
> Sometimes you don't have 2&5 at your house, like vegetables, and sometimes it's hard.
>
> Not always because it's whatever's there and whatever's in the fridge. Chips are normally there or like some lollies or biscuits. For recess I just had a big packet of salt and vinegar chips and a packet of lollies.

Stretching the dollar

Lack of healthy food availability was also linked to the emerging issues of socio-economic disadvantage and food insecurity. This sub-theme is summarised by the following comment:

> Well I try to [eat healthy foods] but it's hard because we don't really have much food at the moment so I just have what we have there. We have vegetables and fruit but not lots of it. And it's a bit hard for Mum. Most of the time we have toast … It's easy when it is there though.

Food insecurity is described as the "limited or uncertain availability or access to nutritionally adequate, culturally appropriate and safe foods" (Ramsey et al., 2011, p. 227). While the families within this study were not consistently food insecure, self-reported food insecurity was evident amongst a proportion of the group. The children involved in this study all resided in a socio-economically disadvantaged area of metropolitan Adelaide, yet participants likely had diverse socio-demographic characteristics. Basic information about children's living arrangements and family employment status was ascertained throughout the course of the interviews. The financial capabilities of parents and caregivers ranged from full-time employment to part-time employment and those on welfare. Most children reported living in single-parent households, while a minority lived with both parents and/or with grandparents. Some children openly talked about their parents receiving unemployment benefits while other participants discussed the paid employment that their parent(s) were involved in. However, overall high parental unemployment rates were reported, and a large proportion of children also discussed living in a single-parent family. Some participants clearly alluded to having inadequate food in their households which was often reported in conjunction with less availability of healthy foods. Consequently, issues around food insecurity notably affected some children's ability to consume fruit and vegetables on a daily basis. This was a significant issue for those residing in single parent households, which could potentially reflect increased poverty rates amongst this sub group. As some children reflected:

> Sometimes nutritious foods are expensive so they're not easy for us to get.

> Sometimes you want to buy some fruit and veg but it's really, really, dear so you can't really buy it.

When examining the group as a whole, the majority of children did not report that they perceived healthy foods to cost more than unhealthy alternatives, with the exception of inflated banana prices. Still, part of the group held the opposite opinion when discussing lack of healthy food availability. These children were also aware of low income and financial difficulty, which became evident through discussions of money as a key factor that governed household food purchasing. Ensuring value for money was also important for some families, as evidenced by the following perspectives:

> We only eat McDonald's occasionally because it's so expensive. Like we could go and get a large pizza from Dominos and like we'd be able to get full easy and when we go to Maccas like we pay the same price and you get like half as full, so it's a cheaper option.
>
> When I'm getting foods my mum always says if it's too dear make sure you get the one that's one special.
>
> When we're picking a cereal mum always says, "Pick the one that's not too expensive".

Other children discussed irregular or uncertain food availability that was specifically dependent upon welfare payments, commonly referred to as *pay day*. One girl explained that:

> We don't have fruit every day, it's when my mum has her pay day she'll buy lots and lots of fruit … and it's the same with lollies. Like on her pay day she'll buy us a packet and it has to last until the next one.

Another girl excitedly exclaimed:

> We're going shopping today … it's my mum's big pay day! We go to Rite Price and Banana Farm to buy fruit

The discussion also extended to the participants' own purchasing behaviours. A few children were conscious that they had a limited amount of money to spend at the school canteen or shops and wanted to ensure that they were getting the best value for money, to *stretch the dollar*. This became evident through various comments such as:

> I get $2 and I just buy like really cheap stuff so I can get a lot and keep some for myself. Chocolate doesn't cost a lot, but nutritious foods cost more than chocolate.

> There could be lollies for $1 in a big packet so you just get them at the shops.

Growing up in a food-insecure household could evidently place stress on youth and influence their attitudes towards food. Accordingly, it is likely that socio-economic disadvantage limits children's ability to purchase and consume nutritious foods. This primarily occurs because EDNP foods are commonly perceived to be more economical choices for parents and are consequently purchased by many families with limited income (Ramsey et al., 2011). It was interesting to note that children experiencing food insecurity equally acknowledged the importance of eating healthy foods, despite experiencing significant barriers to healthy eating. Nonetheless, some children discussed their parents' thrifty approaches to sourcing food in order to provide healthy choices for the family. Despite having fewer financial resources from which to acquire food, some families utilised various problem-solving strategies, such as frequenting shopping destinations that offered discount items or purchasing generic brands:

> One time my mum got something from a shop and then something from another shop and we compared the prices and I think Woolworths was cheaper so we shop there.

> Mum doesn't buy Nutella but there's another one that's more the homebrand stuff. I haven't had proper Nutella in a while because it's really expensive. Mum and Dad buy a lot of the Home Brand stuff.

Other children reported that their parents had established household gardens in an effort to save money. They discussed the usefulness of the vegetable gardens and fruit trees in providing foods for consumption. Again, children illuminated the nurturing role of the mother, often responsible for initiating the family garden:

> I think Mum started the garden maybe because we were running really low on money and I think just the prices of food were going up and up and up so she just bought some seeds.

> Mum started a garden at the start of the year because it's more cheaper for the food, so instead of you having to pay too much for all of the money that you have to buy from the fruits. Because like bananas they've gotten really expensive before and tomatoes, they went up heaps.

> Yeah we have trees and a garden and at the moment we have spinach so we don't need to buy spinach from the shops we just get it from the garden. We did it so it doesn't cost too much money. So we don't have to go to the shop to buy the fruit or vegetables because we already have it.

In these ways, some families demonstrated capabilities and skills that contributed towards increasing food security, which is an encouraging finding.

Transmission of health-related skills

Providing opportunities to practise health-related skills emerged as an additional facilitator of preadolescent nutrition literacy. In many instances this was achieved under the guidance of parents. For example, numerous children reported having a home vegetable garden where the family grew foods. This enabled them to engage with the outdoor environment by participating in gardening activities including planting seeds, watering and harvesting. Children reported growing a range of fruit and vegetables, including apples, apricots, grapes, carrots, onions and herbs. These quotes in particular, highlight the intergenerational transmission of gardening skills from grandparents to parents to children:

> At home we grow onion, parsley, carrots, tomatoes and strawberries. My grandpa taught Dad and my dad taught me how to do it, so like watering it and digging the holes so that he can put the seeds in, and burying them

> Soon we're starting a garden out the back. We go on the internet and sometimes we look for good ideas about gardens, and we read books. When my mum was little her mum used to garden and she learned most of it from her mum after school. And now she's teaching me so that we can do it when we're older!

Some parents also involved children in food shopping by allowing them to select foods for the household during the family's weekly shopping expedition. Other important skills included assisting with the preparation of meals and snacks. Children were involved in preparing a range of foods within the home environment, including fruit salad, sandwiches, pasta, salad, cookies and packet cake mixes. Interestingly, macaroni and cheese was a popular microwave snack for boys, who claimed that this was easy to prepare. For many children, mothers were responsible for preparing school meals. However, some girls reported that they were taking more responsibility in preparing their own lunches and recess snacks. One participant reinforced this notion, touching on the notion of nutrition:

> I made my own lunch today, I made tuna, corn and lettuce salad. My friend taught me, she's good at making salad! Some things I forget about nutrition but that's one of the reasons why instead of just having a ham sandwich with ham and bread, I made something like the salad!

Some girls also reported fulfilling other cooking duties at home, including dinner preparation for the whole family. Children generally expressed an interest in cooking different foods, although many suggested they were limited in their responsibilities due to safety restrictions that their parents had in place around using the stove, oven and other electrical items. Other participants felt limited due to a general lack of food preparation skills. When provided with the opportunity to discuss their cooking experiences, a range of opinions were expressed:

> Some healthy foods I can't cook, like meat, I'm not allowed to go near the stove. And I'm not allowed to cut the watermelon.
>
> It's good to know cooking because when you get older and you have kids then you can make food for your kids and the rest of your family. But I have to do it when Mum's there in the room and I know some of my friends aren't allowed to cook because they've burned themselves or the food.
>
> I love cooking! Mum bought me a pan and whisks and measuring cups for me and it has my name on it and I can do cooking with that. So I can make cakes, spaghetti, pizza … And I want to learn pavlova. My mum teaches me all of it!

Theme 3: The school setting

Above all, preadolescent children cited school as the main source of nutrition information. Given the topic of this emergent theme, the three schools involved in this study are described as School A, B and C, respectively. It was not the intention of the researcher to compare school performance or embark on a systems analysis of the three sites. However, the diversity in school-based approaches, relayed through the 38 interviews, certainly warrants discussion when considering the influence of teachers and schools in developing youth health literacy. Where necessary, identifying the schools in this way is useful in order to reflect on similarities and differences in children's experiences across the three sites.

Teachers and the classroom context

In response to the question, "How do you learn about nutrition?" children predominantly discussed their interactions with teachers. While there were diverse opinions conveyed about teachers and schools across the group, participants agreed that teachers generally provided them with basic education about healthy food choices by discussing the importance of fruits and vegetables versus sugary and fatty foods. These approaches focused on the transmission of declarative knowledge by

introducing children to basic health concepts. Many children showed trust in their teachers, attributing their knowledge to greater life experience or prior study. Consequently, in many cases the teacher was socially constructed to be an *expert*. Common responses included:

> Sometimes we learn about healthy stuff from our teacher … like don't eat too much of things with sugar because if you eat too much you get really unhealthy and fat.
>
> With Miss [Health & Physical Education teacher] we do it [nutrition] in health. We do fruit quizzes, so what fruits and veg go into groups, and what's healthy … you would know if the information is true if it's from a teacher that's found it out.
>
> We have learned about fruit and vegetables, we were making this chart, we had different categories like wheat, fruit, veg, unhealthy and healthy stuff.

The following dialogue between the researcher and one of the young girls reinforced the notion of teacher as expert:

> R: So tell me more about what you learn at school?
>
> We learn about foods in class, like when they banned sherbet lollies we learned about it a little bit. We learned that if you keep eating the bad foods you'll get really sick, but not with the right foods.
>
> R: Do you think your teacher is right about it?
>
> Well yeah because they've gone through lots of years of uni and they've learned about it.

The degree of health education provided was dependent on the classroom teacher and other organisational factors within the school. When considering the schools as a unit of practice, influential factors centred on whether health education was integrated into the curriculum, whether the curricula were well-designed, and finally, whether there was a specialist health and physical education teacher employed to deliver lessons. Children from School A emphasised the role of their classroom teacher in providing a health education lesson once a week. The same teacher was also known for discussing health and nutrition content into other classroom activities. Children from School B also reported attending a weekly health class, although this was directed by a specialist health and physical educator who was not their classroom teacher. Conversely, students from School C reported a limited focus on health within their classrooms.

Further, the children interviewed at School A reported a classroom approach that was especially centred on health and physical education. They acknowledged the significant role of their classroom teacher in developing their knowledge about nutrition and their ability to make healthier food choices. Some specific teaching strategies within the classroom encouraged heath literacy amongst the children interviewed, with the teacher allowing the students to engage with nutrition information in the health class. This fostered skills in evaluating the nutritional content of certain foods. The following dialogue provides an example:

> R: So tell me more about your health classes at school.
>
> We do health lessons every Monday. This week we went through which stages of life you go through, like pimples, and what you need to do to keep your face clean – cleanse, toner and moisturise. And we looked at the food labels and learned what's good and on the computer we researched how good this is versus this. Now I know how much fat and sugar is in it and I know what to look for at the shop to compare. When I go I look at the food label thing and I see that it's got 190, "Wow I'm not eating that! I'll go look for something better!"
>
> R: What website did you go on?
>
> For the LCM bar we went on the actual website, the LCM website, so it's got to be true because it's the actual website.

To provide some context, the Kellogg's LCM bar is a popular snack made from puffed white rice that is a common recess choice for Australian children. Overall, LCM bars are EDNP snacks with high refined-sugar content. Another girl in the same class provides further insight into the teaching strategies at School A:

> My teacher talks a lot about healthy eating at school. We learned not to bring energy drinks or lollies because they have too much sugar and caffeine. Caffeine makes you hypo and it also gives you too much energy and once you have it your sugar level goes up high and once it drops down you're all tired and stuff. And we did a project that told us that you have to look at the label before you buy something. LCM bars have a lot of sugar in them!

The same finding also emerged within a focus group interview:

> B: Miss [teacher] looked up LCM bars.
>
> C: Almost half of the bar was made out of sugar and had sugar in it!

Some girls reported that this also impacted on health-related decision-making, for example:

> In class we had a muesli bar with fruit on it and just a normal LCM bar. And we went on the internet and we saw how much sugar they had and what they use to make the LCM bar and then we looked at how to make the fruit bar and how much sugar. And they both nearly had the same but the LCM bar had more sugar and the fruit one only had like six bits of fruit in it.
>
> R: Did it change how you felt about muesli bars?
>
> I wouldn't pick an LCM bar because it's just got so much sugar in it and all that stuff.

Several factors should be noted about these conversations. First, the children found this approach to be interesting and the learning experience clearly made an impression on them, given the constant references to this activity within the interviews. They were engaged in active learning and the teacher importantly chose to focus on a particular food product that was relevant to their lives. In this way, she demonstrated an understanding of cultural norms and the children's social worlds. She encouraged the children to actively obtain and appraise the information about LCM bars, which developed their investigative skills. Based on the students' responses, this actually encouraged some of the girls to consume the snack to a lesser degree. Importantly, such skills can be transferred outside of the classroom context, further discussed later in this chapter (Children as agents of change). The teacher demonstrated a clear interest in improving the students' dietary attitudes and behaviours. By integrating a health curriculum that focused on various topics, including food and nutrition, she played an important role in building knowledge and skills within the class. This example also positions the school as a site for developing children's critical evaluation skills, alongside other skills for making effective choices in everyday life.

The same teacher from School A also used a raffle ticket system to highlight nutritious food choices and encourage healthy lunches. At times, this involved engaging the students as food detectives. The following interview dialogue between the researcher and one of the girls elaborates on this point and also highlights the potential role of the teacher with respect to building nutrition knowledge and encouraging healthy norms within the classroom:

> In class we do healthy lunches and you get a raffle ticket and somebody had Nutella and somebody had peanut butter and they didn't get a raffle ticket that day because Miss (teacher) knows that it's not healthy. She decides if it's healthy or not.

R: Do you talk about why something is healthy, or why not?

Not really.

R: Tell me a bit more about the raffle tickets. How does it work?

Well we get raffle tickets if you're being good and then some for lunches, if you have a healthy lunch. If you have Crunch & Sip[2] at 10 in the morning you normally get a raffle ticket too. And if you have something really, really, healthy for lunch, like yesterday I had rice, then you get two raffle tickets!

R: Does that make you want to eat healthy foods?

Yeah because everyone wants to get the raffle tickets and there are prizes you can get, like bouncy balls, rubbers and pencils.

R: How many does Miss [teacher] pick in the class?

She goes around the whole classroom, or she gets somebody else to, and sees what's healthy. So we hear Miss [teacher] say every day if that's something healthy or not healthy.

R: Can you think of an example?

Some people have like Nutella every day and that's not healthy and some people don't even have a real lunch, they just have a bit of cheese and crackers. I normally have wraps with salad and mayonnaise – it's really yummy and healthy!

When examining these approaches it is apparent that potential issues could arise around disadvantaging the already disadvantaged. However, it is important to note that the approach did not inadvertently single out those students who did not have access to healthy lunches, since the reward system was also linked to other activities within class. Conversely, based on the students' narratives, other schools' approaches to health education were more traditional. For example, the students explained that the focus at School C was on building declarative knowledge about the importance of fruit and vegetables. The children commented on these issues, discussing the basic health education made available to them in some classrooms. Children from the other schools also alluded to curriculum that did not necessarily build their understanding of health mechanisms. For example, learning that brown bread is healthy interested some students, although they did not necessarily understand how or why this is the case. Regardless of the school attended, many children indicated that they would be

[2] Government initiative, further explained in School initiatives

interested to learn more about nutrition at school. Topics of interest included the origins of foods and different types of healthy choices. Common responses included:

> I'd like to know what's in the foods that aren't healthy.
>
> I want to learn on the basic foods that I eat, I want to know how much nutrition I can get out of it so I can know whether to keep eating it or not.
>
> I'd like to learn about the nutritious things and what's healthy to eat, and what's not. I know a little bit but I could learn more.

School initiatives

Although participants shared diverse views regarding school-based health education, there was universal discussion around the broader school environment and its relationship to nutrition and dietary choices. The school environment served as both a facilitator and barrier to the development of children's nutrition literacy. There were some clear examples of schools providing opportunities to develop health literacy amongst pupils. For example, many children from Schools A and B made reference to the *Crunch & Sip* program, a joint state and territory government initiative that involves a set school break for children to eat fruit and vegetables and drink water in the classroom setting. Two of the schools adopted this initiative, serving as an example of school environments conducive to health. The schools' commitment to nutrition education in this case encouraged many children to bring fruit and water to school each day. As many children indicated:

> I always have to bring some fruit to school every day for Crunch & Sip.

Participants described other school programs that had a focus on health and nutrition, ranging from breakfast programs to cooking strategies that introduced children to new foods and concepts. Some children from School C also made mention of the school gardening program, although this was not a major finding across the interviews. In light of socio-economic disadvantage and food insecurity, children reported that Schools A and B both offered breakfast clubs that provided nutritious foods including WeetBix and porridge for children before school. This was particularly relevant for children who did not have access to breakfast in the morning, several of whom reported accessing this service regularly. Cooking classes were described across all of the schools, although the programs were largely limited to specific groups of students or formed part of once-off school-wide events.

Nonetheless, the programs provided the children with the opportunity to learn new skills, in conjunction with those developed within the home environment under the supervision of parents. Examples across the group included:

> I do cooking at school but there's only a couple of people in my class, for literacy group. We cooked this fruit pudding thing and we put all different kinds of fruit in it.
>
> Sometimes frozen veggies can be healthier than fresh because they can get older. School did that when we were learning about cooking for school cook off. I learned a bit more about the stove and I learned how to cook a really yummy dish – vegetable cakes with Greek salad and couscous! I love couscous!

Other health education programs were organised and administered by external partners. One particular school program that was delivered in Schools A and B was referenced frequently throughout the focus group and individual interviews. The local university ran the program in conjunction with a large sporting club, and aimed to improve children's health knowledge and skills through a combination of nutrition and sport workshops. The program concluded 12 months prior to the interviews for this study. From a nutrition perspective, the program encouraged students to compare food options by means of reading and evaluating food labels from empty food packets and beverage bottles. This skills-based approach had an impact on many students, who excitedly reported feeling more empowered through their increased understanding of food labels and their confidence in selecting healthier choices in a retail setting. Three separate focus group interviews across the two schools elaborated on the program in greater detail, with many referring to the *5&20* rule.

Focus group 1:

> C: We got told by (the university) the 5&20 rule, so to look for something between 5 and 20 grams for the sugar and fat. Five is healthy and 20 is not as healthy.
>
> R: So if something had 12 grams of sugar?
>
> C: Well it would be closer to 20.
>
> D: It's still healthy but not as healthy.
>
> B: It's not healthy but it's more healthy than some other things.

Focus group 2:

R: What do the numbers mean?

B: It's as much is in the food.

R: What if it said 10g?

B: That would still be a fair bit of sugar but it wouldn't be it wouldn't be that unhealthy.

R: How about 20?

D: A bit unhealthier.

R: And 5?

B: Five would be enough.

R: So what's high then?

B: About 30.

R: Where did you learn about those numbers?

B: Last year we learned with Sam when Flinders University came here.

C: And you're looking for the sodium too.

Focus group 3:

A: When the Flinders University people were here, we learnt about lots of foods.

D: Yeah it was really fun when we got to do the football.

B: And we talk about it in PE sometimes.

This program provided a platform for developing and advancing health literacy skills amongst preadolescents. For some children, the program empowered motivation and interest in nutrition, while also developing their perceived control and ability to make healthier food choices. Conversely, other children reported no change in their motivation to pick healthier foods. A collection of rich and insightful quotes follow, all of which emerged from the individual interviews. Here, some of the children demonstrated their ability to reason powerfully and effectively with nutrition information, in order to choose a healthier food alternative. By critically engaging with food labels, children demonstrated use of functional and interactive health literacy skills in some instances. Both male and female perspectives are included, although girls discussed food selection to a greater degree throughout all of the interviews. Key examples included:

> Sometimes I'm looking for something and if it's too much sugar or energy I'll put it back and look for something more healthy.
>
> I'll pick up something and check and if it's got too much sugar I'll put it down.
>
> Sometimes I look at the label. Last week I didn't but when I want to pick something new, say I want to have an apple juice this week, I'll look at the labels.
>
> There's the food index with all the sugars on it. I love looking at that, I got that from the football clinic … I remember you always look at the last number.

Other participants also took the opportunity to discuss specific food choices they had initiated in response to developing nutrition-related skills. These examples in particular draw attention to the mainstream discourses around calories and fatness outlined earlier in the chapter:

> At Subway they show you which food has the nutrition in it, on the side before you go in there's the sign and it has foods on there. Like if you're watching fat or stuff like that, it's on the glass window. It's helpful.
>
> After the footy clinic I was getting cereal and I was looking at a cereal and it had lots of calories and I looked at another one and it had a less amount of calories in it so I picked the one with the less. It was still a nice one.
>
> R: And how did you feel doing that?
>
> Well once I've picked the one that has less stuff in it, it feels good, like not putting more calories in!
>
> I look at the boxes, Flinders (university) showed us that. You look for the fat total and how much sugar it has in it. I got WeetBix because it had less fat content in it.
>
> When the university came it made me want to read labels because you could learn how much you could be eating that's really bad for you and things like that. I feel better. One example would be the different types of peanut butter; you could have the Kraft one or the normal one. So you would look for the sugar and the fat and the sodium.
>
> R: And which one would you choose?
>
> I'd pick the one with the less sugar and salt and the less fat.

The two examples below are particularly compelling, as the boy and girl in question discuss their interactions with energy-dense food and beverages; chocolate and Coke respectively:

> I normally go to [local IGA supermarket] before school and sometimes we already have lunch but we'll grab some recess. I get chocolate bars but I choose to have the one with the lowest amount of sugar and calories. In a way the nutrition information helps me to think about, say I had a whole chocolate bar, it helps me realise what I should be eating.
>
> I normally look at the food tag if I'm bored, but sometimes if there's really a lot of sugar I might go pick a smaller bottle of Coke or something.

Nutrition literacy, in this case, emerged not as the ability to pick a wholesome food, but as a way in which children can moderate the effects of unhealthy food consumption. While some children felt empowered by their ability to read food labels, many were not equipped with these skills.

The school canteen is another factor that warrants discussion. Two of the three schools, Schools B and C, had a school canteen that opened during the week at recess and lunch time. Children from School C reported purchasing energy dense snacks from the canteen, including cupcakes, ice-creams and hot Milo. The following dialogue between the researcher and one of the girls' focus groups captures this sentiment:

> R: So when you go to the canteen do you try to follow what you've learned about health?
>
> All: No.
>
> R: Why?
>
> A: Basically there's no healthy things except for pieces of fruit.
>
> C: You're always wanting to have all the sugary stuff because it's so yummy. Yesterday I went and got this new ice-cream, toffee apple paddle pop.

There appeared to be no limit to the number of items a child was entitled to buy, with one child exclaiming, "Yesterday I bought four cupcakes!" Even more concerning, however, were discussions about the confectionery items available School B's canteen. For instance, one girl reported:

> I get gummi bears at the canteen. You just give them the money, so like 10 cents equals three gummi bears so if you give them a dollar you get a lot, but you can only get $1 at a time. I get money on two or three days.

A boy from the same school specifically elaborated on the lunch order system that was currently in place, emphasising the canteen's promotion day that was attractive to many children who had access to limited spending money:

> Well if we're running low on recess or bread I'll just say to Mum, "Mum we're running low on recess and bread" and I'll say, "Can I get a lunch order please?" and she'll say, "Here's five bucks". I normally get a chicken burger, cheese burger or meat pie … last term every Tuesday there was a special on and they'll change it to like a ham and pineapple pizza and a drink for $3. But you have to get that special, so it might be a chicken burger or a hot dog, and that changes every week. A lot more kids get their lunch that day.

School C operated under a different system. It had a school canteen in prior years; however, the school closed it following what the children termed a *fatty food ban*. This largely focused on reducing sugary foods, including lollies, with the ban on confectionery extending to the children's own snacks brought from home. The school office still offered ice blocks to students during the summer months and there were occasional special food events. However, this was the extent of the schools' day-to-day food sales. The children actually responded quite well to the ban, demonstrating that the healthiest choice was in fact the easier choice:

> At school you don't have all of that fast food around you. We don't have a canteen but sometimes they do special lunch orders and stuff.

This provides another clear example of an influential school-based initiative. In most cases, the children did not perceive their school peers to be an influence on their own nutrition, since their roles were mainly associated with social enjoyment. However, going out with friends outside of school hours often incorporated food purchasing, which could serve as a form of influence.

Children as agents of change

Many nutrition literacy skills developed through school-based health promotion also extended to the home environment. It was exciting to hear some of the children report bringing health-related skills back into the home to influence other family members, namely parents. This focus group excerpt highlights the girls' newfound interest in nutrition labels, and provides evidence for changed parental purchasing behaviours towards specific products:

> R: How do you follow what you've learned about nutrition?

> B: I use is the nutritious label and I told my parents about the Flinders (university) program and they thought it was really good.
>
> D: Yeah like it's something good for your children.
>
> A: My parents have changed what's in our cupboard now. Like we used to have Nutella now we have Vegemite, it's more healthier than Nutella. Nutella is chocolate and it's got fats in it. But Vegemite is unhealthy as well, but it's a little bit healthy. It's got lots of salt in it.
>
> R: Have you looked at the label before?
>
> A: Yep, it's got lots of salt. Um, what else did we change? We changed from chips to more fruit. Now we've got two big bowls of fruit.
>
> B: I told my mum, like now she lets us choose what fruit we want, like before she just used to choose it.

When questioned about using nutrition information learned in class, one girl responded:

> Some things I forget but that's one of the reasons why instead of just having a ham sandwich with ham and bread, I could like make something more like I made a salad last night.

These perspectives clearly position children as change agents to increase household food consumption patterns, which is particularly exciting within disadvantaged settings, where some parents face additional challenges and barriers to a healthy lifestyle. Many children reported bringing information back into the home environment, and discussed their motivation to make their own families healthier. These attempts were not always successful, although they still warrant consideration:

> I'm trying to get my brother to eat healthy too but he doesn't want to. He just chooses the fattier foods than the healthier ones because he doesn't care.
>
> Dad got an energy drink and I looked at the kilojoules on it. It's not good for you. I told Dad but he doesn't mind, he just drinks them all the time.

Other children experienced more success in positively influencing family members' purchasing behaviours at the shops:

> Sometimes that girl that lives with us will offer to shout me Hungry's and I'll say, "Nah, I don't really feel like it – let's just go to Subway", because I know Subway is a lot healthier than Hungry Jack's.
>
> Sometimes if Mum wants to get something I'll look [at the label] and I'll be like, "Muuummmmm!" and then I'll pick something else.

> Sometimes I do [check the label]. Like when it's on a packet of chips and I'll say, "Not this one Dad, this one".

Another girl specifically explained the ways in which the external nutrition education program improved her ability to critically evaluate household foods, providing more support for school-based interventions that can encourage a family of health literate consumers:

> Mum and I were looking at all the food we had in the house and checking the labels. Mum wanted us to stay really healthy and stop our sugar levels getting up really high. We looked at the muesli bars we get for school; they're the home brand ones. And we looked at the cereal boxes.
>
> R: What did you find?
>
> That in the muesli bars that we get they've got heaps of sugar in them and the cereals have lots of sugar and also some cereals that we buy have barely any sugar, like Special K, and I think that's the only with barely any sugar.
>
> R: Were you looking for any numbers?
>
> A lot of sugar is about 11 or 12 grams of sugar. We learned that when we had those lessons with Flinders University about the nutrition labels in Ms [X's] class. Low is like four or five grams … I said to Mum, "Mum we should really buy the stuff with less sugar in it".

It is interesting to note that girls in particular demonstrated a sense of ability to meet their needs through accessing, understanding and utilising nutrition information and skills. The girls reported more attempts to follow what they were taught about health through food choice, and they were apparently more motivated to improve their families' health-related behaviours.When reflecting on the factors that influenced interest in nutrition and motivation to seek and engage with health information, gender emerges as a key factor within this study. This could potentially reflect the diverse attitudes towards nutrition that were evident across gender, where girls largely emphasised the role of nutrition with respect to preventing weight gain and disease. Alternatively, it could re-emphasise gendered stereotypes that position women as health-promoting agents.

Theme 4: Traditional and contemporary media

In addition to interpersonal networks and schools, children identified the media as a key provider of health information. The ubiquitous role of the media in children's everyday lives became evident throughout the interviews, as both boys and girls

discussed their interactions with diverse media forms including television, the internet, social networking and mobile app technology. Two key findings emerged with respect to the media and its influence on health literacy. First, the health-promoting potential of contemporary media was evident, suggesting that some media forms may *help* children gain access to, understand and use nutrition information in certain contexts. Conversely, children also spoke about the health-compromising effects of traditional media content conveying unhealthy behaviours that serve to influence food preferences and purchasing. These perspectives are now discussed in more detail, with reference to the alternative media channels identified within the interviews.

Television

When questioned about sources of nutrition information, most children made reference to television, largely drawing on food advertisements. Some referred to nutrition content claims embedded within television advertisements as sources of nutrition information, for example, "Sometimes on the TV it says like '20% no fat'". One focus group also discussed the promotion of *light* milk and how it was a more nutritious choice because of lower sugar levels. Evidently, there was some misinterpretation of the properties of light dairy products, with no reference to saturated fat content. Many children attributed their understanding of health to well-known messages conveyed through mass media and then reinforced within the school setting, including the recommendation to consume fruits and vegetables whilst limiting processed snacks. For example, they specifically discussed the federal government's *Go For 2&5* campaign and the famous veggie man depicted throughout the television advertisement and promotional gear. One boy referred to the character as, "The guy that's made out of fruit. He's like two fruits, five veggies". As the children discussed the advertisement, they consistently referenced the key recommendation to consume 2&5 daily. They also drew on key health promotion advice in their discussions around junk foods as *sometimes foods*, in line with other government health discourses. The majority of interviewees also made some reference to supermarket food advertisements promoting fresh fruit and vegetables, namely Woolworths and Coles. They excitedly sang along to the supermarket jingles when discussing these ads, particularly during the focus group interviews when they joined together to sing with their peers:

> The Coles ads talk about eating apples and fruits, like, “Down down prices are down!”
>
> The Woolworths one talks about healthy things, where it’s like “Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, Sunday … I love you!”

These examples demonstrate that the dissemination of simple nutrition information from media campaigns can reinforce an understanding of the basic components of a healthy diet. A smaller number of references were made to cooking shows and chefs. Some children discussed renowned chef Jamie Oliver and reported watching his shows with parents, acknowledging his focus on creating simple, nutritious meals and educating viewers about healthier food options. The Australian cooking competition, *Master Chef*, also came up in some discussions, although there was less emphasis placed on healthy eating and more discussion of the interesting cooking skills and techniques portrayed.

Most prominent, however, was the shared opinion that unhealthy food advertisements dominated television air time, compared to ads promoting more nutritious alternatives. Children collectively explained that television advertisements predominantly marketed fast-food meals and other EDNP snacks including chocolate. In this way, children demonstrated a good understanding of the types of foods promoted in television foods advertisements. As one girl summarised:

> I’ve seen a couple of ads for yoghurt, but not so much. It’s mainly the bad foods trying to get people to come, like the KFC ones.

Some children alluded to feeling tempted by the content of food advertisements. This is further discussed in Chapter 6, which focuses exclusively on the theme of media nutrition literacy.

The internet

While television was reported as a source of health information, the majority of participants did not actively seek health information via the internet on their own accord. It is important to note that this was not attributed to access restrictions, since nearly all of the children had access to the internet at home via a PC, laptop, or mobile device. The exception was a small group of girls who reported using teen websites in their leisure time. Although this group constituted a minority, it was interesting to hear about the nature of these websites. They appear to target the teen

market by listing information about relationships, beauty and dieting. Again, this draws our attention to the social norm of thinness emphasised through contemporary media, which may pressure children to conform to the thin ideal. The following quote comes from a young girl, who also expressed an interest in a future modelling career that required her to maintain a slim figure:

> I know some of the girls' websites have tips on what to eat. They have the girl part and they have natural stuff and try to avoid stuff … all this health stuff and what to do with your body.

While most children did not engage in online health information seeking at home, some reported using the internet in class to locate nutrition information for school-based activities or projects. For example:

> In the morning you should have something that won't make you tired for the rest of the day, like WeetBix. I learned this a while ago on a website that we got from health. It was like last year. It tells you what foods you should eat for breakfast, lunch and dinner.

Most children acknowledged that the internet was an unregulated environment which allowed any individual to freely publish information, almost instantaneously, and there was a general understanding that, *people can make things up on Wikipedia.* Despite demonstrating some understanding of the nature of the internet, children's critical appraisal skills were largely limited to selecting the most frequently viewed websites, which they deemed to be the most credible. In other cases they were directed to more reputable websites by their teachers during class time, including *Kellogg's* and *Go for 2&5*.

Smartphone apps

An important sub-theme emerged in relation to mobile health applications and nutrition. Smartphone and tablet applications, commonly referred to as *apps*, are now being established to assist consumers access health information and develop health-related skills (Hswen, Murti, Vormawor, Bhattacharjee, & Naslund, 2013; Mitchell et al., 2013). It was interesting to note that children referenced these health-related apps as a way of *knowing about* healthy eating and nutrition. The children discussed the accessibility of apps, which are only available to be downloaded by those with smartphones and tablet devices. Additionally, some apps are subject to purchasing costs, as well as other expenses attributed to internet downloads and in-app features.

Most children reported owning a mobile phone, and smart phones constituted around half of these devices. If children did not personally own a smart phone, many (but not all) had access to one belonging to a parent or older sibling.

Overall, the group collectively expressed an avid interest in contemporary app technology and the potential use of health oriented apps, although interestingly only a minority reported using them in their everyday lives. Many children provided examples of specialised nutrition apps with a range of utilities and focuses, including food selection, healthy recipes and cooking. As one boy reported:

> If you have an IPhone you could get apps about nutrition. You can get an app that can teach you how to cook. I don't have it but I heard about it.

This paralleled another participant's view:

> R: What are some other ways that kids learn about health and nutrition?
>
> On some phones you can get these apps. On one of my friend's phones you can get an app that plans your diet.
>
> R: What do you think about them?
>
> It's good because it doesn't have the fatty foods it just has the healthy foods on it for you.

Other children also took the opportunity to discuss their personal experience with the apps in the home environment, as emphasised by the following quote:

> You can learn about food if you have the internet on your phone. You can get those apps that have food on it to show you what's healthy. I've got one and I go on and look at all sorts of foods and what's in them. If you click on the foods it shows you what's in them, like the nutrition in it and how much sugar is in it.

This was echoed by another focus group discussion, which further illuminated the potential for apps to promote healthier food choices in certain contexts. In this example, one child discussed an app that enables consumers to compare food choices, by providing nutrition information:

> A: You could get a nutritious game on your phone, like a nutritious app or something. You could go onto ITunes and look it up.
>
> B: Yeah I've got an app on my phone and you write down what food it is and it comes up with all this writing, what nutrition is in it and stuff. Sometimes I use it on my cereals or what is in fruit boxes.

> R: What if you see that a cereal isn't a good choice?
>
> B: Well I would still eat it but I wouldn't eat it as much as I'd normally eat it.

There were clear gender differences that should be noted. While boys still engaged in the discussions around health apps, girls were the only ones who reported using them. Furthermore, girls presented diverse opinions around the potential function of health oriented apps. Some girls specifically discussed the utility of the apps in monitoring dietary intake:

> I've got an app on my IPhone called something like *Watch Diary*. It has all foods on it, pretty much everything. You click on the subtitle and it has nutrition, healthy or not healthy, and vitamins and everything in all the foods.

Following the interview, the researcher attempted to download this app. An app by the name of *Watch Diary* was not located but a free *Food Diary* app was listed within the search results. Upon further examination, *Food Diary* appeared to place emphasis on day-to-day food usage, listed under the following description; "Literally 'watch what you eat'. Eat healthier lose weight (if you want to) or simply just keep track of your diet". While it is merely hypothesised that this particular app was being utilised, the girls' broader discussion of these apps in relation to dietary intake should be noted. While these could certainly prove to be useful in selecting healthier food choices, they could also be cause for concern in light of the weight control discourses already reflected in this chapter.

In describing apps, children also alluded to the inherent sense of fun and enjoyment, which could partly account for their interest in the topic. It is interesting to note, however, that the children made no mention any health apps developed with a game-oriented focus. Ultimately, these discussions draw attention to the potential utility of eHealth strategies. Smartphone apps may assist some children in accessing information that can be health promoting. At the same time, however, a small number of boys alluded to other apps that advertised convenience foods such as the Hungry Jack's *makes it better* app, providing evidence that the fast-food industry is also moving into the realm of mobile app technology and targeting consumers, including children, who are quickly adapting to these practices. The following

dialogue between the researcher and one of the boys captures this sentiment, whilst also highlighting issues around food cost and affordability:

> Normally every weekend to stay fit I'll go down to the Skate park with my friends and we'll spend like a whole day. I'll ask Mum if I can have $10 for lunch because I'm down there all day from like 10:30 to 6:00
>
> R: What do you get for lunch?
>
> It's just around the corner from the shopping centre, so it's in riding distance. So when I'm there with some of my mates, and you know, "Do you want to go get some food?", we'll just ride to Hungry's or Subway … it sort of depends on what mood I'm in and how much money I've got, but Subway is pretty dear but I'll get that occasionally. But Hungry Jack's have a lot of specials and there's the Hungry Jack's app as well. When you have a smart phone you download a Hungry Jack's app and you set your settings to whatever Hungry Jack's.
>
> R: Do you have it?
>
> No I don't have a phone but my friends have it. And then it says, "Shake your phone". You shake your phone and a coupon comes up. So it might say, Buy one get one free Bacon Deluxe burger" or "Free Medium Coke" or "Free Sundae". If you get something good then you get it and you'll just have that for lunch.

These examples point towards the importance of developing a health literate youth who can critically engage with conflicting messages in a highly health-negating context. This is particularly relevant given the contemporary sociocultural landscape that is saturated with an array of so-called health information and advice.

Chapter summary

This chapter outlined wide range of factors that participants associated with notions of health and nutrition. The chapter then explored the ways in which children access, understand and apply nutrition information and skills in their everyday lives. The preadolescents involved in this study were evidently in a position to influence aspects of their own health and the majority of children demonstrated some control over the foods that they consumed. The self-reported health-orientation of females was apparent even at ages 11 and 12, as girls showed more preference for health conscious decisions in food selection and food preparation. The voices of participants, reflected through the four primary themes, illustrated a number of facilitators and barriers surrounding nutrition literacy. The home, school and media all combined to influence aspects of children's health literacy. In some cases,

schools, families and the media proved to promote lifelong unhealthy attitudes and behaviours, often due to a lack of resources and the lived experience of food insecurity. Social constructions of health and sociocultural norms promoting unhealthy behaviours were also pertinent in children's lives. In other cases, the home, school and community environments were shown to be optimal sites for enhancing health literacy and developing important health-related skills that could be employed throughout life. Being exposed to consistent health messages that were reinforced across various settings proved to be important, as well as having opportunities to exercise independence and practise health-related skills. The children also discussed transferring knowledge and skills back into the family setting, demonstrating their potential as agents of change.

Chapter 6 discusses two additional themes specifically relating to the concept of media nutrition literacy.

CHAPTER 6: RESULTS – MEDIA NUTRITION LITERACY

This chapter introduces the most pertinent points arising from the data relating to children's media nutrition literacy. Across the focus groups and individual interviews, thirty-eight children aged 11 and 12 discussed their perceptions of television advertisements, with a brief discussion of those viewed for this research forming the introduction to this second results chapter. The researcher constructed these critical overviews after viewing the recorded material, reading through the transcribed commercials, and identifying important food and health-related themes. A discussion of the two emergent themes; scepticism towards advertising and misconceptions around nutrition, follows.

The advertisements

This research utilised three Australian food advertisements produced by leading Australian food companies. The children viewed the commercials in focus group and individual interview settings.

McDonald's Farm-To-Table advertisement (2012)

This first advertisement is cleverly marketed to depict the calorie dense McDonald's Big Mac burger as a wholesome product that is "fresh from the land", despite being high in energy-dense nutrients. The advertisement is represented through an ethical healthy eating discourse that places high trust in nature and highlights the importance of eating fresh, natural foods that have been sourced locally from Australian farmers. McDonald's capitalises on the legitimacy of natural foods by introducing each individual farmer to the viewer, listing their names and farm locations. The advertisement was selected because it contains vivid imagery of the components of the Big Mac burger that are being directly harvested from a farm setting, including the lettuce and beef. The use of natural foods implies that this is a healthy choice with natural flavours. The vegetables are "hand-picked today", implying that the food is fresh and suggesting that the overall meal is potentially balanced. The vegetable components, possessing strong health connotations, combine with the beef patty, cheese, sauce and bun to form a "crisp burger". As the advertisement concludes, the customer consumes the meal. Overall, this advertisement provided an

opportunity to elicit participants' reactions to a commonly consumed junk food not specifically marketed to children.

Kellogg's Nutri-Grain Advertisement (2010)

In contrast to the McDonald's food commercial, the second advertisement markets a common breakfast cereal product at two specific groups; boys and their mothers. The advertisement depicts a young, athletic boy transitioning into a strong, fit man. As part of his journey, he is shown to engage in a range of physical activities, whilst regularly consuming Nutri-Grain cereal for breakfast. The boy's mother plays a key role in facilitating her son's health by regularly serving him Nutri-Grain for breakfast and overseeing his sporting activities and progress, until he is able to take on extreme sports challenges. At the conclusion of the ad, he commends her health-promoting efforts by exclaiming, "Thanks Mum". At this point, the young man is shown driving towards the Gold Coast region of Queensland to compete in an upcoming Iron Man competition, thereby reinforcing Nutri-Grain as "iron man food", as verbally stated at the conclusion of the advertisement.

Overall, the advertisement posits several health messages, drawing on the high protein content of the cereal that is essential for boys' "growth and muscle development", while clearly omitting information about its high levels of sugar and sodium. It specifically implies that Nutri-Grain "has what it takes to build your son into an iron man", thereby suggesting that Nutri-Grain is essential for energy to boost performance. Related healthy lifestyle choices are also stressed through the emphasis on physical activity and a fit and toned male physique. The recurrent breakfast scenes similarly draw on notions of health, considering that breakfast is a key part of the recommended healthy lifestyle for Australians. It is also interesting to note that during the breakfast scenes the cereal box is placed next to a bowl of fruit and a glass of fruit juice. It could be argued that the purpose of such placement is to make these products appear healthier by drawing on the health discourse, despite the recognition that Nutri-Grain fails to meet several criteria for a nutritious cereal. Finally, a key social relationship is situated within the context of Nutri-Grain consumption; that between mother and son. The commercial draws on the caring dimension of food as the mother shows her love by means of breakfast preparation, whilst the son displays his affection and gratitude. The sugary cereal may also be constructed as a healthy

meal that a child is allowed to enjoy because it is endorsed by a mother who ultimately cares for him.

Nutella Advertisement (2010)

Nutella's advertising strategy is quite similar to that of Kellog's Nutri-Grain. The advertisement markets a chocolate nut spread to children and their mothers, by associating Nutella with high levels of energy and physical activity. Throughout the ad, children are seen to be consuming Nutella on bread and engaging in several physical activities including running and swimming. Like Nutri-Grain, Nutella is marketed as a product that will provide children with the much-needed energy required to be an active child. Again, breakfast is depicted as a common eating situation throughout the adverstisement, featuring both mother and children. The association with physical activity and breakfast links consumption of Nutella with a healthy lifestyle. This commercial clearly emphasises the content of natural ingredients such as hazelnuts, cocoa and milk, implying that the product is nutritious. Furthermore, the bread, fruit and milk that form an important part of the depicted snack makes the Nutella spread appear healthier, and the meal more balanced. This is further emphasised by the verbal recommendation to include Nutella "as part of a balanced diet". While these aspects of the food are highlighted, other important information, including the high sugar content, is omitted.

Theme 5: Scepticism towards the advertising industry

Children demonstrated varying degrees of scepticism towards advertising and the advertising industry. All participants expressed some awareness regarding general advertising objectives and the intent of advertisers to stimulate desire for consumption, in order to expand sales and generate profits. In response to the prompt, "What does the creator want you to do after seeing the ad?" all participants acknowledged that advertisers' ultimate goal is to sell products and make money. As two participants in one focus group responded:

> A: They want you to buy it so that they can make more with the money you give them.
>
> B: Yeah to buy the product. They're just trying to make it look the best so that people will buy it.

Other girls concurred by exclaiming:

> They're saying, "Come in, come in … I want your money!"

Most of children's scepticism about truth in advertising was derived from a lack of realism in the product, which was largely based upon their personal product knowledge and past dining/consumption experiences. Throughout the interviews, several children activated their personal knowledge of the foods in their assessment of the advertisement to distinguish between fact and fiction. In describing advertisements that were not truthful, participants commonly referred to the advertisers *lying* about certain aspects of the product and the overall experience, thereby acknowledging that advertisements do not always tell the truth. Much of this discussion centred on the lack of realism in the McDonald's ad. By commenting on the appearance of the advertised burger, the children demonstrated their knowledge of the ingredients by drawing on social constructions of ubiquitous fast foods, for example in the following dialogue derived from a female focus group:

> A: Well it looks healthy but all the oils they use are fattening, like the stuff that they add onto it. In real life it's all mushy.
>
> B: And when they're cooking the meat they're not draining the fat out, it just goes back into it.

A boy referred to McDonald's cooking methods:

> It's not healthy. You can go in there and see all the deep fryers at the back. I've tasted it and touched it! Like sometimes your hands get all greasy and you can taste it.

Two girls shifted the discussion to negative health consequences of fast-food consumption with mention of body weight:

> A: They make it look so perfect but when you get it it's all sloppy everywhere!
>
> B: Yes and heaps of people are obese because of them though coz they eat too much unhealthy stuff.

Participants also discussed an exaggerated positive representation of the burger in terms of its size that did not align with their own real life experiences. One girl even declared that the burger was "double the size" on television. Another boy supported this notion, whilst reemphasising the notion of profit-seeking:

> It's not that big, it lied! It looks different in the ad because they want you to buy it.

In response to the question, “Did they leave anything out of the message”, participants mainly referred to the omission of nutrition information. Again, they activated personal knowledge in order to challenge the depiction of fresh, wholesome ingredients. In describing the McDonald’s advertisement, one girl hypothesised:

> I think it’s got lots of sugar because it tastes very sugary. And lots of fat too.

Other girls drew on the notion of a profit motive in their scepticism of the nutrition content depicted in the advertisements. For example:

> Sometimes on television they’re trying to make us eat things. They’re saying it’s good for you and sometimes they’re saying it’s delicious and yummy. My mum says they’re just trying to make you eat it because they’re trying to get more money.

> Sometimes they [advertisers] lie so people can buy their food. Like they could lie about the sugar levels in it, but it’s not really true.

Scepticism was largely directed at the McDonald’s and Nutella ads, as opposed to the Nutri-Grain commercial. Overall, the Nutri-Grain advertisement was deemed the most appealing and credible commercial. In describing this ad, some of the girls expressed their belief that it could actually promote a healthy lifestyle by providing them with important product information. These participants subscribed to the assistive role of advertising by describing the ads as beneficial to children and other family members, particularly in shopping situations:

> A: It’s helpful so you don’t have to look at the boxes when you buy it. It’s saying it’s good for you.

> B: It saves you time, like if you’re in a rush you don’t have to like, if you’ve seen the ad you don’t have to worry about looking what’s in it. I think it’s one of the best balancing cereals, it has protein and calcium. I think protein gives you energy.

Participants further demonstrated a degree of media nutrition literacy by referring to techniques used in the McDonald’s ad to situate the product within the health discourse. This included the advertisers using vegetables harvested from a farm, and the composition of a fresh, abundant burger that appeared colourful and vibrant, making the item appear healthy. Participants generally challenged these notions and agreed that the product was not a nutritious choice. In describing the Big Mac burger, one girl thoughtfully reported:

> I think it's a bit of a lie. They make it look so nice, how they've got the lettuce from picking it fresh from the land. But they've probably had the lettuce somewhere for ages, and probably the meat in the freezer for a month. And all of the nutrition might have gone out.

When asked whether the advertisers left anything out of this particular message, participants all agreed that McDonald's failed to advise the consumer that their product is oily, fatty and unhealthy. Similarly, approximately half of the children articulated that the Nutella advertisement did not properly inform the viewer that the spread is high in sugar. Some children were also able to distinguish between the toasted bread and the Nutella spread, stating that the bread was actually a healthy component of the meal. In both cases, children demonstrated knowledge of the presumed intent of the advertised message. In response to these questions, some children demonstrated a deeper understanding of media messages by reflecting on the omission of key information, such as:

> They don't say how much sugar there is … it's got HEAPS! I've read one of the labels before and it's got lots of sugar. In class we do healthy lunches and you get a raffle ticket and somebody had Nutella and somebody had peanut butter and they didn't get a raffle teacher because Miss [teacher] knows that it's not healthy.

Despite demonstrating a basic understanding of advertising intent, some children still commented that the television advertisements evoked feelings of desire; the children clearly engaged as consumers of advertising. It is particularly interesting to note that even though all of the participants were able to critically evaluate the McDonald's campaign to some degree, this was the food advertisement that children reported as most appealing in terms of evoking a hunger response. One boy desired the burger because:

> It's yummy, like I can feel the taste now. It makes me want it!

Other children concurred by describing a similar response:

> A: They make it look so nice that you want it.
>
> B: It's saying you have to come get it, like we made it just for you. It's saying come and try it out.

These examples specifically draw on children's shared understanding of advertisers tempting them through visual cues. The following responses also reflect shared opinions that the advertisers were unfairly teasing them by showing them foods that

were unattainable at the time of viewing, particularly from a cost perspective. Children agreed that McDonald's, Nutri-Grain and Nutella were all expensive products, and some went on to explain that their families could not always purchase the advertised items due to financial restriction. One participant reinforced the notion of temptation in conjunction with issues around food insecurity:

> If you have no money they really tease you because you want to buy it as they eat it right in front of you. So if you have money then good.

Similarly, in relation to children feeling tempted:

> I think they're like teasing you, like they make you drool, like you want it.

A small number of participants demonstrated an advanced capacity for evaluating and critiquing advertising messages. It is particularly interesting that these participants were all female, and overall the girls demonstrated greater nutrition media literacy than the boys. Two of the girls interviewed separately discussed specific techniques that McDonald's used to achieve advertising effects, thereby demonstrating a sophisticated level of critical thinking and a core principle of media nutrition literacy:

> They make it look like they've done, like what's it called? Like when you take a photo and you can edit it so it looks better. They make it look really big, but it's not.

> It's probably a fake burger they use there. They make it look really big so they try to make you think it's cheap because it's a big thing, but then it's smaller.

This same minority were also able to recognise the importance of investigating media claims through personal enquiry, in order to gain the correct health information to be able to make an informed dietary choice. This involved an ability to identify and reflect upon multiple issues, including profit-seeking intent, omission of nutrition information, and product promotion within the health discourse. Again, this level of analysis was not representative of all participants. However, these promising examples are worthy of discussion. These two girls, interviewed separately, specifically referred to Nutri-Grain cereal in their sophisticated analysis. One girl indicated that she would not buy Nutri-Grain while the other stated that she would only consume it "once in a while, just to have a treat". A critical perspective can alter food preference in certain cases, as these examples attest:

> They leave out how much fat and stuff it has in it. They should have that so then they're showing how much fat and sugar is in it, so you can be like *that looks reasonably good, I'm going to buy that for my son* or *no way, I'm not buying that!*

> I think the protein part is a little bit true but it might be a little unhealthy to have all the time if you have it every day for cereal. They left out how much sugar is actually in it. Just about all ads, some of them have it … like the healthy ones, but the others never say how much sugar is in it because it will make them look bad. I've had it before and it's just so sweet and yummy, so it could have a lot of sugar in it!

Theme 6: Misconceptions around nutrition

Despite demonstrating some degree of nutrition media literacy, there was still confusion around the health-promoting effects of two advertised foods, particularly Nutri-Grain. The vast majority of participants viewed Nutri-Grain as a healthy breakfast food that could provide children and families with numerous health benefits. For the majority of children, eating Nutri-Grain was associated with sports performance, and participants specifically referred to the sporting orientation of the advertisement, as well as the depiction of success within this context. The following dialogue between the researcher and one of the boys captures this sentiment:

> R: From watching the ad, do you think that Nutri-Grain is a healthy choice?

> Yeah he's doing a lot of sports. The Nutri-Grain makes you get active

Another boy responded:

> His dream was to become a surfer and to do that he ate healthy and needed to be active.

A girl concurred, explaining:

> The ad talks about Nutri-Grain making you fitter because it's got the little boy wanting to be a surfer and then it's got him older when he is a surfer. So you can have that to get fitter.

Again, children activated their personal knowledge and reflected on prior experiences, in order to evaluate the truthfulness of the advertisement. They also referred to the target audience of boys and mothers in their discussions:

> It has less sugar and it just makes you feel like you can do it more, like you want to do a competition or swimming and you eat it and they're trying to say that you can grow faster. I have a brother who loves eating it and every time when he eats it he changes. He goes outside and helps Mum and runs

> around. So I think it's good, so when I eat it I go outside. It keeps you not lazy and it keeps you good.

Another response was:

> The message is to get more boys to eat Nutri-Grain so that they can become real strong. My mum would buy it because she's got three boys at home

Some children embraced the notion that Nutri-Grain was nutritious because it constituted breakfast, which comprises a key component of a healthy diet. For example:

> It's breakfast and breakfast is good for you because you need it to learn.

Other participants also took the opportunity to compare Nutri-Grain to another children's cereal, Coco-Pops, which is commonly perceived to be less nutritious. By right of comparison, Nutri-Grain was viewed more favourably from a nutrition perspective, thereby framing it as a healthy alternative. Participants highlighted differences through such comments as:

> I'd buy it, because I like the taste of it and you've got to think, is it as bad as Coco-Pops which has lots of sugar in it?

And:

> A: It's like Coco-Pops but healthier.
>
> B: And Coco-Pops have chocolate on them.
>
> C: And the ads for Coco-Pops are "Just like a chocolate milkshake only crunchy" but that one's like "Nutri-grain makes you go Gggrrr!".

It is interesting to note that there were differences between genders in the interpretations of this ad. Overall, the promotion of Nutri-Grain within a health and sporting discourse appeared to influence most children's ability to judge the nutritional value of the food, although boys tended to solely focus on these sporting and physical performance aspects, while girls additionally referenced nutritional components to a greater degree. The perceived nutritional aspect of Nutri-Grain was invariably associated with protein, calcium and fibre. Typical responses included:

> It looks nutritious. Each day he eats it he's getting bigger. The milk has calcium. There's fibre and the protein is making him into an iron man.
>
> Nutri-Grain makes you get healthier and your bones get stronger. It just gets more calcium into your bones. It's got protein and vitamins and stuff. It's got sugar, but barely any sugar.

> It's trying to get people to buy Nutri-Grain so maybe they can eat healthy, and stop eating like other foods that aren't healthy? I just learnt that Nutri-Grain is actually one of the highest protein cereals!

When questioned further about the role of protein, nearly all children demonstrated a limited understanding of the nutrient. Responses varied from a basic understanding, including "healthy stuff", "stuff that makes you muscly", and "gives you a six pack", to questions such as "I thought protein was fish?" The following dialogue also epitomises confusion around the specific nutritional mechanism:

> It would now probably make me eat Nutri-Grain more often because apparently it helps your body. It digests more and there's protein.
>
> R: What does the protein do?
>
> I don't know but it's healthy. The protein is for your body to help you do more things faster.

Nutrition misconceptions were also evident in relation to the Nutella advertisement, albeit to a lesser degree. As stated earlier, some children were of the opinion that Nutella was not nutritious due to its high sugar and chocolate content. While this ad similarly situated the product within the health discourse, the commercial also depicted fun and joyful activities as part of its marketing strategy. The promise of fun and physical activity appealed to approximately half of the participants, which also influenced their perception that Nutella was a healthy food item that can improve performance outcomes from a physical and educational perspective. When describing the nutrition associated with Nutella, one boy stated:

> It's got hazelnuts in it and nuts are good.
>
> R: Is it a healthy choice for lunch then?
>
> I'm not completely sure, but I think so … The ad is saying that it's a good breakfast for your kid and you should get it for your kid. It would make them progress better.

The following quotes also epitomise shared opinions regarding the energy output associated with Nutella consumption:

> It would make kids active, not hypo, and I think it gives you energy because straight after I eat it I go outside and play with my friends for two hours.
>
> I do like that ad and Nutella is a little bit healthy for a kid because it does make you get up. I think you just get fit.

Chapter summary

The findings from this chapter reconfirm that television advertisements are an important source of nutrition information for preadolescents, which constantly confront children with health claims. Advertising is unpredictable and innovative and the data showed that preadolescent children demonstrate a capacity to reflect on advertising campaigns. Overall, most participants demonstrated basic media nutrition literacy skills when it came to assessing the three food advertisements. Any scepticism towards advertising was largely based upon personal product knowledge and awareness about the intent of advertisers to expand sales. All children were critical and distrustful of the McDonald's Big Mac advertisement. However, the social construction of McDonald's as a problematic food must be acknowledged, since these ideas are mutually recognised on a global scale. While the children did demonstrate discernment when it came to this advertisement, some still desired the product, thereby highlighting the broad determinants of food choice at play.

Participants discussed the omission of nutrition information in certain advertisements, and this varied across the group, with only a minority group of girls demonstrating a good degree of critical thinking for all three campaigns. On a positive note, these participants demonstrated that a critical perspective could empower children to alter food preference and consumption to some degree. Overall, however, most participants bought into the advertising promises of what the products could offer them, and some children claimed to believe the exaggerated health statements. For example, most agreed that Nutri-Grain was healthy because of its association with sports and important nutrients. It appears that the association of Nutri-Grain and Nutella with sports may have influenced children to consider these foods as necessary for physical activity, through the provision of energy to boost performance. It could be argued that the association this prompted between food, nutrition and sport is positive, in terms of promoting a physically active lifestyle; however, the data from this study clearly highlights negative implications. Ultimately, these associations can influence children's perceptions of foods that should be consumed before undertaking general physical activity.

This chapter further supports the notion that media serve an influential factor and that children need to be equipped with a wide-ranging skill set to deal with the

complexities of modern life. Given the current social and political landscape that shapes food advertising in Australia, preadolescents need to be actively engaged in thinking about media advertisements, and the findings point towards initiatives that develop children's evaluative stance so that they can critically appraise marketing techniques to help them make more informed food choices. Chapter 7 elaborates on these findings and recommendations.

CHAPTER 7: DISCUSSION

This discussion chapter considers the most pertinent points arising from the data in the form of the six identified themes. This was a study of children, and the research aims to elucidate children's views to give the participants a voice. In discussing the emergent themes in relation to the literature, the theoretical framework and the conceptual framework, the chapter focuses on developing an understanding of health literacy as it specifically relates to preadolescent children. At the forefront of the discussion, it is important to review the research questions outlined in Chapter 1:

1. What are preadolescent children's attitudes and perceptions of health and nutrition?
2. How do preadolescent children access, understand and evaluate nutrition information from various sources?
3. How do preadolescent children respond to food-oriented television advertisements?
4. What are the facilitators and barriers surrounding health and nutrition literacy within a socio-ecological framework?

As argued throughout this thesis, a socio-ecological framework is useful in understanding health literacy. Ecological models posit that individual, interpersonal, organisational and community factors interact to shape the children's health experiences. Indeed, a range of complex factors interacted to shape children's opportunities to develop health literacy and their ability to influence aspects of their health. An exploration of the transactions between children and their physical and sociocultural environments, as depicted through the children's own voices, captured the important roles of various interpersonal agents and organisational structures in fostering health literacy. These included parents, families, peers, teachers and schools. The home, school and broader sociocultural environment, driven by the media, all constituted key sources of nutrition information and skills for participants in this study. These three sources are therefore conceptualised as key influencers of health literacy. The data identified traditional and non-traditional media as key socialisation agents in providing health information and influencing social norms around health and nutrition. In fact, the media can also be considered a specific

environment in its own right (Reisch et al., 2013); this chapter elaborates on these factors. The discussion also reflects aspects of the functional, interactive and critical health literacy explored throughout this thesis, within a broader socio-ecological context.

Perceptions of health and nutrition

Perceptions of health are based on how health is understood, valued and experienced by individuals. From a socio-ecological perspective, attitudes towards health and nutrition are dynamic constructions, influenced by myriad social and environmental factors. The results of this study reinforce the understanding that social constructions of health and sociocultural norms promoting healthy and unhealthy behaviours are pertinent in children's lives (Burrows, 2010; Drummond & Drummond, 2013). Children are situated in a variety of social contexts in which they create meanings that influence their health attitudes and behaviours, and the home, school, community and media are all important social systems in which young people participate (Paek et al., 2011; Wharf Higgins et al., 2009).

The results of this study indicate that participants received health advice by means of three primary pathways; interpersonal networks comprised of family members and friends, schools and the media. The children specifically accessed nutrition information from parents, teachers, mass media advertisements, food packaging and other forms of media, which reflects previous studies in this area (Brown et al., 2007; Freisling et al., 2010; McKinley et al., 2005; Valkenburg & Peter, 2007). They tended to describe health as a concept that was important, and they associated the term *health* with eating well and maintaining a physically active lifestyle, which is consistent with other qualitative research conducted with preadolescent children (Burrows, 2010; Burrows, Wright, & Jungersen-Smith, 2002; Drummond, 2010; McKinley et al., 2005; Protudjer et al., 2010).

In the language of the children in this study, health was described using terms such as *fit, active, sporty* and eating the *right foods*, which suggests that they had previously thought or heard about the topic of health. The term *nutrition* was not familiar to these children, and questions around nutrition were consequently reworded. In terms of physical activity, sport proved a popular talking point for the

children, as they excitedly discussed their diverse activities in active preventative health behaviour. Overall children espoused the attitude that these types of activities were fun and pleasurable, as opposed to the responsibilities attached to eating the *right* foods, as reflected in other research conducted with similar age groups (O'Dea, 2003; Protudjer et al., 2010). Interestingly, the boys tended to emphasise sport and physical activity more that the girls. In contrast to Drummond and Drummond's (2010) research with young boys, the male participants in this study often stated the connection between physical activity and health, which also reflects findings from a qualitative study with adolescent males where ideas around health and fitness were often conflated (Wright, O'Flynn, & Macdonald, 2006). From a social constructionist perspective, the tendency for boys to emphasise sport and physical activity is reflective of contemporary gendered discourses. For example, in this case, this finding may point towards pro-masculine stereotypes that are relevant to sport (i.e. an expression of traditionally masculine health behaviours) (de Visser & McDonnell, 2013). The emergence of this idea at the forefront of the interviews evoked the researcher's interest in a potential gender lens that might be useful for examining how gender may influence the degree to which an individual develops and draws on health literacy. Health literacy as a gendered notion is discussed further throughout this chapter.

In considering other discussions around the notion of health, the children cited fruit and vegetables as the *right* foods to consume, which provided a contrast to *junk* foods that were high in fats, oils, sugar and salt. Unhealthier food choices were generally consistent with the categorisation of discretionary foods in the *Australian Dietary Guidelines*. The children also classified foods as *good* or *bad*; a dichotomy that has been noted in other studies (Drummond & Drummond, 2010; Drummond, 2010; McKinley et al., 2005; Protudjer et al., 2010). The children's ideas about the term *nutrition* similarly focused on the importance of consuming *healthy*, *good* and *natural* foods. Some children demonstrated knowledge of nutrition terminology and an accurate understanding of how foods affected their bodies, while the majority did not. The children's perception of the natural derivatives of healthy foods has been noted in previous research (Hesketh et al., 2005), and the view these children have of natural food is certainly noteworthy, given the wide-ranging claims that are put

forward in the promotion and marketing of food products and their potential impact on preadolescent children (Dixon et al., 2014).

As previous Australian research indicates, children are able to identify healthy foods and articulate basic ideas about health and nutrition at an early age (Drummond & Drummond, 2010; Hesketh et al., 2005; O'Dea, 2003). This study elicited sub-themes relating to general nutrition knowledge, and the ways in which this knowledge is gained through various pathways, along with an acknowledgement of how nutrition knowledge would benefit participants in the future. The children showed a basic ability to forecast future health. According to them, nutritious foods were important to provide energy to participate in a range of physical activities, as well as preventing sickness and the onset of specific illnesses such as heart disease and diabetes.

More prominent than thinking about diet in relation to illness, however, was the view that poor diet can result in overweight and obesity. Participants also perceived unhealthy foods as having a *draining* effect on the body. These findings corroborate prior research conducted by O'Dea (2003), whose qualitative study explored dietary attitudes amongst children and adolescents from Years 2 to 11 across the nation. The results from this study indicate that the highest-ranked perceived benefits obtained from positive dietary practice include enhanced cognitive and physical function; a physical sensation related to feeling refreshed and more energetic. The participants attributed such effects to healthy foods, such as fruits, vegetables and juice. In contrast, they regarded junk foods, defined as confectionary and fast-food items, as items that had a short-term impact on the body, followed by feeling sluggish.

The children claimed that the school system and the mass media frequently conveyed public messages about the consumption of fresh fruit and vegetables, as well as the importance of being physically active. In Australia, prevailing messages surrounding healthy eating are common in the media. The participants often described nutritious foods in reference to the long-running government endorsed *Go for 2&5* campaign, which provides individuals with information about recommended dietary intakes for fruit and vegetable food groups. Most also made some reference to supermarket television food advertisements promoting fresh fruit and vegetables, namely Woolworths and Coles. While the research outlines an association between socially

disadvantaged communities and lower levels of nutritional knowledge (Wardle et al., 2000), it appears that basic nutritional messages such as *Go for 2&5* do appear to be reaching the wider community (Velardo & Drummond, 2013). Most children referred to this campaign, citing the recommendation for two serves of fruit and five serves of vegetables. This may reflect the success of this nutrition education program from a purely functional literacy perspective (Hendrie et al., 2008). While functional skills in basic literacy and numeracy are essential for children to make sense of information about health, this alone does not guarantee positive dietary behaviours (Worsley, 2002). In considering the most recent national data, Australian children do not consume enough fruit and vegetables, as outlined at the forefront of this thesis (Australian Bureau of Statistics, 2014a).

Many children identified feeling equipped with a basic understanding of health promoting foods, by emphasising a need for fruit and vegetables on a daily basis. Still, some children showed interest in learning more about nutrition, particularly with respect to dietary mechanisms linking food and health. While the researcher did not systematically assess the accuracy of the children's knowledge, the findings did show that this group of 38 Year 6/7 students was somewhat misinformed about various health-related concepts. A number of nutritional misnomers became evident throughout the course of the interviews, emphasising aspects of children's functional nutrition literacy that might be lacking. Examples include the acceptance of sports drinks and light milk as healthy, a lack of understanding about the mechanisms through which nutritious foods can support health, and conversely, how EDNP foods can contribute to ill health. One key example was participants' misunderstanding of the effects of dietary sodium. Other researchers also report conflicting messages in relation to food and health. Australian researchers studied preadolescent children's conceptions of health using a sample of children aged seven to eight and 11 to 12-years. Using data from focus groups, they describe a number of myths that became apparent throughout the interviews, including the belief that "salt is good for you because it helps your blood flow" (Hesketh et al., 2005, p. 24).

In examining the first emergent theme of this study (mainstream health discourses), it is clear that children's perceptions of health and nutrition came in several forms. The nature of the views emanating from the interviews demonstrate a set of common

ideas around health and health-related illness, with the issues of overweight, obesity and fatness consistently discussed. Many of the children considered a fit and slim individual the pinnacle of health. The sub-theme of fatness speaks to notions of overweight and obesity that have evidently distorted the views of the children with respect to concepts of health and wellness. Overwhelmingly, there was a shared understanding that being thin equates to good health and that a thin body is a healthy body. Children overemphasised the correlation between body size and health, and many were uninformed about aspects of the relationship between food, weight and health. There was some discussion of obesity in relation to sickness and death; these ideas might have reasonably emerged in response to the medicalised view that predominates (Crawford, 1980).

It is interesting to note that the majority of the discussion around fatness came from the female participants. Gender differences in the children's narratives of health and body image were certainly evident. While boys specifically referenced muscles in their description of health, the girls often discussed being the right size and ultimately achieving a slender frame. Such differences can be conceptualised in terms of contemporary feminised beauty ideals that reflect broader social constructions of gender and power relations (Bordo, 2003).

In their discussion of socially constructed notions of masculinity, Drummond and Drummond (2013) further emphasise that children are situated within a contemporary discourse that values lean muscle mass amongst males, and penalises fatness. The conceptualisation of dieting as a means to maintain a thin figure is already evident amongst this age group, and some of the girls alluded to implementing strategies to control their weight to achieve body satisfaction, such as viewing teen websites that provided them with information on what to do with their bodies and choosing healthier food alternatives. These findings can be discussed in terms of agency and structure, as they are presented in the current discourse on health inequalities. The increasing emphasis on risk, choice, self-management and self-surveillance has established obesity as a problem that requires an individually focused approach (Schwartz, Chambliss, Brownell, Blair, & Billington, 2003). The policy response has indeed focused on promoting individual behaviour and lifestyle change (Baum & Fisher, 2014), further reinforcing this notion of "sloth, gluttony … [and] individual responsibility" (Egger & Swinburn, 2010, p. 8). Here, one might

also consider these children's tendencies to categorise foods as good foods or junk foods. This negative focus reinforces individualism and risk, and might inadvertently contribute to an underlying fear of foods, leading to unhealthy and restrictive food practices. Drawing on Crawford (1980) and Kirk and Colquhoun (1989), tenets of *healthism,* which emphasise the individual responsibility for managing health-related risk factors, prevail. These ideas have arguably played a role in the construction of these children's ideas around health and nutrition, whereby a thin body shape and physical attractiveness is linked to good health (Wright et al., 2006).

Children discussed the negative judgement associated with overweight and obesity. In discussing *fat* bodies, while the children discussed limitations related to running and fitness, adjectives such as *large*, *big*, *lazy* and *sick* were predominant, reflecting broader themes within the academic literature. It is now well established that the contemporary obesity discourse frames obese individuals as lazy, stupid and worthless (Schwartz et al., 2003). Children are evidently situated within a sociocultural environment that emphasises physical appearance, and weight continues to dominate current perspectives of nutrition and health. The media play a key role in persistently promoting the thin ideal that embodies value and sex appeal and conferring these socially constructed notions of health upon children (Burrows, 2010).

Consistent with many other studies (Burrows, 2010; Burrows et al., 2002; Johnson, Gray, & Horrell, 2013; Li & Rukavina, 2011), it is clear that weight-related stigma existed amongst this age group, as children emphasised the shame and unattractiveness associated with overweight. In fact, it became evident throughout the process of thematic analysis that some parents and teachers were reinforcing the notion that certain foods should be avoided to avoid getting fat in a bid to encourage healthier dietary practices. A similar theme was noted in research with Scottish teachers, whereby many teachers were unaware that their health values might actually reinforce such pressures amongst adolescent children (Johnson et al., 2013). In other cases, physical education teachers may explicitly display anti-fat attitudes within their practice (Greenleaf & Weiller, 2005), which is cause for concern.

These findings about weight stigma should not be undervalued. Such perceptions may, in turn, serve as antecedents to negative psychological experiences that may

translate into body image problems. In its most serious form, conforming to the social normal of thinness may result in disordered eating amongst young girls (Jongenelis, Byrne, & Pettigrew, 2014). A recent Australian study provides preliminary evidence that children as young as six experience body image dissatisfaction, disturbances and eating disorder symptoms. Consistent with previous studies, girls reported greater body dissatisfaction compared to their male counterparts, and 61% of girls said they wanted to be thinner than their perceived current body weight (Jongenelis et al., 2014). Similar findings have been reported in other Australian research. For example, Birbeck and Drummond's (2006) interviews with young children also reinforced negative perceptions of fatness.

As Professor Jennifer O'Dea pointed out almost 10 years ago, caution must be taken when pursuing obesity prevention to avoid instigating and perpetuating body image disturbances (2005). She provides several examples of reputable health messages promoted through health promotion activities being misunderstood by Australians, inadvertently resulting in negative outcomes, such as the unintentional creation of body image concerns and unwarranted weight loss and dieting practices. Additional problems that might result from a negative obesity discourse include low self-esteem and disengagement from health-promoting activities (Birbeck & Drummond, 2006). Some health promotion campaigns and pedagogical approaches might be inadvertently intensifying body image concerns amongst youth by inducing fear and shame. Within this study, children attending one school described their teacher's philosophy as, "Eating the wrong foods will make you fat". As suggested by O'Dea (2005), health promotion efforts should aim to educate children about the wide-ranging benefits of nutrition and physical activity, including strength, energy, concentration and ultimately, fun. Furthermore, these findings, along with other key ideas that emerged within this study, highlight the importance of refining children's understanding of the relationship between weight and disease. The notion of some children being able to eat anything without risk of *getting fat* is also potentially problematic, as children may automatically assume that they are healthy, without understanding the need for a healthy diet. Teachers, parents, health educators and significant others must all work together to *do no harm* and broaden the current approach in order to actively emphasise the positive aspects of a healthy lifestyle.

It is interesting to note that despite the prevalence of health education in schools, most children were not aware of the reasons why eating a healthy diet is important, other than to maintain one's weight within their perception of the healthy range. Ultimately children's ideas about health and nutrition constitute narrow perspectives and reflect key messages that are promoted by parents, schools and the media. Of note is that the children discussed health in relation to personal responsibility and absence of disease early in the interviews. The discourses they drew on to construct their understandings of health largely reflected biophysical aspects. Researchers have linked this conception of health as an absence of disease to the medicalisation of the body (Kirk & Colquhoun, 1989). Unlike other studies, where children have identified happiness and self-worth as attributes of a healthy person (Burrows & Wright, 2004), the children in this study consistently failed to mention other domains of health including socialisation, sleep and emotional wellbeing. As Drummond and Drummond (2013) compellingly argue, it is the biomedical and corporal descriptors of health, that constitute the dominant ideals upon which children construct understandings of health, which is potentially problematic for the reasons cited earlier.

Food access is ubiquitous, even for younger children. The children in this study reported that they accessed food at home, school, local shops near school, and other food outlets within the local community on the weekends. There was mutual recognition that discretionary foods could be consumed as part of a healthy diet, and the children drew on key health promotion advice in their discussions around junk foods as *sometimes foods*, in line with government health discourses. While Australian guidelines recommend that discretionary foods are consumed only sometimes and in small amounts, the children generally held a different belief with respect to what constituted *sometimes*. A large mixed-methods study similarly revealed that Australian consumers find such terminology confusing and require more guidance around frequency of consumption (King et al., 2012). Within this research it was concerning to learn of children's opinions about acceptable frequency of consumption of sometimes foods; many children consumed takeaway foods frequently.

This finding is reflected in the results of a recent New South Wales investigation, which estimated that approximately 25% of children in New South Wales are consuming fast foods at least weekly (Hardy, King, Espinel, Cosgrove, & Bauman, 2011). Other qualitative research sheds light on the issue of discretionary food consumption from a parental perspective. Research conducted by Hesketh et al. (2005) shows that most parents considered it acceptable to provide discretionary food treats to children on a daily basis. In a separate study, qualitative interviews with parents in New South Wales revealed that many perceived that treats were appropriate if their children were consuming fruits and vegetables. As the researchers reported, "for many parents, this might apply every day or frequently", which is concerning (Petrunoff, Wilkenfeld, King, & Flood, 2013, p. 4). Parents living in socially disadvantaged areas also described a greater degree of permissiveness relating to children's discretionary food intake, which could explain why young people are drawing on this particular discourse in their understanding of health and nutrition.

This study also found that self-reported unhealthy food consumption was grounded in socially constructed food experiences valued by the children, who made situational attributions to food. Consuming to belong, or to engage in a particular experience, emerged as an interesting finding within this study, further emphasising the social construction of *sometimes* foods. For example, in line with findings that Holsten, Deatrick, Kumanyika, Pinto-Martin, and Compher (2012) had previously discussed, there was a reported increase in unhealthy food consumption on the weekend, which was mutually accepted as a time for enjoyment with friends and families. Many girls reported meeting their friends at the local shopping mall and consuming takeaway, an experience perceived to be fun. For the boys in particular, consuming certain foods on the weekends to fit in was a marker of identity, with self-reported takeaway consumption higher amongst the boys. Although males represented a minority of participants (37%), it was clear that the experience of *hanging out with the boys* on the weekend was a significant one. Food formed an integral part of this experience, whereby the group of boys would go out to eat takeaway together at local destinations. This finding is particularly interesting in light of the most recent National Health Survey which highlights concerning data around adolescent males' high consumption of soft drink, burgers and chips.

Approximately 25% of 14–18-year-old boys consume a burger on any given day, compared to 7% of the Australian population (Australian Bureau of Statistics, 2014a), which could be linked to this particular sociocultural food experience.

There was also a tendency for children to consume certain foods to mitigate feelings of depression. Many of the children admitted that despite understanding the implications of consuming too much junk food they were still willing to consume such foods as a means to satisfy their mood or ease emotional distress. Using food to soothe emotions was more evident amongst girls, in particular, using chocolate to provide comfort, which is consistent with the observation of other researchers whose findings point towards a socially constructed comfort food environment (Cartwright et al., 2007; Croll, Neumark-Sztainer, & Story, 2001; McKinley et al., 2005; O'Dea, 2003; Pretlow, 2011). Legitimising the consumption of rich, sugary foods in this way certainly raises concerns around emotional eating and associated physical and mental health problems for children as they progress into adolescence. In particular, girls' stronger emphasis on using food to *make themselves feel better* when they felt down or in a certain mood also draws attention to gendered norms around emotional expression, whereby women are stereotypically perceived to be more sensitive and "less emotionally robust" (Dolan, 2013, p. 13).

These examples illustrate the significance of socially constructed foods and their connotations. Perception of social norms appears to be a crucial factor predicting children's understandings of health, nutrition, and the benefits attached to certain foods, suggesting the interplay of society and culture in children's decision-making. In accordance to a social constructionist framework, the values and expectations for contemporary lifestyles are dependent upon existing conceptual frameworks and wider social understandings (Burr, 2003). The social environment plays a significant role in shaping norms and constructions around food and health. These cultural norms are reinforced through interpersonal and organisational networks, as children interact to exchange ideas, thereby creating a system of shared meaning that people mutually recognise. One might conclude that sociocultural influences, such as the emergence of junk foods and convenience foods, are symbolic of a contemporary lifestyle that people mutually understand (Carrigan, Szmigin, & Leek, 2006). Accordingly, deconstructing these experiences and challenging norms will play an

important role in building functional health literacy and encouraging interactive health literacy amongst children.

Notwithstanding the misunderstandings and misnomers discussed thus far, it is evident that the children in this study possessed some knowledge of health and nutrition, albeit basic. However, the students reported that using nutrition information was often not a priority. At a personal level, some children were motivated to seek and engage with nutrition information to make them feel *better* and more energetic, while others were not. Researchers have compellingly shown that children perceive a number of barriers to healthy eating. These include undesirability, pressure to consume unhealthy alternatives, cost and lack of availability of healthy foods within the home and school environment (Hesketh et al., 2005; McKinley et al., 2005; O'Dea, 2003; Pearce et al., 2009; Protudjer et al., 2010; Shepherd et al., 2006). Children in this study touched on all of these factors at some point.

Of particular note, however, is the health-orientation of females, with the girls in this study reporting more preference for health-conscious decisions in food selection. Generally, the girls within this study were more interested than the boys in understanding and using nutrition information in their everyday lives. They were also more knowledgeable on health and nutrition topics, corroborating prior research (Schmidt et al., 2010). Scholars such as Brown et al. (2007) would consequently argue that preadolescent girls are therefore more likely to follow what they know about nutrition. Some girls talked about how they engaged with various forms of health information, thus using functional and interactive health literacy skills to navigate healthier food alternatives. They showed stronger preference for active health-related decision-making in the form of nutrition label use and wanting to develop cooking and food preparation skills. Boys rarely reported this same motivation.

Similar research with children and adolescents also note these gender differences. In considering why, Croll et al. (2001), O'Dea (2003) and McKinley et al. (2005) all note that boys and girls are motivated to eat healthy foods in different ways; body image proving to be a key motivator for girls, while sport is more important for boys.

In this research, body image awareness was reported by the girls; more priority may thus be given to healthy eating by girls in order to appear attractive and popular.

Despite girls demonstrating more nutrition knowledge, there were still examples of an apparent contradiction between basic knowledge (functional health literacy) and practice across the group, which reinforces the idea that nutrition literacy is more than understanding health risks. It is extremely important to distinguish between knowing about health and acting in response to this knowledge. Assuming that the transmission of knowledge will change attitudes and resultant behaviours is a flawed ideology (Kirk & Colquhoun, 1989). In drawing specific parallels with Nutbeam's eminent work, preadolescent nutrition literacy extends beyond functional health literacy to encompass interactive health literacy components (2000), or as Marks (2012) posits, being able to integrate knowledge in a meaningful way. Knowledge that does not translate into reports of healthy dietary behaviour is widely depicted within the literature (Hendrie et al., 2008; Hesketh et al., 2005; Schmidt et al., 2010). These ideas are also situated in broader debates that recognise knowledge as crucial but insufficient to address health inequity (Baum, 2007). From a health literacy perspective, Peerson and Saunders (2011) go on to state that there is a difference between what health literacy enables you to do and what it implies that you will do. Evidently, knowledge is only a small part of the picture.

Practical skills

A health literacy perspective encourages consideration of the challenges that children might encounter in utilising information in health promoting ways. Moving beyond an exploration of knowledge, the data in this study shed light on a range of nutrition-related skills relevant to the preadolescent age group. While younger children primarily rely on parents or primary caregivers to provide food and meals (Campbell & Crawford, 2001; Peters, Parletta, Campbell, & Lynch, 2014), this study confirms other research that finds preadolescent children are more independent in their dietary behaviours (Holsten et al., 2012). While parents created viable food options through food purchasing and preparation to a certain extent, the preadolescents involved in this study were also in a position to influence aspects of their own health by demonstrating some control over the foods they consumed. Nearly all of the children reported having access to some form of pocket money, which most used to purchase

foods. Children expressed autonomy in selecting foods within diverse settings and, in some cases, they also had control over food purchased for the whole family unit. As eloquently described by Dina Borzekowski (2009), children are active consumers in a consumerist society, so skills in food selection and preparation are certainly a relevant component of preadolescent nutrition literacy.

Providing opportunities to practise health-related skills emerged as an additional facilitator of preadolescent nutrition literacy. Cooking and food preparation skills were described by some children as liberating, as it meant they did not need to rely on parents all of the time. Other children were more limited in these capabilities, often because they had not learned these skills from parents or school-based programs, or in some cases because their parents had enforced restrictions to ensure safety (e.g. avoiding the stove). In any case, it became evident that skills in food preparation were important for these preadolescents in managing aspects of their diet, as argued by many scholars in the past (Drummond, 2010; Fordyce-Voorham, 2011; Pendergast et al., 2011; Vidgen & Gallegos, 2011, 2014). Alongside family efforts, the school is clearly positioned as a key setting for developing these practical skills (Caraher, Seeley, Wu, & Lloyd, 2013; Drummond, 2010).

While the development of food preparation skills remains an ideal goal, interactive health literacy skills could also relate to choosing a healthier alternative at a supermarket, public event, or takeaway outlet. This could pave the way for a new skill set that acknowledges a modern sociocultural food environment saturated with processed, nutrient-poor convenience foods. For example, some of the boys discussed making macaroni and cheese or noodles in the microwave; being able to select a healthier version of these processed products might become important in consideration of a social climate where cooking from scratch is limited. Or, as another boy described, his ability to read a food label encouraged him to “pick a smaller bottle of Coke”. In choosing a smaller bottle of Coke, he still participated in a health-conscious food decision, even though he chose not to swap the soft drink for a healthier option, such as a bottle of water.

Choosing foods was actually an important competency discussed by many children and some explained that that they could use discrete literacy and numeracy skills to decipher food labels to varying degrees. Conversely, other participants exhibited low

confidence in their ability to choose a healthier option within retail or canteen settings. Previous studies suggest that on-pack nutrient content claims may influence children's food preferences, which could be particularly problematic for children who are not equipped with the skills to decipher such information (Dixon et al., 2014; Soldavini, Crawford, & Ritchie, 2012). Other children in this research simply displayed no interest in food labels. Those who reported actively using food labels from time to time demonstrated an ability to use information gained at school to make decisions perceived to be of high quality. They felt confident and were satisfied in weighing up options in a retail context. Here some families also provided their children with opportunities to assume responsibility in selecting foods for the family at the supermarket, which proved to be beneficial for the children and allowed them to exercise information gained at school, where relevant.

Food labels are a means by which individuals can distinguish healthy products from less nutritious items at the point of sale (Kelly et al., 2009). Scholars continue to argue that individuals should be equipped with adequate skills to read the labels and analyse the information presented (Dodds et al., 2014; Kelly et al., 2009), yet interestingly the literature base rarely extends to children. Conversely, this study supports several recent studies in suggesting that these skills are warranted amongst a child population (Stutts, Zank, Smith, & Williams, 2011). Stutts et al. (2011) found that children who could make sense of healthier options were more likely to choose healthier meals in a fast-food setting, and children who visited fast-food restaurants more frequently were *less* likely to make healthier food choices. The children in this current research did not allude to using labels in a fast-food restaurant setting, but instead discussed reading food labels at the supermarket or other local food destinations.

In considering the skills required for children to effectively interpret food labels, it is apparent that underlying literacy and numeracy skills, at the functional level, contribute towards an individual's capacity to comprehend basic nutritional knowledge and interpret the numerical information presented. However, at an interactive level, the emphasis is on the development of personal skills and capabilities, in which case specific skills may relate to problem solving and decision-making (Nutbeam, 2000). Although the display of nutrition facts on labels aims to facilitate healthy dietary behaviours (Kelly et al., 2009; Rothman et al., 2006), their

provision alone does not guarantee that consumers are capable of applying such information. A number of the children in this study found food labels difficult to decipher. This has been well documented amongst adults in the international and Australian literature (Cowburn & Stockley, 2005; Jones & Richardson, 2007; Kelly et al., 2009; Rothman et al., 2006), and researchers recommend that Australian policy makers look towards a label form that is simple, meaningful, and useful for the average consumer, which should include children (Velardo & Drummond, 2013). Several researchers propose a simplified front-of-pack food labeling strategies, such as the United Kingdom Traffic Light (TL) system, provide an uncomplicated alternative for consumers, in contrast to more complex labeling forms (Feunekes, Gortemaker, Willems, Lion, & van den Kommer, 2008; Kelly et al., 2009). The TL system is characterised by a front-of-pack food panel that displays significant nutrients, such as saturated fat, sugar and sugar, which are ranked and colour-coded as either green (low), amber (medium), or red (high). The colour guide enables consumers to compare items at a glance, which improves consumers' identification of healthier food choices. Such a label is claimed to cater for individuals with limited nutritional knowledge, whilst acting as a faster alternative for food selection. While recent research has questioned the effectiveness of the TL system (Dodds et al., 2014), it certainly warrants further investigation with a child population.

Families and friends

In line with a socio-ecological model of health, the children's social and physical environments influenced their chances of acquiring health literacy skills. Not surprisingly, the impact of families is a key consideration with respect to children's health literacy. Participants firmly supported the premise that the home setting served as a key site for the transmission of health-related information and norms. Based on the children's narratives, many families served as health literacy mediators by sharing their knowledge and health literacy skills to develop their children's own health literacy, as reflected in previous research (Edwards et al., 2012; Quarmby, 2013). This is one pathway that has previously been shown to enhance children's health literacy (Manganello, 2008; Paek et al., 2011; Wharf Higgins et al., 2009), particularly since the children in this research placed trust in their parents.

Wharf Higgins et al. (2009) came to a similar conclusion in their research, identifying the positive and negative influence of parents on older children's health literacy in terms of modelling behaviours and facilitating or negating healthy choices. The role of the mother was most frequently cited in terms of food-related decision-making, nutrition education and shifting children's consumption towards healthier choices, which is grounded in broader sociocultural norms around gender that emphasise traditionally feminine responsibilities (Drummond & Drummond, 2010). It has traditionally been women who undertake the majority of food preparation and cooking within the Western family setting, which reflects socially constructed gender ideologies around feminine health-promoting roles (Caraher & Drummond, 2007; Courtenay, 2000). As Drummond and Drummond suggest (2010), the way in which food practices are carried out within the home will shape the ways in which boys and girls relate to food and the associated roles they assume with respect to food preparation practices. Courtenay aptly summarises this notion from a social constructionist perspective, by explaining that men and women's daily activities are "a form of currency in transactions that are continually en-acted in the demonstration of gender" (2000, p. 5).

A number of families arguably built confidence in the child's ability to select and prepare foods by providing them with opportunities to practise skills learned at school. While some parents were supportive in this regard, others were not, which proved to be a barrier to the development of health literacy. It is crucial to note that this study focused on young people who were living in social disadvantage, which became particularly evident as the interviews progressed. Socio-economic disadvantage is first and foremost a matter of broader social structures (Baum, 2007). Not surprisingly, certain health-related decisions and norms were affected by the family's socio-economic position. Factors such as food insecurity must also be considered in conjunction with health literacy in a disadvantaged context, where there simply is not enough food to eat in certain cases (Widome et al., 2009). *Stretching the dollar* emerged as a sub-theme within this research, where a group of children explained the difficulties they faced in simply having enough food to eat. While the families within this study were not consistently food insecure, a proportion of the group described food insecurity. The welfare culture is particularly noteworthy; children reported high rates of parental unemployment and a large

number explained that they lived in single parent families. Vulnerable families that appeared to experience food insecurity were evidently facing significant structural impediments to their ability to act on health-related information. Data examining the fruit and vegetable intake of socio-economically disadvantaged 12–15-year-old Australian adolescents reaffirms that a healthy home environment that offers nutritious foods at dinner time predicts frequent vegetable consumption (Stephens, McNaughton, Crawford, & Ball, 2014). By contrast, food insecurity is linked to poorer health outcomes (Ramsey et al., 2011).

Most financial barriers were alluded to in a general way, but in some cases participants went on to discern the links between the hardships their families endured and the implications that were attached to them, such as eating whatever was available. SES evidently influences health literacy, and family income serves as the primary example. Family structure made it difficult for some children to even consider healthier food alternatives.

This finding again reminds us that the predominant view that health knowledge will automatically lead to health behaviour change is ideological and inherently flawed in that it fails to recognise socio-economic influences (Baum & Fisher, 2014; Ward et al., 2013). For the children who discussed issues related to food insecurity, an attachment to price operated as a powerful influencer during any opportunities for food purchasing. In many cases, they selected cheaper EDNP foods from the school canteen or local shops. They also demonstrated an awareness of the pragmatic realities that their parents faced about the cost of living.

This is not surprising, in light of local food costing data. Current research estimates that 30% of the household income for disadvantaged Adelaide families would need to be used to meet government dietary recommendations (Ward et al., 2013). It is widely acknowledged within the literature that healthy food is significantly less affordable for low-income families, which has the potential to limit low SES groups in accessing healthier options (Harrison et al., 2010; Ramsey et al., 2011; Ward et al., 2013; Wong et al., 2011).

The findings also reflect recent qualitative research that explores parental views on factors that influence the provision of food for young children within the Adelaide region. In both studies the availability of cheaper unhealthy food options that were

considered to be a more economical option was a key concern for some parents (Peters, Parletta, Lynch, & Campbell, 2014; Velardo & Drummond, 2013), which the current research reinforces. It is understandable that the children demonstrated such an awareness, and that they articulated more interest in having enough to eat rather than ensuring that their diets were nutritionally sound (Widome et al., 2009).

Despite all residing within the same community, some, but not all, confirmed the notion of financial strain. This raises questions as to why some children residing within certain family units demonstrated a wider range of options for health promotion agency, while others showed limited ability in acquiring appropriate foods socially acceptable ways. This could be linked to various factors, such as family size or specific economic arrangements (Ward et al., 2013). Alternatively, navigating socio-economic disadvantage could be considered a form of resilience. Utilising a resilience approach could indeed identify potential intervention targets at improving health in disadvantaged communities (Stephens et al., 2014), without simply focusing on what *people are doing wrong*.

This current study points towards useful problem-solving strategies that can assist some families in acquiring cheaper goods, as well as the utility of home gardens as a source of food production for certain groups within developing communities. In some cases, parents passed on these gardening skills to their children, which is an encouraging finding. Another Australian study recently identified backyard gardening as a popular activity for parents living in a socio-economically disadvantaged area, which was viewed as a way to save money and ease economic pressures (Dixon & Isaacs, 2013). Ultimately, however, addressing broader determinants such as reducing the cost of nutritious foods through policy reform at the federal level, represents one direct way of alleviating structural issues such as these, despite inherent challenges (Caraher & Coveney, 2004; Law et al., 2011; Ward et al., 2013).

This research highlights particular inadvertent references surrounding peer influence, yet these were mainly limited to children's discussions of social gatherings where they shared food with peers (i.e. socially constructed food experiences, outlined earlier). Contrary to the literature, this did not constitute a key theme within the research. This finding contradicts a large body of research that emphasises the

influence of friends and peers on a range of health choices, including diet (Manganello, 2008; McKinley et al., 2005; Paek et al., 2011; Perez-Rodrigo & Aranceta, 2003; van der Horst et al., 2007). However, one study similarly demonstrated that close friends were less frequently cited by students as influencing decision-making, compared to teachers, families and the media (Wharf Higgins et al., 2009). One possible explanation is that peer influence is still evolving for this age group, given that the complexities of adolescence have not taken shape in their entirety.

Teachers

In addition to parental influence, school served as the key provider of health information and associated health-related skills for the children in this study. Teachers, in particular, were identified as health educators who conveyed reliable nutrition information to the children. Based on the children's accounts, some teachers fostered interactive nutrition literacy skills. The school structures and the approach to health promotion appeared to vary greatly across the three schools, with children from two of the schools reporting formal health education classes once per week. The teacher's approach, the activities employed, and the emphasis placed on health within the curriculum varied. The children reported that their teachers generally educated them about the importance of natural foods such as fruits and vegetables, versus sugary and fatty foods, but this was the extent of nutrition education in some cases. The finding that teachers are influential is encouraging, and demonstrates schools' positive influences on preadolescent children's nutrition literacy. However, several teachers appeared to offer simplistic accounts of what matters regarding health, as outlined earlier in this chapter.

School A stands out in terms of the teacher's comprehensive approach to health education, as well as the school's implementation of broader health promotion policies that served to encourage health literacy. The classroom teacher facilitated the development of her students' health literacy by encouraging them to engage with nutrition information in class, in order to evaluate the nutritional content of certain foods. She helped students increase their nutrition knowledge and develop critical literacy skills by encouraging the children to go online to investigate whether a particular snack product was healthy, thereby helping them to become informed

decision makers. One particular approach reflected an understanding of preadolescent children's social worlds; involving students in discussions around television advertisements and the internet, as they relate to health. Importantly, this engaged the children as active learners, and the teacher demonstrated an understanding of the children's social worlds. This approach to teaching has been advocated in prior research on children's health literacy (Paakkari & Paakkari, 2012; Wharf Higgins et al., 2009). Furthermore, it is important to note that the topic of health was integral to many of the classroom practices beyond the health education lesson, including the food detective activity outlined by one of the participants, which served to facilitate health literacy (See Chapter 5).

For the other schools that largely focused on traditional transmission of declarative nutrition knowledge, the approach appeared to be less effective. While setting a foundation for developing interactive and critical health literacy skills, a focus on theoretical knowledge alone is seldom sufficient for empowering children to make healthier choices (Paakkari & Paakkari, 2012). The children reported that they did not enjoy receiving overly generalised health information that was not personally relevant. For example, the approach taken by School B was largely teacher-directed. Conversely, students from School A generally responded well to more interactive approaches in the classroom. This finding is supported by research conducted by Begoray et al. in Canada, where the researchers found that high school students' health literacy was largely influenced by the school context, specifically the "quality and quantity of health information disseminated … [and] the communication of teaching styles through which the information was delivered" (Begoray et al., 2009, p. 37).

Other factors within the school environment also warrant consideration. Children across all three schools discussed various educational initiatives/ programs that promoted health, for example *Crunch & Sip*, breakfast programs and gardening programs. Most prominent, however, were the positive views reported by students from Schools A and B in response to a nine-week health education program that had been organised and administered by external community partners. As outlined in Chapter 5, the program specifically provided nutrition information and facilitated the development of skills in food label interpretation and food selection. This program provided a platform for developing health literacy skills amongst the preadolescents

and some children really benefited. The American *Nutrition Detectives* program has shown similar results amongst primary-school-aged children, in terms of improving practical skills in food selection (Katz et al., 2011). More students from School A reported using these skills, which might also reflect the school's greater emphasis on health promotion in its daily operation (e.g. bans on confectionery, closure of the school canteen).

Promoting health literacy within schools

Despite the mixed responses from students across the three schools, this research confirms the view that the school is a key setting for the development of child health literacy. Many scholars strongly advocate that schools play a fundamental role in developing children's capacity to become skilled, knowledgeable and health literate individuals (Begoray et al., 2009; Marks, 2012; St Leger, 2001; Wharf Higgins, 2012). This is grounded in a settings approach. A settings approach to health promotion recognises health as a social matter that is highly contextual. Settings for health are formally defined as "the place or social context in which people engage in daily activities in which environmental, organizational and personal factors interact to affect health and wellbeing" (Nutbeam, 1998, p. 19). The notion of healthy settings was first introduced by WHO in the Ottawa Charter, which specifically refers to the settings of everyday life where people learn, work and play, and the idea has been substantially developed over the last 20 years (World Health Organization, 1986). A discussion of healthy settings is grounded in the socio-ecological perspective that has guided this thesis. It ultimately recognises the broader sociocultural environment as a key influence on people's health-related behaviours and outcomes (McLeroy et al., 1988; Stokols, 1996). This idea has been recognised and supported internationally, resulting in a range of settings-based movements that aim to develop empowerment through reshaping policies and environments, for example healthy cities (De Leeuw, 2009), health-promoting hospitals (Johnson & Baum, 2001; Pelikan, Krajic, & Dietscher, 2001), workplaces (Chu et al., 2000), and schools (World Health Organization, 1998).

School-based health promotion is a complex and challenging task (Keshavarz, Nutbeam, Rowling, & Khavarpour, 2010). Scholars advocate that subject-specific nutrition education should be grounded in a broader whole-school approach in order

to develop children's nutrition literacy (Paakkari & Paakkari, Kilgour et al., 2013; 2012; Wharf Higgins, 2012). Becoming health literate is an ongoing process for children that will likely develop over the course of a lifetime, as children navigate a range of health experiences within diverse contexts (Manganello, 2008). Schooling can play a key role as individuals progress through different stages and encounter diverse experiences.

Health literacy, as a distinct form of literacy, should be at the forefront of the school agenda through curriculum development and clear goals for school health promotion. In an Australian educational context, ACARA's *Revised Australian Curriculum: Health and Physical Education – Foundation to Year 10* explicitly highlights the importance of developing children's health literacy, ACARA defines child health literacy as "the ability to selectively access and critically analyse information, and take action to promote their own and others' good health" (Australian Curriculum, Assessment and Reporting Authority, 2012, p. 24). The definition adopted by ACARA is promising in that it reminds us that health literacy is a social capacity, rather than a purely intellectual one. While ACARA aptly refer to key health literacy concepts, the question remains as to how teachers will address such competencies in the classroom.

In considering the knowledge, skills and understanding that students are expected to acquire through the draft curriculum, teacher training should embrace participatory pedagogies in order to move beyond improving functional knowledge. Health literacy is not one size fits all, and therefore learning how to develop and/or adapt educational materials and messages for children with different levels of health literacy skills is important. This also encourages researchers to further reflect on the role of teachers and the factors that facilitate or limit their ability to promote health literacy amongst students with a range of personal characteristics and capabilities. These factors could relate to limitations around resources, or they could reflect underdeveloped competencies. Tensions may certainly arise when teachers lack expertise in the health and physical education curriculum area and are encouraged to discuss unfamiliar topics and implement nutrition education into their lesson plans. Lack of training, combined with the pressure of delivering an already crowded curriculum, may manifest as a tendency to delegate health promotion responsibilities

to the school's specialist Health and Physical Education teacher, in which case educators might benefit from further education and professional development (Begoray et al., 2009; Peterson, Cooper, & Laird, 2001).

A teacher's own health literacy may not only impact their capacity as health educators, but may inadvertently reinforce or undermine healthy eating messages within the school setting (Peterson et al., 2001). Research has also emphasised the importance of a comprehensive school health approach, with the integration of health concepts across all areas of the curriculum (Peterson et al., 2001). This approach requires teachers from different learning areas to work collaboratively to portray healthy messages in their respective classrooms and educators therefore need to be provided with the opportunity to acquire the appropriate health-education training. It must be acknowledged, however, that health promotion can be a more challenging and time consuming task for certain schools, dependent on contextual differences (Keshavarz et al., 2010).

A school-based health literacy approach calls for further consideration of the roles of teachers beyond the realm of the classroom. This may encompass involvement in specific extracurricular activities that focus on advocating for needs, developing community links, strategic initiatives, and seizing opportunities that address relevant issues through social change, thereby paving the way for active citizens amongst their students (St Leger, 2000, 2001; Tappe & Galer-Unti, 2001). A discussion of citizenship prompts consideration of critical health literacy amongst the children involved in this study. As outlined in Chapter 2, in the evolving discourse of health literacy the critical domain has arguably been flooded with perspectives that emphasise skills in critically appraising health information. Its original essence, by contrast, focused on participation in changing social norms and conditions, which shape the social determinants of health. Evidently the key attributes presented early on in the literature have become absent in more recent discussions (Sykes et al., 2013). Nutbeam's original conceptualisation (2000), which has been embraced throughout this thesis, frames critical health literacy as one of the more sophisticated characteristics of a health literate individual. This research did not set out to specifically explore this aspect of health literacy, and very limited data emerged in this respect. It appeared that most of the children were not equipped with skills to

actively engage in improving the conditions of the wider community. Some scholars suggest that sophisticated social and political skills are likely to develop in older children only (Schmidt et al., 2010), while others maintain that these skills might be developed earlier on (Kickbusch, 2009; St Leger, 2001). Paakkari and Paakkari (2012) are strong advocates for schools promoting citizenship amongst children, although the extent to which we might expect to develop engagement in social advocacy amongst children merits further study.

In revisiting the role of the school with respect to health literacy, this study also supports the notion that school policies should be conducive to good nutrition, in line with a whole-school approach (Abery & Drummond, 2014; Burke, 2002; World Health Organization, 1998). Concurring with previous research (Rana & Alvaro, 2010), findings indicate that for two of the schools there was a contradiction between what the school was teaching about nutrition and what was provided in the canteen. Research has consistently acknowledged the important role of the school canteen with respect to providing nutritious food options for students, in order to reinforce important messages that are delivered within class time (Burke, 2002; Drummond, 2010; Perez-Rodrigo & Aranceta, 2003). Bell and Swinburn (2004) report that children will tend to select unhealthier food options in preference to more nutritious foods, if provided with the option in a school canteen setting. This was certainly evident in this study, whereby the children reported purchasing energy-dense snacks from the canteen. One school also provided confectionary as a canteen item, which is of utmost concern. Some girls also discussed the fact that there were limited healthy alternatives, apart from fruit. Currently, no procedures are in place to ascertain whether South Australian schools follow the mandatory *Rite Bite* nutritional guidelines and some schools are evidently disregarding them, which confirms previous South Australian research (Drummond & Sheppard, 2011). Abery and Drummond (2014) contend that more schools might implement the policy through the provision of additional support and resources, which is evidently warranted.

For students who do not have much support in other contexts of their life, the school can potentially support them in developing health literacy, taking control of matters that affect their health (Wharf Higgins et al., 2009). Schools provide an ideal setting to build upon children's perceptions and attitudes towards health, and they can play a

key role in dispelling socially engrained norms with factual information and critical evaluation skills.

This study found evidence of school support for health literacy development. Some children were provided with opportunities to develop specific health literacy skills at school (e.g. media literacy and food label interpretation). While health literacy skills do not necessarily translate to changed self-reported behaviours, they do represent an important step. Some participants, particularly girls, explained that they were motivated and able to seek and engage with new information learned in the classroom, and act on the information by incorporating it into their food selection practices. However, most compelling, were children's reports that they had participated in knowledge and skill transfer back to the home setting, thereby challenging the fixed model of intergenerational health that prevails today. For example, some children identified that they were encouraging their parents to purchase healthier food alternatives that were previously not tried at home. This corroborates prior research suggesting that children's own food choices may transfer to eating patterns with the home, and influence attitudes of their parents and the wider community (Davis et al., 2002; Drummond, 2010; Evans et al., 2006). Traditionally, it has been accepted that the family serves as a key site for the transmission of health-related information and skills, yet the data gathered through the children's accounts corroborate prior research in suggesting that an alternative mechanism might be possible (Drummond, 2010). It is possible that children can create a home environment that is conducive to the acquisition of health-related knowledge, skills and health-promoting learning experiences. In this way, the transmission of health literacy competencies might operate through various pathways and children might be defined as empowered agents of change who act as catalysts within the family setting. As Vidgen and Gallegos posit (2014), these skills and capabilities may empower individuals and families to build *dietary resilience* over time, in a scaffolding fashion.

Media

Media and technology emerged as a key theme in this study. The data reinforce our current understanding that contemporary media is central to many aspect of children's lives. Consistent with other studies, the children identified media as a key

provider of health information and a powerful persuader (Begoray et al., 2009; Mehta et al., 2010; Paek et al., 2011; Wharf Higgins & Begoray, 2012; Wharf Higgins et al., 2009). The media is also influential in norm setting for young people (Levin-Zamir et al., 2011). In this current study, the children cited television as a key source of food messages, particularly through the provision of basic nutrition advice related to fruit and vegetable consumption via advertisements and cooking shows, as well as the promotion of discretionary foods. There is tension between the medium through which public health messages are disseminated to children, and their potential to impact negatively on the nutrition of consumers through advertising schemes and fast-food promotions.

A strong theme in the media and health literature pertains to the influence of food advertisements aimed at children that promote the purchase and consumption of EDNP products (Cairns et al., 2013; Campbell, Crawford, & Hesketh, 2007; Mehta et al., 2010; Phillipson & Jones, 2008; Roberts et al., 2014). Recent work situates health literacy in the context of contemporary digital media, based on the recognition that health literacy is a dynamic construct (e.g. Levin-Zamir et al., 2011; Wharf Higgins & Begoray, 2012). Research conducted with adolescent students in Canada (Wharf Higgins et al., 2009) and Israel (Levin-Zamir et al., 2011) shows that critical media literacy can affect young people's perceptions of health and their health-related choices. Levin-Zamir et al. (2011) conclude that adolescents' health can be either promoted or compromised through interactions with contemporary media. Health claims on television can mislead children in their perception of foods, and potentially their health-related decision-making, and media health literacy might empower some children to critically reflect on content, as demonstrated through this research.

This study specifically focused on media nutrition literacy as a component of children's health literacy, by exploring children's perceptions and responses to three television food advertisements promoting discretionary products within a health discourse. Upon examining the advertising campaigns, most children were able to acknowledge the persuasive effect of the media by identifying an underlying profit motive. Several participants also expressed a distrust of the media due to a perceived exaggeration of media claims, using personal product knowledge in some instances.

Although some children were aware of the potentially powerful influence of commercial media, others did not allude to this at all. Wharf Higgins and Begoray conceptualise critical media health literacy as capability that:

> empowers individuals and groups, in a risky consumer society, to critically interpret and use media as a means to engage in decision-making processes and dialogues; exert control over their health and everyday events; and make healthy changes for themselves and their communities (2012, p. 142).

In considering the results of this study, most of the participants were influenced by various health claims in terms of buying into the health-related advertising promises and demonstrating intent to purchase. For example, Nutri-Grain's emphasis on protein, calcium and fibre provides a clear example of nutritionism ideology, and how it operates at the expense of other ways of understanding food and health (Scrinis, 2008). The promotion of food coupled with sport also influenced some children's ability to judge the nutritional value of Nutri-Grain and Nutella, which corroborates previous research with Australian children (Phillipson & Jones, 2008). Moreover, the broad findings of the research closely reflect the results of a previous South Australian study that investigated eight to 11 year-olds' responses to food advertising on television. Mehta et al. (2010) show that children generally respond actively to food advertisements despite acknowledging the persuasive nature of advertising. Branding is another phenomenon that warrants concern, since many participants responded positively to the McDonald's advertisement, despite recognising its unhealthy connotations, thereby emphasising the complexity of this issue (Robinson, Borzekowski, Matheson, & Kraemer, 2007).

There is a risk that young Australians are exposed to misguided health information and brand promotion through their engagement with television advertisements, which often results in *pester power*, a term that describes children's ability to repetitively place pressure on their parents to purchase items they may not otherwise buy (Nicholls & Cullen, 2004). In this case, children may use pester power to persuade caregivers to purchase more energy-dense foods, as recently noted by several South Australian researchers (Mehta et al., 2014; Velardo & Drummond, 2013). Alternatively, they may simply purchase these foods independently given they have access to pocket money. While this research focused exclusively on food advertisements broadcast on television, advertising for unhealthy food products extends to popular websites frequented by children (Mehta et al., 2014;

Ustjanauskas, Harris, & Schwartz, 2013), with internet advertising representing an additional barrier to health promotion.

In reviewing the definition of critical media health literacy it is evident that a small group of girls demonstrated more advanced media nutrition literacy skills by recognising visual techniques and omission of key information. However, it is important to note that these children all resided within one school that had previously focused on developing media literacy skills through several classroom activities. These children reported feeling less inclined to purchase such products, based on their health content. Albeit based on a minority group, this finding supports the concept of media nutrition literacy, despite recent evidence that advertising knowledge does not serve as a food marketing defence for young children (Reisch et al., 2013).

In considering gender specifically, it is interesting to note that boys were more likely to embrace exaggerated health claims. Levin-Zamir et al. (2011) similarly show that girls demonstrate greater media health literacy than boys. They explain that this might be attributed to females' tendency to share ideas about their viewing experiences compared to males. This could be the case within this research, or alternatively the findings could reflect the differences in perceptions of health noted earlier in the chapter. Regardless, boys may need stronger defences against persuasive advertising messages compared to girls; this notion requires further investigation.

Stringent industry regulation is ideal yet increasingly difficult (Mehta et al., 2014; Mehta et al., 2010; Reisch et al., 2013; Strasburger, Jordan, & Donnerstein, 2012). A recent Australian publication confirms that Australian children continue to be exposed to advertising campaigns that promote EDNP foods, despite the introduction of voluntary regulatory codes (Roberts et al., 2014). The complexity of this issue illuminates a dual opportunity for parents and schools to support children in moderating media usage and developing media nutrition literacy skills, alongside strong advocacy efforts. All children deserve the right to develop an ability to evaluate media messages, and developing these capabilities could arguably promote critical analysis of other sources of information, including information obtained from other interpersonal sources, which might enable reasoned choice. More importantly,

however, a critical health literacy perspective extends beyond the informational approach to health literacy that is so commonly criticised within the health literature, since fostering these skills might also elicit children's voices within the ongoing regulation debate. Wharf Higgins (2012) argues that schools play a key role in this regard, in terms of developing a curriculum that engages and empowers preadolescent children to take social action. However, a systematic review by Bergsma and Carney (2008) points to the lack of research literature explaining effective health-promoting media health literacy initiatives. Further research is warranted to develop and evaluate the elements of effective interventions that involve additional outcomes beyond changes in knowledge and attitude. Given children's exposure to a wide range of potentially health-negating media messages beyond nutrition-focused advertisements, the development of such critical skills might also mitigate the body image issues that are prevalent amongst young girls (McLean, Paxton, & Wertheim, 2013).

The internet is another setting that warrants consideration in the discussion of children's health literacy. The online environment has certainly emerged as an important platform for communicating health information, and consequently, health information-seeking, particularly given its potential for interactivity, engagement and anonymity (Berkman, Davis, & McCormack, 2010; Hesse & Shneiderman, 2007; Mackert, Champlin, Holton, Muñoz, & Damásio, 2014). Upon recognition that media plays a key role in the dissemination of health information, an individual's ability to navigate the online environment has become an important component of health literacy and has been labelled eHealth literacy accordingly (Berkman et al., 2010; Kreps & Neuhauser, 2010; Mackert et al., 2014).

Some scholars report that health information-seeking is limited amongst disadvantaged adults due to lower levels of literacy and income (e.g. Cotten & Gupta, 2004; Gilmour, 2007). Zhao (2009) states that this is commonly manifested through lack of internet access within the home, as well as low connection speeds. However, the children in this study who resided in a low SES community did not pertain to the presence of any digital divide. Instead, they positioned themselves as avid consumers of the media with substantial access to the internet, television, tablets and mobile phones. This reflects data suggesting that Australian children are

spending large amounts of time engaging with contemporary media. The *Survey of Australian Children's Participation in Cultural and Leisure Activities* (Australian Bureau of Statistics, 2009a, 2012) indicates that children's use of the internet has increased significantly over time, from 64% in 2003 to 79% in 2009 and 90% in 2012. More specifically, the most recent data from 2012 shows that 96% of nine to 11 year olds and 98% of 12 to 14-year-olds had accessed the internet. The survey also illustrated that a high proportion of children owned mobile phones, whereby 22% of nine to 11-year-olds and 73% of 12 to 14-year-olds had a phone in their possession. The survey did not collect any specific data on smartphone ownership or use of mobile internet or apps amongst this specific population. However, more generalised data from the *Internet Activity Survey* indicates that at the end of 2013 there were 20.3 million mobile handset subscribers across the country, with mobile wireless broadband access accounting for half of all internet connections in Australia. Trends also indicate that Australians are continuing to download more data over time (Australian Bureau of Statistics, 2014b).

Evidently, the online environment constitutes a way of living for young Australians. Preadolescent children rely on the internet each day, not only to seek relevant information and entertainment, but to communicate with their contacts and maintain their social networks (Vollum, 2014). The proliferation of wireless internet access also means that the online environment is becoming increasingly accessible for young people (Strasburger et al., 2012).

In line with media health literacy literature (Gray et al., 2005; Jain & Bickham, 2014), some children alluded to the unregulated environment that is the internet. Overall, however, the group did not place a lot of importance on gathering accurate health information, which was largely because seeking health information via traditional websites was not a priority for participants. Websites were not cited as key sources of nutrition information, which was interesting finding given that the internet has become an important mode of communicating health information for young people. Previous research with preadolescents shows that websites are an important health-related resource (Brown et al., 2007; Gray et al., 2005), and this study contradicted this finding to a certain degree. With the exception of some girls retrieving diet advice via teen websites, most children were not likely to access

health information via a traditional internet website unless prompted to do so, for example, as part of a school project or activity under the guidance of a teacher. This could be because nutrition was not perceived as a high priority or concern for many children, as outlined earlier, or because felt equipped with enough basic nutrition information.

By contrast, some children discussed navigating certain health-related smartphone apps in their everyday practices. Apps were fundamentally considered to be interesting and fun, as cited in a previous study with preadolescent girls (Nollen et al., 2014). This thesis hypothesises that the children's interest in them could be linked to certain factors that distinguish apps. First, the information was brought to them and second, the information was available quickly. Apps also reflect a social norm, with findings suggesting that mobile apps are socially constructed to be sources of health information.

These comments reinforce the positive aspects of new health information technologies, which may have the potential to increase consumers' access to relevant information and resources through enhanced interactivity and user control, particularly amongst low income, low education households (Brodie et al., 2000). One recent study proposed a number of predictors for adult usage of nutrition-related apps, including "perceived usefulness, perceived ease of use, self-efficacy and social norms" (Okumus & Bilgihan, 2014, p. 31). It is possible that these antecedents might also be relevant to children and it would be interesting to explore this further.

The emergence of health-related apps is a welcome development that is finding an important place among some preadolescents' repertory of health-related resources. The overwhelming ubiquity of social media tools such as Facebook, Twitter and Instagram are acknowledged for their widespread uptake (Tobey & Manore, 2013). Smartphone and tablet apps have developed significantly in the field of public health, through the gradual acknowledgement that such technologies may actually facilitate health promotion (Hswen et al., 2013; Mitchell et al., 2013). Accordingly, when considering the internet as a setting for health promotion, the scope is no longer limited to analysing people's negotiation of traditional webpages that portray health information. This research thus suggests that children need to become informed and

discerned consumers that are capable of navigating health information in a number of dynamic formats as they progressively engage with more electronic media forms.

The discussion of apps that emerged throughout the interviews largely centred on healthy food selection, and it was outside the scope of the interviews to track children's usage of these programs. Research evidence has shown that nutrition-related mobile apps are an attractive modality for parents with young children (Bensley et al., 2014; Singh, Wilkinson, & Braganza, 2014). However, in considering the literature surround nutrition-related apps specifically for children, the space is confined to few studies given the infancy of this particular perspective. One study by Hswen et al. (2013) involved the development of an iPhone app named *Avafeed* that was based on a virtual animal avatar that responds directly to the user's dietary choices. The app integrates a reward system and ongoing feedback for the user. The app was released to the market in 2012, yet there is no indication of its utility in promoting healthier food choices to date. A separate short-term pilot intervention tested the effectiveness of a specifically designed mobile app in improving dietary behaviours amongst 51 socio-economically disadvantaged girls aged nine to 14. Results indicate that mobile apps may contribute to increased fruit and vegetable consumption, but further research is needed to better understand the potential for app technology amongst this age group since there is not enough evidence to date (Nollen et al., 2014).

While some participants identified mobile apps to be useful, others were aware of this technology but were not motivated or interested in engaging with it. These findings pose questions around social media and its potential role in improving children's capacity to access, understand and act upon health information needed to navigate a complex information-rich society, and whether certain prerequisites might support this. For example, specific strategies may need to be established to assist certain groups of consumers access valuable information that can support health literacy. Future research is needed to better understand whether mobile apps constitute a pathway towards nutrition literacy, and the reasons why apps might appeal to girls to a greater degree.

Within this study, boys expressed more interest in video games than apps, so perhaps this should be explored further. Additional research should also consider the

challenges present in terms of cost, accessibility, credibility and sustainability (Hswen et al., 2013; Mitchell et al., 2013). Research in this area would generate a greater understanding around the manner in which these resources might facilitate health literacy.

Overall, this thesis supports the contention that more research needs to explore the potential benefit of contemporary media in young people's lives (Strasburger et al., 2012). This is important to avoid a tunnel-visioned approach, given the widespread negative portrayal of the media and its association with well-established health problems (Rosen et al., 2014; Thurlow, 2006). However, an array of problems that could reasonably emerge from app technology must be concurrently examined. For example, in the case of this research, that some young girls were utilising apps as a weight-management tool to track calories is alarming and warrants consideration. This could also reflect the limitation of health apps that are specifically designed for *child* consumers (Hswen et al., 2013). Similarly, the emergence of smartphone apps from franchises such as Hungry Jack's that provide deals and incentives for children to consume junk foods are problematic. While apps have developed rapidly in the field of public health, fast-food chains are similarly taking note of the contemporary landscape and challenging such efforts through the implementation of deals and coupons imbedded within a variety of apps or through web based and email offerings.

Chapter summary

Preadolescence is marked by an increase decision-making and independence, and this was certainly evident in the children interviewed. As a group, the children engaged in food-related decision-making to varying degrees. They reported that they obtained health and nutrition information from families, schools, food labels and various media sources. Although health literacy research had tended to emphasise an individual level of personal health-related decision-making, this study illuminates the social context of health literacy. Preadolescent children have strong opinions about food, nutrition and health, and socially constructed ideas about health and nutrition that emanate within a modern sociocultural environment clearly influence health literacy. Children's perceptions of the norms in their social groups influenced their own self-reported attitudes and behaviours. For some children, health was not an

obvious priority. Mediating factors affected whether children gained knowledge relating to health and nutrition, and some were clearly misinformed about various aspects of health. Discourses surrounding weight and moral obligations towards health became evident, particularly amongst the female participants. Health and nutrition literacy was seen to vary across gender, whereby girls were more active in seeking health information and exercising certain nutrition literacy skills, thereby suggesting that health literacy is a gendered notion. This study also touched upon some of the challenges in enhancing the health literacy and nutrition literacy of this population, and the ways in which such challenges may vary across genders.

In listening to the children's voices, various factors affected whether they retrieved this knowledge and engaged in health-promoting practices. Both interpersonal agents and organisational structures played a role, namely family, schools and the media. Some children reported difficulty in finding congruency between a desire to choose healthier alternatives and limited family budgets, or unsupportive environments, while others were provided with opportunities to become health literate. Parents are still very important in the lives of preadolescent children, and participants consistently referenced their families, and in particular their mothers, when questioned about the ways in which they learned about health and developed practical skills such as cooking. However, the school environment was arguably the strongest influence on the children's nutrition literacy, and findings indicated that child health literacy might also be an asset that can improve outcomes for the whole family. Finally, children are entrenched in a sociocultural climate that continually emphasises media use. Preadolescent children are unquestionably avid media users, and both traditional and contemporary media forms may impose barriers or facilitators to child nutrition literacy.

The qualitative enquiry in this study, found that nutrition literacy is contextual, since it is shaped by the sociocultural context of people's lives. A range of demographic and structural factors emerged throughout this research, reflecting broader determinants of health such as gender, income and education. This diversity in itself illustrates the utility, adaptability and robustness of ecological principles and socio-ecological frameworks in understanding multiple influences on health literacy. Dominant discourses influence some children's ability to conceptualise what it

means to be healthy. Children encounter various challenges in seeking, understanding, evaluating and using nutrition information in their everyday lives, and improving health literacy involves more than the transmission of health information. Beyond the delivery of functional health information children must be provided with meaningful opportunities to learn *how* to be critical health literate consumers within supportive environments, where health-literate practices are possible. The following chapter concludes this thesis and summarises recommendations for future research and practice.

CHAPTER 8: CONCLUSION AND RECOMMENDATIONS

This final chapter utilises evidence and insights from the results and discussion chapters to provide concluding remarks related to the concepts of child health literacy and nutrition literacy. The results compiled throughout the analysis and their positioning within the broader research literature are the basis for the development of relevant recommendations that focus on children's health literacy. These recommendations are offered to practitioners and policy makers. This chapter reflects on the qualitative nature of this research and the strengths and limitations of the study, before concluding with the researcher's reflections on how to advance the evolving fields of interest, and the methodological implications for future research.

Reflecting on the key findings

This project was grounded within a socio-ecological and social constructionist framework, which guided the research questions, data collection strategies and interpretation of results. The initial basis of this research was an identified gap in the literature pertaining to health literacy from the child's perspective. This study was successful in contributing the voice of children to the broader health literacy literature; an area significantly lacking to date. This research also adds to a growing body of research development in the domain of nutrition literacy, as a hybrid notion. Furthermore, this is one of the first studies to explore preadolescent health literacy using a qualitative approach.

The research specifically provides further insight into the sociocultural dimensions of health literacy in terms of the ways that children access, understand, evaluate and use dietary information, and construct meaning around health and nutrition. Listening to the voices of the children reinforced the notion that preadolescents are in a position to influence some aspects of their own health, even within a disadvantaged community. The findings of this research support the idea that health literacy is context and content specific. Health literacy skills that are relevant for preadolescent children are unique and different to those important for adults. For example, there was a particular emphasis on media and technology as it relates to health, which is central to young people's social worlds. Further, the application of health literacy

varied across diverse contextual conditions, for example having to engage with media, select food within the home, prepare and cook snacks, and purchase food on school grounds and within local community settings.

In discussing the skills required to apply health literacy, the children provided insight into a number of perceived barriers and facilitators. The information opportunities and decisions that impact on children's health are an important consideration. Families play a crucial role in shaping children's health literacy, but schools and broader sociocultural factors also play a role. Indeed, the school setting was arguably the main source of health-related knowledge and skills for the participants in this study. In some instances, these settings proved to inhibit healthy lifestyle choices, particularly in considering the lived experience of food insecurity apparent for some children. However, in other cases these settings encouraged the development and application of health literacy skills. Some families appeared to be more resilient to socio-economic disadvantage. Health literacy as a form of capital could constitute part of the answer to understanding why this might be the case; however, continued investigation is required. Preliminary findings also suggest that child health literacy may operate differentially across gender and the health-orientation of females was apparent even at ages 11 and 12. This finding is particularly significant for future public health strategies.

Children need opportunities to develop and practise health literacy skills in various contexts. This study shows that being exposed to consistent health messages that are reinforced across various settings is important for both boys and girls, as is having opportunities to exercise independence and engage in health-related skills at home, school, and within other community settings including retail contexts. The conceptions of health that became evident throughout the analysis are grounded in a dominant societal discourse that reflects gender norms, as well as socially constructed food experiences that do not place emphasis on health. Finally, it became apparent that the media plays a key role in most aspects of these children's lives. Confirming previous research, preadolescent children demonstrate a capacity to react and reflect on advertising campaigns. This study has also positioned contemporary media forms as a facilitator or barrier to children's health literacy. The potential for harnessing the media and technology for health literacy, thus engaging children

whilst also improving their capacity to critically reflect on pervasive media messages that are potentially detrimental, is worthy of consideration.

Strengths and limitations of the research

This distinctive research explored health literacy using the perspectives of preadolescent children. It was grounded in an ideology that emphasises children's rights to participate in matters that affect them (United Nations General Assembly, 1989). Listening to the voices of children provided the researcher with an exciting opportunity to uncover the ways in which children navigate their way through contemporary nutrition information and resources. As previously reported, there is a lack of literature that examines health literacy from the child's perspective. Within this study, semi-structured interviews allowed the researcher to gain a rich, in-depth perspective of the nutrition-related skills and resources that are relevant to 11–12-year-old boys and girls, based on their own lived experiences. This study prompts consideration of the way health literacy is explored and measured. This study strongly advocates a qualitative approach to future health literacy research and rigorous mixed-methods studies that can advance the current understanding of health literacy, as it relates to individuals and their everyday lives.

The social constructionist approach revealed a complex interplay of health-related discourses and offered some insight into how this group of children sees the world. A range of relevant themes subsequently emerged by allowing new ways of understanding health literacy, beyond the biomedical realm, that draw attention to the practical consequences of socially constructed notions of health and health responsibilities within diverse groups and changing contexts. The inclusion of media content, in the form of television advertisements, was a strength of this study. The participants genuinely enjoyed this aspect of the study, which reinforces one of the key findings that media play a central role in many aspects of preadolescents' lives.

One of the ongoing challenges within the field of health literacy research is effectively measuring the concept and its components (Nutbeam, 2008). This research adopted a qualitative, interpretive approach on the basis that such methods are incredibly useful in ascertaining the sociocultural factors associated with health literacy. While clear strengths have been outlined, it is important to acknowledge the

limitations that still exist. For example, a qualitative approach to health literacy research does not offer an objective assessment of a person's actual capabilities if the aim is to *measure* and *grade* skills. Accordingly, other research methods should not be discounted, and further research might consider mixed-methods approaches that include direct assessments of skills, alongside a qualitative exploration of relevant sociocultural factors that shape children's health literacy. Research of this kind is starting to emerge throughout Australia, which is extremely promising for the field (Jordan et al., 2013).

In considering the nature of this research topic, it is also important to recognise that the study might have selected child participants already interested in health, given that all participants openly volunteered to take part in a study around health and nutrition. The provision of nutritious refreshments within the interviews, that is, a seasonal fruit and vegetable platter, could have possibly influenced the children's responses, despite the fact that refreshments were not served until the interviews had concluded. The school setting in itself could have also enhanced the students' health orientation in the provision of interview responses, or their critical evaluation of the media clips that were presented. Other studies have reported a similar limitation in their research, on the basis that the atmosphere of the school setting might influence adolescents in providing responses that reflect an "educational, more critical perspective" (Levin-Zamir et al., 2011, p. 331).

Furthermore, is possible that while co-viewing the television advertisement with their peers in the focus group setting, the children may have responded in a certain way if they perceived that others were criticising aspects of the media content (Levin-Zamir et al., 2011). Socially constructed norms are central to the topic of this thesis, which naturally raises questions around social desirability bias, as it relates to health-related research conducted with children. On the basis that social norms are integral to children's experiences, a researcher should consider the impact of these norms and whether they inadvertently inflate attitudes and values put forward by child participants, in an effort to provide socially accepted responses. Two potential motivations should be noted; one that relates to achieving the acceptance of the researcher (Nolte, Elsworth, & Osborne, 2013), and the second that is grounded in a preadolescent subculture that emphasises peer acceptance. That the children

generally described their own health in a positive light, points towards social desirability bias and it is likely that some children would be inclined to put forward certain views in an effort to conform to group norms. This should not be viewed as a pure limitation, but instead recognised as an interesting aspect of the study, since conforming to peer group norms is in fact a broader representation of the deeply engrained social constructions and moral obligations towards health that are relevant to these children's lives. Individual in-depth interviews were also included so that some participants had the opportunity to respond within private circumstances. As previously outlined in Chapter 4, utilising two data collection methods evidently served to strengthen this study in multiple ways.

Finally, the sample size was relatively small, but still adequate for an exploratory study. The findings were also informed by a gender-biased study population. In total there were 24 girls and 14 boys who participated in the research and the gender imbalance can limit aspects of the findings. An overrepresentation of females arguably encouraged the emergence of certain sub-themes, specifically related to body image and weight management. Further, in considering the gendered notions of health literacy that became evident through the data, the study might have been strengthened by a larger sample size with an even ratio of males to females, to further capture the male perspective. Nonetheless, the gendered nature of child health literacy has emerged as an important area for future research and there is a clear need to further understand the skills that are relevant to both boys and girls.

Recommendations for practitioners

First, it is important to highlight that the responsibility for health literacy should not solely lie with the individual; instead, heath literacy needs to be supported by healthy environments (Velardo & Drummond, 2013). Broadly speaking, this approach is consistent with the Ottawa Charter action area of creating supportive environments. One key environment is that of the school, and this research supports health literacy interventions linked to schools and other education settings (Paakkari & Paakkari, 2012). There is a small body of research that provides practical examples and recommendations for developing a health literate youth through the school setting (Paakkari & Paakkari, 2012; Wharf Higgins, 2012). Alongside other scholars, this thesis advocates for the development of teacher health literacy and capacity-building

competencies (Marks, 2012). It is important that teachers develop critical thinking skills in order to understand the wide ranging social, cultural, environmental and political determinants of health that influence them as individuals within a broader community (Paakkari & Paakkari, 2012). Self-awareness is an important step in teachers reflecting on their own pedagogical approaches and developing an understanding of learning conditions that will likely support health literacy. At a bare minimum, teachers should feel confident navigating, understanding and evaluating the impact of contemporary media, given the ubiquity of digital media in children's social worlds. Such skills can reasonably come through specialised training, and further research should seek to understand teachers' experiences, needs and preferences for such professional development. Learning how to develop and/or adapt educational materials and messages so that those with different levels of health literacy skills can access and use the health information is also important, and should become a goal for future education-focused research in this area.

In addition to accessing information, children should be equipped with the skills to critically appraise sources. As an example, if one aim of school-based education is to challenge children's perceptions that the frequent consumption of discretionary foods is acceptable and a normal part of everyday life, teachers might direct children to the formal Australian dietary guidelines. Similarly, schools should work towards developing a broader understanding of the meaning of the term *health* to encompass its holistic nature as reflected in the Ottawa Charter (World Health Organization, 1986), given the misinterpretation of many concepts and the ubiquitous discourses of obesity and healthism that emerged.

In response to pervasive media messages, it is recommended that media literacy skills are developed, to strengthen critical thinking and assist children in navigating potentially misleading information (Levin-Zamir et al., 2011). While industry regulation and more stringent restriction of unhealthy food promotion are ideal, it is unlikely that commercial mass media will alter current practices without strong and persistent enforcement. Given the lack of transparency in contemporary media messages, pedagogical practices that improve children's ability to critically evaluate food discourses and advocate for community health may serve to challenge already established norms around certain foods, and promote a better understanding of

advertising intent and fabricated claims (Velardo & Drummond, 2013). Schools can assist by incorporating a specific media literacy curriculum that continually reinforces key messages. Begoray et al. (2009) specifically recommend school-based activities that encourage students to not only examine but create advertisements, in order to build different forms of health literacy. They also suggest that young people require assistance to develop their ability to evaluate media messages over time, and that youth should be involved in the development of such programs, which should be closely considered in developing future health promotion initiatives. Strategies involving social media might also be embedded into the school's approach, given its ubiquity and relevance to young people's lives (Vollum, 2014).

Health literacy is enmeshed within a broader social, cultural and political environment and it needs to operate at personal, interpersonal, organisational and societal levels. Health literacy is relevant to a childhood context as a set of capacities that extend beyond reading and comprehension skills. In addition to providing meaningful opportunities for students to become health literate through education and learning, schools need to work alongside parents and the broader community to create supportive environments that facilitate youth health literacy (Wharf Higgins, 2012). Measures that develop individual competencies need to be implemented alongside changes to the social environment. The individualistic biomedical framework of health that currently predominates in Australia and internationally represents broader contemporary challenges in health promotion and health literacy (Baum & Fisher, 2014; Kickbusch, 2014). However, a socio-ecological perspective reminds us to strive towards health literacy beyond individually-focused solutions to encompass multi-strategy initiatives (Wharf Higgins et al., 2009).

It is also important to once again revisit Nutbeam's discussion of critical health literacy as a form of health citizenship (2000). Children's health literacy should yield effects beyond individual agency, and improved personal and family health outcomes. Contemporary conceptualisations of health literacy should highlight the importance of developing opportunities for children to reconstruct wellbeing in community contexts, which is particularly important for youth who reside in communities where health inequalities prevail. Empowering young people to improve broader sociocultural and structural conditions that influence the health of

their local communities and the organisations that reside within these communities is important (Kickbusch, 2009). Although structural barriers will be difficult to overcome, developing children's understanding of social justice as it relates to health should ideally be considered as one of the first steps. In doing so, influential factors at the community and public policy levels might be concurrently addressed, in line with a socio-ecological model of health.

Future research directions

This thesis highlights various areas that warrant future research. There is a clear need for further research, first, to strengthen the limited evidence base, and second, to further explore the ways in which health literacy can influence preadolescents' experiences with food in the home, school and other settings. The work presented in this thesis confirms the utility of qualitative, socio-ecological and social constructionist approaches to understanding child health literacy. Many opportunities exist for current and emerging child health literacy researchers as the health and nutrition literacy fields expand. Future research should continue to consider children's health literacy as a standalone concept, which may serve to reduce health inequities amongst school-aged children living in disadvantaged regions. Building an understanding of strategies that effectively support children living in disadvantaged neighbourhoods remains an important focus for future research.

Developing an in-depth understanding of children's contemporary sociocultural environments is another important step in future health literacy research. As an example, the present study did not set out to explore certain forms of contemporary media, such as mobile apps, and their utility in facilitating the development of health literacy. Unexpectedly, this issue emerged as a sub-theme. Interestingly, this research suggests that some children are engaging with smartphone app technology to identify healthier food options, which points towards the potential for such technologies to provide new learning opportunities for youth in a complex and rapidly changing sociocultural environment. When examining the interface between technology and health literacy, there is indeed the potential to consider the proliferation of social networks and their potential role in improving children's capabilities around health. Contrary to popular belief, it is worth questioning whether media can possibly

improve aspects of health literacy by leveraging the strength of the social media phenomenon. Further research is certainly warranted in this area.

Importantly, this research supports the claim that children can serve as active participants in health literacy research. While the majority of studies to date have utilised quantitative methodologies, this research highlights the place of qualitative research in this emerging field. Future challenges in health literacy research include developing broader measures that encapsulate the wide-ranging skills and abilities that are relevant and meaningful to diverse sub-groups, including children. Talking to young people about their needs and interests is the first step in understanding how children think about health, which plays an integral part in the development of meaningful interventions. Accordingly, there is a clear need for multi-sectoral collaboration through well thought out qualitative and quantitative research efforts. Further, while this research has focused on preadolescents, future research efforts should extend to understand factors that shape and influence health literacy over the life course. This will enable researchers to map out a health literacy continuum, which outlines the competencies that are relevant to different age groups across diverse environments. As one's circumstances change, health literacy continues to develop and evolve throughout the lifespan (Manganello, 2008) , thereby highlighting the importance of an integrated approach beyond schooling that will involve other sectors within the community, including local organisations, community groups and employers. Finally, at a time where increasing emphasis is placed on freedom and individual choice, the field ultimately needs to re-shift its focus to once again encompass a social determinants perspective.

Final thoughts

This PhD thesis argues that youth health literacy is important in order to maximise the health and wellbeing of future generations. Acknowledging the importance of children's health literacy recognises that preadolescent children are capable of navigating contemporary health information in various forms, and that some children can participate in knowledge and skill transfer back to the home setting, thereby challenging the dominant model of intergenerational health that prevails today. The prospect of children becoming change agents is particularly promising within disadvantaged settings, where some parents face additional challenges and barriers to

a healthy lifestyle, and schools can certainly play a fundamental role in this regard. Developing critical and active citizens also promises to be beneficial for the wider community. The final words of this thesis illuminate the core themes of the Ottawa Charter for Health Promotion (World Health Organization, 1986). Health literacy is an important component towards achieving a healthy lifestyle but people need supportive environments in which to develop and practise diverse forms of health literacy. In line with a socio-ecological model, a range of factors are likely to influence preadolescent children's health literacy. Accordingly, engagement is required across multiple sectors. The findings presented in this thesis pave the way for future investigations that further consider the ways in which children, families, schools and communities can take collective action. Specifically there is a need to explore the concepts of child health and nutrition literacy through further qualitative inquiry, alongside other research efforts. This research has afforded children the possibility to be heard in relation to a matter that affects them and children should certainly be involved in future health literacy research. The prospects of child health and nutrition literacy are undoubtedly exciting ones, as public health researchers work towards improving health literacy to promote a healthy and just future.

Appendix 1: Letter of Introduction to school Principals

Professor Murray Drummond

School of Education

GPO Box 2100

Adelaide SA 5001

Tel: 08 8201 5306

Fax: 08 8201 5387

Murray.drummond@flinders.edu.au

http://www.flinders.edu.au/people/murray.drummond

CRICOS Provider No. 00114A

Dear Sir/Madam,

This letter is to introduce Miss Stefania Velardo who is a PhD student in the School of Education at Flinders University. She is undertaking research leading to the production of a thesis on the subject of *"Understanding preadolescent health literacy in a low socioeconomic region of South Australia"*. Preadolescence has been identified as an important stage of development, whereby children begin undertaking independent decision-making around food choice. This research will relate to the ways in which preadolescent boys and girls learn about health and nutrition, and interpret and apply this information.

The program is being conducted in the Hackham region of Southern Adelaide and Stefania is seeking three primary schools to be involved. This project has been approved by the Flinders University Social and Behavioural Research Ethics Committee and the Department for Education and Child Development.

I encourage you to consider participating in this research within your school. While ethics approval has been granted for this project, your involvement is entirely voluntary and site leaders have the right to decline participation. In approving the research, you should consider the potential benefits to your site and the wider educational community.

Stefania aims to conduct two focus group interviews (with four participants in each) and four additional individual interviews with Year 6/7 students. No more than 45 minutes on one occasion would be required for each interview, during school time. She would be most grateful to have a discussion with you about the project. Please find an Information Sheet attached, with her contact

details. Any further enquiries you may have concerning this project should be directed to me by telephone on 08 8201 5306, by fax on 08 8201 5387 or by email murray.drummond@flinders.edu.au.

Thank you for considering this request.

Yours sincerely,

Professor Murray Drummond

School of Education

Faculty of Education, Humanities and Law

This research project has been approved by the Flinders University Social and Behavioural Research Ethics Committee (Project Number 5461).For more information regarding ethical approval of the project the Executive Officer of the Committee can be contacted by telephone on 8201 3116, by fax on 8201 2035 or by email human.researchethics@flinders.edu.au.

Appendix 2: Letter of Introduction to parents/caregivers

Professor Murray Drummond

School of Education

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Adelaide SA 5001

Tel: 08 8201 5306

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Murray.drummond@flinders.edu.au

http://www.flinders.edu.au/people/murray.drummond

CRICOS Provider No. 00114A

Dear Sir/Madam,

This letter is to introduce Miss Stefania Velardo who is a PhD student in the School of Education at Flinders University. She will produce her student card, which carries a photograph, as proof of identity.

She is undertaking research leading to the production of a thesis or other publications on the subject of "*Understanding preadolescent health literacy in a low socioeconomic region of South Australia*". This research will relate to the ways in which young boys and girls learn about health and nutrition, and interpret and apply this information in their lives.

She would be most grateful if you would permit your child to volunteer to assist in this project, by either participating in a focus group or individual interview which covers certain aspects of this topic. No more than 45 minutes on one occasion would be required, during school time. The focus group interview will comprise of three additional participants.

Be assured that any information provided will be treated in the strictest confidence and none of the participants will be individually identifiable in the resulting thesis, report or other publications. Your child, of course, is entirely free to discontinue participation at any time or to decline to answer particular questions. Participants will

verbally agree to maintain the anonymity of other participants and confidentiality of the discussion.

Since she intends to make an audio recording of the interview, she will seek your consent, on the attached form, to record the interview, to use the recording or a transcription in preparing the thesis, report or other publications, on condition that your name or identity is not revealed. The recording will be transcribed by the researcher.

Any enquiries you may have concerning this project should be directed to me by telephone on 08 8201 5306, by fax on 08 8201 5387 or by email murray.drummond@flinders.edu.au.

Thank you for your attention and assistance.

Yours sincerely,

Professor Murray Drummond

School of Education

Faculty of Education, Humanities and Law

This research project has been approved by the Flinders University Social and Behavioural Research Ethics Committee (Project Number 5461).For more information regarding ethical approval of the project the Executive Officer of the Committee can be contacted by telephone on 8201 3116, by fax on 8201 2035 or by email human.researchethics@flinders.edu.au.

Appendix 3: Information sheet for parents/caregivers

Project Title*: Understanding preadolescent health literacy in a low socioeconomic region of South Australia*

Project Description:

Your child is invited to participate in a research study which will relate to the ways in which children living in the City of Onkaparinga learn about health and nutrition, and how they understand and use this information. This research will lead to the production of a PhD thesis or other publications on this subject.

Children are often responsible for a lot of decision-making around food choice, particularly as they get older. It is important that children can make healthy decisions early on in life, to prepare them for a healthy future. It is hoped that this research project will help us to understand more about children's own needs when learning about health and nutrition. This research is an opportunity for children to discuss different factors that help them learn about what is "healthy", so that we can start to learn about their personal beliefs and experiences.

Participants:

As part of the study we are looking for Year 6/7 children aged 11-12. Students can be male or female and participation is entirely voluntary.

Participant's Role:

Participants will be asked to either take part in:

- A focus group with three other individuals, or
- An individual interview with the researcher

For either of these interviews, a series of questions will be asked that relate to this topic and children are encouraged to state their views. The interviews will also involve the researcher using an electronic tablet device to show students three television food advertisements that are aired within family viewing time. Children will then be invited to share their thoughts about

these ads. The interviews will be quite informal and no more than 45 minutes on one occasion would be required. The focus groups and individual interviews will take place during class time, in an area close the year six classroom, in view of the classroom teacher. Food and drinks will also be provided at the time of the interviews, for participating children.

Confidentiality and Anonymity:

All of the interviews will be audio recorded and transcribed by the researcher. Only the researcher and supervisors mentioned below will have access to the transcript. While no focus group interview can be guaranteed confidentiality, participants' names will not be disclosed at any time and none of the participants will be individually identifiable in the resulting thesis or other publications. Your child, of course, is entirely free to discontinue participation at any time or to decline to answer particular questions without consequence.

Contact Details:

If your child is keen to participate in this research and you permit him/her to take part, please do not hesitate to contact either the researcher, Miss Stefania Velardo on 8201 5672, or the principal supervisor, Professor Murray Drummond on 8201 5306, to learn more about this project.

Stefania Velardo
PhD Student (Education)
Flinders University

Professor Murray Drummond
School of Education
Flinders University

This research project has been approved by the Flinders University Social and Behavioural Research Ethics Committee (Project Number 5461).For more information regarding ethical approval of the project the Executive Officer of the Committee can be contacted by telephone on 8201 3116, by fax on 8201 2035 or by email human.researchethics@flinders.edu.au.

Appendix 4: Information sheet for child participants

Introduction

"Hi guys! My name is Stefania and I am a student from Flinders University, which isn't too far from here. I am doing a really big research project called a PhD which takes around 3 years to finish. I am interested in food and health so for my project I'm looking to talk to boys and girls, like you, about the ways that you learn about health and nutrition. I really want to chat to you guys, rather than the younger kids, as you're at an age where you're getting older and are becoming a lot more independent. I remember when I was in Year 6 I would often go home after school and make myself different snacks and sometimes even go to the shops to buy my own food. Often adults in our lives speak on our behalf about the things that we think and do, but this will be a really good chance for you to chat to me so I can hear what you have to say about health and nutrition! Your opinions will help me to understand more about this topic.

Who can be involved?

Any Year 6/7 student can participate in the project.

What will we be doing?

You can be involved in either a group interview with three other students or a one-on-one interview where you just have a chat with me. The interview will involve me asking you a set of questions that relate to health and nutrition. It will take about 45 minutes of your time and it will be conducted during school time, next to your classroom. As part of the interview we will also be looking at three TV food advertisements on my tablet and I will be asking you a range of questions about these ads. There will be some food and drinks provided at the end of your interview, to help you feel refreshed and to say thank you for participating. Anything you say to me will be confidential and your name won't be written anywhere in future reports. Also, if you choose to be involved you are free to stop participating or have a break at any time during the interview, or you may decide not to answer certain questions if you don't feel comfortable.

What will I be doing?

I will be doing all of the interviews. I will record each interview on a digital voice recorder to listen to your comments and then write up my thesis (project report).

If you are not interested:

You don't have to participate in my project – it is entirely voluntary and you parents or caregivers will also need to decide whether they are happy for you to participate. However, if you are interested I would be really grateful if you would share your ideas with me.

If you are interested:

There are some other sheets with further information about my project to send home to your parents and caregivers. There are also some consent forms which they need to sign if you'd like to participate. If you would like to participate, also have a think about whether you would like to do the group interview or individual one (or whether you don't mind doing either). If you have signed forms, it would be great if you could give these back to your teacher. I will be in contact with him/her in the next few weeks to see who would like to participate, and we'll organise everything from there. If you or your parents have any further questions I am available to have a chat.

This research project has been approved by the Flinders University Social and Behavioural Research Ethics Committee (Project Number 5461).For more information regarding ethical approval of the project the Executive Officer of the Committee can be contacted by telephone on 8201 3116, by fax on 8201 2035 or by email human.researchethics@flinders.edu.au.

Appendix 5: Consent form for research

PARENTAL CONSENT FORM FOR CHILD PARTICIPATION IN RESEARCH

I .....

being over the age of 18 years hereby consent to my child .....

participating, as requested, in the focus group / individual interview (please circle) for the research project on *'Understanding preadolescent health literacy in a low socioeconomic region of South Australia'.*

1. I have read the information provided.

2. Details of procedures and any risks have been explained to my satisfaction.

3. While the information gained in this study will be published as explained, my child will not be identified, and individual information will remain confidential.

4. I am aware that I should retain a copy of the Information Sheet and Consent Form for future reference.

5. I understand that:

- My child may not directly benefit from taking part in this research.

- My child is free to withdraw from the project at any time and is free to decline to answer particular questions.
- Whether my child participates or not, or withdraws after participating, will have no effect on his/her progress in his/her course of study, or results gained.

Parent/Caregiver signature……Date……...

Volunteer signature (child participant)……...Date……...

I agree to audio recording of my child's information and participation.

Parent/Caregiver signature……Date……...

Volunteer signature (child participant)……...Date……...

I certify that I have explained the study to the volunteer and consider that she/he understands what is involved and freely consents to participation.

Researcher's name……

Researcher's signature……..Date……

Appendix 6: Original interview guide

PART ONE: General interview

Conceptualising health/nutrition

1. Tell me about yourself. What you like to do in your own time?
2. How about your family? What kinds of things do you get up to?
3. What are your favourite foods to eat?
4. Can you tell me what the word “healthy” means?
5. Tell me about what you’re currently doing for your own health.
6. What do you think the word “nutrition” means?
7. Is nutrition important?
8. What are some of the nutritious foods that you eat?
9. How about foods that might lack nutrition?
10. Are you interested in health/nutrition?

Learning about nutrition

11. How do you learn about nutrition?
12. Where do you learn about nutrition?
13. What examples of nutrition do you see around you?
14. Tell me about your family. Who does the cooking at your house?
15. Do you ever have any questions about nutrition?
16. If you had a question about nutrition, where do you think you would you go first for some information?
17. How can you make sure that information about nutrition is true?

Using nutrition information and skills

18. Tell me about the ways that you use nutrition information.
19. What kinds of things help kids to have good nutrition?
20. Do you ever think about nutrition when you are picking different foods to eat?
21. Let's talk about children buying food products. What kinds of foods do you buy?
22. Do you need to check with your parents before you buy foods?
23. When you go to the shop: a) Do you want to know if something is nutritious? b) How do you know if something is nutritious? c) Are there any clues?
24. Is it always easy to eat nutritious foods?
25. How do you feel when you eat nutritious foods?
26. How do you feel when you see people around you eating nutritious foods?
27. Do you try to follow what you have learned about nutrition?
28. How much can you do now to grow up to be a healthy adult?

PART TWO: Media nutrition literacy

I would now like to show you some examples of TV food advertisements ask your opinion about them;

1. What do you think of this ad?
2. Is the product nutritious?
3. Who created this ad and what is its purpose?
4. Did they leave anything out of the message?
5. How do you think this ad was created?
6. What do you think the creator wants you to do after watching the ad?
7. What do you feel like doing?
8. Would you buy the product?

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