FOOD LITERACY: WHAT IS IT AND DOES IT INFLUENCE WHAT WE EAT?

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Submitted in fulfilment of the requirements for the degree of
Doctor of Philosophy
School of Exercise and Nutrition Sciences
Faculty of Health
Queensland University of Technology
2014
Keywords

food literacy, nutrition, cooking, food skills, eating, commensality, preparation, definition, model, public health, young people, youth, disadvantage, assets, translational, qualitative
Abstract

Recent local, national and international nutrition policies and plans echo the sentiments of the practitioners they guide in calling for a renewed emphasis on the practical food aspects of day to day nutrition. The term “food literacy” has emerged to describe what this might include. The term is used in the context of health, education, life skills and sustainability, where it’s meaning differs. This research sought to empirically define this term, identify its components and model its relationship to nutrition.

Two qualitative studies were undertaken; a Delphi study of Australian food experts; and a case study of young people and disadvantage. Each study looked at all elements of the research questions. The studies were assets based in that they sought to reveal chains of resilience for healthy eating. Constructivist Grounded Theory was used to analyse results. This included constant comparison of data within and between studies.

From this, eleven components of food literacy were identified. These fell into four domains of planning and management, selection, preparation and eating. The results define food literacy as a collection of inter-related context dependant knowledge, skills and behaviours required to meet needs and determine food intake. Food literacy is the scaffolding that empowers individuals, households, communities and nations to protect diet quality through change and support dietary resilience over time. A conceptual model of the relationship between food literacy and nutrition was developed. A second model was developed to propose the role of food literacy in food security, body weight and chronic disease risk.

This research contributes knowledge to the field by providing a common language around food literacy. It positions food literacy within food, nutrition and broader health policies and plans, and proposes an evaluation framework to guide investment and practice. These are critical foundations to further work in this field.
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Statement of Original Authorship

The work contained in this thesis has not been previously submitted to meet requirements for an award at this or any other higher education institution. To the best of my knowledge and belief, the thesis contains no material previously published or written by another person except where due reference is made.

Signature:

QUT Verified Signature

Date: ______________ 23/1/2014 __________
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Acknowledgements

This thesis is dedicated to my wonderful family; my husband Patrick, and our two inspiring daughters Gabriella and Amelie. You have been so patient, understanding and supportive. I am very lucky to have you in my life.

To my principal supervisor Associate Professor Danielle Gallegos, thank-you for your close supervision, for challenging me to think beyond years of practice in a positivist paradigm, for your understanding and flexibility around my needs as a mum and for being patient when I wasn’t. Thank-you to my associate supervisor Professor Lynne Daniels for pushing me to extend myself professionally and for your help in transitioning my practice into the research sector. To my external associate supervisor Professor Martin Caraher, thank-you for taking a gamble on someone you had never met on the other side of the world. It was so exciting for me to have the opportunity to put an international lens on my work.

To the Health Promotion Queensland Project Advisory Team. To Professor Robert Bush, for your mentoring, particularly at the beginning of my journey. To Dr Phil Crane, for your support in helping me understand the youth sector and your encouragement throughout the PhD process. To Dr Jan Reynolds for your experience and expertise in the field of teaching food and nutrition. Thank-you for your time in helping me work through the nexus between my home economics and dietetic professional backgrounds. To Dr Carol Hubert from Australian Red Cross, Paul Flanders and Adrienne Young from Edmund Rice Education, and Aloysa Hourigan from Nutrition Australia for your insight as service providers into the conceptualisation, implementation and reporting of this research. Particular thanks for your support in accessing the participants for the Young People Study.

Thank-you to the participants in the Expert and Young People’s studies. I hope that this research honours your contribution and that its findings inform and improve the practice you intersect with.

Thank-you to the Queensland Health Department for funding elements of this research. To Mr Jeff Allen, Health Promotion Queensland Secretariat, for his
flexibility in supporting modifications to the research deliverables, the intellectual property agreement and timelines. Thanks to the King and Amy O’Malley Scholarship Foundation and the Australian Postgraduate Award Scholarship for funding in the final year of this thesis.

Thank-you to my managers in the Health Department, Professor Amanda Lee and Mr Michael Tilse, for granting me leave to undertake this research. Thank-you to my public health nutrition colleagues at Queensland Health who supported this research and contributed to its development. To my nutrition colleagues, fellow PhD students and colleagues at the QUT School of Exercise and Nutrition Sciences; thank-you for your respite.

A final thanks goes to my parents, Anita and Valentino Valentini, who despite having no formal education beyond 12 and 14 years of age respectively, instilled in me a strong value for knowledge and learning. Thank-you for getting on a boat in search of something better, and for all your sacrifices along the way to deliver it. And to my sister Sonya Finlay, for being a great sounding board and bragging about me to all her friends!
Preamble

This idea for this thesis began in early 2009 when I was working as a senior public health nutritionist in the corporate office of the Queensland Government State Health Department. At the time, the implementation of findings from the midpoint evaluation of the State’s first public health nutrition strategy, *Eat Well Queensland*, were being discussed (Queensland Public Health Forum, 2009). Among the recommendations in this evaluation report was a new “Smart Buy” to:

Investigate options to develop and implement a state-wide initiative to increase food literacy and cooking skills within the community.

(Queensland Public Health Forum, 2009, p20)

In September 2009, Health Promotion Queensland (within Queensland Health) called for tenders to investigate food literacy specifically among young disadvantaged people (Queensland Health, 2009). While the tender specifications did not address all of the issues which I hoped to investigate through my PhD, it was considered similar enough to allow me to be employed by the project and concurrently undertake my PhD. At this time I contacted Associate Professor Danielle Gallegos from QUT to help form a consortium made up of a diverse range of partners with an interest and expertise in nutrition, food literacy, young people, and communities living in disadvantage. Supported by Associate Professor Danielle Gallegos and Professor Lynne Daniels, I led the development of this consortium which was made up of people and organisations who have previously worked together and who had a track record in one or all of these areas. I wrote the tender and met with the consortium members over a two month period to seek and include their priorities. The bid was submitted to Health Promotion Queensland at the end of October 2009 and was successful.

I took leave from Queensland Health and the group reconvened in February 2010 to discuss project governance with work commencing a month later. Details of this research are specified in the Queensland Health Research Funding Agreement (file ref: QCHO/001983) between the State of Queensland and Queensland
University of Technology. The project was funded from 31 January 2010 – 1 October 2012.

Three reports were delivered to Queensland Health:

- Cullerton, Katherine, Vidgen, Helen A., & Gallegos, Danielle (2012) *A review of food literacy interventions targeting disadvantaged young people*. Brisbane, Queensland: Queensland University of Technology,

This thesis includes content from these reports and further analyses data to more rigorously and critically investigate the research questions.

The thesis was underpinned by the three key principles which informed my research and describe my approach as a researcher. These principles have guided all elements of the research process from question development to the communication of results. The development of these principles also describes my position in the research.

i. **A practitioner focus**: I began this research having worked as dietitian, nutritionist and home economist for almost twenty years. My work has taken place across the health continuum in government, industry, private and non-government settings, in urban and regional Australia. For most of this time, I worked for Queensland Health as a public health nutritionist. These roles ranged from policy development to service delivery including a period as a Director of Public Health Nutrition responsible for frontline staff and investment decisions. This gave me a deep understanding of the environment in which investment decisions are made and the barriers and enablers that support implementation. This research began at a time when the practicalities of meeting nutrition recommendations through a positive connection
with food was experiencing unprecedented support from government, practitioners and the public. I was motivated to undertake this research to take advantage of this support and influence practice in the longer term.

As the need for this research emerged from practitioners, practitioners from a range of professions were consulted throughout research design, implementation and reporting to ensure results are useful in informing improved practice.

ii. **Equity:** this research focused on those individuals and communities experiencing disadvantage. While it is acknowledged that unhealthy diets are present across all groups in Australia, the relationship between disadvantage and poor health are well-established. This research was interested in giving a voice to those experiencing disadvantage and as a result, inform evidence-based practice that does not further marginalise these groups.

My parents spent their childhood and early adulthood in disadvantage. Their experience of disadvantage was defined by almost every common metric; education, income, employment, home ownership, participation in education, parental education, and geography. They both grew up in homes with a beaten dirt floor and no plumbing; one in wartime Italy and the other as a child of unskilled migrants in post-war rural Australia. However, they and their family and friends are the origins of my food literacy, much of which originates from their experiences of disadvantage, in particular, poverty. They do not see this as a weakness, but rather a demonstration of resilience and strength to be transferred from one generation to the next. This sentiment has been echoed in my practice experiences as a nutritionist and those of my colleagues. When considering someone who is “good with food” one does not just recall the demonstration of knowledge and skills but the application in challenging circumstances. Clients proudly describe, not merely their demonstration of food literacy but its demonstration in times of restriction or challenging circumstances. For this reason, this research privileged the insights of people experiencing disadvantage.
and documented their experiences of how feeding themselves happens in practice, rather than positioning them as being somehow dysfunctional. It is hoped that this will expose alternative conceptualisations of individuals experiencing disadvantage and in doing so, strengthen existing efforts and activity by service providers.

This approach also allows an exploration of the more established social, cultural, economic and environmental determinants of health and personal responsibility; more specifically, an examination of the nexus between skills and knowledge and the resources and power with which to execute them. Investment in practice which only focuses on skill development risks further marginalizing these groups whilst concomitantly failing to sustainably address health problems.

iii. **An assets framework:** this research sought to acknowledge and celebrate the expertise of individuals in using food to meet their nutrition needs, particularly when experiencing disadvantage. An assets framework is not about celebrating what an individual can do and ignoring what they cannot, but rather to challenge thinking and reposition disadvantage to allow practitioners to address health and nutrition issues differently (Comber & Kamler, 2004). In using an assets framework the research searched for protective factors rather than risk factors for healthy eating. This could also be conceptualised as looking for “enablers” rather than “barriers”. Readers should not consider the results as evidence that young people can eat healthy food irrespective of their circumstances, but rather that this research seeks to report on those young people who “stood out” as having healthy diets and then to more closely examine how they went about doing this. The focus on protective factors rather than risk factors is increasingly being used in public health nutrition interventions for example, an emphasis on increasing fruit and vegetable consumption rather than decreasing fat. The importance of building on assets rather than correcting deficits is also broadly acknowledged in education and behaviour change literature.
This thesis aims to illuminate the area of food literacy by determining what it means, what it includes and how it relates to food intake. The answers to these questions are critical foundations needed to inform future policy, practice and investment decisions.
Chapter 1: Introduction

Globally, the food system and the relationship of the individual to that system, continues to change and grow in complexity (Lang, 2003). Food is essential for healthy growth and development and has an important role to play in enhancing quality of life, particularly in the prevention and management of many chronic conditions (World Health Organisation, 2004). Individuals, however, must adequately navigate the food system to ensure food intake contributes to health. Consistency in diet quality requires both selection of appropriate food and long-term maintenance of healthy habits. The unprecedented increase in diet-related disease has been linked to poor eating habits and a perceived diminishing understanding and skill set around food and its use (Berry, 1990; Bifulco & Caruso, 2007; International Union of Nutrition Sciences, 2005; Lang & Caraher, 2001).

Consistent diet quality can be difficult to achieve. Food and eating are part of everyday life and hence respond to and are challenged by daily changes in individual, household, community, national and global environments (Bisogni, Jastran, Shen, & Devine, 2005; Devine, Connors, Bisogni, & Sobal, 1998; Poulain, 2002; Schubert, 2008; Visser, 1986; Wills, 2005). Maintenance of diet quality requires regular revision and adaptation of food habits in response to these changes. Disadvantage, particularly poverty and social exclusion are likely to especially challenge the capacity to maintain diet quality (Booth & Smith, 2001; Harrison, et al., 2010; Marmot & Wilkinson, 2006).

“Food literacy” has emerged as a term to describe the everyday practicalities associated with navigating the food system in order to ensure a regular food intake that is congruent with health. Contemporary nutrition policies and plans call for focusing efforts to improve nutrition through a closer connection with food. In some cases it is explicitly expressed as “food literacy”, in others it is a list of food skills, knowledge and behaviours. The term is increasingly used in policy, practice, research and in the public arena, however there is no shared understanding of its meaning, what its components might include or how it might relate to nutrition. A shared understanding is important in guiding efforts and investment at both the
individual and community level. This introduction gives an overview of the current context and significance of this research.

1.1 THE POLICY CONTEXT

Recent local, national and international nutrition policies and plans echo the sentiments of the practitioners they guide in calling for a renewed emphasis on the practical food aspects of nutrition and connecting nutrition messages with food solutions. The International Union of Nutrition Science’s Giessen Declaration calls for a ‘new nutrition science’ that extends beyond a ‘biological science’ to include a comprehensive understanding of ‘how food is grown, processed, distributed, sold, prepared, cooked and consumed’ (International Union of Nutrition Sciences, 2005). The United Kingdom’s Foresight Report on Obesity, the European Union’s Discussion Paper on Sustainable Food Consumption and the United States’ Institute of Medicine’s Committee on Accelerating Progress in Obesity Prevention Report all use the term “food literacy”; however its meaning varies from its application to sustainable food to instruction on dietary guidelines in schools (Glickman, Parker, Sim, Del Valle Cook, & Miller, 2012; Reisch, Lorek, & Bietz, 2011; Vandenbroeck, Goossens, & Clemens, 2007).

Similarly in Australia, The Australian Dietary Guidelines identify “low levels of food literacy” (p8) as a possible barrier to compliance with these recommendations and as one of the significant social and environmental changes that have led to the increasing prevalence of overweight and obesity (National Health and Medical Research Council, 2013). The Australian National Food Plan identifies “a food literate community accessing safe, affordable and nutritious food” as a key goal (Department of Agriculture Fisheries and Foreesties, 2013). Recent consultation papers for the Australian Health and Physical Education Curriculum and National Food Policy attracted several submissions calling for a recognition of the practical skills aspects of healthy eating (Australian Curriculum and Assessment Reporting Authority, 2012b; Department of Agriculture Fisheries and Foreesties, 2012). The National Aboriginal and Torres Strait Islander Nutrition Strategy and Action Plan identifies skills in cooking, budgeting and food selection, food preparation areas, storage facilities for food, cooking equipment and other health hardware, as key
issues to progress in order to improve nutritional status (Strategic Intergovernmental Nutrition Alliance, 2001). This has more recently been re-enforced through a focus on life-skills in the transition years in the Council of Australian Governments’ (COAG) *Close the Gap* agreements (Council of Australian Governments, 2008). The Commonwealth House of Representatives’ *Inquiry into Obesity* received several submissions which cited ‘confusion over food choice compounded by the loss of basic food skills’ (p 127) as linked to the obesity epidemic. The Inquiry recommended support for initiatives to teach children and adults about ‘the benefits of growing and eating fresh fruit and vegetables and preparing and enjoying healthy and nutritious meals’ (House of Representatives Standing Committee, 2009, p xvii).

At a local level, the *Eat Well Queensland: Are we half way there yet? Midpoint Implementation Review* identifies poor food literacy as an emerging issue (Queensland Public Health Forum, 2009). Currently State health departments in Western Australia, South Australia, Victoria, and Queensland have all invested in interventions they describe as addressing food literacy (Department of Health, 2010, 2011, 2012; Queensland Health, 2011).

It is clear that efforts to improve nutrition must juncture with the development of knowledge and skills on how to use food to meet needs. What is absent is evidence to guide what these knowledge and skills are, how they are best developed, how they influence food intake and where food literacy is best located within public health nutrition plans and practice.

1.2 THE PRACTITIONER CONTEXT

Governments and practitioners are currently investing in strategies to address potential components of “food literacy” which they intuitively believe to be useful. Additionally, practitioners use food to connect people and start a dialogue about eating habits, food intake and nutrition (Caraher & Lang, 1999). Evaluation, if conducted, is often limited to process, such as use of recipes, and impact level, such as confidence in cooking and changes in awareness of nutrition recommendations (Brown & Hermann, 2005; Devine, Farrell, & Hartman, 2005; Foley & Pollard, 1998; Michaud, Condrasky, & Griffin, 2007; Wrieden, et al., 2007). This work is happening without a strong evidence base or an agreed legitimate position within
multistrategic public health nutrition systems and plans. This work is not clearly articulated in the key public health nutrition documents that guide work in Australia, and more particularly the role of the nutritionist in addressing food literacy is unclear. As a result, nutritionists and their managers may not consider this very practical nutrition work legitimate (Begley & Gallegos, 2010a). This is despite the recognised need to support clients in the practicalities of following nutrition recommendations.

The scope of meaning of food literacy is broad, value-dependent and has been developed in the absence of evidence of its relationship to food intake. The term “food literacy” is used in the context of health, education, life skills and sustainability, where its meaning differs (BEST Institut für berufsbezogene Weiterbildung und Personal training, 2006; Fordyce Voorham, 2011; Kolasa, Peery, Harris, & Shovelín, 2001; Nordahl, 2009; Probst, 2006; Stanton, 2009). This results in diverse, unrelated and poorly considered strategies being implemented without an overarching guide for their purpose, target, impact or outcome performance indicators. Furthermore, evidence of the efficacy, and hence legitimacy, of existing efforts to improve food literacy, and its relationship to nutrition, is missing and so limits their use, inclusion and investment within public health nutrition plans. Research in food literacy will provide greater clarity regarding who and what to target and what to evaluate.

1.3 THE PUBLIC CONTEXT

The knowledge and skills needed to use food to meet needs are often over simplified to a focus on cooking. Politically, the funding of cooking interventions is sometimes used to reflect a particular conservative ideology. A focus on food preparation knowledge and skills development can overemphasise the role of individual responsibility in diet-related disease and fails to accurately represent the heterogeneity of contemporary food and eating. This diverts attention and efforts away from significant, well established social, cultural, economic and environmental determinants, for example the availability of healthy food. Actions to target “food literacy”, including cooking, should not exist on their own but rather should lie
within a multistrategic approach which addresses multiple points of the food and nutrition system (Caraher, Dixon, Lang, & Carr-Hill, 1999; Lang & Rayner, 2007).

In Australia, high profile advocates have weighed into the debate regarding optimal government investment in nutrition, most notably celebrity chef Jamie Oliver through his Queensland and Victorian State Government funded Ministry of Food (Oliver) and Stephanie Alexander through her Commonwealth Government funded School Kitchen Garden programme (Alexander). The effectiveness and sustainability of these substantial investments is yet to be established. Additionally, the usefulness of gastronomically originated knowledge and skills to a whole of population disease prevention context is unclear. What remains salient, however, is that interventions should not further marginalise disadvantaged groups but rather support the generation of a common healthy food culture of empowerment, sustainability and informed food citizenship. Food literacy needs to be framed as an essential life skill, irrespective of social class, which empowers an individual to take control over what they eat and make use of nutrition recommendations for better health (Caraher & Lang, 1999). This should reflect the different lives people live.

The paradox of unprecedented access to nutrition information and food alongside escalating levels of overweight and obesity, related to unhealthy diets is acknowledged. Contemporary nutrition practice needs to look beyond the provision of information and nutrition guidelines focussed on unprocessed foods to reflect what and how people eat, and the value they place on nutrition. This includes an understanding and recognition of the influence of economic, cultural, social, environmental and biological factors on personal, household, community, national and global food systems (International Union of Nutrition Sciences, 2005; Lang & Rayner, 2007).

1.4 BEYOND THE NUTRITION PARADIGM

Addressing food literacy is likely to have benefits well beyond physical health both at an individual and community level. Outside the nutrition paradigm, food is used by a range of health, education and welfare service practitioners to build rapport, self-confidence, self-efficacy, empowerment and social inclusion. In the welfare sector food literacy is being addressed in the context of life-skills for those
experiencing multiple levels of disadvantage, for example; by youth workers working with homeless clients; settlement officers with refugee clients; and with mental health and disabled clients moving to independent living (De Campo, 2011; Porter, Capra, & Watson, 1999). Food literacy is likely to be both a risk factor and an asset for food security, however this relationship is unknown and unexplored. In the agriculture and food production sectors, food literacy is linked to the origins of food, including the environmental, ethical and ecological implications of food choice (Bellotti, 2010; Farnworth, Thomas, & Jiggins, 2008). Gastronomes talk about building an Australian food culture where food literacy includes an appreciation and understanding of flavour and quality and the pleasure and artistry of food production and convivial eating.

Acknowledging that nutrition is only one of the many outcomes of food consumption, it is interesting to consider the positioning of food literacy in public health nutrition strategies. Caraher warns against the linking of food literacy to only one agenda, such as obesity, as this diminishes its importance in the broader context and threatens to cut short investment in the area (Caraher & Seeley, 2010). It may be that a nutrition outcome is not the most appropriate measurable endpoint of food literacy. Nutrition may be better positioned as a consequential by-product on the way to meeting other more highly prioritised needs such as social connectedness, financial management, ecological sustainability or food security.

1.5 WHEN IS FOOD LITERACY IMPORTANT?

There are several key life transitions where the literature supports practitioners’ observations that food literacy may be of heightened importance. This includes being diagnosed with a diet-related disease which limits or eliminates a previously frequently used food; feeding dependants for the first time; navigating a new country’s food supply as a newly arrived refugee, and living independently for the first time (Bisogni, et al., 2005; Demory-Luce, et al., 2004; Franzen & Smith, 2009; Nichol, Retallack, & Panagiotopoulos, 2008). The relationship between food literacy and food security is also largely unexplored but likely to be complex. Food literacy may be the underlying factor that protects nutritional quality during transitions. The
importance of different food literacy components may be influenced by these contexts.

‘Food literacy’, like health literacy, can be conceptualised as an asset rather than a risk factor (Nutbeam, 2000) or an enabler to healthy eating rather than a barrier. “Food choice capacity” as a mechanism for improved nutrition, has been conceptualised as a function of standards, circumstances and food management skills (Bisogni, et al., 2005). Within this, food management skills, which could be conceptualised to be ‘food literacy’, are identified as a durable resource which protects diet quality, while the other factors are changing. Changes may be at the individual or household level such as family structure, income, health or changes at the societal level such as food supply, food marketing, work hours, and the role of women. Food literacy may be a key ‘protective factor’ or enabler that provides the scaffolding for healthy eating as individuals or communities transition through change.

Key transitions are often accompanied by a review of personal identity and food is frequently used in the creation or expression of identity (Bisogni, Connors, Devine, & Sobal, 2002). The transitions related to moving from childhood to adulthood, in particular, are marked by the development of personal identity (Wyn & White, 1997). One of these transitions, leaving the parental home, may be an important opportunity for influencing a lifelong identity with food. This transition point provides a unique opportunity to examine the food knowledge and skills used to meet needs, how they develop and how they relate to nutrition.

1.6 STATEMENT OF THE PROBLEM

We are living in a time of unprecedented diet-related disease due to over consumption and poor food choices. Global, societal, economic and environmental factors beyond health have influenced food supply, access, intake, preparation, rituals of eating and who we learn about food from. Many theories exist regarding contributing factors, and even more strategic plans and reviews exist in response to these. More recently, these have specifically called for a closer connection to food and the practicalities of meeting nutrition recommendations through change. The term “food literacy” has emerged as shorthand to describe this. However, despite
Chapter 1: Introduction

There is a strong call for action from practitioners, government, researchers and the public, there is significant ambiguity around what this actually means and its relationship to nutrition. What is striking about the evolution of this term is that this disparity in meaning has not limited investment in the programmes, interventions and approaches which purport to improve food literacy, or calls to address food literacy through policy. Such ambiguity must surely lead to ineffective investment as not only is content unclear, but also its purpose and mechanism for action.

1.7 PURPOSE

This research aimed to develop a definition of food literacy, informed by the identification of its components and then propose how it relates to nutrition and chronic disease risk more broadly. Specifically, this thesis will answer the following research questions:

1. What is food literacy?
2. What are the components of food literacy?
3. How does food literacy relate to nutrition?

It is expected that this research will result in:

- A definition for the term “food literacy”;
- Identification of components of food literacy;
- A conceptual model to describe the relationship between food literacy and nutrition against which existing investment can be assessed and future investment can be informed; and
- Recommendations for the positioning of food literacy within multi-strategic public health nutrition and chronic disease prevention plans.

1.8 CONTEXT

Despite calls to consider social, cultural, economic and environmental systems, nutrition recommendations continue to remain within a biological frame.
Health and Medical Research Council, 2013). As a result, their application across contexts is ignored. In doing so, recommendations fail to acknowledge the “day-to-dayness” of healthy eating. Diet-related disease typically develops over a lifetime of poor eating habits and prevention, therefore, involves maintaining healthy habits over the long term (World Health Organisation, 2004). Consistency in diet quality over a lifetime is a critical element to the relationship between diet and health. It is implied in recommendations and practice, but not specifically and typically addressed. Food literacy may be a useful construct to describe the knowledge, skills and behaviours required to consistently meet food needs through change and over time. As such, it will be contextually driven. Research to define food literacy, its components and relationship to nutrition, therefore, necessitates an exploration of the influence of context.

This research examined context in two ways. Firstly it explored the views of Australian food experts from diverse sectors. This revealed the extent to which the knowledge, skills and behaviours required to meet food needs was consistently understood and if there were agreed core elements to food and eating that could be applied across contexts. Secondly, a case study of young people and disadvantage was chosen to explore the extent to which food literacy was contextually driven.

The case study looked at dimensions of age and level of disadvantage. This allowed an exploration of the development of food literacy and its enactment across a spectrum of challenges. From a policy and practice perspective, the study explored not only the importance of context, but also the interaction between personal skill development and broader, well established systemic determinants of nutrition. In analysing results, the study concurrently sought to identify components of food literacy that could be consistently identified across contexts.

This case study was also chosen because the researcher and principal supervisor had established links and previous experience with people and organisations working with young people and disadvantage. It was also a group which the State Health Department had specifically expressed interest in investing in. This facilitated recruitment and aligned with the practice focus of this research. It gave the research legitimacy and authenticity. It is important to note, however, that it would have been just as legitimate to explore any infinite number of other case studies, for example, first time mothers, recently widowed older men, or newly
settled refugees. Each would have described the demonstration of food literacy differently. What is critical to recognise is that food literacy will be contextually driven. The selection of young people and disadvantage was opportunistic. Established links in this sector meant there was an existing understanding of potential dimensions of this context which allowed its influence on food literacy to be more fully explored.

Grounded Theory was used to allow the exploration of context, its influence on food literacy, and its relationship to nutrition. Constructivist Grounded Theory was used because context was considered to be a phenomenon of interest a priori.

1.9 SCOPE

The need for this research emerged from nutrition professionals who were already working in areas which they considered might contribute to food literacy. They were interested in gathering evidence to clarify what their work should focus on (components), when (the development of food literacy) and why (link to nutrition outcomes). The nutritional quality of dietary intake, therefore, is the outcome of interest for this research. The research design and analysis have been framed within this context.

Food literacy is likely to contribute to outcomes beyond nutrition. However, while some of these have been addressed in this thesis, the research design did not allow for them to be fully explored. For example, while many of the participants in the Young People Study lived in food insecure environments, their level of food insecurity was not measured or studied in detail, rather data from these young people were used to identify components of food literacy that were common across all levels of disadvantage. While it is acknowledged that the living situation and accessibility to food for several participants was unacceptable, food literacy work is already being done with this population group and the purpose of this research was to inform how to do it better.
1.10 OUTLINE OF REMAINING CHAPTERS

This dissertation begins with a review of the literature to describe dimensions of contemporary food and eating, which could be considered in defining food literacy, and their link to food intake. It considers challenges to healthy eating, particularly disadvantage and the populations this most effects. It then examines existing conceptual frameworks and constructs to consider where food literacy might be positioned in influencing food intake and health in a changing environment. It examines how we learn about food and how our relationship with it responds to change, and the emergence of “literacies” to describe the knowledge, skills and attributes needed to negotiate these. Finally, it reviews the adequacy of existing terms to describe food and eating and the use of the term “food literacy”.

This research is composed of two qualitative studies; one of Australian food experts, and the other, as case study of young people and disadvantage. The third chapter describes the research design and methodology. The fourth chapter describes the sample results of both studies. It is followed by chapters which synthesize the results from both studies to define food literacy, isolate its components, discuss its development and propose its relationship to nutrition and chronic disease more broadly for the purpose of informing policy and practice. Results of both studies are presented together to describe the synthesis of data in addressing research questions.
This thesis is concerned with defining food literacy through the identification of its components in order to propose its relationship to nutrition. The purpose of this literature review, therefore, is to:

- Consider dimensions of contemporary food and eating which could be considered part of food literacy;
- Examine what is known about the relationship between these dimensions and the parameters used to define and describe healthy eating;
- Examine the challenges to healthy eating, particularly disadvantage, and the populations this most affects;
- Consider the position of food literacy within existing models used to describe determinants of population and personal food intake, and healthy eating;
- Examine where, how and when we learn about food and how our relationship with it develops over time; and
- Examine the adequacy of existing terminology and frameworks used to identify, describe and measure the everyday practicalities of healthy eating, in particular, the emergence of “literacies”.

In the first instance, this review is interested in identifying the breadth of elements that could be considered part of food literacy for the purposes of informing the research design, in particular, data collection tools and sampling. Throughout the literature review, particular consideration is given to these elements as they relate to young people and disadvantage.

The broad and heterogeneous use of the term “food literacy” complicated the search strategy. As nutrition and health are the primary outcomes of focus, the literature search focused on health-related search engines and articles which referred to health behaviours. An initial search of abstracts of English language publications was conducted in April 2010 using ScienceDirect, PubMed, Cinahl, and EBSCOhost
databases of articles published between 2000 and 2010. Table 2.1 lists the search terms used. An initial search was conducted using the terms listed in Column A in combination with terms listed in Columns B, C, D and E. This did not yield sufficient results and so the search was expanded to the terms in column A with each of the other columns independently.

Table 2.1: Literature Search Terms Used

<table>
<thead>
<tr>
<th>Column A</th>
<th>Column B</th>
<th>Column C</th>
<th>Column D</th>
<th>Column E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food skills</td>
<td>Food choice</td>
<td>Literacy</td>
<td>Definition</td>
<td>Youth</td>
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<tr>
<td>Cooking</td>
<td>Nutrition</td>
<td>Competency</td>
<td>Classification</td>
<td>Emerging adulthood</td>
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<tr>
<td>Food literacy</td>
<td>Diet*</td>
<td>Skill</td>
<td>Term</td>
<td>Transition years</td>
</tr>
<tr>
<td>Health literacy</td>
<td>Family meal</td>
<td>Ability</td>
<td>Standard</td>
<td>Transition</td>
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<tr>
<td>Meal preparation</td>
<td>Health</td>
<td>Education</td>
<td>Syllabus</td>
<td>Young people</td>
</tr>
<tr>
<td>Food preparation</td>
<td>Meal choice</td>
<td>Fundamental</td>
<td>Classification</td>
<td>Adolescen*</td>
</tr>
<tr>
<td>Food shopping</td>
<td>Eating</td>
<td>Knowledge</td>
<td>description</td>
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<tr>
<td>Life skills</td>
<td>behaviour/</td>
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<tr>
<td>Living skills</td>
<td>behav*</td>
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Following this, forward and back referencing was conducted. Online alerts for future citations of key articles and key terms were created. In addition, a manual search of the Australian and New Zealand Journal of Public Health, Nutrition and Dietetics and the Journal of the Home Economics Institute of Australia was conducted over the same time frame. The term “food literacy” was also searched for in TROVE which includes the Australian Digital Thesis database. A strong network of practitioners was developed throughout the research who also contributed articles which they considered of interest, and therefore represented their conceptualisation of the term. References include journal articles, books, government documents, webpages and conference proceedings.
2.1 DIMENSIONS OF CONTEMPORARY FOOD AND EATING

Food and eating constantly change because they are part of everyday life and so respond to daily changes in the individual, household, community and global environments (Poulain, 2002; Visser, 1986). Similarly changes at the global and community level impact on individuals and households.

There are many commentaries on the nature of these changes and their social, cultural, environmental, educational, economic and health consequences (Berry, 1990; Bifulco & Caruso, 2007; Gale Smith, 2009; Kristensen & Holm, 2006; Lang & Caraher, 2001; Poulain, 2002). Authors describe a ‘gastronomic revolution’ (Bifulco & Caruso, 2007 p2058), a ‘culinary skills transition’ (Lang & Caraher, 2001 p2), the ‘industrial eater’ (Berry, 1990 online), and the ‘passive consumer, unwilling or unable to make informed decisions about the food they eat’ (Begley & Gallegos, 2010b p26). The term food literacy has emerged alongside these commentaries to describe the collection of knowledge, skills and behaviours needed to meet a range of contemporary food needs.

This section provides an overview of the dimensions of contemporary food and eating described in the literature. At the commencement of the research, when this literature review was initially conducted, the term “food literacy” was only beginning to be used. Its appearance in peer-reviewed literature was limited and inadequately described the use of the term in policy and practice. Initial search terms therefore, reflected dimensions of food and eating the researcher and nutritionist peers had observed in their practice and when aiming to address food literacy and their motivations for doing so. These terms included; dietary intake and health, domestic food preparation including food prepared outside the home and convenience, and the rituals of eating including meals and commensality. Each of these is addressed in the following section. These dimensions guide what could be included in a conceptualisation of food literacy.

2.1.1 Food Intake and Health

The global burden of disease due to non-communicable disease is increasing (World Health Organisation, 2004). Diet is a major contributor to the development of risk factors for these diseases (World Health Organisation, 2004). For example,
the prevalence of overweight and obesity nationally and internationally is high and has increased over time (Australian Bureau of Statistics, 2012; World Health Organisation, 2010). The World Health Organisation estimates that one in ten of the world adult population is obese (World Health Organisation, 2010). Overweight and obesity is now the fifth leading risk factor contributing to deaths world-wide (World Health Organisation, 2010). Increased food intake and decreased physical activity are established risk factors for overweight and obesity (World Health Organisation, 2010). Additionally, poor food choice impacts on chronic disease and overall wellbeing, independent of its contribution to body weight (National Health and Medical Research Council, 2013).

Nutrition recommendations for overall wellbeing and primary prevention of chronic disease vary in their level of specificity. There are three key sets of nutrition recommendations in Australia:

- the Dietary Guidelines series provide a framework for overall patterns of eating (National Health and Medical Research Council, 2013);
- the Australian Guide to Healthy Eating categorises food into five core groups and recommends amounts of each according to age, gender and activity (National Health and Medical Research Council, 2013); and
- the Nutrient Reference Values specifies recommended amounts of individual macro and micronutrients for example, fats, vitamins (National Health and Medical Research Council, 2005).

Dietary intake is assessed against these recommendations to determine the nutritional adequacy of a population’s or individual’s diet. While these recommendations are intended to be applied throughout the lifecycle, their consistent implementation by individuals, households, institutions and communities is poor.

The most representative Australian food and nutrition monitoring and surveillance system is the National Nutrition Survey series undertaken in 1985, 1995 and 2011 (Australian Government Department of Health and Ageing, 2012; Cook, Rutishauser, & Seeling, 2001 ). These surveys have comparable methodologies, are a representative Australian sample, and are analysed for food intake and related nutrient analyses. Foods are grouped, so analysis can predominantly show changes in core food group and macro and micro nutrient intake rather than eating patterns.
The surveys are cross sectional and therefore capturing dietary intake at a single point in time.

Comparisons of the 1985 and 1995 National Nutrition Surveys show an increase in total energy intake, bread and cereal foods, sugars (particularly for younger men and women aged 25-34), non-alcoholic beverages excluding water and snack foods (Cook, et al., 2001). Fat consumption decreased, especially for older age groups (55-64 years), however so did the number of people eating fruit and/or vegetables and the amounts of these foods they ate. The only food consumption data currently available from the 2011 survey is fruit and vegetable intake (Australian Bureau of Statistics, 2012). Only 8.3% of adult Australians met the recommended intake of five serves of vegetables, and a little under half (48.3%) met recommendations for fruit. Both recommendations were met by only 5.6% of adults.

Although the National Nutrition Survey series is the most nationally representative, it is difficult to consider data from the 1990s as an indicator of current food intake. Various State Health Departments have conducted comprehensive dietary surveys of children and adolescents. While these only represent one age group of the population, they be useful to gaining a more contemporary view of food intake. Healthy Kids Queensland is one such study. Undertaken in 2006, it is the largest representative nutrition and physical activity study of Queensland school children (Abbott, et al., 2007). A total of 3691 students were sampled from years one, five and ten. The study collected anthropometric data, food frequencies, 24-hour dietary records and questions related to food habits. The findings of this study showed that the nutrition quality of diets tended to decrease with age. For year 10 students (approximately 15 years old) the least commonly consumed core food group was fruit. Only 55% boys and 61% girls consumed any fruit on the day of the survey, compared to 79% boys and 84% girls in year one. Just over a quarter ate only one serve or less of vegetables per day. Year one children consumed a more varied diet with more consuming foods from different groups. The average consumption of milk and milk products by year 10 girls was approximately half that recommended and the diets of approximately 25% of girls did not include sufficient iron. Soft drink consumption was highest in this age group 28.4% of boys and 19.2% consumed non-diet soft drink on the day of the survey.
The 2007 Australian National Children’s Nutrition and Physical Activity Survey found that while most children met their requirements for vitamins and minerals, the types of foods they were eating and overall balance of their diets was inconsistent with recommendations (Commonwealth Scientific Industrial Research Organisation & University of South Australia, 2008). Less than 2% met recommendations for fruit intake, the average intake of vegetables was half that recommended, less than a quarter met recommendations for upper limits of the percentage of energy coming from saturated fat and for sugar. The average intake of salt was in excess of recommendations. This pattern of imbalance is consistent with findings of other Australian studies of this age group (Hardy, King, Espinel, Cosgrove, & Bauman, 2011; Martin, et al., 2010).

These studies indicate that the nutritional quality of the Australian diet does not meet recommendations and so is a contributor to health risk. The National Nutrition Survey data show that the quality of diets have tended to decline with more nutritionally dilute foods for example, soft drinks and snack foods, being consumed. Data indicates that the nutrition quality of children’s diets tends to decrease with age (Abbott, et al., 2007; Commonwealth Scientific Industrial Research Organisation & University of South Australia, 2008; Hardy, et al., 2011; Martin, et al., 2010). This is consistent with other studies in developed countries (Demory-Luce, et al., 2004). It is unclear if this decline continues to adulthood, although there is strong evidence that dietary habits formed in childhood influence lifelong habits (National Health and Medical Research Council, 2003).

2.1.2 Domestic Food Preparation

Nutritionists’ interest in “meal preparation”, “food skills” and “cooking” are underpinned by the assumption that they will be associated with a higher intake of core foods, increased dietary variety and a greater control over the nutritional quality of foods eaten. Conversely, convenience foods and foods prepared and consumed outside the home are assumed to be a marker for poorer nutritional quality and over-consumption. Consequently, societal drivers for this are often considered contributors to the obesity epidemic. This section will examine contemporary domestic food preparation; how much of it is done, by whom, when and why. It will then examine the drivers for the use of food prepared outside the home. Finally, it
will consider the evidence to support the assumptions of the nutritional consequences of these actions.

According to the Australian Bureau of Statistics’, Time Use Survey, Australians spend more time preparing food than any other domestic task (Australian Bureau of Statistics, 2008). The daily time spent on food preparation has not changed significantly between 1992 and 2006. This time includes time spent cleaning up after preparing food but does not include the time shopping for food. Interestingly, time spent eating and drinking has increased by 50% from around one hour to an hour and a half.

In Australia, women continue to be primarily responsible for meal preparation (Australian Bureau of Statistics, 2008). Women spend around triple the time men do on this task, 1.09 and 0.29 hours per day respectively. These proportions have not changed in over 15 years. Across all age groups, 84% of women and 60% of men participate in food and drink preparation and/or clean up. The gender difference in time spent preparing food is larger than for domestic activities generally, although males across all age groups spend less time than females engaged in domestic activity. This large gender imbalance in food preparation is supported by numerous other Australian studies, including a Brisbane study of 426 randomly selected households. The majority (78.1%) of households have one person responsible for meal preparation and this person is most often (76.6%) female (Winkler & Turrell, 2009).

Although information regarding time spent preparing food was not available for young people (aged 15-24 years), they were the age category that spent the least time doing domestic activities (Australian Bureau of Statistics, 2008). The gender differential in domestic work begins early. Females ages 15-19 years, spend 6.5 hours per week doing domestic work compared to males the same age who spend 4.2. This differential is further developed in the 20-24 year age group in which females spend almost three times the amount of time doing domestic work compared to their male counterparts (4.9 hours against 13.3) (Muir, et al., 2009). A small study (n=232) of Australian university students enrolled in a food and nutrition unit found that those living away from home were more likely to be responsible for their own food (Riddell, Ang, Keast, & Hunter, 2011). However, those who were still living at home but also responsible for food did cook more often than their peers that lived
independently (2.3 times per week vs 1.5 per week) indicating that the transition to living independently requires food skills beyond just food preparation.

In one of few qualitative studies of food preparation in Australian families, gender was not identified as a basis for food preparation arrangements (Lupton, 2000b). The three main rationales for determining responsibility for a task described by rural Australian families were expertise, enjoyment and fairness. The meal preparer was the individual in the household who was better at it, liked it more, was more often home around meal times or was the main household manager. In this fourteen year old study, Lupton noted that gendered division of labour was weakening, particularly among younger couples. The three rationales applied equally to men as they did to women, so if the female was the primary income earner and the male was at home, the male tended to prepare the meals. In around a third of the thirty-four couples studied, men took responsibility for at least half the meal preparation.

While this is heartening to observe that meal preparation was not inherently seen as “women’s work”, the women in this study still did the large majority of meal preparation as they do throughout Australia. Women tended to be more skilled at cooking which is most likely because they have been socialised to develop and practice these skills, and they tended to be the main household manager because they were not the main breadwinner. Lupton noted that meal preparation arrangements were rarely a cause for marital disputes. When wives found the arrangements unfair, husbands usually responded by buying the family a take-away meal or taking the family out. Husbands also had their “special meals” that they would occasionally cook as a family treat or for leisure when they felt “in the mood” (p182).

A study of low wage-earning families in Upstate New York noted that even when fathers regularly helped with food preparation they saw themselves as support to the mother, with her taking primary responsibility. Mothers and fathers in this study differed in their interpretations of taking responsibility and support. As in Lupton’s study, when mothers were the primary income earners, fathers tended to be responsible for food preparation (Blake, et al., 2009). This indicates that food preparation represents a significant portion of domestic duties which is consistently negotiated and despite changes in workforce participation, often follows gender lines.
Gender highlights the importance of context. It also helps to describe the diversity of potential food literacy components, particularly beyond cooking. The dilution of gender roles in the provisioning of food may be a contributor to the emergence of the term food literacy. The knowledge, skills and behaviours used to meet food needs may not have been considered essential when this work was fundamentally the role of only one gender.

**Domestic food preparation and nutrition**

There is some evidence of the link between domestic food preparation and healthy eating. A summary of relevant studies and their findings are presented in Table 2.2. These studies suggest a positive association between diet quality and food preparation, however this does not appear to extend to an association with healthy body weight. Young people were more likely to be involved in preparing food when their mother worked and socio-economic factors do not appear to influence the decision to prepare food. This challenges the perception of meal preparers held by conservative ideologies. Gender, however, continues to be a strong determinant of food preparation.

These studies show some relationship between food preparation and diet quality; however, the extension of this link to healthy weight is inconclusive. The influence of other potential components of food literacy such as planning and selection of food are less clear and are less often measured. Socio-economic status does not appear to be directly related to frequency or confidence in preparing food, although gender continues to be, with females more likely to do food work. Studies also indicate that young people regularly participate in food preparation and are confident in their ability to do so.
Table 2.2: A Summary of Studies Examining the Relationship Between Food Preparation and Food Intake

<table>
<thead>
<tr>
<th>Reference</th>
<th>Study design and dietary intake measure</th>
<th>Population and sample size</th>
<th>Food preparation measure</th>
<th>Results</th>
</tr>
</thead>
</table>
| Food preparation and purchasing roles among adolescents: associations with sociodemographic characteristics and diet quality. (Larson, Story, Eisenberg, & Neumark-Sztainer, 2006) | Cross-sectional survey Modified food frequency questionnaire | n=3699 United States adolescents aged 11-18 years; (mean=14.9) | In the past week, how many times:  
  - Did you help prepare food for dinner?  
  - Did you help shop for groceries?  
  - Did all, or most of your family living in your house eat a meal together? | Most helped prepare dinner (68.6%) and almost half helped shop for groceries (49.8%).  
Significantly more males (35.4%) than females (27.3%) never helped prepare dinner.  
Helping to prepare meals was associated with more nutrient dense diets, however there was no relationship with helping to shop.  
Students who were more frequently involved in meal preparation were from lower socio-economic groups (p<0.001), overweight or obese (p<0.01), regularly participated in family meals (p<0.001) and of Asian- American ethnicity (p<0.001).  
Shopping or preparing meals was not related to mother’s employment status. |
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<th>Reference</th>
<th>Study design and dietary intake measure</th>
<th>Population and sample size</th>
<th>Food preparation measure</th>
<th>Results</th>
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</thead>
</table>
| Food preparation by young adults is associated with better diet quality. (Larson, Perry, Story, & Neumark-Sztainer, 2006) | Cross-sectional mailed survey. Food frequency questionnaire. | n=1700 United States, aged 18 to 23 years (mean age 20.4) | Over the past 12 months, how often have you:  
- Bought fresh vegetables  
- Written a grocery list  
- Prepared a green salad  
- Prepared a dinner with chicken, fish or vegetables  
- Prepared an entire dinner for two or more people | Females were twice as likely to regularly perform these activities as males.  
Those living independently were also more involved in these activities than those living in their parental home.  
Both males (76.8%) and females (81.7%) reported their cooking skills as adequate or very adequate.  
The largest barrier to food preparation was time for preparation. Cooking skills, money to buy food, appliances for preparation and selection of food from local stores was less important.  
Those more often involved in food preparation were more likely to meet dietary guidelines  
No relationship between self reported adequacy of cooking skills or resources.
<table>
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<tr>
<th>Reference</th>
<th>Study design and dietary intake measure</th>
<th>Population and sample size</th>
<th>Food preparation measure</th>
<th>Results</th>
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</table>
| Which food-related behaviours are associated with healthier intakes of fruits and vegetables among women? (Crawford, Ball, Mishra, Salmon, & Timperio, 2007). | Cross-sectional mailed survey Fruit and vegetable short questions. | n=1136 randomly selected Melbourne women aged 18-65 years from low, medium and high socio-economic areas | 36 item shopping, food preparation, meal and eating behaviour survey. | Women who consumed at least two serves of fruit per day were more likely to:  
- plan meals the week prior to shopping (OR=1.7),  
- plan the evening meal in the morning (OR=2.3),  
- plan what they would eat for lunch the following day (OR=2.2),  
- cooked dishes ahead of time (OR=2.2) and  
- liked trying new recipes (OR=1.9).  
Women who ate less than two servings of fruit a day:  
- always found cooking a chore (OR=0.4),  
- spent less than 15 minutes preparing dinner (OR=0.6),  
- decided on the night what they would be eating for dinner (OR=0.6) and  
- ate meals in a fast food restaurant at least once a week (OR=0.6).  
Similar behaviours were shown for those who ate fewer servings of vegetables  
Women who ate more fruits and vegetables also tended to enjoy cooking, valued food preparation, purchasing and commensal meal times.  
Only 10% planned their weekly meals before shopping, around a third used a shopping list, just over one in ten reported enjoying trying new recipes and cooking new things and three quarters reported at least sometimes find cooking a chore.  
Socio-economic status, as measured by education qualification, occupational status and SEIFA location, was not related to food preparation behaviours. |
<table>
<thead>
<tr>
<th>Reference</th>
<th>Study design and dietary intake measure</th>
<th>Population and sample size</th>
<th>Food preparation measure</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Involvement of young Australian adults in meal preparation: cross-sectional associations with abdominal obesity and body mass index (Smith, et al., 2011)</td>
<td>Cross-sectional study. Mail survey and clinic appointments for anthropometric measurement by trained staff. 127 item food frequency questionnaire and short questions</td>
<td>n= 1996 adults ages 25-34 years. Followed up from Childhood Determinants of Adult Health Study which began in 1985 and was nationally representative at the time.</td>
<td>“who normally prepares your main meal at home on working days?” (shared, self, someone else)  Body weight, height and waist circumference International physical activity questionnaire inc leisure time physical activity (LTPA).</td>
<td>Involvement in meal preparation was not associated with BMI. Women were more likely to be responsible for meal preparation when they had dependent children. Shared meal preparation was associated with reduced prevalence of abdominal obesity in men after adjusting for age, education and LTPA. There was no significant association for women. There was no evidence that the association between shared meal preparation and abdominal obesity was mediated through diet quality.</td>
</tr>
</tbody>
</table>
**The value and meaning of preparing food**

Regardless of gender, there is a greater “value” placed on foods prepared from “scratch” or “base” ingredients. Sociologists highlight attached meanings of love and family cohesion to a home-cooked dinner served to the family at the table (Caraher & Lang, 1999; Charles & Kerr, 1988; DeVault, 1991; Murcott, 1982). In his study of eight and nine year old children, Caraher identified that informal everyday meals were associated with convenience foods and fast foods, but special occasion meals involved some element of cooking, particularly from basic ingredients (Caraher, Baker, & Burns, 2004). In this context, food preparation is less about the end product of the food or meal produced and more about the meaning of the process (Lang & Caraher, 2001). Blake observed “scripts” for evening meals which were dependent upon the specific eating context (Blake, Bisogni, Sobal, Jastran, & Devine, 2008). The values which inform these scripts, such as nutrition, socialization, convenience, were also contextually driven. These findings re-enforce the seminal work of Douglas and Murcott in describing the hierarchy of meals (Douglas, 1972; Murcott, 1982). From a nutrition perspective, it is the day-to-day food intake that is of greater interest than special occasion eating. This differentiation in the value of meals and its relationship to their preparation is important to note when determining how confidence and ability to prepare food corresponds with the frequency of actually performing these tasks.

The preparation of food appears strongly linked with an identity of being a care-giver. This has been observed by many authors including Bisogni et al (2005) who describes those who provide meals as “constructing the family” because “family meals are where individual needs are recognised and accommodated” (p 289); Dixon and Banwell observes a reluctance for mothers to relinquish the preparation of food as opposed to other aspects of providing food; and Caraher refers to the use of food as a “bonding/emotional process” (p 270) to explain the unusual finding of higher rates of involvement in the kitchen from step fathers (Bisogni, et al., 2005; Caraher, et al., 2004; Dixon & Banwell, 2004).

Dixon and Banwell conducted a series of focus groups with 33 Melbourne households in the mid 1990s regarding what was involved in “feeding a family” (Dixon & Banwell, 2004). They examined tasks of meal planning, shopping, preparing and serving. Participants reported meal planning, in particular the
acceptance or rejection of meals by family members, the most stressful task. While women typically aimed to provide healthy meals, this was challenged by the demands of their children who were heavily influenced by food industry marketing. Satisfying the needs of others in their household and “providing comfort” through food seemed to be an accepted and important role for women which they appeared reluctant to give up. This has also been noted in studies of women in other western countries (Carrigan & Szmigin, 2006).

While women do the majority of food-related tasks they may not control what foods are bought and prepared. This power often lies with other members of the household. This has been demonstrated in a range of nutrition interventions where despite finding foods personally appealing, women were reluctant to prepare or purchase them for their family (Devine, et al.; Kristensen & Holm, 2006). Kristensen and Holm (2006) describes the social hierarchy of the family members being expressed in the priority given to their hunger and subsequent meal provision. Dixon and Banwell (2004) in their study of Melbourne families, observed that children’s needs had taken priority in family meal planning where previously it had been the husbands. Coveney (2008) describes a similar hierarchy in a study of Adelaide families. This is consistent with food industry market research (Huntley, 2008; Meat and Livestock Australia, 2009). The increased participation of women in the workforce, however, has taken the pressure off the provision of meals, making them less significant events, and less of a symbol of a woman’s worth (Dixon & Banwell, 2004).

The imperative to prepare food also has meaning for those who have experienced disadvantage. In a study of Bulgarian food habits as they transitioned from a communist economy to a free market economy in the 1990s, it was noted that despite a 306% increase in food prices in 1996 alone, employed people tended to spend less time preparing meals at home and were less likely to grow vegetables at home (Florkowski, et al., 2000). It was hypothesised that the opportunity costs of the time required for these activities was not considered worth the benefit. The authors note that similar trends were observed in the former East Germany, Czech Republic and Hungary. While at the time of the study, food service and food processing industries in Bulgaria were minimal, it was anticipated that they would proliferate. Studies of the proliferation of street foods in Asia in the past century have linked it
with growing informal economies and changes in family structures which saw women with less time to prepare traditional meals with multiple dishes and men going away from home for work (Dixon, Hinde, & Banwell, 2006). These changes could also be a result of greater autonomy and empowerment following economic freedom with its expression happening through food.

Commentators have noted the emergence of cooking as a “leisure” activity rather than a daily task to explain the popularity of cooking shows and books. There is, however, no evidence to support an increased popularity of cookbooks and cooking shows with an increase in regular participation in cooking. British data showed people spent less time in the kitchen on a day-to-day basis but did view cooking as “enjoyable” and “de-stressing” (Caraher & Lang, 1999). In the Australian Time Use Survey, Australians spent slightly more time preparing food on the weekend than on weekdays, this was particularly true for men (Australian Bureau of Statistics, 2008). This indicates that weekend meals are determined for pleasure with greater preparation time allowed for, and weekday meals are determined by convenience with minimal preparation time. This is interesting to consider in light of dietary intake data which typically reveals higher energy intake on weekends than on weekdays. It could be that while nutritionists might associate meal preparation, food skills and cooking with improved nutritional quality, this may not be a consideration for those doing preparing the meals and may not be associated with nutritional quality. Convenience and pleasure also imply the presence of choice. Disadvantage is defined by the limitations of choice. The value and meaning of preparing food, and its relationship to diet quality, for these populations, therefore is likely to be influence by their disadvantage.

Practitioners need to consider these meanings when developing programmes to appeal to groups. Is food preparation viewed as an annoying necessity of daily life, an unpleasant domestic chore, an expression of love, a sign of efficient household functioning, a gift to your family, a vehicle for health, just a part of day to day living that does not warrant much attention, an expression of class, taste, culture, skill, gender? For women, is it empowering or oppressive, an expression of individualism or conformity? These are many reasons why food literacy needs to be considered beyond cooking as it gives the individual more freedom to extend their understanding and use of food as they wish. These values and meanings will
influence an individual’s motivation to develop their food literacy and participate in food literacy programmes.

**Food preparation hardware**

Studies in the UK have reported that access to facilities or equipment is not a barrier to food choice or cooking (Caraher, et al., 1999). In Australia, however, this has been identified as a significant barrier in Aboriginal and Torres Strait Islander households, particularly in remote areas (Strategic Intergovernmental Nutrition Alliance, 2001). A study of 279 houses in remote Northern Territory Aboriginal communities investigated the relationship between housing conditions and common childhood illnesses (Bailie, Stevens, McDonald, Brewster, & Guthridge, 2010). This equated to eighty-five percent of all houses with children aged seven years or less. Childhood illness data was collected on 618 children in these 279 houses. Hardware to “prepare and store food” was defined as “sink taps, sink, cold water flow, pantry, oven, stove top, cooking/eating utensils, bench, lights and electrical fittings, and kitchen general structure functioning” (Bailie, et al., 2010 p4). Houses were considered to have “failed” this category if at least one of these items were not functioning. Seventy-nine percent of children lived in failed houses. There was a statistically significant association between these children and the incidence of diarrhoea and/or vomiting in the previous fortnight (OR 1.7, 95%CI) (Bailie, et al., 2010). This is an example of the importance of healthy food in the prevention of illness beyond the overweight and obesity agenda. It also highlights the complexity of the relationship between food literacy and disadvantage, particularly its extension beyond personal skill development.

Access to and use of food preparation equipment has been contrasted with other common food security strategies in a cross-sectional study of 132 low-income households affected by HIV/AIDS in a semi-rural area of India. It examined the relationship between food insecurity and foods grown for own use, use of soya (a locally available crop) and pressure cooker ownership (van Elsland, van der Hoeven, Joshi, Doak, & Ponce, 2012). All households had very low or low food security as defined by the United States Department of Agriculture (USDA) measure (Bickel, Nord, Price, Hamilton, & Cook, 2000). Of these three factors, pressure cooker ownership was most strongly protective against very low food security (compared
with low food security) with this association remaining strong and statistically significant even after controlling for socio-economic status. The authors conclude that access to adequate equipment is a largely unexplored and under-utilised strategy in addressing food and nutrition security.

In Australia, inadequate access to equipment or facilities is also likely to be of significance for those experiencing homelessness, transferring from homelessness or in temporary accommodation. On 2006 Census night, 32,444 young people (12-24 years) identified as homeless. This represents 31% of all homeless people and around one percent of all young people (Muir, et al., 2009). There is an over-representation of people aged 12-18, from Indigenous and refugee backgrounds, and of females in the young homeless population. Homelessness among young people varies in type and includes couch surfing where young people stay for periods of time at the homes of friends or other family members, often without the knowledge of the whole household. Access to appropriate facilities and equipment may be an important policy issue for key housing and welfare agencies. Emergency accommodation, for example, is typically in hotels where equipment is limited to a kettle and possibly a small microwave oven which significantly limits the range of foods that can be prepared and their nutritional quality. For couch surfers, they often feed themselves in secret to keep themselves hidden from other household members and so cannot store food beyond a single eating occasion. They are typically not linked into broader services to facilitate their path out of homelessness.

**Food prepared outside the home**

The majority of food consumed in Australia is still prepared in the home, however the proportion of food consumed outside the home is growing. National data from 2006 indicates that grocery food retail, including supermarkets, make up 61% of the share of the food retail market, restaurants and cafés 14%, and take-aways 10% (Australian Government Department of Agriculture Fisheries and Forestry & Food Policy Section, 2009). However, the growth in the supermarket sector is slowing while the food service sector is growing (Spencer & Kneebone, 2007). Within this, the most rapidly expanding sector is casual dining both in overall size and the diversity of options it presents (Spencer & Kneebone, 2007).
This market size data is supported by monitoring and surveillance data of how Australians spend their time and money. The Australian Time Use Survey showed that 64% of households purchased one or more restaurant meals and 67% purchased one or more takeaway meals in the fortnight of the survey (Australian Bureau of Statistics, 2008). Respondents identified this as a strategy to decrease time spent preparing meals. Household Expenditure Survey data shows expenditure on meals prepared outside the home is the single item that takes the biggest part of the Australian fortnightly food budget and that this has gone up significantly in the past twenty years (Australian Bureau of Statistics, 2006a). The amount and proportion of household income spent on food consumed outside the home differs according to income. Households in the highest household income quintile spent around a third of their total food budget on foods eaten outside the home; this was double the proportion spent by those in the lowest quintile (refer to Table 2.3) (Australian Bureau of Statistics, 2006b). This could reflect the frequency of meals consumed outside the home or the cost of those meals.

There has also been an exponential increase in the number of foods available for Australians to choose from. Between 1990 and 2008, the number of food and beverages products in a typical full service Australian supermarket increased by 67% from 11,700 products to 19,540 (National Heart Foundation, 2010). It is likely that many of these items are also prepared outside the home, that is, they are ready-to-eat or include some elements that have already been prepared, for example, packet sauces, frozen vegetables.

Clearly the increased consumption of foods prepared outside the home is real rather than perceived. However, it is unclear if this is a threat to the nutritional quality of food intake or if it has an impact on the variety and quantity of foods consumed. The knowledge, skills and behaviours needed to meet nutrition recommendations, clearly, must interface with food prepared outside the home, as a reflection of contemporary food and eating.
Table 2.3: Australian Food and Non-Alcoholic Beverages Expenditure by Household Income Quartiles (Australian Bureau of Statistics, 2006b)

<table>
<thead>
<tr>
<th>Expenditure Item</th>
<th>Total dollar and proportional expenditure by household income quintile</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Lowest</td>
</tr>
<tr>
<td>Total goods and services</td>
<td>413.32</td>
</tr>
<tr>
<td>Total food and non-alcoholic beverages</td>
<td>78.36</td>
</tr>
<tr>
<td>(%)*</td>
<td>(18.9)</td>
</tr>
<tr>
<td>Total meals outside the home</td>
<td>13.11</td>
</tr>
<tr>
<td>(%)**</td>
<td>(16.7)</td>
</tr>
<tr>
<td>Restaurant meals</td>
<td>6.46</td>
</tr>
<tr>
<td>(%)***</td>
<td>(49.3)</td>
</tr>
<tr>
<td>Takeaway meals and fast food</td>
<td>6.57</td>
</tr>
<tr>
<td>(%)***</td>
<td>(50.1)</td>
</tr>
</tbody>
</table>

*Denotes percentage of total goods and services expenditure. ** Denotes percentage of total food and non-alcoholic beverages expenditure. ***Denotes percentage of total meals out expenditure.

**Convenience**

Convenience is considered to be a driver of changes in food preparation. Convenience is about more than saving time, it is also about greater flexibility of
time and effort. Convenience foods can be thought of as allowing one to not only save time, but to shift and re-allocate time and effort according to priorities. Convenience foods can be considered on a spectrum from bought bread to packet sauces to a frozen dinner to a restaurant meal, with the consumer determining the level. Convenience at all stages of the eating cycle should be considered that is, planning, shopping, preparing, consumption and disposal (Candel, 2001; Carrigan & Szmigin, 2006). Typically, much of the focus on convenience food tends to centre around the preparation, however, as Dixon noted, this is the part considered most pleasurable (Dixon & Banwell, 2004).

Convenience can be considered within the construct of choice. Convenience food and food prepared outside the home have been credited with giving greater choice over the amount and type of food preparation done and adding to the variety of foods consumed (Short, 2003). Of the range of domestic tasks that can be outsourced, food provision is probably one of the most convenient as it can happen spontaneously and does not require an ongoing commitment of money in the same way as a gardener, cleaner, ironing person or child-carer would. So it can flexibly be used to manage time as day to day or even minute to minute commitments and resources change. Outsourcing meal preparation also has a greater range of cost implications making it more readily used by a greater range of socio-economic groups. This is confirmed by data from the 2006 Time Use Survey which shows that in the fortnight of the survey, takeaway meals were used by around 50% or more of households across all income groups, as were restaurant meals (Australian Bureau of Statistics, 2008). Meals prepared outside the home were used by about four times as many households as the outsourcing of other household services including ironing, housecleaning and gardening/mowing (Australian Bureau of Statistics, 2008).

Convenience products are an important tool in helping balance feeding oneself within other life commitments and priorities. The wide spectrum of convenience products means these choices can be made within a range of money, time, skill and other resource restrictions.

*The morality of convenience*

The use of convenience foods, appliances and foods prepared outside the home bring their own morality. Labour saving appliances have not always helped save
time. Historically they have instead raised the standard of housekeeping. Using foods prepared outside the home have been associated with laziness, poor planning or less nurturing (Carrigan & Szmigin, 2006). In a recent study of British women, Carrigan et al described this attitude as changing with women being empowered by convenience foods to reallocate their time to more important pursuits (Carrigan & Szmigin, 2006). The view of a “good mother” is shifting from a woman who spends all her available time serving her family, to a “super-mum” who can balance multiple roles and tasks to the satisfaction of herself and her family. The “super-mum” is a “conscious convenience seeker” (Carrigan & Szmigin, 2006 p1128) and her ability to use convenience products to optimally balance time and commitments is seen as a critical skill; “a sense of power comes from the order imposed upon the chaos of motherhood through the use of convenience products” p 1137).

Australian studies also describe that, for mothers, convenience foods are increasingly about “re-ordering” time and include their role in providing nutritious meals for a family (Dixon, et al., 2006; Schubert, 2008). The use of convenience foods to save time and takeaway food as a “treat” were two of the key coping strategies identified in a study of low wage earning employed parents in a metropolitan area of Upstate New York (Devine, et al., 2006). These parents identified lack of job flexibility as a key work condition affecting food choice and were aware of the negative nutritional consequences of the strategies they used to save time.

A convenience orientation

Candel sought to measure “convenience orientation” or the tendency to seek convenience in meal preparation (Candel, 2001). Convenience orientation was negatively correlated with the importance of taste (r=-0.22, p<0.01), variety within (r=-0.32, p<0.01) and between meals (r=-0.21, p<0.01), and exclusivity (r=-0.25, p<0.01). Price, nutrition and environmental impact were not significantly correlated. Single person households were more likely to be convenience oriented and households with children tended to be less convenience oriented than those without (F=4.64, p=0.032). Hours worked per week were only significantly correlated at the extremes. The gender, age and educational level of the meal preparer was not significantly correlated, neither was the occupation or education of the main income
earner. Those consumers with a convenience orientation tended to eat out more and use take-away foods rather than ready-made meals.

Botonaki and Mattas mapped convenience food attitudes and behaviours against Schwartz’s universal human values (Botonaki & Mattas, 2010; Schwartz, 1994; Schwartz & Bilsky, 1987). The results are presented in Figure 2.1. Like Candel, the study found that the values of convenience oriented respondents and meal preparers differed. Convenience meal orientation was measured using an amalgamation of nine previously validated measures of various constructs such as food variety and involvement in cooking, including the tool developed by Candel. The nine values which make up the circle segments were developed by Schwartz to describe motivational domains of values which can be consistently identified across groups to predict attitudes and behaviours. Segments that are closest to each other are most likely to co-exist as values. Schwartz’s theory is more comprehensively discussed in section 2.2.

![Figure 2.1: Convenience Food Attitudes and Behaviours Categorised into Schwartz’ Universal Value Domains (Botonaki & Mattas, 2010)](image-url)
When one considers the spectrum of convenience foods, it is clear that most consumers would seek convenience in at least some form, however values and motivations for this would differ as described in Figure 2.1. It is unclear, however, at what level convenience foods or a convenience orientation will impact on nutritional status. Any conceptualisation of food literacy will need to consider the influence of convenience.

2.1.3 The Rituals of Eating

Food intake is profoundly influenced by social and cultural meanings attached to food and eating. These include when, where and with whom certain foods and combinations of foods are eaten. This might broadly be described as the rituals of eating. Social commentators observing a “gastronomic revolution” and the “industrial eater” are as concerned with the changes in these aspects as they are with what is eaten (Berry, 1990; Bifulco & Caruso, 2007). Some authors cite the proliferation of the fast food and convenience food industries as applying new standards and expectations on eating, these include; preparation speed, individual likes and dislikes being catered for within one sitting, consistency of end product and the pace and environment of eating (Dixon, et al., 2006). The application of these standards and expectations has also extended to home food preparation (Stead, et al., 2004). Others describe an anomie or individualisation of eating rituals resulting from an overabundance of rules about food, eating and nutrition (Fischler, 1979; Kristensen & Holm, 2006; Poulain, 2002; Sobal, 2006).

The relationship between these rituals and nutritional status is complex as their relative importance and value is culturally and socially constructed. Most studies which examine the relationship between the rituals of eating and nutrition focus on two aspects; daily eating structures, particularly meals and mealtimes, and commensal eating. These aspects are related as the conceptualisation and definition of meals, often includes people eating together.

**Meals**

How a meal is defined and what constitutes a meal has been the subject of much research. Meals in themselves have been defined by the rituals that surround
them regarding what, when, how and with whom they are eaten (Douglas, 1972; Murcott, 1982). They are typically made up of more than one food, are planned and often eaten with others (Kristensen & Holm, 2006; Poulain, 2002; Sobal & Nelson, 2003).

There is limited Australian data regarding changes in eating structures however, Poulain noted that French eating is tending to become more simplified, composing of fewer courses and some meals are skipped altogether as a result of snacking or grazing (Poulain, 2002). Snacking in and of itself is not an unhealthy practice and is common in some cultures where it is part of commensal eating (Poulain, 2002).

Keeping to a conventional meal pattern is associated with taking care of your body (Kristensen & Holm, 2006; Poulain, 2002). Nutrition studies often assume that following a meal pattern means meals are planned for and are more likely to be healthy. It is proposed that people develop a script or flow chart of what procedures to follow in a particular context when preparing meals or making food choices (Bisogni, et al., 2007). Blake et al, for example, examined scripts for the construction of the evening meal and found that the evening meal was surrounded by values of a time to connect with family and friends, a time for relaxation and separating from the working day (Blake, et al., 2008). Nutrition was not spontaneously identified as a significant value in determining evening meal food choice. Kristensen and Holm (2006) reported that people found it easier to follow a conventional eating pattern on the weekends or on holidays when they did not have work commitments. This is consistent with when more meal preparation takes place but also with when food intake is typically higher than other times of the week (Australian Bureau of Statistics, 2008; Cook, et al., 2001).

It is also proposed that having a consistent structure around eating such as planned eating occasions will result in a more conscious eater who can better monitor their intake. Poulain highlights the differences between respondents concept of a “proper meal” as against their actual intake. One study identified twenty food occasions in a day with the respondents claiming to only eat three meals. (Fischler in (Poulain, 2002). This has implications for the validity of dietary intake data.

The significance of a structured meal pattern on the nutritional quality of diet is unclear. There is little evidence to suggest that a structure will result in that
particular meal being of greater nutritional quality. The relationship between eating structures and nutrition may lie in total intake being higher as a result of more frequent eating although this has not been established.

**Commensality**

For many, thoughts of a “proper meal” include not eating alone. This has been so strongly valued that it has formed the basis for industrial action in some countries in which traditionally the working day has been broken by a shared midday meal (Kristensen & Holm, 2006; Poulain, 2002). The influence of commensality in maintaining a conventional meal pattern has been observed by other authors (Poulain, 2002). Nutrition studies which examine commensality assume a relationship with healthy eating (Abbott, et al., 2007; Demory-Luce, et al., 2004; Larson, Story, et al., 2006).

Gallegos et al examined Australian adolescent’s agreement with common societal descriptors of the ‘family meal’ (Gallegos, Dziurawiec, Fozdar, & Abernethie, 2011). ‘Family meals’ included those that some but not all family members were present at and the same dish eaten by all family members but not at the same time. This is consistent with the findings of other studies with this age group (Eldridge & Murcott, 2000). The majority of adolescents who consider they had a ‘family meal’, ate a meal of meat and vegetables and the meal was home-cooked. In their sample of 625 adolescents, almost the same number thought family meals were ‘important’ as those that did not. The relationship between family meals, diet quality and “at risk” behaviour has been examined, however results are inconsistent (Fulkerson, Kubik, Story, Lytle, & Arcan, 2009; Woodruff & Hanning, 2009), although there does appear to be a relationship between those that never share meals and risky behaviour (Levin, Kirby, & Currie, 2012). This appears to be independent of family structure.

Findings of a US study are likely to be similar in Australia in that, most ate alone for breakfast, alone or with co-workers for lunch and the large majority ate dinner with others, usually co-habitating family. Around a quarter of people ate breakfast, lunch and dinner with others, around one seventh ate all of these meals alone (Sobal & Nelson, 2003). In the Healthy Kids Queensland study the large
majority of year 10 students ate their evening meal with at least one parent, more than four times a week (Abbott, et al., 2007). In a study of family food environments of 5-6 year old Melbourne children, most (63%) ate the evening meal together as a family at least four times a week. This was less likely to occur in families where the mother was tertiary educated (56%) (Campbell, et al., 2002).

A Danish study found that those who ate alone were less likely to plan their eating, more likely to control the amount of food they ate and more likely to eat high energy, low nutrient snack foods frequently throughout the day when compared to those who planned to eat together (Kristensen & Holm, 2006). Alternatively a qualitative study of low wage earning parents in Upstate New York observed that commensal eating rarely occurred in the home setting and some participants defined family meals as those eaten in restaurants (Blake, et al., 2009). It has also been noted that meal patterns and the expectation of commensal eating changes depending on short term factors such as location or longer term changes in living conditions, such as moving away from home or having children. Such long-term changes resulted in changed eating “scripts” (Kristensen & Holm, 2006).

Commensality and its function in establishing and developing relationships are used throughout the community sector to engage those who may otherwise be socially excluded. Studies of commensal eating also examine its role in simultaneously excluding and privileging groups and individuals (Sobal & Nelson, 2003). Matching the food intake of your eating companion to promote social acceptance, referred to as ‘social matching’, is also thought to influence food intake (de Castro & Brewer, 1992; Robinson, Tobias, Shaw, Freeman, & Higgs, 2011). The use of food by practitioners in the community sector to build social connectedness and belonging may play an important part in the development of food literacy.

2.1.4 Conclusion

There is an inter-relationship between individual and household, community, national and global changes in food and eating. The nutrient density of diets is poor and diminishes over childhood. The prevalence of overweight and obesity is escalating in its scope and severity. While there is a link between domestic food preparation and diet quality, this link does not extend, as expected, to healthy body
weight. While it remains a key element of domestic work, it is associated with special occasions and the main meal, with convenience being a driver of day to day food intake. The availability and use of foods prepared outside the homes is a distinctive feature of contemporary food and eating. This has emerged from a convenience orientation to food, in response to a range of economic, social and environmental changes typically well beyond the scope of the health sector. This has profoundly influenced the rituals of eating.

The Giessen Declaration calls for contemporary nutrition practice to extend beyond biological systems. Existing nutrition recommendations fail to do this. The construct of food literacy potentially supports practitioners and policy makers to do so. Defining food literacy requires a deep exploration of multiple dimensions of contemporary food and eating. This requires engagement with sectors and key stakeholders beyond health who are primarily invested in them.

Food meets a broad range of needs beyond nutrition. This section provided a brief overview of some of them by describing contemporary dimensions of food and eating. An examination of the influence of disadvantage highlights the reflexivity of individual, household, community, national and global food systems. It helps to formulate what the key domains of food literacy might be and where it could be positioned in policy and practice more broadly.
2.2 DISADVANTAGE AND HEALTH

There is a social gradient in health outcomes and health is very sensitive to social and economic factors. In examining the relationship between poverty and health, Marmot and Wilkinson discovered that not only was there a social gradient between rich and poor countries, but more importantly between the rich and poor within a nation (Marmot & Wilkinson, 2006). This significantly shifted thinking in modern conceptualisations of disadvantage from being an absolute delineation to a relative one. That is, how disadvantaged you are relative to other members of your society, has a greater impact on health than your absolute level of disadvantage.

A more relevant conceptualisation of disadvantage therefore, includes elements of poverty, deprivation and social exclusion (Saunders, Naidoo, & Griffiths, 2008). Poverty tends to include income and its determinants such as education, employment and occupation. Deprivation has been defined as an enforced lack of socially perceived necessities (Saunders, et al., 2008). Social exclusion usually refers to the lack of access to resources and the lack of personal skills to access resources to allow a person to fully participate in social and economic life (Bourke, Caniglia, & Whiley, 2010). These elements are inter-related and contribute to the clustering of disadvantage and its accumulation over the life-course.

Studies vary in their measurement of disadvantage and the extent to which these elements are investigated. Australian research, particularly monitoring and surveillance, tends to use geographical groupings related to poverty, that is, socio-economic indices for areas (SEIFA) (Abbott, et al., 2007; Giskes, Turrell, Patterson, & Newman, 2002; Kenny, Denney-Wilson, Nelson, & Hardy, 2008; Winkler & Turrell, 2009). Geographical measures are often used in service planning, particularly in the public sector as they align well with existing data collection systems and so simplify monitoring and reporting. These geographical measures, however, provide only a generalized broadbrush view. Within a disadvantaged area there are usually multiple levels of disadvantage which may be under-reported if only this definition is used, additionally, this measure misses those living in an area of relative advantage but experiencing disadvantage. The limitations of this approach are increasingly being reported and so a broader view of disadvantage, which includes deprivation and social exclusion, is now encouraged by key stakeholders.
and governments (Bourke, et al., 2010; Department of the Prime Minister and Cabinet, 2009; Hayes, Gray, & Edwards, 2008; Saunders, et al., 2008).

A broad conceptualisation and measurement of disadvantage, to include poverty, deprivation and social exclusion, is particularly relevant for a study of young people. Young people, for example, can be at different levels of social exclusion related to the extent to which they are connected to the organisations and resources that support them. “At risk” youth typically refers to those young people who are “at risk” of disengaging from what are considered our key social “institutions” of education, family and community (Muir, et al., 2009). In this way, their disadvantage is defined by their level of engagement. Economic rationalism dominates youth policy, as it does most public policy, with the goal of engagement in education and training focusing on young people becoming financially independent and full contributors to the Australian economy (Muir, et al., 2009). Existing youth services tend to be structured around a continuum of social exclusion from universal services such as schools, to those “at risk” of social exclusion, for example, alternative schools, to those experiencing extreme disadvantage and exclusion, for example, specialist youth homelessness services.

2.2.1 Disadvantage and Food Intake

Poor dietary intake and the resultant effects on body weight and health risk, exist across socio-economic classes however the burden of these increases with the level of disadvantage (Bourke, et al., 2010; Queensland Health, 2008). Factors such as level of education, ability to work, social connectedness, and access to healthcare, housing and transport, have been linked to overall health including diet. Disadvantage also affects nutrition via more specific mechanisms such as, the intergenerational effects of under-nutrition in-utero and food insecurity. These mechanisms, as with all elements of disadvantage, are inter-related.

A secondary analysis of the 1995 National Nutrition Survey examined the nutrient intake of 13 to 17 year old Australians according to different socio-economic backgrounds (defined by mother’s occupation, father’s occupation and household income) and did not find sufficient evidence to suggest that adolescents from disadvantaged backgrounds had significantly poorer intakes (Giskes, et al., 2002).
This is consistent with the findings of a cross-sectional study of 1266 young adults aged 20-38 (mean age 29.7 years), from a semi-rural community in the United States (Deshmukh-Taskar, Nicklas, Yang, & Berenson, 2007). Although it found that while food group consumption did not vary significantly between income groups, it did between education levels. Those with an education level over 12 years ate significantly more breads and cereals, dairy, fruit and vegetables.

In considering the social dimensions of disadvantage, an Australian study examined the influence of family functioning, parental psychological distress and child behavioural problems on fruit and vegetable consumption of 3370, four to twelve year old children (Renzaho, Kumanyika, & Tucker, 2011). The study found that pro-social behaviour (of the child) and family functioning were significantly related to fruit and vegetable consumption even after adjusting for household income, family structure, child’s age and gender, parental education level, language spoken at home, financial stress, food security and social support. Fruit and vegetable consumption was linked to parental education level but not to household income.

These two studies hint at the complexity of the relationship between disadvantage and food intake. It is likely that no one element, for example, food insecurity or poverty, will sufficiently explain this dynamic. Multiple dimensions of disadvantage should be considered.

### 2.2.2 Food Security

Food security is defined by the United Nations as:

> a situation where people, at all times, have physical, social and economic access to sufficient, safe and nutritious food which meets their dietary needs and food preferences for an active and healthy life (Food and Agricultural Organisation of the United Nations, 2009).

It has been conceptualised as having four primary pillars: accessibility, availability, utilisation and stability (Food and Agricultural Organisation of the United Nations, 2009). “Access” is a predominant construct in policies that address food security. While the FAO definition of food security has a strong emphasis on access, other definitions extend this to include “the ability to acquire acceptable
“foods in socially acceptable ways”, and “a sustainable food system that maximizes self-reliance and social justice without resorting to emergency food sources” (American Dietetic Association, 2010; Food and Agricultural Organisation of the United Nations, 2009). It is clear, therefore, that the ability to access food, whilst an important aspect to food security, does not fully address food insecurity.

In his review of evolving definitions and concepts of food security since it was first described at the World Food Conference in 1974, Maxwell (1996) identifies three main shifts:

- from global and national to the household and individual;
- from a hunger to a wellbeing perspective; and
- from objective indicators to subjective perception.

These shifts are reflected in contemporary food security research, monitoring and surveillance and are useful to review when considering the possible nature of the relationship between food security and food literacy.

**Food security: From global and national to household and individual**

In the diversity of Australian food related policies, food security is considered at a national, community, household and individual level, although rarely in the same document. This is reflective of the diversity of social, cultural, biological, environmental and economic systems in which food sits. At the national level, Australia is in a comparatively strong position relative to other countries in the world. We continue to produce the majority of our primary foods for example, fresh fruit and vegetables, meats, sugar, grain and dairy (Australian Government Department of Agriculture Fisheries and Forestry & Food Policy Section, 2009). Australia exports the majority of the food it produces and so food production is a significant contributor to national income (Australian Government Department of Agriculture Fisheries and Forestry & Food Policy Section, 2009). A recent report by the Prime Minister’s Science, Engineering and Innovation Council identifies that the stability of our national food security is threatened by a range of global, environmental and local factors which require preventative action (Prime Minister's Science Engineering and Innovation Council, 2010). The same report refers to food literacy contributing to food security through improving the acceptability of foods.
In contrast to agricultural and economic policies, health and welfare policy documents tend to focus on the household and individual. Household, community and individual food security has been described as a gradient of; food secure, food insecure without hunger and food insecure with hunger (Bickel, Andrews, & Carlson, 1998). It can exist in a nation or community that is overall very food secure. The 1995 National Nutrition Survey found that over one in twenty Australian adults had run out of food in the previous twelve months and could not afford to buy more (Marks, Rutishauser, Webb, & Picton, 2001). It is likely that this coarse measure of food insecurity is a gross underestimation of its true prevalence. Recent Australian studies using the 16 item US Household Food Security Survey food security measure reported a prevalence of around 25% (Nolan, Rikard-Bell, Mohsin, & Williams, 2006; Ramsey, Giskes, Turrell, & Gallegos, 2012). This is likely to be much higher among disadvantaged populations (Gallegos, Ellies, & Wright, 2008). Comprehensive monitoring and surveillance of food insecurity in Australian communities, households and individuals does not occur so it is not possible to compare changes in its prevalence over time. Smaller studies, however, have described the changing nature of food insecurity and its existence within a plentiful national food supply (Booth, 2006; Booth & Smith, 2001).

An American study of 428 homeless young people reported around a third had cut the size of their meals or skipped meals, not eaten for a whole day or were hungry and could not buy food due to lack of money in the previous 30 days (Whitbeck, Chen, & Johnson, 2006). This was more common among those young people with a small social network, a history of caretaker abuse or neglect, higher age and a longer time on the streets. Homeless young people are more likely to be nutritionally vulnerable. A Canadian study of 261 homeless young people reported intakes of folate, vitamin A, vitamin C, magnesium and zinc less than 50% of that recommended (Tarasuk, Dachner, & Li, 2005). Means by which participants acquired food are summarized in Table 2.4.
Table 2.4: Food Sources in Homeless Youth Over a 24 hour Period (Adapted from Tarasuk, et al., 2005, p 1930) ¹

<table>
<thead>
<tr>
<th>Food source</th>
<th>Males (n=142)</th>
<th>Females (n=110)</th>
<th>Total (n=252)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purchased by the participant</td>
<td>107 (74)</td>
<td>83 (75)</td>
<td>190 (75)</td>
</tr>
<tr>
<td>Charitable meal or snack</td>
<td>69 (48)</td>
<td>56 (51)</td>
<td>125 (50)</td>
</tr>
<tr>
<td>Food given by other people (including strangers and acquaintances)</td>
<td>68 (47)</td>
<td>82 (75)</td>
<td>150 (48)</td>
</tr>
<tr>
<td>Food stolen or taken from garbage in commercial establishments</td>
<td>15 (10)</td>
<td>7 (6)</td>
<td>22 (9)</td>
</tr>
<tr>
<td>Foodbanks</td>
<td>1 (1)</td>
<td>1 (1)</td>
<td>2 (1)</td>
</tr>
</tbody>
</table>

¹ Sample excludes 6 males and 2 females who did not eat in the previous 24 hours. Most young people reported using more than one source with those consuming food from three or more sources having the highest energy intake and number of eating occasions.

At the community and household level, the Consumer Price Index of Australian foods has steadily increased from 2003-4 to 2009-10 (Australian Bureau of Statistics, 2010). This is significant as food and non-alcoholic beverages make up the largest proportion (17%) of weekly household expenditure, with housing costs second (16%) (Australian Bureau of Statistics, 2006a). For those in the lowest income quintile, its contribution is greater. The difference in the proportion of weekly household expenditure between lowest and highest income groups is greater for food and non-alcoholic beverages than for any other expenditure category (Australian Bureau of Statistics, 2006a). Queensland data from the Healthy Food Access Basket Survey which monitors the cost of healthy food across the State, shows an increase in the mean cost of basket items of $148.87 (50%) between 1998 and 2006, this was greater than the increase in the Consumer Price Index for all foods (32.5%) across the same period of time (Harrison, et al., 2010). The greatest increase followed the introduction of the Goods and Services Tax, despite it not taxing the majority of foods included in the basket. The price of healthy foods was at least 24% higher in areas more than 2000km from the State’s capital city, Brisbane. There was also less availability of healthy food choices, in particular fresh fruit and
vegetables, in these areas (ibid). Quality of fresh fruit and vegetables is difficult to measure, however it tends to decrease with remoteness.

Food insecurity is also experienced in urban areas. At an individual level, in a practical sense, a food insecure person in an urban area will have difficulty accessing shops, have limited availability to healthy food, and have limited choice of foods at affordable prices. In Australia, those most at risk of food insecurity have been identified as young people aged 15-24, Aboriginal and Torres Strait Islander peoples, the homeless, elderly, disabled, refugees and those on low incomes (Booth & Smith, 2001; Gallegos, et al., 2008; Nolan, et al., 2006). For these people the decision to prepare food or not may have less to do with skills and more to do with access to food, transport and equipment (Nolan, et al., 2006). When the only food retailer you can reach without transport is a fish and chip shop, this may become an easier and more realistic option than obtaining transport to a grocery store, carrying the goods home, and having inadequate space or living arrangements to store them in large quantities.

Post war efforts in food security focused on a nation’s ability to sustainably feed its population. Since this time, particularly with greater variance in the relative level of advantage across a nation’s population, efforts have focused more on household and individual food insecurity. Marginalised groups are at much greater risk of being food insecure, and this food insecurity in turn contributes to their marginalization.

**Food security: From a hunger to a wellbeing perspective**

Maxwell notes that definitions of food security have shifted from a hunger to a wellbeing perspective, that is, moving from food security in the short term to examining mechanisms for sustained food security (Maxwell, 1996). This concept is particularly emphasized in the American Dietitians Association definition of food security (American Dietetic Association, 2010). “Enduring”, “resilient” and “fragile” households are identified, referring to the extent to which they can adapt to change to secure their food and nutrition over a lifetime (Oshuag 1985 in (Maxwell, 1996). A shift from a hunger to a wellbeing perspective also emphasizes the importance of seeking solutions beyond food baskets and emergency relief feeding but rather
examining the broader environmental and economic factors which impact the sustainability of the food supply for vulnerable groups at the same time as building individual capacity to secure food.

**Food security: From objective indicators to subjective perception**

Consistent with conceptualisations of disadvantage, food security definitions have shifted from objective to subjective indicators. While measures of food security have defined “cut offs” and descriptors, the tools used to measure it include subjective terms, particularly regarding how food is accessed and the acceptability of food that is available (Bickel, et al., 2000). This includes the sustained access to food in culturally and socially acceptable and equitable ways (American Dietetic Association, 2010).

Efforts to improve household and individual food security through practical food skills need to consider their real-world application. Rose examined the time spent preparing food in the context of nutrition advice and resources given in the *Thrifty Food Plan* (Rose, 2007). The *Thrifty Food Plan* is a series of theoretical nutritionally balanced meal plans given to Food Stamp recipients in the United States. It includes recipes with allocated preparation time. The focus is on basic foods which involve cooking or preparation. When only the specified recipe preparation time was summed, an average of 16.1 hours per week was needed to follow this advice. This is more than double the average time Australian women spend preparing food (Australian Bureau of Statistics, 2008). The calculation did not include the time required to prepare non-recipe snacks and meals such as sandwiches, nor the time to shop and clean up. Rose suggests that spending more than two hours per day preparing meals is especially impractical for those typically receiving food stamps including low income households with only one parent or who are working longer or irregular hours. While similar analysis has not been done of Australian resources (*Food Cent$*), results are likely to be consistent (Foley & Pollard, 1998).

The relationship between food literacy and food security is complex to consider. Individuals and households might consider themselves to be food secure despite living in disadvantage because they have the knowledge and skills to meet
their dietary needs and food preferences within the limited food that are consistently available and accessible to them. Food security, like disadvantage itself, is not simply related to a lack of knowledge or skills (or food literacy) but rather a lack of resources and power to execute them. For those who are already food insecure, they are potentially additionally disadvantaged if they also have poor food literacy. Food literacy may be one of the underlying factors that protects nutritional quality under these circumstances.

### 2.2.3 Conclusion

A higher prevalence of overweight and obesity and diet-related disease is observed in people experiencing disadvantage. This has been observed at multiple stages in the lifecycle for example, higher prevalence of low birth weight babies, higher prevalence of iron-deficiency anaemia in childhood, higher prevalence of failure to thrive, higher prevalence of overweight and obesity and type two diabetes (Marmot & Wilkinson, 2006; Queensland Health, 2010; World Health Organisation, 2008). The effect of these is cumulative. The pathways are complex and consistent with those of the social determinants of health more broadly (Marmot & Wilkinson, 2006). Across all population groups, diet quality is poor and the effects on health are worsening. Disadvantage challenges not only the access and availability of food but also the rituals and patterns of eating. It is likely that the knowledge, skills and behaviours required to meet food needs will be influenced by the nature of this disadvantage. Poverty, deprivation and social exclusion will all impact differently on the capacity to meet food needs. Any conceptualisation of food literacy would need to explore the knowledge and skills to respond to these challenges.

Health and welfare sector responses to food insecurity and disadvantage often centre around personal skill development despite their being little evidence that the food preparation practices, budgeting skills, or rituals of eating being any different to the community more broadly. The literature indicates low income households are less likely to consume food bought outside the home and spend less on take away food. This is important to consider in positioning food literacy within broader public health nutrition and chronic disease prevention plans.
2.3 DETERMINANTS OF FOOD INTAKE

Many theoretical systems exist to conceptualise food and nutrition pathways at the population and individual level. They help to describe the determinants of food intake and diet-related health status. These systems are typically used to anchor public health nutrition plans and investment. Reviewing these systems helps to conceptualise the potential relationship between food literacy and nutrition. In addition, population level food system models help to describe global, national and community determinants of food intake. Personal food system models help to conceptualise household and individual determinants. Both models describe the complexity of the navigating food systems to meet nutrition recommendations.

2.3.1 Population Level

One of the most regularly used population food and nutrition systems in Australia is that conceptualised by Heywood and Lund-Adams. It is shown in Figure 2.2 (Heywood & Lund-Adams, 1991). This system describes the food supply chain and its link to health status. It is a relatively simple system that is perhaps more often used to identify key partners for public health nutrition than propose causal pathways. It is useful, however, in proposing where food literacy might fit in this system. The knowledge and skills to use food to meet nutrition recommendations could be positioned at various points for example, in broadening the available food supply, and facilitating food acquisition, consumption and nutrient intake. This diagram is helpful in re-enforcing that food literacy alone is unlikely to result in a change in nutrition status but rather must be addressed within a multi-strategic approach which concurrently targets other factors within this system.
Figure 2.2: A Conceptual Model of the Australian Food and Nutrition System (developed by Heywood & Lund-Adams, 1991 and adapted by Lester, 1994)
The Ecologically Integrated Approach to Health shown in Figure 2.3 proposes a more contemporary model to the relationship between food intake and health (Heasman & Lang, 2004). This model proposes that all systems are integrated with a series of feedback loops rather than being linear. This concept that food intake has multiple drivers that all interact, rather than there being a straight causal pathway, was extended in the extreme by the UK government’s Foresight report on Tackling Obesity shown in Figure 2.4 (Vandenbroeck, et al., 2007). While the complexity of the Foresight model makes its application difficult, it does serve to communicate the multiplicity of determinants of food intake, body weight and health status. This has implications for the measurement of effectiveness of strategies and interventions. When this number of variables is involved, the effectiveness of modifying just one will be limited. Unlike the ecological model, food literacy is identified in the Foresight model. It defines food literacy as the “degree to which people are able to assess nutritional quality and provenance” (p 40). However, as described in this diagram, it sees its only positive influence being on “psychological ambivalence”.

Figure 2.3: The Ecologically Integrated Approach to Health (Heasman & Lang, 2004)
Figure 2.4: The Obesity System Map (Vandenbroeck, et al., 2007)
2.3.2 Personal Level

Personal food systems refer to those developed by the individual to manage day-to-day eating. A model proposed by Bisogni et al (2005) is useful in considering how food literacy might interact with broader environmental factors and determinants of health behaviour (refer to Figure 2.5). Although the model examines food choice capacity rather than nutrition, it proposes a relationship between food management skills (which may be part of food literacy), circumstances and standards. Bisogni defines food choice capacity as the extent to which one feels able to and is trying to “eat properly” according to one’s own definition of “proper”. The model proposes that food choice capacity is a function of food management skills, circumstances and standards conceptualised as:

- food management skills: “the knowledge and abilities that participants had to keep food costs down and to cook and prepare meals”;
- circumstances: “personal, social and environmental factors that influenced food choice, including employment, income, the presence of a spouse or partner, parenting responsibilities, work schedules and health conditions”;
- standards: “the expectations participants held for what and how they should eat”, (p 286-288).

Food management skills and standards, developed over a life-course, at key transition points, and mutually shaped each other. Over the life-course, food management skills, or food literacy, are identified as a “durable” asset, while the other factors are changing including one’s feeling of control.
Standards and values

Various studies have examined the influence of standards and values on personal food systems. A study of 86 low to moderate income residents of Upstate New York, found people developed a personal food system to simplify decision making (Connors, Bisogni, Sobal, & Devine, 2001). Values were used to develop food systems. The most common values were health, taste, cost, time/convenience and managing relationships. Variety, symbolism, ethics, safety, quality and limiting waste were also identified but less commonly. Prioritisation of these values was contextual and varied over time. When developing food systems and managing conflicts in values, participants:

- categorised food and eating situations;
- prioritised conflicting food related values for each eating situation; and
- balanced strategies and priorities across eating systems to meet salient values for example, balancing low fat foods with a high fat treat.

These processes were informed by past decisions.

A Dutch study examined the values used by household meal preparers to select from various meal options (Costa, Schoolmeester, Dekker, & Jongen, 2007). The
meal solutions were homemade meal, ready-made meal, take-out and eating out at a restaurant. Homemade weekend meals were motivated more by complexity and sophistication and the enjoyment and gratification of preparing them. Users of ready-made meals cited motivations of having a positive impact of the time they had to spend on more important things, being more relaxed and less stressed. Users recognised that these meals were not as healthy or pleasant but were happy with the trade-off. Attributes and values that motivated home-made food users to do so were not simply the opposite of takeaway and ready-made food users; they were completely different.

Schwartz defines values as:

(a) concepts or beliefs, (b) about desirable end states or behaviours (c) that transcend specific situations, (d) guide selection or evaluation of behaviour or events, and (e) are ordered by relative importance. (Schwartz & Bilsky, 1987 p551)

He identifies nine motivational value domains which he contests describe all universal values (refer to Table 2.5). He proposes that individuals, groups and nations differ in their relative expression of these nine domains. Domains also have a structural relationship to each other (refer to Figure 2.1). Those that are adjacent to each other in the circle are most compatible; those at opposing sides are in greatest conflict (Schwartz, 1994). This organization and description of values have been broadly applied to map behaviour and attitudes (Botonaki & Mattas, 2010).
Values and standards may be mediators of the influence of food literacy on nutrition. They may also determine the relative importance of food literacy components. Existing efforts to address food literacy often focus on the values of practitioners rather than those they serve. A focus on those of the client for example, convenience, rather than nutrition, may be more effective and yet concurrently achieve the practitioner’s nutrition goals as a secondary outcome. Promotion of healthy eating interventions should consider motivational value domains. This may require a realignment of strategies with higher level universal values such as power or hedonism, rather than security and universalism where existing programmes in the health sector often lie.

Table 2.5: Motivational Types of Values (Schwartz, 1994, p 22)

<table>
<thead>
<tr>
<th>Domain</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power</td>
<td>Social status and prestige, control or dominance over people and resources</td>
</tr>
<tr>
<td>Achievement</td>
<td>Personal success through demonstrating competence according to social standards</td>
</tr>
<tr>
<td>Hedonism</td>
<td>Pleasure and sensuous gratification of oneself</td>
</tr>
<tr>
<td>Stimulation</td>
<td>Excitement, novelty and challenge in life</td>
</tr>
<tr>
<td>Self-direction</td>
<td>Independent thought and action – choosing, creating and exploring</td>
</tr>
<tr>
<td>Universalism</td>
<td>Understanding, appreciation, tolerance and protection for the welfare of all people and for nature</td>
</tr>
<tr>
<td>Benevolence</td>
<td>Preservation and enhancement of the welfare of people with whom one is in frequent personal contact</td>
</tr>
<tr>
<td>Tradition</td>
<td>Respect, commitment and acceptance of the customs and ideas that traditional cultural or religion provide</td>
</tr>
<tr>
<td>Conformity</td>
<td>Restraint of actions, inclinations and impulses likely to upset or harm others and violate social expectations or norms</td>
</tr>
<tr>
<td>Security</td>
<td>Safety, harmony and stability of society, or relationship and of self</td>
</tr>
</tbody>
</table>
Identity

The expression of a specific identify in a particular context is used to communicate values and standards. Identity is one’s own self image. It is manifested in and given meaning by day-to-day interactions with individuals, groups, communities and objects (Giddens, 1991). Identity can change over time; it can modify depending upon the circumstance and setting. Identities have differing social, cultural and individual meanings. Identities can relate to a group you see yourself belonging to or a role you see that you play. Identity is reciprocal in that individuals’ identity collectively defines the identity of the group, communities and nations they belong to (Giddens, 1991).

Food is a major vehicle used to express identity and individuals have their own identities specific to food (Bisogni, et al., 2002). A series of in-depth interviews with a convenience sample of 17 adults in New York used a Grounded Theory approach to cluster identities related to food and examine their relationship to food choice (Bisogni, et al., 2002). People described their identities using their observation of others as a reference point and in terms of:

- eating practices (for example, “picky eater”, “three-meal-a-day man”);
- other personal characteristics (for example, “healthy”, “impulsive”, “comfort” eater); and
- reference groups or social groups (for example, “normal eater”, “vegetarian”, “male”).

People’s identities were developed and frequently revised over their life-course in response to a range of factors such as marriage, illness, change in work setting (Bisogni, et al., 2002). Some people were very consistent in the expression of their identity and became frustrated when the setting did not allow this to happen for example a healthy eater who was on a camping trip where no healthy foods were available. Others described the expression of their identity with food to be very situational, for example, a father who liked spicy food but knew it was not popular with his family so did not eat those foods at home but ate them when he was out. The authors did not discuss if a relationship existed between enactment of identity and the type of identity.
Wills examined the food and eating patterns of students (aged 16-24 years) at a vocational college in their transition from leaving compulsory schooling (Wills, 2005). She was interested in how young people developed their adult identities and responded to this decrease in adult supervision and change in the range of social and geographical places they interact with. This period was described as a time when young people tried out different behaviours to look for a “fit” between their established and evolving behaviours (Wills, 2005 p98). For some young people maintaining family food patterns including eating at home and family meal times were an important constant in their lives as they negotiated their transitions to adulthood, for others they actively tried to distance themselves from family eating and food was the source of household conflict. Food and meal times can be used to test the parent’s acceptance and flexibility around new identities (Eldridge & Murcott, 2000).

These studies highlight that food choice is more than just a function of knowledge, attitudes, supply and socio-demographic factors but also an expression of one’s sense of self. People tend to seek identities that they find desirable rather than negative. In addressing food literacy, practitioners should align their work with these identities and with the groups and settings within who clients identify.

2.3.3 Conclusion

These models and constructs help to identify the dimensions of contemporary food and eating and the key stakeholders who may need to be consulted in the development of a definition. A conceptualisation of food literacy would need to address both personal and population food systems. This literature further highlights the varying roles food plays in everyday life and the multiplicity of needs it meets. Food literacy should consider the knowledge, skills and behaviours needed to meet this multiplicity of needs, not just those related to meeting nutrition recommendations. In this way, the term describes what all eaters need, not just those interested in meeting nutrition goals.

In her ethnographic study of Australian domestic food provisioning, Schubert describes the connection between personal and population food systems (Schubert, 2008). She proposes that dietary practices are a function of the relationship between;
personal and household resources; contextual, temporal priorities; and the broader social, political and cultural food system. She suggests existing food and nutrition policy and practice takes a reductionist approach by over-emphasising household activity and individualised solutions that target food skills, time management and budgeting, when it should rather treat food and nutrition issues as “social problems” (Schubert, 2008 p264). Strategies targeting individuals and households can ignore broader environmental determinants where well established risk factors for nutrition problems lie. It should, however, also be noted that strategies that focus on creating supportive environments and policy will be strengthened by the development of personal skills (World Health Organisation, Canadian Public Health Association, & Health and Welfare Canada, 1986). A focus on disadvantage highlights the interface between personal and populations food systems. The transition to adulthood is likely to a good opportunity to explore the establishment of personal food systems as young people interface with dominant population systems.
2.4 LEARNING ABOUT FOOD

Food and eating are essential to life and so learning about them is likely to occur over a lifetime. This may include informal learning and planned education programmes and interventions. Examining where, how and when we learn is useful to consider alongside what food literacy might be. Health promotion, learning and social development theories can help describe how our relationship with food and the knowledge and skills to use it, develops over time. This can inform service planning and delivery.

Much of the literature on the development of food knowledge and skills focuses on cooking rather than other aspects of food. Upon closer scrutiny, however, learning to cook usually also includes other knowledge and skills such as food purchasing, storage of food, and menu planning. Cooking is used both as an endpoint in itself and as the medium to deliver this information.

2.4.1 Where Do We Learn About Food?

Governments and practitioners are currently invested in a broad range of initiatives to develop food skills and knowledge. This section examines the diversity of settings and mediums and their potential significance.

Home

Food skills, like most life skills, are typically learned in the home. The transfer of these skills has traditionally been the role and responsibility of the mother. An English study of 5553 adults aged 16-74 years confirmed that irrespective of age, income or gender, mothers were the primary source of first learning to cook (Caraher, et al., 1999). Men also learned from their wives or partners. Cookery classes at school were the next most common source. This was particularly significant for men aged 16-19 of whom almost half learnt through cookery classes at school which at the time of the survey were compulsory. Data regarding where Australians learn to cook is not available.
School

Nutrition, food and eating are addressed in two key learning areas; Health and Physical Education and Technologies of the draft Australian National Curriculum (Australian Curriculum and Assessment Reporting Authority, 2012b, 2013). Nutrition knowledge, dietary patterns and their relationship to health outcomes are addressed from foundation years to year 10 in the Health and Physical Education curriculum. The Technologies curriculum examines food origins, culture and preparation although hands-on food preparation is only mandatory for two years.

Cooking classes in schools in Australia are predominantly taught in secondary school through Home Economic classes. These classes are not compulsory and not taught in all schools. The Queensland Home Economics Syllabus and Guidelines includes learning outcomes from which individual teachers develop objectives and learning activities, giving their students the opportunity to demonstrate these outcomes (Queensland Studies Authority, 2005). The syllabus focuses on knowledge and understanding, cognition and practical food skills for healthy eating and good nutrition. What the learning outcomes should be and what skills are required to meet them were reviewed and developed through expert consensus. This is consistent with how outcomes in other disciplines and in other countries are developed (Fordyce Voorham, 2009; Gale Smith, 2008; Stitt, 1996). While Home Economists have been working in the space of food literacy for many years, there are few studies of the effectiveness of cooking classes in schools which can contribute to the evidence base (Seeley, Wu, & Caraher, 2010).

In the primary school setting in Australia, practical food skills are not routinely addressed. There are a broad range of food and nutrition resources that target this age group and setting, however they are implemented at the discretion of the school and teacher and not a part of compulsory education.

Cooking classes and demonstrations

Health and welfare staff often use cooking demonstrations and classes to address food skills and food security. Community-based initiatives to address cooking skills usually take the form of classes or workshops, typically occur over several weeks and are presented by an educator such as a health worker, nutritionist
or youth worker. A 2001 review of community food initiatives in Scotland found over 170 food and health projects in low income areas of which around a third had a cooking component (Wrieden, et al., 2002). While initiatives often demonstrate improvements in the food skills of those who complete the programme, retention and completion rates were typically poor, information on non-attendees is usually not presented and few assess the impact on nutrition (Condrasky, et al., 2009; Foley & Pollard, 1998; Wrieden, et al., 2002; Wrieden, et al., 2007).

Process and impact evaluation studies have identified the following critical success factors:

- Using hands on experience rather than demonstration (Brown & Hermann, 2005; Devine, et al., 2005);
- Choosing foods and recipes that are likely to be accepted by the participant and or their family. (Michaud, et al., 2007; Reinhardt Howarth, Cason, & Condrasky, 2009; Stead, et al., 2004; Wrieden, et al., 2002);
- Not specifically mentioning nutrition (Roff Gemlo, Palmer Keenan, Ruffing, & Sweet, 1998; Stead, et al., 2004).

Recipes

Recipes, recipe cards and recipe books are frequently a part of public health nutrition campaigns. Little is known about the effectiveness of recipes in encouraging more at-home meal preparation or improving the nutrition quality of the foods eaten.

Using a recipe requires a certain level of literacy and numeracy including a general familiarity and confidence in the method and ingredients. Their appeal is also limited by taste which is a reflection of class and culture (D. Bell & Hollows, 2005). Stead found inexperienced cooks from low income communities were unlikely to follow recipes (Stead, et al., 2004). They found them confusing. This was due to a lack of familiarity with terms, anxiety that the technique may not have been performed correctly and possibly the numeracy and literacy skills involved. “Cooking from scratch” was rarely done as previous attempts had not been successful and wasted food, effort and time.
Cooking shows and celebrity chefs

Cooking shows and celebrity chefs have strong popular appeal; however, their effectiveness in promoting healthy eating or in developing food literacy is unknown. A UK study found that shows were primarily useful to the middle class who could already cook. For those that were just learning to cook, very few learnt from cooking shows or found them useful (Caraher & Lang, 1999). This was particularly true for lower socio-economic groups. DVDs and other electronic forms of food education, however have been successfully used in settings where literacy is limited or where clients wish to refer back to instructions (Mechling, Gast, & Fields, 2008).

Celebrity chefs have been successful in generating support from government and the public for a greater community focus on food literacy (Alexander, 2010; Oliver, 2010). The extent to which this is done with an evidence base, to engage marginalized groups or in collaboration with health and other professionals working in the field is unclear. When working in partnership with practitioners, celebrities can be powerful advocates for evidence-based investment in areas where practitioners can then offer sustained support (Democracy and Civil Society Programme, 2008).

Food industry information

Food industry produce a range of food information both specific to their product and regarding food and nutrition more broadly. This information is often more attractive than that produced by health authorities and more accessible in that it is likely to be available at the point of purchase rather than in a health care setting. While data is not available on the use of this information by Australian consumers, for health information more broadly, adults with lower literacy prefer commercial sites as they tend to be more attractive and easy to use than more reputable sites (Rootman & Gordon-El-Bihbety, 2008).

Conclusion

As food and eating are essential skills for life, it is not surprising that the foundations of our connection to food and the knowledge and skills to use it are first
laid in the home. Beyond that however, there is little evidence of the effectiveness of the range of other initiatives, many of which represent significant public investment. This may be because these initiatives are difficult to measure, in part because their likely outcomes are so broad. Additionally, a range of initiatives may be important in appealing to a range of learning styles. The role of these initiatives is of particular significance when foundations for healthy eating are not laid in the home.

2.4.2 How Do We Learn About Food?

Learning about food appears to be ongoing throughout life in response to global, national, community, household and individual changes. This section will examine three sets of theories. As food and eating are day to day interactions, theories of social development are useful in exploring the ecological nature of the progression our relationship with food over a lifetime. These theories help to conceptualise the position of food literacy and related interventions into broader social systems. Secondly, learning theory will be examined to consider what factors support learning and influence behaviour. Learning will take place in formal and informal ways, which reflect both what is being learnt and the learning style of the individual. It will take place in diverse settings and involve many interactions with many different individuals. Nutritionists are regularly involved in supporting clients to learn about food. Typically, these interactions are informed by health promotion and behaviour change theory, however, it may be appropriate to also consider theories of social learning. These theories use similar constructs and are useful in informing supportive learning processes and environments. Finally, as food and nutrition is often formally “taught”, an examination of theories of curriculum development is useful in considering the scope of skills and knowledge that support learning. These theories examine the elements that contribute to learning. This may be a useful framework upon which to construct the components of food literacy.

Social development

Theories of social development have progressed over time. Contemporary theories adopt an ecological view which acknowledges the interaction between the individual and their environment. Child development theory identifies broad phases
in which individuals will interact differently with their environment (Erikson in (Shaffer, 2005). Very young children will be influenced by their household, mimicking everyday events such as eating. In this phase family is the significant social agent. Primary school age children will try to master social and academic skills and compare themselves to peers with teachers and peers being social agents. Adolescents look to establish social identity and roles with peers being the key. In this phase the influence of peers increases. Bronfenbrenner extended this early thinking to develop his ecological systems model, presented in Figure 2.6. This model is extensively used in the planning of child and social services (Australian Institute of Family Studies, 2009). It describes the breadth of environmental influences on the development of the individual. They are depicted as being nested within each other. This model describes both the interaction between these levels and the contextual nature of development. Like the food systems models examined in the previous section, this model shows the fluid reciprocal nature of a breadth of factors on the individual. Changes in food and eating occur at micro, meso, exo and macro system levels. One’s relationship with food, will then develop as a result of these. The experience of disadvantage, be it poverty, deprivation or social exclusion, typically disrupts these systems and the relationship between them.
Learning

The interaction between the individual and their environment is central to theories of social learning and social cognitive theory (Bandura, 1977, 1986). Bandura noted that humans are not simply empty vessels which respond to instruction like animals, rather they are “cognitive beings” and “information processors”, choosing what information they will attend to. This was a departure from earlier theories which saw children as simply modelling observed adult behaviour. Bandura observed that they actively think about the relationship between their behaviour and their knowledge of its consequences and are subsequently able to over-ride short term “punishment” for longer term gain.

Piaget, an earlier child development theorist, described humans as “constructivists” who actively created new understandings of the world based on their own experiences (Shaffer, 2005). Social cognitive theory proposes that human behaviour is a result of an interaction between personal factors, behaviour and environment (Bandura, 1986). The theory proposes that behaviour is regulated through cognitive processes. Learning is part of this but does not necessarily
influence behaviour. Social cognitive theory emphasises the importance of social factors including: reciprocal determinism, that people learn by watching others; and that behaviour is directed at achieving a particular goal. In this way knowledge and skills are never static, that is, they are socio-cultural constructs. This implies that it is unlikely that there is a set of food knowledge and skills that can be consistently applied across all cultures and contexts, and is static over time.

Vygotsky goes further to link learning with society and culture (Lave & Wegner, 2005). He sees learning as important to developing identities and belonging. Identities are seen as the long-term way in which the individual relates to people, their place and participates in their community. In this way, identity, knowing and social membership are all inter-related.

Self efficacy or the belief in one’s own ability to succeed, is core to social cognitive theory. Those with high self efficacy recognise their strengths, weakness and abilities, are able to plan and predict their behaviour and their likelihood of success. They are therefore, more confident to address new and difficult tasks armed with this knowledge (Kolasa, et al., 2001). It is suggested that to build self efficacy, tasks should be broken into manageable components and practised and then learnt in their entirety to develop a level of mastery (Nutbeam & Harris, 1999).

**Zonal proximal development theory**

The Zonal Proximal Development theory was proposed by Vygotsky in the 1930s (Berk, 1995). The zone of proximal development represents the phase between what is known and what is unknown, that is, what the learner can do on their own and what they need help to do. Vygotsky proposes that this is a critical area for teacher interaction in scaffolding the learner to confidently extend beyond what they already know. He differs from other social development theorists in asserting that while social interactions are an important part of learning, learning will not occur spontaneously and requires this proactive teacher interaction in the zone of proximal development. He describes the process of learning as progressing from exposure to a concept, observing the skills when it is demonstrated, working on it in a peer group and then working on it individually. This theory can be used to extend the findings of a study of cooking in the UK which identified three phases of learning to cook; basic experimentation at home, formal classes at school and finally when
living independently (Caraher, et al., 1999). Vygotsky’s theory is useful in considering where and how practitioners may need to interact with their clients to develop food literacy and how a plan to target food literacy would need to include diverse opportunities for learning at these different phases.

*Blooms taxonomy of learning*

Benjamin Bloom led a group of educators in developing Blooms taxonomy of learning (L. W. Anderson, et al., 2001). This seminal work is one of the most referenced guides for the development of learning objectives and curriculum. Bloom’s original taxonomy was made of three domains; cognitive, affective and psychomotor, described by some authors as knowledge, attitude and skills. This taxonomy has been revised by Anderson et al to be a matrix of a knowledge and cognition continuum. The knowledge continuum increases in complexity from factual to conceptual, procedural and metacognitive. The cognitive continuum increases in complexity from remembering to understanding, applying, analysing, evaluating and creating.

Bloom’s taxonomy of learning is used by teachers to organize and articulate the objectives of their teaching. In doing so, the teacher considers the intention and purpose of her/his teaching. This research emerged from practitioners wanting to improve dietary intake through addressing the everyday practicalities of food and eating. Like teaching, this is an intentional and reasoned act, unlike social development which may be more passive. Bloom’s taxonomy is useful in considering the nature of the components of food literacy, how they relate to improving diet quality and ordering how food literacy could develop.

2.4.3 **When Do We Learn About Food?**

Although it is acknowledged that learning about food will take place over a lifetime, practitioners have anecdotally observed that clients tend to be interested in developing their food knowledge and skills at key life transition points. These transitions may be in response to changes in their micro or macro environment and could be important opportunities for changing attitudes, identities and behaviours about food and nutrition. The transtheoretical stages of change model is useful in
describing the change process and providing a framework for programme planning and evaluation. A life-course perspective is useful in examining responses to change not initiated by the individual.

**Transtheoretical model**

The Prochaska and DiClemente transtheoretical model is frequently applied in health (Chapman-Novakofski & Karduck, 2005; Henry, et al., 2003; Hildebrand & Betts; Horacek, et al., 2002; Prochaska, DiClemente, & Norcross, 1992). The model describes a cycle of change in behaviour involving pre-contemplation, contemplation, action and maintenance (Prochaska, et al., 1992). It may be useful in describing when and how food literacy could be applied to improving nutrition. The model was applied to the development of a food and cooking-based diabetes education programme (Chapman-Novakofski & Karduck, 2005). Participants volunteered to take part in the programme in response to an advertisement. The majority were already in the action or maintenance stage of the transtheoretical model. This indicates an existing awareness of the need for change. Support in the practicalities of meeting nutrition recommendations may only be of value to those already interested in following these recommendations.

**A life-course focus**

Life-course studies add an extra dimension to the consideration of significant transition points in the life cycle and optimal intervention times. A life-course approach reflects the ever-evolving nature of food and food choice according to different developmental and social contexts. It can help to link social, environmental and biological pathways for nutrition and identify “chains of risk or resilience” (Devine, 2005 p123). Acknowledging that learning about food and maintaining a healthy relationship with it continues over a lifetime highlights that individuals process nutrition information in the context of their previous life experiences and their capacity to act on this advice will be influenced by their current place along their life-course trajectory.

Transitions rather than turning points are more regularly reported in life-course studies. Turning points occur more rarely and result from more drastic changes such
as diagnosis with a life threatening disease (Devine, 2005). In a life-course study examining the trajectory for fruit and vegetable consumption, role transitions, such as becoming a parent were identified as “prompts for dietary change” (Devine, et al., 1998 p368). Key transitions are often accompanied by a review of personal identity and food is frequently used in the creation or expression of identity (Bisogni, et al., 2002).

Individuals will respond to life events differently and so the significance of these transitions will vary. The transitions related to moving from childhood to adulthood are marked by the development of personal identity (Wyn & White, 1997). One of these transitions, being responsible for feeding yourself, may be an important opportunity for influencing a lifelong identity with food. Defining this stage is difficult as moving from childhood to adulthood is more than a mere biological process, and relies on an agreed endpoint, “adulthood”, which is ambiguous in itself. Moving from childhood to adulthood is also a gradual evolving process rather than a discrete window of time during which young people undergo multiple transitions. These will be socially and culturally contextually bound. Moving away from home, getting married, getting a job and finishing school were considered key transition points for moving to adulthood. However, these points are unclear as they change over generations and as a result of social, economic and political factors (Wyn & White, 1997). The nature and significance of these transitions differs across generational, cultural, social and geographic groups. Leaving the parental home, for example has no agreed end-point, the transition can be brief, reversible and temporary (Wyn & White, 1997). Responsibility for feeding oneself is likely to be a gradual process rather than a distinct transition point, and is likely to be related to taking on more responsibility for domestic labour and contributing to the functioning of a household than the responsibility for dietary intake per se (Eldridge & Murcott, 2000).

The transition from living as a dependant to living independently may provide a unique opportunity to examine the food knowledge and skills used to meet needs, how they develop and how they relate to nutrition. Food and nutrition attitudes, identities and behaviours change and develop over time, and timing of interventions is important to consider in the acceptance of nutrition recommendations.
2.4.4 Conclusion

Families and households continue to be the principal setting for the development of our relationship with food. The influence of peers, schools and broader social, cultural and economic systems differs according to the stage of development and the stability of household structures. Child development, learning and health promotion theories help to describe how we learn about food and the reflexivity between the individual and the systems in which they live. They also help to order thinking of how practitioners can influence the development of this relationship. Importantly, these theories describe the constant nature of learning that has no end point. Food literacy, therefore, may not implicitly involve a level of minimum competence, but rather, be contextual and evolving.
2.5 WHAT IS FOOD LITERACY? : A REVIEW OF EXISTING TERMS

Contemporary nutrition policies and plans call for focussing efforts to improve nutrition through a closer connection with food and the everyday practicalities of meeting nutrition recommendations (House of Representatives Standing Committee, 2009; International Union of Nutrition Sciences, 2005; Public Health Association of Australia, 2009; Queensland Public Health Forum, 2009; Strategic Intergovernmental Nutrition Alliance, 2001). Various words have been used to articulate what this might mean in practice. Most recently the term “food literacy” has emerged. Historically, however, other words have been used such as ‘meal preparation’, ‘food skills’, ‘nutrition knowledge’, ‘food involvement’ and ‘cooking’. Additionally, nutrition-related professional bodies have developed guidelines which support their members in applying these nutrition policies and plans (Caraher & Reynolds, 2005; Dietitians Association of Australia, 2009; Food and Culinary Professionals Dietetic Practice Group, 2007). Examining the use and meaning of existing words, particularly their capacity to effectively identify, describe and measure this set of food knowledges and skills, may be useful in assessing the value of this new term “food literacy”. The term “food literacy” will be reviewed against these existing words to consider if it has unique value in articulating what developing a closer connection with food and the everyday practicalities of meeting nutrition recommendations means in practice.

Over the period of this research, the use of the term increased significantly in practice. This prompted a second review of the literature in December 2012 after research data had been collected and analysed. The purpose of this second review was primarily to confirm that no similar research had been conducted since this thesis began, and secondly, to more broadly explore the use of the term to confirm observations of its increased use.

2.5.1 Food Literacy

The term “food literacy” is increasingly being used in policy and public domains, in the context of health, education, life skills and sustainability, where its meaning varies. It is broadly conceptualised but rarely defined. The term appears in several government health-related documents in Australia. Since 2010 State health
departments in Western Australia, South Australia, and Queensland have all called for tenders which address “food literacy” (Department of Health, 2010, 2011; Queensland Health, 2011). At the local level, the Eat Well Queensland: Are we half way there yet? Midpoint implementation review (Queensland Public Health Forum, 2009) identifies poor “food literacy” as an emerging issue. The Public Health Association of Australia’s A Future for Food statement includes ‘a need to ensure basic food literacy’ (Public Health Association of Australia, 2009). Most recently, the term has been used in Australia’s National Food Plan and Dietary Guidelines (Department of Agriculture Fisheries and Forestries, 2013; National Health and Medical Research Council, 2013). These documents all use different definitions of food literacy or leave it to the reader to determine what it might mean. The use of the term in peer reviewed literature is less common. Few published definitions exist.

Definitions within the health context include:

- the capacity of an individual to obtain, interpret and understand basic food and nutrition information and services as well as the competence to use that information and services in ways that are health enhancing. (Kolasa, et al., 2001 p2)

- the ability to organise one’s everyday nutrition in a self-determined, responsible and enjoyable way. (BEST Institut für berufsbezogene Weiterbildung und Personal training, 2006 p10)

- knowing where our food comes from; knowing what happens to it, how to cook it, and how to prepare it. (Stanton, 2009 online)

- having awareness and knowledge of the dietary guidelines for good health, as well as skills in menu planning, budgeting, label reading, food selection and shopping, food storage, food preparation and cooking, food safety, and determining appropriate portion size. (Department of Health, 2011 p18)

These definitions differ in the extent to which nutrition and other key components are included. There is no information provided on their development so evidence of the relationship of their components with nutrition is unknown. They are also likely to be underpinned by the author’s personal ideologies (Gale Smith, 2009). The term food literacy may be a useful shorthand to describe a basket of food
knowledges and skills, however, in the absence of an established relationship with nutrition, its inclusion in nutrition policies, plans, practice and research is of limited value.

**Development in the use of the term since 2009**

A systematic review was conducted in December 2012 to examine the use of the term “food literacy”. This search differed to that conducted at the commencement of the research in three ways to more broadly represent the use of the term:

- QuickFind and Google Scholar search engines were added;
- No date restrictions were applied; and
- The search was broadened from the title and abstract to include any part of the text.

The search strategy is presented in Table 2.6. Following elimination of duplicates and articles not meeting inclusion criteria, the search identified 70 publications using the term (refer to Table 2.7). A full list of these appears in appendix A.
Figure 2.7 demonstrates the increased use of the term over time. The term was used by authors in Australia, the United States, Canada, Italy, the United Kingdom, Germany, Hungry, Nigeria, Japan, India and the European Union more broadly.

Table 2.6: December 2012 “Food Literacy” Search Strategy

<table>
<thead>
<tr>
<th>Search engine</th>
<th>Search term</th>
<th>Citations</th>
</tr>
</thead>
<tbody>
<tr>
<td>CINAHL</td>
<td>“food literacy”. Search all text</td>
<td>5</td>
</tr>
<tr>
<td>PubMed</td>
<td>“food literacy”. Search all fields</td>
<td>5</td>
</tr>
<tr>
<td>Eric</td>
<td>“food literacy”. Search all text</td>
<td>9</td>
</tr>
<tr>
<td>QuickFind</td>
<td>“food literacy”. Include results outside QUT’s collection. Exclude newspaper articles and trade publications.</td>
<td>248</td>
</tr>
<tr>
<td>Google Scholar</td>
<td>“food literacy”</td>
<td>341</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>608</strong></td>
</tr>
<tr>
<td>Reason for exclusion</td>
<td>Number of publications</td>
<td></td>
</tr>
<tr>
<td>-------------------------------------------------------------------------------------</td>
<td>------------------------</td>
<td></td>
</tr>
<tr>
<td>TOTAL NUMBER OF ARTICLES REVIEWED</td>
<td>608</td>
<td></td>
</tr>
<tr>
<td>Citation not article</td>
<td>47</td>
<td></td>
</tr>
<tr>
<td>Non-English language</td>
<td>52</td>
<td></td>
</tr>
<tr>
<td>Duplicates</td>
<td>92</td>
<td></td>
</tr>
<tr>
<td>Article could not be located</td>
<td>35</td>
<td></td>
</tr>
<tr>
<td>Articles incorrectly identified as using the term</td>
<td>146</td>
<td></td>
</tr>
<tr>
<td>Trade, magazine or popular press publication</td>
<td>67</td>
<td></td>
</tr>
<tr>
<td>Term used in reference to another article already cited</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>Unable to determine source</td>
<td>24</td>
<td></td>
</tr>
<tr>
<td>Article referred to a list of &quot;literacies&quot;</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>Project report or used in reference to a programme name</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td>Article by researcher</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>INCLUDED</td>
<td>70</td>
<td></td>
</tr>
</tbody>
</table>
The term was applied in a range of contexts, most typically health, education and agriculture. Twenty three publications defined the term. These definitions varied significantly and occurred in later publications. They are presented in appendix A. Only seven articles before 2010 defined the term. The use of the term and its definitions continue to be as broad and diverse as when the literature was first reviewed. No publications defined the term empirically.

Beyond documents that can be located under these search engines, the term has gained much popularity. This is difficult to quantify, however examples of the extent of its use include the adoption of a “Food Literacy Awareness Month” bill in the Californian Senate (2012) to its inclusion in UK government’s Foresight report on Obesity (Vandenbroeck, et al., 2007). A Google search for “food literacy” in December 2012, resulted in 71 000 hits, indicating the widespread use of the term.

What is noteworthy about the evolution of this term is that this disparity in meaning has neither limited investment in the programmes, interventions and approaches which purport to improve food literacy, nor calls to address food literacy through policy. Such ambiguity must surely lead to ineffective investment as not only is content unclear, but also its purpose and mechanism for action.

The term can be seen as focusing only on the individuals. Food literacy risks overemphasising the role of knowledge in determining behaviour and so reinforcing the individualisation of health status without regard for the broader social, economic,
cultural and environmental determinants. It has also been criticised for imposing a set of neo-liberal dominant class standards on populations as a whole. In fact, the current application of the term “literacy” to a range constructs for example, financial literacy, health literacy, kitchen literacy, might raise similar concerns. These are valid criticisms of the publications reviewed as none empirically defined the term. None examined the knowledge, skills and behaviours which led to their outcome of interest. All defined food literacy based on their own experiences. None considered individuals as experts in their own eating.

2.5.2 Meal Preparation

‘Meal preparation’ has been widely used in a range of studies to identify, describe and measure people’s interaction with food (Byrd-Bredbenner, 2004; Devine, et al., 2005; Larson, Story, et al., 2006; World Health Organisation, 2001). The term has two elements ‘meal’ and ‘preparation’. The meaning of each can be broadly interpreted and largely contextual. ‘Meal’ has very specific cultural meanings and may include multiple food components eaten at the same time for some or a snack for others (Douglas, 1972). Settings can also define meals. This ambiguity can make measuring its relationship to nutrition difficult, as ‘meals’ can apply to only some, but not all of the foods consumed over the day. When only asked about meal times, people tend to underestimate consumption. One study observed twenty food intakes in a day despite the participants reporting consuming only three meals (Poulain, 2002). Similarly, the interpretation of ‘preparation’ also varies. It can range from the cooking of raw ingredients to the assembly of food.

Existing definitions of meal preparation range from simply ‘anything you might do to make food suitable to eat (for example, make a salad from it)’ (Winkler & Turrell, 2009 p1760) to including the full cycle from planning to cleaning up and disposal (Australian Bureau of Statistics, 2008; World Health Organisation, 2001). An example from the World Health Organisation (WHO), International Classification of Functioning, Disability and Health (ICF) (World Health Organisation, 2001) is highlighted. Although the ICF is primarily a classification of human functioning and disability and focuses on the “components” of the health condition as opposed to its risk factors or determinants, its definitions are useful in
that they represent internationally agreed views of terms albeit in the disability context. The WHO defines the following:

D630 Preparing meals:
Planning, organising, cooking and serving simple and complex meals for oneself and others, such as making a menu, selecting edible food and drink, getting together ingredients for preparing meals, cooking with heat and preparing cold foods and drinks, and serving the food.

D6300 Preparing simple meals:
Organising, cooking and serving meals with a small number of ingredients that require easy methods of preparation and serving, such as making a snack or small meal, and transforming food ingredients by cutting, stirring, boiling and heating food such as rice and potatoes.

D6301 Preparing complex meals:
Planning, organising, cooking and serving meals with a large number of ingredients that require complex methods of preparation and serving, such as planning a meal with several dishes, and transforming food ingredients by combined actions of peeling, slicing, mixing, kneading, stirring, presenting and serving food in a manner appropriate to the occasion and culture (p 154-155)

Other defined terms that could be in useful in describing the everyday practicalities of meeting nutrition recommendations include:

- D570 Looking after one’s health: managing diet and fitness
- D620 Acquisition of goods and services: shopping, gathering daily necessities
- D640 Doing housework: cleaning cooking area and utensils; using household appliances, storing daily necessities
- D660 Assisting others: nutrition

This WHO example highlights the widespread use of the term “meal preparation”, the complexity and contextual nature of its interpretation and its limits in describing the components of everyday food use. When conceptualising meals
and meal preparation, there is a tendency to only consider those conscious, planned and/or shared eating occasions rather than snacking and grazing which is often more common and of greater nutritional concern (Kristensen & Holm, 2006; Poulain, 2002; Sobal & Nelson, 2003). Additionally, the ambiguity surrounding the meaning and interpretation of this term, limit the validity of its measurement.

2.5.3 Food Skills

The literature presents several examples of thoroughly elucidated meanings of ‘food skills’. The term is often used in the context of education where it is linked with learning goals, competencies and programme development. A recent Australian study defined food skills as:

The process of purchasing, preparing and cooking food materials (ingredients) using available resources to produce well-balanced and tasty meals appropriate to the age and needs of the individuals consuming them. (Fordyce Voorham, 2009) p17

The study aimed to inform the development of food skills in the school setting. Based on the analysis of responses from 51 food experts (including home economics educators, chefs, nutritionists, dietitians, community educators, homemakers and young people) it broadly defined food skills to include:

Knowledge
- Cookery methods: for example, knowledge of different methods and ability to match food ingredients with cooking methods to get an acceptable and good value outcome;
- Equipment: for example, ability to use large and small equipment especially knife skills;
- Nutrition: for example, concepts of portion control, nutrient density, adequacy;
- Terminology: for example, to be able to follow a recipe;
- Troubleshooting: for example, to know how to fix up a dish that hasn’t turned out as expected.

How to access and use sources of information
Skills

- Consumer knowledge and skills: for example, to make informed purchase decisions, being able to plan ahead, seasonal produce;
- Hygiene and safety;
- Meal knowledge and skills: for example, ability to understand and apply time management in meal planning and production, shopping (estimating quantities), meeting budget and family appetite.

In this definition, the author conceptualises the knowledge as information and the skills as the ability to use and apply this information (personal communication with author, November 2010).

Bisogni et al (Bisogni, et al., 2005 p286) use the term “food management skills” which they define as “the knowledge and abilities that participants had to keep food costs down and to cook and prepare meals”. Using a Grounded Theory approach drawing from semi-structured interviews with 25 moderate to low income adults, “food management skills” were defined as being able to:

- Keep costs down;
- Cook from scratch;
- Modify expensive ingredients to stretch out the food dollar;
- Skills in gardening, food preservation; and
  “Being a good cook” included:
  - Being able to do a lot of variations with basics;
  - Get everything done at once;
  - Adjusting meals for changing schedules (Bisogni, et al., 2005 p287).

“Food management skills” were recognised as a complex mix of social, technical and instrumental skills but a durable resource which helped individuals to meet their personal food goals and adapt to changing circumstances. This research was then used to develop and evaluate a food-based nutrition programme (Devine, et al., 2005).

Food skills have also been defined, assessed and measured for many years in the disabilities sector. In this sector they are used to assess independent living skills in order to plan client services and care rather than to explicitly improve nutrition. There are several food skills assessment tools developed for this sector, however none assess the skills needed for a healthy diet, few have been externally validated.
and most are time consuming and not practical beyond individual client care (Porter, Watson, & Capra, 1998).

The term “food skills” perhaps most fully describes the knowledge and skills needed to use food to meet needs. This term has been comprehensively deconstructed to facilitate its measurement and so quantify its relationship to nutrition. However, existing definitions seem to be focused on meals and foods that require preparation rather than the totality of eating throughout the day. The term “skills” may also imply a utilitarian rather than empowerment focus to food use.

2.5.4 Nutrition Knowledge

Knowledge can be conceptualised as being made up of two components; declarative that is, the knowledge of “what is” and “procedural” that is, how to. This is similar to Fordyce-Voorham’s conceptualisation of food skills as both information and the ability to apply information (Fordyce Voorham, 2009). Nutrition knowledge and its relationship to healthy eating has been the subject of considerable theoretical contemplation. Theories differ in their conceptualisation of knowledge and its relationship to behaviour. These issues are useful to consider in defining and measuring nutrition knowledge and its contribution to the everyday practicalities of meeting nutrition recommendations.

What constitutes knowledge?

A review of the nature and development of knowledge is beyond the scope of this thesis. However, it is recognised that knowledge is influenced by many factors including beliefs, interests and lived experience (Worsley, 2002). Knowledge can only exist within a schema of beliefs, so an individual can only accept knowledge if they believe it to be true. This belief system will vary, for example, a nutritionist might exist within an evidence-based medicine paradigm and so have particular sets of “nutrition knowledge”, while a naturopath might exist within a more intuitive paradigm and so have different sets of “nutrition knowledge”. People will develop their knowledge in areas they are interested in and will consider a piece of information in the context of its cognitive consistency with their lived experience. So a mother might believe that foods with high added sugar have an impact on her
child’s behaviour because her child is always excited when she comes home from a birthday party and so considers this an important piece of nutrition information whereas a nutritionist may indicate that there is no scientific link.

What is considered “truth” is typically defined by experts, that is, knowledge is used to distinguish experts from the general public (Downing, 2008). This is reflected in the methods used to develop and validate the measurement of nutrition knowledge (Parmenter & Wardle, 1999). The cognitive inconsistency between promoted nutrition knowledge and the lived experience of people is important to consider with respect to its acceptance as “truth” and relationship to behaviour. There are few studies comparing what nutritionists and consumers consider important knowledge (Worsley, 2002). It has been suggested that the establishment of nutrition experts, the evolving nature of nutrition knowledge, its increased popularity and presence in our society have added to these inconsistencies and impacted on people’s belief in these truths. (Pollan, 2008).

**Measuring nutrition knowledge**

There are nutrition knowledge measurement tools which address both declarative and procedural knowledge. In the development of their frequently cited nutrition knowledge questionnaire, Parmenter and Wardle (Parmenter & Wardle, 1999) used “experts” to “maximise” content validity. They began with a pool of 1201 items following a review of the literature, then used nutrition and psychology “experts” to reduce this to 102 items which were then piloted with a sample from the general public. Using a variety of methods, the tool demonstrated high internal consistency (Cronbach’s $\alpha =0.7-0.97$), test-retest reliability was adequate (0.8-0.98) and construct validity was high with nutrition students scoring higher against computer students ($F(1167)=200.5$, $p<0.001$). The questionnaire focuses on four domains; dietary recommendations, food sources of nutrients, choosing everyday foods, and diet-disease relationship. This self-administered questionnaire has been validated for use in Australia (Hendrie, Cox, & Coveney, 2007).

A UK study designed a tool to measure applied nutrition knowledge for use in a cooking intervention for 10-13 year old students in after school care (A. Anderson,
Bell, Adamson, & Moynihan, 2002). The 15 minute questionnaire had three domains:

- knowledge of applied nutrition (KN) where students were asked to choose the healthiest from a range of meal options available at their school and in their local area;

- knowledge of food preparation (KP) in which students were asked the core ingredients and methods used to make a variety of healthy meals; and

- perceived confidence in cooking skills (PC) in which students responded on a scale of , “I can perform this task “all by myself, with a little help, with a lot of help, not at all”.

The tools had good retest reliability scores (KN 0.458, p<0.01; KP 0.577, p<0.01; PC 0.381, p<0.01) and internal reliability of each domain was also significant. This tool was very specific to the local area and would require modification to be applied in other communities.

Measurement of knowledge has been criticised, as the mechanism of its relationship to behaviour change is unclear. Some argue that this is related to differences in the conceptualisation of what nutrition knowledge includes (Hendrie, et al., 2007; Parmenter & Wardle, 1999; Worsley, 2002). There may be important aspects to nutrition knowledge that have not been considered or measured by experts but are critical to the everyday practicalities of meeting nutrition recommendations.

2.5.5 Food Involvement

‘Food involvement’ has been referred to as the time investment involved in making a food choice, the social risk of using or not using the food and the financial impact of being able or unable to buy that food (R. Bell & Marshall, 2003). In consumer behaviour research ‘food involvement’ has been linked with brand loyalty and choice. It has been postulated that a greater ‘involvement’ in healthy foods could result in these foods being more consistently chosen. Using factor analysis, a twelve-item list of statements was developed by Bell and Marshall (2003) to measure ‘involvement’ related to food. The statements relate to acquisition, preparation, cooking, eating and disposal of food. Examples of statements include; ‘talking about
what I ate or am going to eat is something I like to do’ and ‘compared with other daily decisions, my food choices are not very important’. Those who rated higher were better able to discriminate between the sensory tastes of foods. In the health setting, a measure of ‘food involvement’ may be useful in identifying or detecting a shift in who may be interested in food and nutrition messages. This tool may be useful in assessing current behaviour rather than capacity, for example, skills and knowledge, to exhibit a behaviour, which is the focus of other measures. Consequently, “food involvement” may describe a connection with food beyond the everyday practicalities of meeting nutrition recommendations.

2.5.6 Cooking

Calls for a greater focus on food and the everyday practicalities of food can often be simplified to a focus on cooking. Cooking skills interventions can focus on the endpoint of developing cooking skills, or use the setting of cooking to discuss and develop other knowledge and skills for example, nutrition knowledge, label reading, menu planning and a range of other health promoting factors for example, self-efficacy, social connectedness. This complicates defining and measuring cooking and subsequently considering its relationship to nutrition.

Defining cooking

Definitions of “cooking” vary. They may refer to a physical transformation of food through the application of heat. They may more broadly describe food preparation and so include mechanical and technical skills irrespective of the use of heat. Other definitions extend to additionally identify perceptual, conceptual, academic and planning skills sets (refer to Table 2.8) (Begley & Gallegos, 2010b; Short, 2003). While the latter conceptualisation of cooking by Short (2003) has been widely cited in the literature. It should be noted that it was developed following analysis of a small number of cooking diaries (seven middle-aged English couples) and interviews (16 people from diverse backgrounds) (Short, 2003). Further validation has not been conducted.
Other related terms such as ‘cooking from scratch’, ‘cooking from basic ingredients’ and ‘cooking with fresh ingredients’ are equally ambiguous terms used in the literature with varied meanings with implied values. Does cutting up fresh vegetables and meat for a stir fry then adding a curry paste denote cooking from scratch? Does this differ from putting a pre-cut frozen stir fry in a microwave to heat through? Does cooking from basic ingredients include adding a commercial premix meal base to drumsticks to make an apricot chicken? Examining the link between cooking and nutrition is complicated by this breadth of interpretation of “cooking” and related terms.

**Measuring cooking**

Studies measuring ‘cooking’ most often measure ‘confidence in cooking’ or ‘attitude to cooking’ rather than an observed measurement of skills, which in most settings would be both impractical and inappropriate (Byrd-Bredbenner, 2004; Caraher, et al., 1999). This does, however, add ambiguity to measurement. In the development of their measurement tool, a US study of college students found that attitudes to cooking varied if they were ‘cooking from scratch’ or ‘cooking (not from scratch)’ (Byrd-Bredbenner, 2004). The students viewed ‘cooking from scratch’ more negatively than ‘cooking (not from scratch)’. These terms were not defined. Students also completed a 50-item food preparation knowledge questionnaire and self-rated knowledge and skill in food preparation. Almost half the respondents rated

<table>
<thead>
<tr>
<th>Skill</th>
<th>Purpose</th>
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<tr>
<td>Mechanical</td>
<td>Physical and cooking techniques used to manipulate food</td>
</tr>
<tr>
<td>Perceptual</td>
<td>Ability to judge taste, colour and texture of combinations of ingredients</td>
</tr>
<tr>
<td>Conceptual</td>
<td>Ability to predict the outcomes and be creative or demonstrate the ability to adapt ingredients</td>
</tr>
<tr>
<td>Academic</td>
<td>Knowledge of nutrition and food safety, food trends and fashions</td>
</tr>
<tr>
<td>Planning</td>
<td>Temporal or timing of cooking tasks and fitting of cooking around other tasks, menu planning</td>
</tr>
</tbody>
</table>
their knowledge and skills as excellent or good despite the mean score on the knowledge questionnaire being 40%, only 2% under-rated their own skills and knowledge. Similarly, a UK study found that only those people who rated themselves as “confident” cooks were likely to proactively participate in cooking skills interventions and try new foods or techniques (Stead, et al., 2004). This highlights the disparity between the expectations of health professionals and those of the community. This has implications on the assumptions made regarding interpretations of terms, validity of measurements and programme development.

Confidence in cooking may not automatically mean that cooking is done more often (Crombie, et al., 2009). It has been suggested that cooking is now viewed as a ‘leisure’ activity, which explains the recent popularity of cooking shows and cookbooks. In the Australian Time Use Survey Australians spent slightly more time preparing food on the weekend than on weekdays, this was particularly true for men (Australian Bureau of Statistics, 2008). Caraher et al. identified that informal everyday meals were associated with convenience foods and fast foods, but special occasion meals involved some element of cooking, particularly from basic ingredients (Caraher, et al., 2004). Cooking frequency, therefore, may need to be measured alongside confidence.

**Cooking and nutrition**

Accepting the difficulties in its measurement, several studies have demonstrated a link between cooking and meeting nutrition recommendations. A Brisbane study found that households more regularly purchased a variety of vegetables when the main household cook had more confidence to prepare them (Winkler & Turrell, 2009). Confidence to cook using a variety of techniques was less relevant. Although it did not examine food intake, the English *Health and Lifestyles Survey* similarly examined cooking confidence using healthy methods and foods (Caraher, et al., 1999). It found that confidence varied most significantly between genders. Socio-economic status had a less significant effect overall although there were differences in the confidence to prepare certain foods. This may, however have reflected differences in preferences and so familiarity rather than ability. Most participants in the survey did not identify that their cooking skills impacted on their food choice and felt they knew enough already about cooking.
Conclusion

The term ‘cooking’ is problematic in that it can present an oversimplified description of the skills and knowledge needed for healthy eating and have relevance for only a small proportion of food intake. It is argued that the skills needed for better nutrition are not the technical skills to cook a meal from basic ingredients but rather the organisational skills to consistently prepare nutritious food within other daily demands, from available foods that will be accepted by those eating the meal. This may at times not involve cooking at all. Moreover in a food secure urban area, with adequate finances, it is possible to meet dietary guidelines without any cooking skills at all. Caraher positions cooking in the everyday practicalities of meeting nutrition recommendations:

cooking skills can be seen as part of the necessary repertoire of lifeskills but obviously not sufficient on their own to bring about change. Equally, without them it is difficult to achieve a healthy lifestyle. (Caraher & Seeley, 2010 p7).

2.5.7 Professional Practice Guidelines

Dietetic and home economics professional bodies have developed guidelines which articulate the skills and knowledge considered by their profession to be useful in helping people practically meet nutrition recommendations. These guidelines may be useful in identifying possible domains of food literacy.

The American Dietetic Association, Food and Culinary Professionals Dietetic Practice Group have identified a set of core competencies to focus on developing in themselves (Food and Culinary Professionals Dietetic Practice Group, 2007). The methodology for the development of the guidelines is unclear but appears to have been through consensus. There are seventy competencies across eleven domains of:

- Sensory perception and evaluation;
- Basic cooking skills;
- Cooking techniques;
- Menu and meal planning;
• Ingredient selection;
• Recipe development and modification;
• Communication about food;
• Food retailing;
• Food safety;
• Sustainable agriculture; and
• Food trends.

The National Competency Standards for entry level dietitians in Australia (Dietitians Association of Australia, 2009) identify the potential role a dietitian might have in developing food literacy rather than specifying the competency required by the individual dietitian. Competencies include a knowledge of food and preparation methods, food systems and food use and the ability to take into account nutritional, personal, cultural, social, psychological, socio-economic and specific health needs when developing meal plans for individuals or groups (Dietitians Association of Australia, 2009).

At its 2005 Food Futures conference, the Home Economics Institute of Australia identified principles for classroom food education (Caraher & Reynolds, 2005). They align well with the emphasis of public health nutrition policies and plans by emphasising a connection to the origins of foods and their ethical and environmental impact, the development of practical food skills with a goal of personal empowerment and control over food systems. These concepts were further re-enforced by the International Federation of Home Economics in their position statement on Home Economics in the 21st Century (International Federation of Home Economics, 2008). Pendergast et al (Pendergast, Garvis, & Kanasa) consider that these statements could be useful in conceptualizing food literacy.

2.5.8 Conclusion

There are several terms and measures that exist to describe what we know and understand about food and how we use it to meet our needs. However they are individually and collectively inadequate in describing the totality of this knowledge and skills. “Meal preparation”, “food skills” and “cooking” tend to focus only on
meals and foods requiring preparation which under-represents total dietary intake. “Nutrition knowledge” tends to be limited to declarative expert knowledge. Although not tested in the health paradigm, it is unlikely that “food involvement” on its own, is an adequate description or measure. Existing competencies are useful in considering what might be part of food literacy but have been developed fairly arbitrarily. Collectively, these terms and competencies are missing the views of the people whom they aim to measure and appear to be out of date with how people eat and use food. “Food literacy” may be a useful shorthand to describe a closer connection with food and the everyday practicalities of meeting nutrition recommendations; its meaning, however, needs to reflect contemporary food and eating and be informed by existing not idealised behaviours.
2.6 USING HEALTH LITERACY TO CONCEPTUALISE FOOD LITERACY

In recent times “literacy” as a term that has been applied beyond the language context to many areas including health. Practitioners now refer to a range of literacies such as mental health, nutrition and health. An examination of the application of this term, particularly in health, may be useful in conceptualising food literacy and its relationship to nutrition.

Literacy includes both task-based and skills-based elements. In the International Adult Literacy Survey, the OECD define conventional literacy as:

a particular capacity and mode of behaviour: the ability to understand and employ printed information in daily activities, at home, at work and in the community - to achieve one's goals, and to develop one's knowledge and potential (Organisation for Economic Co-operation and Development, online).

Health literacy borrows from some of these constructs and is conceptualised as both a function of conventional language literacy and as a tool for empowerment. When limited to language, it has typically been conceptualised as a “risk”, however, more recently, it has been conceptualised as an “asset” (Nutbeam, 2008).

2.6.1 Health Literacy as a Risk

This “risk” model focuses on the link between low literacy and numeracy skills and poor health outcomes. This occurs both directly such as the inability to read health information, and indirectly through the social determinants of health. There is evidence that those with high health literacy are more likely to manage their health using preventative strategies than those with low health literacy who are more likely to use emergency services and acute management (Bush, et al., 2009). Clients with low reading skills are less likely or less willing to attend peer-led self-management programmes or engage in self-management (Rootman & Gordon-El-Bihbety, 2008).

2.6.2 Health Literacy as an Asset

The World Health Organisation defines health literacy as:
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, 2000 p264)

When health literacy is conceptualised as an asset, the application of literacy and numeracy skills is expanded to include a greater emphasis on advocacy, self-determination and the ability to influence one’s environment (Nutbeam, 2008).

When conceptualised as an asset, health literacy could be considered a rebadging of health education. Perhaps, more appropriately, it is an evolution of health education to re-enforce the power of knowledge, skills and education more broadly, in enabling individuals to participate more fully in their own lives and more critically and actively in the life of their community.

Bush and colleagues assert that both the health literacy of individuals and populations should be considered and addressed (Bush, et al., 2009). This has been demonstrated in a review of mental health literacy which examined the influence of community and professional education programmes over time (Goldney, Fisher, Dal Grande, & Taylor, 2005). It identified that both individual and whole of population interventions need to be targeted.

The term “literacy” has gained popularity in recent times and has been applied to many content areas. The term is used to describe the fundamental or essential nature of particular knowledges. It is also used to convey a sense of empowerment in gaining an understanding of “secret” knowledges of content and discipline areas. In this sense the term is used to describe knowledge well beyond language. Use of the term “literacy” can imply that enhanced status in a content area for example, health, is reliant only on the individual and the extent to which they are empowered or “literate” in that area. This can de-emphasise the importance of broader environmental factors and the responsibility of the discipline to better engage with the consumer. Food literacy needs to be positioned within public health nutrition plans that acknowledge and address broader environmental factors and take into consideration not only individual but population approaches.
2.7 CONCLUSION

This literature review examined various dimensions of contemporary food and eating, including access, selection, procurement, preparation and commensality. It revealed that the nature of each of these is contextually determined by a large range of factors at individual, household, community, and national levels that both are influenced by and influence biological, social, cultural and economic systems.

Behaviours, such as preparing and sharing food, which nutritionists emphasise in their practice, appear to be related to diet quality. Their link to body weight and subsequent chronic disease risk, however, is more tenuous. There is little evidence that these behaviours are performed any less by people experiencing disadvantage. Rather, it is likely that the relationship between disadvantage and obesity related chronic disease risk is due to a complex range of factors extending well beyond personal skill development.

There appears to have been no work done to determine what the collection of knowledge, skills and behaviours needed to meet nutrition recommendations might be. Clearly it must extend beyond food preparation as food consumption trends indicate food consumed outside the home makes up an increasing proportion of dietary intake. No work has been done to consider this from the perspective of the individual who is the expert in meeting their own food needs. This is significant, particularly given one’s relationship with food is more strongly influenced by family and peers than external experts and institutions.

It is clear that food meets multiple needs beyond nutrition. Different paradigms will consider different elements more essential than others. There has been no attempt to consider these multiple dimensions in order to devise a set of components with represent the breadth of food needs. It is also difficult to position food literacy within population and personal food and nutrition systems until it has been defined. However, it is likely that food literacy would empower individuals to better understand and navigate population level systems and help individual food intake at the personal system level. However this requires greater exploration.

We are living in a time of unprecedented diet-related disease related to over consumption and poor food choices. Global, societal, economic and environmental factors beyond health have influenced food supply, food intake, food preparation,
rituals of eating and who we learn about food from. While the rapid escalation in the prevalence in overweight and obesity and related diet quality, have motivated an urgency in scrutinising these changes, it is clear from this literature review, that food and eating constantly change. Public health nutrition advice and practice must address contemporary dimensions of food and eating to be relevant. Existing terms used to describe the everyday practicalities of meeting nutrition recommendations appear inadequate in describing the totality of its contemporary expression. An exploration of food and eating beyond the nutrition paradigm is critical to defining food literacy and its components.

The determinants of disadvantage typically extend beyond the individual, however practise responses tend to focus on the individual. This is despite there being very little evidence that the demonstration of knowledge, skills and behaviours needed to meet food needs is associated with socio-economic status. An understanding of the relationship between these factors and the capacity to meet nutrition recommendations requires further investigation.

The term “food literacy” has emerged as shorthand to describe this basket of knowledge, skills and behaviours. However, despite their being a strong call for action from practitioners, government, researchers and the public, there is significant ambiguity around what this actually means and its relationship to nutrition. This research examines what the term “food literacy” means; what it includes and how it relates to nutrition. Seeking the perspective of individuals is critical as the origins of “food literacy” are likely to be in the home, rather than in a health, education or community services setting. Examination of young people experiencing disadvantage allows the exploration of the development of food literacy and the how its relationship with nutrition may be influenced by broader determinants. It also allows examination of comparability between expert opinion and the lived experience. The results will support greater clarity in policy and guide practitioners regarding where best to invest their efforts to improve the nutrition of their clients at the individual, household, community and population level.
This chapter articulates the purpose of this research, the research questions and the objectives which directed the choice of methodology. The philosophical rationale for the research design is also discussed. This research was composed of two studies. This chapter describes the relationship between each study and how they combined to address research questions. The methodology of each study is then described in detail.

3.1 AIMS

The aim of this research was to explore the relationship between food literacy and nutrition. This required an examination of the use and understanding of the term and what it includes.

3.2 RESEARCH QUESTIONS

1. What is food literacy?
2. What are the components of food literacy?
3. How does food literacy relate to nutrition?

3.3 RESEARCH DESIGN

This research was designed to thoroughly examine the scope of meaning of the term “food literacy”, its components and relationship to nutrition. To achieve this, each research question was examined from two alternate viewpoints. The research was composed of two studies:

- The Expert Study; and
- The Young People Study.

This research design more comprehensively examined the research questions and contributed to the validity of findings. Figure 3.1 describes the sequence of these
studies, the interaction between them and the application of Constructivist Grounded
Theory. Table 3.1 articulates how each study contributed to the research questions
by addressing related objectives.

As the figure shows, the Expert Study occurred first. From this study, an
agreed “expert” definition was developed, food literacy components were identified
and a model of their relationship to nutrition was proposed. These findings formed
the framework for an external review of interventions to test their face validity. The
Young People Study took place concurrently with this review. Data from the Young
People Study was analysed independently of the results of the Expert Study.

The dotted arrows in Figure 3.1 communicate the iterative in nature of this
research design. Definitive conclusions were not drawn at the end of each study,
rather, data from each study was re-examined and compared prior to development of
a final definition, set of components and model of the relationship between food
literacy and nutrition, and chronic disease. Results from both studies were
synthesised to determine research findings. This chapter describes the methodology
of each study. In later chapters results are then presented as the combined
contribution of both studies to research questions rather than as separate studies.
This format reflects the iterative study design.
Figure 3.1: An Overview of the Research Design and Outline of the Thesis
### Table 3.1: Research Questions, Objectives and Related Studies

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<tr>
<th>Research Question</th>
<th>Objectives</th>
<th>Study</th>
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<tr>
<td></td>
<td>1.2. Explore use of the term in practice.</td>
<td>Expert Study</td>
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<td></td>
<td>1.3. Explore use and understanding of the term by food experts.</td>
<td>Expert Study</td>
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<td></td>
<td>1.4. Establish an agreed meaning with food experts.</td>
<td>Expert Study</td>
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<td></td>
<td>1.5. Explore young people’s descriptions of “being good with food” and its meaning over the life-course.</td>
<td>Young People Study</td>
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<tr>
<td></td>
<td>1.6. Develop a definition that is informed by its components and their relationship to nutrition.</td>
<td>Young People Study</td>
</tr>
<tr>
<td>2. What are the components of food literacy?</td>
<td>2.1. Identify components which experts consider to be part of food literacy</td>
<td>Expert Study</td>
</tr>
<tr>
<td></td>
<td>2.2. Examine agreement between diverse expert groups regarding components.</td>
<td>Expert Study</td>
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<td></td>
<td>2.3. Explore the contextual consistency of components identified by experts.</td>
<td>Expert Study</td>
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<td></td>
<td>2.4. Explore how young people, across a spectrum of disadvantage, feed themselves.</td>
<td>Young People Study</td>
</tr>
<tr>
<td>Research Question</td>
<td>Objectives</td>
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<td>2.5.</td>
<td>Isolate the knowledge, skills and behaviours which young people, across the spectrum of disadvantage, describe as contributing to feeding themselves well.</td>
<td>Young People Study</td>
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<td>2.6.</td>
<td>Isolate the knowledge, skills and behaviours associated with consistently better diet quality in young people.</td>
<td>Young People Study</td>
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<td>2.7.</td>
<td>Isolate and describe the components of food literacy.</td>
<td>Expert Study, Young People Study</td>
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<tr>
<td>3.</td>
<td>How does food literacy relate to nutrition?</td>
<td></td>
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<tr>
<td>3.1.</td>
<td>Examine the views of experts regarding the relationship between food literacy and nutrition.</td>
<td>Expert Study</td>
</tr>
<tr>
<td>3.2.</td>
<td>Use a case study to explore the relationship between food literacy components and parameters of healthy eating, and challenges to this relationship, particularly disadvantage.</td>
<td>Young People Study</td>
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<tr>
<td>3.3.</td>
<td>Use a case study to explore factors influencing the development of food literacy.</td>
<td>Young People Study</td>
</tr>
<tr>
<td>3.4.</td>
<td>Develop a conceptual model to describe the relationship between food literacy and nutrition.</td>
<td>Expert Study, Young People Study</td>
</tr>
<tr>
<td>3.5.</td>
<td>Develop an evaluation framework for food literacy.</td>
<td>Expert Study, Young People Study</td>
</tr>
<tr>
<td>3.6.</td>
<td>Position food literacy within public health nutrition systems and practice.</td>
<td>Expert Study, Young People Study</td>
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</table>
3.4 THE RATIONALE FOR A QUALITATIVE APPROACH

Qualitative methods were selected for this research as the questions were exploratory in nature (Rice & Ezzy, 1999). Food literacy is an emerging area which required a deeper exploration of its constructs than quantitative methods would allow. This approach provided layers of data from which to theorise the relationship between food literacy and nutrition (Denzin & Lincoln, 2005). While calls to quantitatively examine the practicalities of everyday eating in order to measure their contribution to food intake and chronic disease risk are acknowledged, the literature review confirmed that it is yet to be determined what these elements were and so their measurement would be premature (Begley & Gallegos, 2010b; Lang & Caraher, 2001). Previous attempts to measure single elements, such as confidence in cooking, risked under-representing the totality of the skills, knowledge and behaviours applied to meet food needs. This under-estimates the contribution of this seemingly fundamental dimension of healthy eating. Additionally, it is well established that individual skills, knowledge and behaviours on their own are inadequate in shifting disease risk. An understanding of the relationship between these individual factors and broader social, cultural and environmental determinants of health is therefore essential in positioning food literacy within public health nutrition policy, practice and investment. The qualitative studies which made up this research provided rich empirical data from which these issues could be most fully explored.

3.5 CONSTRUCTIVIST GROUNDED THEORY

This qualitative research took a Constructivist Grounded Theory approach which evolved from Grounded Theory. Grounded Theory is a process of data collection and analysis whose objective is to allow theory to emerge from the data, rather than apply a pre-existing theory to explain a phenomenon. It builds theory that is grounded in the data. Strauss, one of the fathers of Grounded Theory, describes the value of this approach in the following quote:

The world of social phenomena is bafflingly complex. Complexity has fascinated and puzzled me much of my life. How to unravel some of that complexity, to order it, not to be dismayed or defeated by it? How not to
avoid the complexity nor distort interpretation of it by oversimplifying it out of existence? (Strauss, 1993, p 12 in (Corbin & Strauss, 2008), p vii)

The methods have evolved over time, however its objective of creating order remains the same (Charmaz, 2006; Corbin & Strauss, 2008; Strauss & Corbin, 1998). Grounded Theory has its roots in Pragmatist philosophy and Symbolic Interactionism. This is significant in that these epistemologies see knowledge being created through action and interaction. It recognises that individuals interpret each other’s actions instead of just reacting to them. One’s response is not directly based on another’s actions but on the meaning that the individual attaches to these actions. This philosophy recognises that the interactions between the individual and their collective; be it the household, community or nation; are reciprocal, that is, they influence each other.

Grounded Theory suits this research problem as food, and the practicalities of interacting with it, are complex. The meanings and the nature of these interactions are diverse. Perceived changes in dimensions of food and eating have been co-constructed by the individual and the various collectives they belong to. Additionally, an exploration of these meanings and interactions beyond the vantage point of the health and nutrition paradigms is useful in “ordering” the complexity of this research problem.

Constructivist Grounded Theory has been developed by Charmaz, a scholar of Strauss and Corbin. Her development of the theory assumes that:

Neither data nor theories are discovered. Rather, we are part of the world we study and the data we collect. We construct our grounded theories through our past and present involvements and interactions with people, perspectives and research practices. (Charmaz, 2006 p100)

Corbin sees this as the influence of postmodernism which recognises the interaction between knowledge, self, action and truth and that the researcher forms part of the process of determining what is reality, knowledge and truth based on what they bring to the research (Corbin & Strauss, 2008). More importantly, postmodernism suggests that the pursuit of reality, knowledge and truth is not absolute or finite, in the way that positivist traditions of research may propose (Downing, 2008). Corbin asserts, however, that the purpose of research is to illuminate a problem and
necessitates some degree of conceptual language to talk about ‘findings’. Without a conceptual language, there is no basis for discussion, conflict, negotiation, or the development of knowledge based practice. (Corbin & Strauss, 2008)

She warns against research which overly emphasises the abstraction of a concept without attempting to order it through the development of theory, however constructed it may be.

The studies in this research interrogate the research problem thoroughly by viewing it from a range of alternate perspectives. The research questions are a mix of positivist and post-modern epistemologies. The development of a definition and identification of components may first appear to be a pursuit of conclusive knowledge, however this approach allowed the exploration of these concepts from a range of perspectives, acknowledging that there is no single truth. This could be considered a straddling of both, without a commitment to either. Rather it reflects an understanding that food and one’s relationship to it cannot be fixed and absolute, however practitioners make investment and practice decisions in pragmatic work settings and so require agreed boundaries around such concepts.

The following sections of this chapter detail the methods used for each of the studies. They are followed by chapters presenting the combined results of these studies to each of the research questions. This format highlights the contribution of each study and re-enforces the iterative nature of the research design. This resulted in a definition of food literacy, identification of its components and their relationship to nutrition and health considered from multiple vantage points.
3.6 THE EXPERT STUDY

The purpose of this study was to explore the understanding of the term food literacy, its components and possible relationship to nutrition by Australian food experts. The face validity of these findings was then tested, through their use as a framework for a food literacy intervention review. They were again re-analysed alongside the results of the Young People Study to develop a final definition of food literacy, identify its components and propose its relationship to nutrition. The relationship between these studies is described in Figure 3.1.

3.6.1 A Background to the Delphi Method

A Delphi study is a survey that continues for a number of rounds with the same participants until group consensus is reached. It is generally used in situations when there is an absence of clinical evidence, when an issue requires judgement rather than evidence to be used, in defining the scope of broad and complex issues, or to develop or determine a broad range of possible alternatives to a health issue (Banwell, Hinde, Dixon, & Sibthorpe, 2005; Hart, Jorm, Kanowski, Kelly, & Langlands, 2009; Speight, Thomas, Kennel, & Anderson, 1995; Stucki, et al., 2004). Delphi studies began in the 1950s to inform decision making by “pooling intelligence” (de Villiers, de Villiers, & Kent, 2005). Their first application was in the military however, this methodology has been widely used in health (Gibson, Fletcher, & Casey, 2003; Hart, et al., 2009; Mitchell, Williamson, & O'Connor, 2009; Ota, et al., 2007; Speight, et al., 1995; Stucki, et al., 2004). Consensus, through rounds of consultation, is commonly used in the development of public health plans and other strategic documents, however, there are rarely protocols and parameters regarding the extent of consultation or the analysis of consensus. A Delphi study aims to give more structure, consideration and transparency to this common practice. It is favoured over other methods of seeking expert consensus for example, workshops or conferences as it:

- allows participation by people who are geographically apart or not typically linked;
- allows participants to lodge their views anonymously;
- gives participants time to consider their views and responses;
• avoids the possibility of dominance by individuals that might occur in a face to face meeting (Akins, Tolson, & Cole, 2005; Keeney, Hasson, & McKenna, 2006).

Having various survey rounds, gives participants the opportunity to more critically consider their responses and build their knowledge which often leads to problem solving and a more insightful response than might occur in a one off process (Holly Powell, 2004; Hsu & Sandford, 2007). Delphi studies can be used on their own or in conjunction with other research methods to support their validity (Gibson, et al., 2003; Keeney, et al., 2006).

In its purest form, Delphis should continue until consensus is reached however, in practice this rarely occurs due to time constraints and participant fatigue. Generally rounds are limited to between two and four (Lyte & Jones, 2001; Mitchell, et al., 2009; Speight, et al., 1995), with three rounds being the most common (Hart, et al., 2009; Keeney, et al., 2006; Lyte & Jones, 2001; Ota, et al., 2007; Soer, van der Schans, Groothoff, Geertzen, & Reneman, 2008; Van der Bruggen & Groen, 1999; Weigl, et al., 2004). Response rates tend to decrease with each Delphi round. Response rates for round one typically range from 50% to 100% (Keeney, et al., 2006; Mitchell, et al., 2009; Ota, et al., 2007; Van der Bruggen & Groen, 1999). Round one surveys can either be a series of statements developed by the researcher following a review of the literature or a series of open-ended questions. Studies which used open-ended individual interviews as the first round have been able to capture a broad range of expert views (Hsu & Sandford, 2007; Keeney, et al., 2006). This method helps to develop a rapport between the researcher and the expert and has improved response rates (Keeney, et al., 2006). The analysis of round one is usually qualitative (Keeney, et al., 2006) using the identification of key themes and the frequency with which an idea appeared (Gibson, et al., 2003). No statements are discarded. All are included in round two, with the respondent’s own words used as much as possible. Participants in the round two survey then register their agreement or disagreement with the statements, usually using a Likert scale (de Villiers, et al., 2005; Hart, et al., 2009; Hsu & Sandford, 2007; Van der Bruggen & Groen, 1999). Round two results are analysed for consensus. Items to which consensus was not reached are presented to participants again in the next round.
Studies vary in their definition of consensus. The level of consensus, in part, is influenced by the research topic. Studies which are concerned with the development of terminology or classification typically aim for a minimum consensus of between 70 and 85 percent (Hart, et al., 2009; Keeney, et al., 2006; Mitchell, et al., 2009; Ota, et al., 2007; Soer, et al., 2008; Van der Bruggen & Groen, 1999). Consensus can be influenced by available evidence. Items for which there is little widely known evidence are less likely to reach consensus (Hart, et al., 2009).

3.6.2 Methodology

This Delphi study consisted of three rounds in consideration of both time and response rates. The first round was a semi-structured telephone interview. Rounds two and three were online surveys. Participants came from a range of sectors and work settings where their work influenced what people know and understand about how to use food to meet their needs. As the area of food literacy is very much in the conceptual stage, the selection of diverse Delphi groups aimed to emphasise the contextual and evolving meaning of the term. By having a series of rounds, it exposed experts from different settings and sectors to the diversity of viewpoints and then allowed them the opportunity to revisit what the meaning and components of food literacy were. In this way the collective view of components of food literacy that were shared across work settings and professions could be determined. The study had ethical clearance from the Queensland University of Technology Human Research Ethics Committee (approval number: 1000000782).

3.6.3 Sampling

Criteria were developed to purposefully select study participants. As research in the area of food literacy is in its infancy, traditional criteria for selecting Delphi participants based on research activity and publication history, were unable to be used (Banwell, et al., 2005; Mitchell, et al., 2009; Soer, et al., 2008). Instead, multiple methods were used to both determine criteria and select participants. Selection criteria were initially discussed with a panel composed of the principal investigators and a public health nutrition representative from the State Health Department. Additionally, attendants at the Home Economics Institute of Australia
(Queensland Branch) World Home Economics Day function held in March 2010 and the Health Promotion Queensland Conference held in July 2010 were asked “who should be consulted in forming a definition of food literacy?”

From these processes, it was clear that in addition to sampling academia, it was important to include practitioners whose work will be affected by this research and advocates and policy makers who have or will have the capacity to influence activity and investment in food literacy. These formed the “work setting” element of the sampling matrix (refer to Figure 3.2). A preliminary review of current activity identified that work in food literacy is occurring across a range of sectors, most notably health, education, welfare, gastronomy, agriculture and food industry, where its purpose differs. These categories also reflected the key contexts identified in the literature review. They formed the “sector” element of the sampling matrix (refer to Figure 3.2). A description of these sectors can be found in Table 3.2.

![Figure 3.2: Sampling Matrix for the Expert Study](image-url)
Table 3.2: Expert Study Sector Characteristics

<table>
<thead>
<tr>
<th>Sector</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nutrition</td>
<td>Participants were nutritionists and/or dietitians. Their work focused predominantly in the prevention rather than the clinical management of disease.</td>
</tr>
<tr>
<td>Production</td>
<td>Participants came from private and non-government organizations that are involved in broad acre and/or alternative farming and agriculture.</td>
</tr>
<tr>
<td>Food industry</td>
<td>Participants came from food processing and retailing organizations and advocacy groups who work with food industry on behalf of consumers. This group included nutritionists that were employed by or consult to food companies.</td>
</tr>
<tr>
<td>Welfare</td>
<td>Participants’ work focused on disadvantaged communities and individuals experiencing food insecurity for example the homeless, refugee people and Aboriginal and Torres Strait Islander people.</td>
</tr>
<tr>
<td>Gastronomy</td>
<td>Participants included chefs, cookbook authors, food consultants and food historians.</td>
</tr>
<tr>
<td>Education</td>
<td>Participants worked in the area of school education including the development of curriculum and resources that address food.</td>
</tr>
</tbody>
</table>

The following overarching criteria were developed to guide the selection of individuals to populate this matrix:

- Participants will be theoretically representative of the contexts in which food literacy work is done, that is, they should include the perspective of those beyond the nutrition and health workforce. However, as food literacy is being considered in the context of its use and application to nutrition, participants must work in an area that contributes to healthy eating. For example, a celebrity chef who promotes cooking at home but rarely promotes healthy recipes would not meet this criterion;
- Participants must have several years experience in their profession or work setting;
- All states and territories must be represented;
- The sample must include those working with Aboriginal and Torres Strait Islander people; and
• Participants will be limited to Australia because:

  o The significance of culture and local food supply (including agriculture) on the understanding and interpretation of food literacy is unknown but likely to exist. By limiting the study to Australia these variables will be controlled; and
  o As this area of research is largely conceptual, it is prudent to first focus on a nationally informed scope of meaning.

3.6.4 Selection of Participants

Multiple strategies were used to populate the sampling matrix with individuals who most would consider experts in their field. The process began with a brainstorming of individuals known to the researcher in her 15 years practice as a nutritionist. Potential participants were also individually brainstormed with colleagues who had worked with nutrition, production, industry, welfare, gastronomy and education sectors. Indigenous colleagues working in Aboriginal and Torres Strait Islander health were also consulted. The inclusion of these initial potential participants was validated by reviewing their publication and work history. Where an expert could not be identified, snowball sampling was used. Snowball sampling was used in two ways. Colleagues for example, co-authors, of identified experts were investigated, and during interviews participants were asked for names of other individuals which they consider “experts” in the field. This second strategy was also used to validate the selection of existing participants. The sampling process is summarized in Figure 3.3. Participants were primarily selected for their experience and expertise; however where multiple people met the criteria, selections were made according to diversity and national representation. Where it was thought interest in participation might be low, more than one expert was identified. This method of sampling did not aim to select participants that were necessarily representative of food experts but rather, examples of food experts.
3.6.5 Instruments

The Food Literacy Delphi Study consisted of three rounds and took place from November 2010 to March 2011. This section describes data collection and analysis specific to each round.

**Round one**

The round one interview consisted of nine open-ended questions. Questions one to four examined possible components of food literacy, their relationship to nutrition and the applicability of health literacy frameworks, questions five to seven examined the term “food literacy” and questions eight and nine were used to identify key people and interventions which participants considered could contribute to the research. Interviews also included an unstructured component which allowed the interviewer to explore themes that emerged during the interview process, for example, retail trends were discussed with a participant from that sector. Round one interview questions were piloted face-to-face with four local nutritionists known to the researcher. Interview questions were amended following piloting and an interview script sheet was developed (see appendix B). All interviews were conducted by the researcher. The majority of interviews were conducted in the QUT Institute of Health and Biomedical Innovation (IHBI) Computer Assisted Telephone
Interviews (CATI) laboratory, recorded using the X-Lite programme and transcribed by an external transcribing service. On seven occasions this equipment was not available. These interviews were conducted on speaker phone in a private room and recorded using a digital voice recorder. Participants were specifically informed when this was the case. Notes were also taken during all interviews to document particular themes and ideas emphasised by the participant. Identifiable data was only seen by the primary researcher.

All participants were initially contacted by phone. When the participant was not available by phone, an email was sent which indicated a follow up phone call would be made. Once the researcher had explained the objectives of the study and clarified any other components for the potential participant, an email was sent which documented study details including the sampling matrix and QUT ethics participant information sheet (see appendix C). Response to this email was taken as consent.

All round one interviews were qualitatively analysed using a Constructivist Grounded Theory approach (Charmaz, 2005). Interview data was initially coded using themes that emerged from the data. Ten percent of the sample or one interview from each sector category was additionally coded by the principal supervisor. Themes were used to develop the second round survey. Interviews were again reviewed, in both the audio and written form, at the end of the final Delphi round. This iterative analysis examined themes and their relationship to each other and enabled the development of a theoretical concept of the meaning of food literacy, its components and relationship to nutrition.

**Round two**

The round two survey measured the level of consensus on themes that emerged in round one interviews. The survey consisted of ten questions; questions one to five sought views on the term food literacy and an overall definition, questions six to eight sought views on possible prerequisites and components. Participants were asked to rate each potential component as “irrelevant”, “core” (need to know) or “desirable” (nice to know). Questions nine and ten sought views on the context of food literacy. This included the relationship between food and nutrition. The survey was piloted in Microsoft Word format with feedback provided by phone. The
amended survey was conducted online using Key Survey (see appendix D). Participants were also emailed a Microsoft Word version, ethics information and contact details of the researcher for clarification purposes. Participants were given 13 days to complete the survey. The survey took approximately thirty minutes to complete.

**Round three**

Consistent with the Delphi tradition, a third round was conducted to look for further consensus. First round two survey results were analysed for consensus. Consensus was defined a priori as at least 75%. According to the original research design all statements with less than 75% agreement would be represented to the group in round three. However as levels of consensus were quite low and participant fatigue was significant, these levels and the number of concepts explored were amended in the interest of maintaining a good response rate. Potential components of food literacy from round two which over 75% of participants considered to be “core” were reported and excluded from the round three survey. Of the remaining components, only those which 50-74% of participants considered to be “core” were re-presented. The round three survey (see appendix E) took participants less than ten minutes and included only three questions. The questions related to core components of food literacy, an overall definition for food literacy and an open-ended question inviting other comments on the study. Non-respondents to round two were not included in round three.

Round two and three surveys were quantitatively analysed for overall frequency and distribution of responses. Fishers exact test was used to examine the extent to which responses varied according to if the participant was a nutritionist or not. This analysis was limited due to small numbers.

**3.6.6 Face Validity**

A review of food literacy interventions was commissioned by Queensland Health as part of their tender to examine food literacy (Queensland Health, 2009). The background to this tender is presented in the preamble. This was done by asking an external reviewer to use these findings to review interventions. The review
provided an opportunity to assess the face validity of the model developed following the Expert Study, particularly its effectiveness in supporting practitioners to make investment and practice decisions. Using the model also required an interpretation of the definition and components developed as a result of the Expert Study. Details of the review method and its results are presented in appendix F (Cullerton, Vidgen, & Gallegos, 2012).

Published interventions were primarily located by the author during the literature review. Details of the search methodology are described in the introduction of Chapter 2. In addition, round one participants in the Expert study and members of the Queensland Health Food Literacy Network were asked to identify any exemplary interventions. This network was a self-selected practitioner group of predominantly nutritionists who were implementing interventions which they identified as addressing food literacy. The group was convened by the Queensland State Health Department. It met quarterly at which time a communiqué of project updates was developed. In addition to attending meetings, communiqués from May – November 2011 were reviewed to ensure additional interventions which met criteria had not been missed.

The literature was sourced by the author and given to the external reviewer along with the report of Expert Study (Helen Vidgen & Gallegos, 2011b). She was instructed by the author to use these findings to inform her review. The external reviewer was an experienced public health nutritionist and home economist, however she was not familiar with food literacy literature and had not been involved in any other aspects of the research. She conducted the review independently. Once completed, the results were discussed with the researcher. This took the form of trouble shooting during report writing and a critique of the effectiveness of the model at completion of the project.

Findings of the Expert study were also presented at a series of conferences and practitioner meetings, including meetings of the Project Reference Group which included researchers and practitioners. These results and their contribution to conceptualising food literacy, its components and relationship to nutrition, are presented in the following chapters.
3.7 THE YOUNG PEOPLE STUDY

The purpose of this study was to explore the scope of meaning of the term “food literacy”, its potential components and their relationship to nutrition from the perspective of individuals who were responsible for feeding themselves. Given that these components and how they relate to nutrition was likely to be highly contextual, the study focused on one specific group as a case study; people aged 16-25 years living in an urban area. The study was particularly interested in examining the influence of disadvantage. It sampled people across a spectrum of social exclusion and poverty. This focus on disadvantage was to both identify components of food literacy that were present across this spectrum and to inform existing publicly funded food literacy work which predominantly takes place with disadvantaged populations.

In addition to exploring the concept of food literacy, the study also examined the development of participants’ food literacy within their individual contexts. Anecdotally, practitioners had observed enhanced client interest in developing food literacy at times of transition for example; moving away from home, after being diagnosed with a diet-related disease, becoming a parent. The study was interested in examining this observation further.

3.7.1 Methodology

This study used qualitative methodology to explore how young people use and engage with food. Semi-structured face-to-face interviews were conducted. The study adopted an assets-based approach and as such it was particularly interested in young people who managed their food intake well, particularly during change and how and why this happens. Interviews used a life-course style of questioning which looked for chains of resilience and the development of key assets for healthy eating, significant transition times and the development of the young person’s relationship with food. It was envisaged that this would be useful for planning if, when and where service provider support could happen.

The study borrowed from the phenomenological tradition in that it examined the everyday activity of feeding oneself from the perspective of the people doing it (Rice & Ezzy, 1999). As such, it examined what people can do and are doing, rather than what they should do. It used their insights to describe the phenomena rather
than the researcher using their own labels. This is consistent with Constructivist Grounded Theory which also does not approach data with a pre-determined framework for describing or explaining it. Phenomenology asserts that individuals are capable of producing solid and true judgments of their experiences. That is, individuals do not need a researcher to describe an experience, they can do it themselves. This highlights that objective analysis by the researcher is, in fact, subjective.

This study was interested in documenting young people’s descriptions of what they considered “being good with food” included, and their experience of feeding themselves. In addition, the study explored their experience of disadvantage and its relationship to eating. In combination with assets-based and life-course approaches, the methods provided the space for young people to describe feeding themselves and reveal to the researcher what the essence of doing this “well” means. The study was approved by QUT Human Research Ethics Committee (approval number: 1100000361).

**An assets-based approach**

The increasing prevalence of overweight and obesity has had the effect of problematising food and eating. Within health documents, food and eating are often described with respect to what people should not be doing. This study sought to instead explore and describe what people do well. It is well accepted that people are more likely to continue behaviours they find rewarding and a positive experience. A focus on assets allowed a more in-depth understanding of the factors which make healthy behaviours a rewarding and positive experience. This is important as consistency is a critical element of healthy eating.

Assets-based approaches have been used in health research to: map the assets of a community to address a problem (Aronson, Wallis, O'Campo, Whitehead, & Schafer, 2007; Morgan & Ziglio, 2007); in the analysis of epidemiological data to more closely examine positive deviants in a population with otherwise poor health or risk behaviours (Brooks, Magnusson, Spencer, & Morgan, 2012; Walker, Sterling, Hoke, & Dearden, 2007); and in identifying enablers for behaviour change (Nutbeam & Harris, 1999). However, in most of these approaches, the assets were identified
and defined by the health agency researcher rather than the participants. It is well documented that health professionals and their clients view health “problems” differently (Bond, 2007; Lupton, 2003). It is likely that the identification of assets, enablers and protective factors will also differ.

This study was interested in the insights of young people, particularly those experiencing disadvantage, in order to reveal an alternative perspective on the key assets for healthy eating to those presented by “experts”. That is, the study sought to more fully explore the potential components of food literacy beyond those which might be considered important by food experts. It also examined the relationship between food literacy and nutrition and factors which contribute to strengthening this relationship. The study looked for elements that support a long-term commitment to healthy eating.

**A life-course approach**

Life-course approaches have been used in the epidemiology of chronic disease (Ben-Shlomo & Kuh, 2002). In epidemiology, it operates prospectively to:

Look at the long-term effects on chronic disease risk of physical and social exposures during gestation, childhood, adolescence, young adulthood and later adult life. It includes studies of the biological, behavioural and psychosocial pathways that operate across an individual’s life-course, as well as across generations, to influence the development of chronic diseases. (Ben-Shlomo & Kuh, 2002)

Life-course studies not only identify protective and risk factors but examine the temporal relationship between them and the development of disease. In doing so, they look for “critical periods” and the extent to which later life events can modify their effect. Additionally, a lifecourse approach can examine the cumulative effect of risk factors, as well as chains of resilience. This approach is increasingly being used to better understand the relationship between disadvantage and health risk, both within individuals and inter-generationally (Davey Smith, et al., 1998).

Life-course approaches are also used in qualitative research (Devine, 2005; Devine, et al., 1998). Life-course interviewing helps the participant tell their story using a narrative. It provides a rich source of data from which to identify risk and
protective factors, and to conceptualise a relationship to chronic disease. Using a method which acknowledges this temporal dimension facilitates the translation of research findings into practice. In this qualitative study, recollections of different households and locations participants had lived in, provided an entry into conversations about the relationship between environment, food and eating. This allowed an exploration of the construct of context. The life-course interview facilitated participants’ reflections on the development of food literacy over time and descriptions of what being “good with food” meant.

3.7.2 Sampling

This study sampled young people aged 16-25 who were responsible for feeding themselves. All participants lived in Brisbane. They were purposefully selected to examine the variables of disadvantage, gender and culture. Sample size was determined by theoretical saturation or when no new themes or data emerged (Rice & Ezzy, 1999).

The study examined disadvantage from the perspectives of poverty and social exclusion. Dimensions of disadvantage which were examined were highest completed level of education, source of income, place of usual residence, connection to family and participation in schooling, employment or training. Place of usual residence was categorised using the SEIFA Index of Relative Socio-economic Advantage and Disadvantage at the postal area level (Pink, 2008). This index is reported as national quintiles with five representing an area with a relatively high incidence of advantage and relatively low incidence of disadvantage. Deprivation and food security were not measured as it was considered that the validated tools for their measurement would have given too much structure to the interview and jeopardized the collection of other data (Bickel, et al., 2000; Saunders, et al., 2008).

3.7.3 Participant Recruitment

It was anticipated that participant recruitment would be a challenge for this study. For this reason, partnerships with youth service providers were established early. Participants were recruited primarily through these service delivery agencies. Recruitment methods were determined following active consultation and so differed
slightly between sites. Australian Red Cross, Edmund Rice Education Australia, Queensland Health and Nutrition Australia Queensland were initially consulted for sample recruitment. Queensland Health was unable to secure access to the target group and so numerous other agencies and settings were approached, with Ipswich City Council ultimately able to provide access to a suitable sample. An overview of each recruitment site follows.

Each site was purposefully selected in order to explore different aspects of disadvantage that were of interest to the study. These sites differed in their capacity to provide access to young people with these diverse characteristics. The researchers worked closely with service providers to modify recruitment and data collection to increase interest and participation in the study and ensure the interview would be an acceptable process for the participant, service and researcher. Recruitment and consent forms were consistent across all service sites and can be found in appendices G and H. Participants who were under 18 years, but responsible for their own food intake, were considered able to provide informed consent.

**Australian Red Cross Night Café**

The Australian Red Cross Night Café operates twice a week from 6-9pm providing free hot meals, showers, hygiene products, first aid, support and information for homeless young people aged 12-25 years. At the time of the study it operated from the Albert Park Flexible Learning Centre in inner-city Brisbane. The service included a van which picked up young people from a range of locations within the city centre to bring them to the Night Café.

Australian Red Cross staff were consulted in the development of research design, instruments and implementation. The researcher attended the Night Café for two weeks prior to data collection to allow clients and staff to become familiar with her and the study. Information was posted on the walls of the Night Café throughout this time and the researcher was available to answer questions. Young people were invited to approach the researcher if they were interested in participating. In the two weeks following this, interviews were conducted in an open but private room within the Night Café.
Edmund Rice Education Australia

The Edmund Rice Education Australia Flexible Learning Centres are a network of secondary schools which aim to respond to the needs of young people who have been marginalised from mainstream education. The young people who attend these schools typically express a broad range of complex education and social needs and are disengaged from mainstream education for a range of reasons. They include young people who:

- Have had contact with the juvenile justice system;
- Are in the care of the Department of Child Safety;
- Have a history of trauma;
- Have a history of extended periods of unexplained absences;
- Are highly mobile;
- Live with mental illness or at risk of engaging in self harming behaviours or substance abuse;
- Have been excluded or repeatedly suspended from school;
- Are homeless;
- Are young parents;
- Have a generational history of early school leaving;
- Have a generational history of unemployment; (Edmund Rice Education Australia)

The researcher interviewed young people from two of the Networks’ campuses; the Albert Park Flexible Learning Centre (APFLC) in inner-city Brisbane and the Centre Education Programme (CEP), Kingston. APFLC students tend to be older (aged 16-25), with the campus focusing on completion of years 10, 11 and 12. Students who attend this centre live in a range of suburbs throughout Brisbane and surrounding areas. CEP is a larger campus of almost 100 students, catering for those aged 13-18. Kingston is in the lowest quintile of disadvantage in Australia. Students tend to live in Kingston and surrounding suburbs in the Logan City Council south of Brisbane.
APFLC staff were consulted in the development of research design, instruments and implementation. The researcher attended this campus and participated in morning “tea and toast” check-ins for two weeks before data collection to allow students and staff to become familiar with her and the study. Information was posted on the school notice board throughout this time and the researcher was available to answer questions. Following this, interviews were conducted over a three week period, on campus in a private room identified by school administration.

The Kingston Campus was not originally part of the study but added later to examine marginalised young people living in a disadvantaged area. All interviews were conducted in the one day. On this day, the researcher attended the morning check-in to explain the study. As these students were typically younger that those from APFLC, the Principal identified those who met eligibility criteria, that is, at least 16 years and responsible for feeding themselves. They were then invited to approach the researcher if they were interested in participating in the study. Interviews were conducted on campus in a range of quiet areas identified by the interviewee.

**Ipswich City Council**

A convenience sample of Ipswich City Council administrative staff were purposefully selected according to the inclusion criteria of living in a relatively disadvantaged area, employed, and had completed year 12 as their highest level of education. Peer recruitment through word of mouth was used to increase this sample. Participants were emailed study details prior to consent. They then contacted the researcher via email, SMS or their peers to arrange an interview time and location that was convenient to them. This group was the most difficult to access. Many attempts were made to access young people who met the inclusion criteria. The sites approached included community and public health units, worksites, and local employment and youth agencies in the Ipswich and Logan local government areas. These sites were willing to participate in the study but did not believe they could provide access to young people who met all inclusion criteria. Interviews were conducted over a two week period.
Queensland University of Technology – Business School

An advantaged group of young people was added to the sampling framework following consultation with practitioners who were interested in exploring this contrast. The QUT Business School was chosen as it was thought the researcher and content area would be unlikely to be familiar to potential participants and this would limit bias. The researcher was invited to address QUT Business students at the commencement of a social marketing lecture at the Gardens Point campus. The researcher spoke about the study and circulated the recruitment form (appendix G) on which interested students listed their contact details. They were then contacted by email to confirm consent and arrange an interview time. While many students listed their interest, this strategy yielded few participants and so peer-recruitment was used. On the initiative of a participant, this was done via Facebook. Interested young people gave their email to their peer and were then contacted by the researcher and sent study details. Confirmed participants contacted the researcher via email or SMS to arrange an interview time and location that was convenient to them. Interviews were conducted over a four week period.

Nutrition Australia Queensland

As the initial sample recruitment at QUT did not yield a sufficient sample, Nutrition Australia Queensland was engaged. Once a greater sample was recruited through QUT, recruitment via this service was ceased as it was thought that participants may have had a greater interest in nutrition and potentially bias the study.

3.7.4 Instruments

Participants took part in a semi-structured face-to-face interview. Questions were developed in consultation with service providers and reviewed following piloting. Interviews were semi-structured and so the order and wording of questions varied between participants. In this way, interview questions were used as a checklist to ensure all topics were addressed, rather than a script. The full interview
guide can be found in appendix I. As is typical in Constructivist Grounded Theory, interview themes evolved from the data during the collection period.

The interview began with demographic questions about schooling, current living arrangements and if the participant was responsible for feeding themselves. The purpose of this was to begin a conversation about context, in particular, the influence that different elements of disadvantage have on food and eating. Using a life-course approach participants were asked when they were first responsible for feeding themselves, different living arrangements and how food and eating differed between these. They were asked who they learnt about food from and prompted regarding their participation in structured programmes, for example, cooking classes. This was used to examine why, where and how their relationship with food had developed.

Participants were asked about their usual dietary intake and then what they had eaten over the previous 24 hours or the previous day, whatever was easiest for them to recall. The purpose of this question was to generally examine diet quality and to provide a platform for further discussion about food purchasing, preparation, eating and other food related behaviours. This data was not collected for the purposes of rigorous dietary analysis and so usual methods for diet history taking, such as prompting, multiple passing and checklists, were not applied as it was considered that this level of detail was not needed and would disrupt the flow of the interview.

Usual dietary intake questions were used to more deeply examine the skills and knowledge used in feeding themselves, if they thought they were “good with food”, who they thought of as being “good with food” and why. Participants were also asked if they had ever run out of money for food and their coping strategies regarding this, where they placed nutrition in their decision-making and the potential relationship between nutrition and food literacy. In taking an assets-based approach, participants who seemed to use food well to meet their needs and those that valued nutrition, were asked more about these aspects. Participants were asked if they could name the Core Food Groups (Kellett, Smith, & Schmerlaib, 1998) or if they were unsure, what they considered the types of foods needed for good health. This question explored the construct of knowledge and also elicited a conversation about formalized approaches to learning about food such as school.
Possible components of food literacy were drawn from participants’ responses throughout the interview, most particularly, the examination of current food intake, their conceptualisation of being “good with food” and their life-course reflections on the development of their own food literacy. Participants were also asked what knowledge and skills they thought young people needed to know about food by the time they left home. The term “food literacy” was not used in interviews as it was considered unlikely to be familiar to participants. The understanding of this term by the public is not of interest to this study as it is not proposed that “food literacy” become a widely used in the broader community.

All interviews were conducted individually in a private space, as identified by the service or participant. Interviews were audio-recorded and later transcribed. Transcripts were made available to participants. All participants were given a $30 supermarket voucher as compensation for their time. Pseudonyms were assigned to each participant. Participants were not told that the interviewer was a nutritionist, however they were aware that the research was being conducted on behalf of QUT Faculty of Health and Queensland Health.

Prior to the commencement of the study, service provider partners were consulted regarding the effectiveness of using a white, older female PhD student, as the interviewer, given the likely differences in power, culture and perceptions to participants. This was not seen to be a barrier. It was considered more advantageous to have an interviewer with a strong background in the study content and purpose, rather than one who was more familiar to participants for example, a youth worker or peer. Service providers believed that the key was for the interviewer to focus on authentic, sincere communication and take time to become familiar with the settings in which the sample was sourced. Service provider partners were very supportive in allowing this to occur.

### 3.7.5 Analysis

Interviews were thematically analysed using Constructivist Grounded Theory (Charmaz, 2005). Interview data were analysed multiple times in multiple ways to examine research questions. Data from all interviews were open coded to look for key themes and components of food literacy. One interview from each recruitment
site was also coded by the principal supervisor then compared and discussed. Themes that emerged for the principal supervisor were highly comparable to those identified by researcher. The principal supervisor highlighted text that she was able to categorise into codes named by the researcher. No additional codes were identified. Following initial coding, axial coding was used to examine relationships between themes and constructs. These results were then discussed and modified following peer debriefing.

**Life-course and transition**

Data was coded separately to examine the development of food literacy. Interview data was used to construct a life-course pathway for each participant (see appendix J). The pathway was made up of the participant’s age and key “transition points” which they discussed in the development of their relationship with food for example mother leaving home and the child now being responsible for feeding the family. Where the participant identified someone they considered “good with food”, the timing of this person’s presence in their life was highlighted. The life-course pathway included the typical dietary pattern, and where information was available, when, how and why that pattern changed over time. Diets were analysed to determine the presence, rather than amount, of the Australian Guide to Healthy Eating Core Food Groups in usual daily intake (Kellett, et al., 1998). Inclusion of each food group each day was considered to be a coarse measure of a participant who is more likely to have a healthy food intake.

Pathways of all participants were then analysed using Constructivist Grounded Theory to examine common elements and identify key learning times and settings. Data was interrogated for the presence of a pattern of food literacy development which could be extended to describe developmental pathways for these knowledge, skills and behaviours. They were also analysed between participant groups to further examine the relationship between disadvantage, food literacy and diet quality. Pathways described social exclusion and disconnection.
3.8 THE DEVELOPMENT OF A DEFINITION OF FOOD LITERACY, ITS COMPONENTS AND
RELATIONSHIP TO NUTRITION

The final development of a definition of food literacy, identification of its components and a model of its relationship to nutrition occurred once both studies had been completed. Throughout the research period a process of constant comparison was used both within and between the studies. This process is described in Figure 3.1. From a timing perspective, the Expert Study occurred first. The face validity of these results was then tested. At the same time, data was collected for the Young People Study.

Themes and codes that emerged from interviews with young people were considered against the results of the Expert Study. This was done to examine their relevance to this population, and individuals, rather than experts, more broadly. Additional codes were added as required. Where these codes from the Young People study aligned with the findings of the Expert Study, its language was used. In this way, the results of the Young People study were used to “validate” the findings of the Expert Study. The views of young people, particularly those experiencing disadvantage were privileged above that of Expert Study participants.

The face validity study revealed that the components and domains identified in the Expert Study were ambiguous and open to interpretation, compromising their use in practice. As a result, it was important that final results at the completion of this research, delivered a succinct list of clear, potentially measurable components. Participants in the Expert Study had identified eighty possible components of food literacy within eight domains. This clearly needed to be condensed to a practical and useable number of variables. This was done by examining the consistency between components identified by both Experts and Young People and between participant groups in the Young People Study. Particular focus was given to those elements the face validity study found ambiguous. This process included the re-examination of Expert Study data.

The following chapters present the combined results of the Expert and Young People studies to emphasise their iterative contribution to answering the research questions. Chapters are organised to define food literacy, identify its components, examine its development and describe its relationship to nutrition and health. Within each of these chapters, data from each study is presented and synthesised to reveal
and discuss the results. How data from each study was used and their relationship to each other is described within each of these chapters. The presentation of results begins with a description of study participants and the strength and limitations of the research design.
Chapter 4: Study Participants, and Strengths and Limitations of the Research Design

Both studies in this thesis contributed to all research questions. Each study examined the components of food literacy, a scope of meaning for the term and considered its relationship to nutrition. The research design was iterative, rather than sequential, that is, the results of each study were revisited constantly throughout the research period with conclusions only drawn once all studies had been completed. For this reason, results of the studies and their conclusions are presented as a whole, rather than separately.

This chapter presents the results related to the implementation and participation in each study, its strengths and limitations. It is followed by chapters which address each of the research questions by presenting the combined results of both studies.
4.1 THE EXPERT STUDY

4.1.1 Participants

Round one

Fifty-two people were contacted to participate in the study. Of these, 43 participated (response rate 83%). Four of the nine non-participants recommended alternative experts who, when contacted, agreed to participate in the study. Two of the non-participants consented but did not present at the time of interview and were unavailable to re-schedule. None of the three celebrity chefs that were contacted agreed to participate. In addition, there were five people who were identified as prospective experts but were unable to be located.

Participants came from all Australian States and Territories and included two people whose work specifically focused on Aboriginal and Torres Strait Islander people. Twelve participants (28%) were male and 31 (72%) were female. This is indicative of the gender balance of the sectors sampled. All sectors participated in the study. Within these sectors, all work settings except policy in gastronomy, food production and welfare were represented. In these sectors, it was difficult to identify potential participants as using and understanding food was not a focus of existing policy. Policy was the most difficult setting in which to find people with several years experience. Table 4.1 details round one participants by sector and work setting.

Several “experts” fulfilled a number of work setting criteria. In this scenario, they were categorised according to the main perspective which the interviewer was interested in or for which they were best known. Of the 43 participants, 20 were nutritionists (refer to Table 4.2). This was difficult to avoid, as in many sectors, food “business” was automatically assigned to the nutritionist.
Table 4.1: The Expert Study: Round One Participants by Sector and Work Setting

<table>
<thead>
<tr>
<th>Sector</th>
<th>Work setting</th>
<th>Research</th>
<th>Practitioner</th>
<th>Policy</th>
<th>Advocate</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education</td>
<td></td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Food industry</td>
<td></td>
<td>1</td>
<td>4</td>
<td>1</td>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td>Food Production</td>
<td></td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>Gastronomy</td>
<td></td>
<td>3</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Nutrition</td>
<td></td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>Welfare</td>
<td></td>
<td>2</td>
<td>3</td>
<td>0</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>14</td>
<td>15</td>
<td>5</td>
<td>9</td>
<td>43</td>
</tr>
</tbody>
</table>

Table 4.2: The Number of Nutritionists Participating in the Expert Study Round One by Sector and Work Setting

<table>
<thead>
<tr>
<th>Sector</th>
<th>Work setting</th>
<th>Research</th>
<th>Practitioner</th>
<th>Policy</th>
<th>Advocate</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education</td>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Food industry</td>
<td></td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>Food Production</td>
<td></td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Gastronomy</td>
<td></td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Nutrition</td>
<td></td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td>Welfare</td>
<td></td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>5</td>
<td>9</td>
<td>3</td>
<td>3</td>
<td>20</td>
</tr>
</tbody>
</table>

The interview duration ranged from 19-61 minutes. Having the research funded by Queensland Health but conducted by a university was beneficial. The neutrality of the university encouraged and allowed participants to more freely comment on a range of issues that they may not have been able to had the research been conducted by the Health Department. However, participation rates and interest
was enhanced by the Health Department involvement and the sense that findings would inform practice and investment.

**Round two**

Thirty-four participants (79%) responded to the round two survey. Respondents came from all sectors, work settings, States and Territories and included people working with Aboriginal and Torres Strait Islander people (Table 4.3). As in round one, most were female (76%). A slightly greater proportion of nutritionists responded to round two than round one (47% round 1; 56% round 2).

Table 4.3: The Expert Study Round Two Participants by Sector and Work Setting

<table>
<thead>
<tr>
<th>Sector</th>
<th>Work setting</th>
<th>Research</th>
<th>Practitioner</th>
<th>Policy</th>
<th>Advocate</th>
<th>total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education</td>
<td></td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Food industry</td>
<td></td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td>Food Production</td>
<td></td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Gastronomy</td>
<td></td>
<td>3</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Nutrition</td>
<td></td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>9</td>
</tr>
<tr>
<td>Welfare</td>
<td></td>
<td>1</td>
<td>3</td>
<td>0</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>11</strong></td>
<td><strong>12</strong></td>
<td><strong>4</strong></td>
<td><strong>7</strong></td>
<td><strong>34</strong></td>
</tr>
</tbody>
</table>

This survey took around thirty minutes to complete. It was predominantly conducted using an online survey. Within the online survey, rules had been set to ensure all compulsory sections were completed before the survey could be lodged. This added to the completion time as participants were required to go back to check responses. As the survey was relatively long, participants found this process tedious. This may have affected response rates in round three as participants had already invested considerable time in the study and the experience may not have been positive.
Round three

Only those who participated in round two were invited to participate in round three. Of the 34 people participating in round two, 24 participated in round three (70.6%). They came from all sectors and work settings, all States and Territories and included people working with Aboriginal and Torres Strait Islander people (refer to Table 4.4). Most were female (66.7%) and just over half were nutritionists (52.4%). Of the fifty-two people originally contacted to participate in the Expert Study, 46.2% completed all three rounds.

Table 4.4: The Expert Study Round Three Participants by Sector and Work Setting

<table>
<thead>
<tr>
<th>Sector</th>
<th>Work setting</th>
<th>Research</th>
<th>Practitioner</th>
<th>Policy</th>
<th>Advocate</th>
<th>total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education</td>
<td></td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Food industry</td>
<td></td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>6</td>
</tr>
<tr>
<td>Food Production</td>
<td></td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Gastronomy</td>
<td></td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Nutrition</td>
<td></td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>6</td>
</tr>
<tr>
<td>Welfare</td>
<td></td>
<td>1</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>9</td>
<td>8</td>
<td>2</td>
<td>5</td>
<td>24</td>
</tr>
</tbody>
</table>
4.2 YOUNG PEOPLE STUDY

4.2.1 Participants

Thirty-seven young people were interviewed. Interviewees were aged between 16 and 25 years (mean = 19.8, median = 19). The sample was diverse with respect to age, gender, culture, living arrangements and level of disadvantage. Table 4.5 details this diversity. Participants were primarily engaged through settings using project partners.

Interview duration ranged from nine minutes to almost 45 minutes. There was little difference between genders (females range 9-44 minutes, mean 21; males range 12-39 minutes, mean 22), however, interviews with participants from advantaged backgrounds tended to be longer than those with other participants (see Table 4.5). This may be because the interviewer had more shared experiences with this participant group. Discussing these shared experiences tended to make the participant feel more comfortable and speak more about themselves. This strategy was used often.

In taking an assets-based approach, the interviewer also took time to show empathy and affirm the participant’s responses, for example, “how do you decide what to spend a voucher on when you don’t know when you might get another one? That must be pretty difficult”, “so why do you think you’ve got good eating habits, but your sister’s shocking?” This strategy was not only useful in developing rapport but also encouraged participants to discuss their strengths and identify potential “protective factors” for diet quality, and their origins.
Table 4.5: Characteristics of Participants in the Young People Study

<table>
<thead>
<tr>
<th>Setting</th>
<th>Australian Red Cross Night Café</th>
<th>Albert Park Flexible Learning Centre</th>
<th>Kingston Flexible Learning Centre</th>
<th>Ipswich City Council</th>
<th>QUT School of Business</th>
<th>Nutrition Australia</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total participants</td>
<td>7</td>
<td>9</td>
<td>5</td>
<td>6</td>
<td>8</td>
<td>2</td>
<td>37</td>
</tr>
<tr>
<td>Recruited through setting</td>
<td>7</td>
<td>9</td>
<td>5</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>27</td>
</tr>
<tr>
<td>Additional interviewees through peer recruitment outside this setting</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>6</td>
<td>1</td>
<td>10</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>2</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>6</td>
<td>0</td>
<td>15</td>
</tr>
<tr>
<td>Female</td>
<td>5</td>
<td>6</td>
<td>3</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td>22</td>
</tr>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>16-20</td>
<td>16-25</td>
<td>16-17</td>
<td>17-24</td>
<td>19-25</td>
<td>23</td>
<td>16-25</td>
</tr>
<tr>
<td>Mean</td>
<td>18.2</td>
<td>18.7</td>
<td>16.0</td>
<td>20.2</td>
<td>23.25</td>
<td>23.0</td>
<td>19.8</td>
</tr>
<tr>
<td><strong>Ethnicity</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aboriginal</td>
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<td>2</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Torres Strait Islander</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Born in a country other than Australia</td>
<td>5</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>9</td>
</tr>
<tr>
<td>Identified a second generation cultural heritage other than Australian</td>
<td>0</td>
<td>5</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>9</td>
</tr>
<tr>
<td><strong>Interview duration (minutes)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td>9-29</td>
<td>10-44</td>
<td>15-17</td>
<td>12-25</td>
<td>21-39</td>
<td>28</td>
<td>9-44</td>
</tr>
<tr>
<td>Mean</td>
<td>16</td>
<td>21</td>
<td>16</td>
<td>18</td>
<td>28</td>
<td>28</td>
<td>21</td>
</tr>
<tr>
<td><strong>Primary source of income</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nil</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>Centrelink</td>
<td>1</td>
<td>9</td>
<td>4</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>16</td>
</tr>
<tr>
<td>Parents</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Wages</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>4</td>
<td>7</td>
<td>2</td>
<td>14</td>
</tr>
</tbody>
</table>
### Setting

<table>
<thead>
<tr>
<th>Setting</th>
<th>Australian Red Cross Night Café</th>
<th>Albert Park Flexible Learning Centre</th>
<th>Kingston Flexible Learning Centre</th>
<th>Ipswich City Council</th>
<th>QUT School of Business</th>
<th>Nutrition Australia</th>
<th>TOTAL</th>
</tr>
</thead>
</table>

### Highest level of education

- **< year 10**
  - TOTAL: 3
- **Year 10**
  - TOTAL: 10
- **Year 11**
  - TOTAL: 8
- **Year 12**
  - TOTAL: 7
- **Certificate**
  - TOTAL: 2
- **University degree or above**
  - TOTAL: 7

### Engagement in schooling

- **Disengaged**
  - TOTAL: 7
- **Re-engaged**
  - TOTAL: 14
- **Completed**
  - TOTAL: 16

### Living arrangement

- **Homeless**
  - TOTAL: 6
- **Share house With peers**
  - TOTAL: 11
- **Share house With partner**
  - TOTAL: 3
- **In shared residential youth housing**
  - TOTAL: 1
- **Parent(s)/ grandparent(s)**
  - TOTAL: 11
- **Alone or alone with dependent children**
  - TOTAL: 5

### SEIFA Index of Relative Socio-economic Advantage and Disadvantage quintile

- **Lowest**
  - TOTAL: 5
- **Second**
  - TOTAL: 6
- **Third**
  - TOTAL: 2
- **Forth**
  - TOTAL: 5
- **Highest**
  - TOTAL: 13
- **Unclassifiable due to homelessness**
  - TOTAL: 6
4.3 STRENGTHS AND LIMITATIONS OF THE STUDY DESIGN

This research was made up of two studies which crystallised results to develop a definition of food literacy, identify its components and conceptualise its relationship to nutrition. The research was qualitative in design which was appropriate for the topic. Food literacy is an emerging area whose scope is not clearly understood. The research design allowed the topic to be explored deeply and from diverse perspectives. The strengths and limitations of each study are important in the consideration of the results that follow.

4.3.1 The Expert Study

Strengths

This study successfully sought the views of a diverse range of Australian food experts. This included sectors not typically consulted in informing nutrition policy and practice but who are significantly invested in the development of Australians’ relationship with food. The Delphi method allowed these sectors and individuals to participate without the dominance of any one group. It also allowed experts to contribute in their own time. This facilitated participation by higher profile experts. The combination of a semi-structured interview in round one, followed by surveys in rounds two and three, allowed both the detailed exploration of concepts and then the quantitative “testing” of their shared support.

The response rate for this study was good, particularly given the respondent burden (Keeney, et al., 2006; Mitchell, et al., 2009; Ota, et al., 2007; Van der Bruggen & Groen, 1999). Participants who took part in all three Delphi rounds spent over an hour participating. Participants were high profile experts for whom this investment of time was particularly significant. This high response rate was perhaps due to participants’ passion and commitment to food and people’s connection to it. Many non-nutritionists had highly considered views on nutrition and had a significant career-long influence over what people know and understand about how to use food to meet their needs but their expertise had rarely been recognised by the health sector before. They were keen to participate in the study and in progressing the food literacy agenda. The participants were indicative of the breadth of sectors and work settings with a vested interest in food literacy. These sectors and settings
should be included in developing a collaborative approach to address food literacy. Nutritionists need to be prepared to support rather than lead these partnerships.

**Limitations**

Purposeful selection is a characteristic of the Delphi method and as such has a strong researcher bias. While care was taken to develop and document clear sampling criteria, the criteria and selection of individual participants and the categorisation of participants into sectors and work settings may have occurred differently with a different researcher. In her study to identify the food skills for inclusion in secondary school education programmes, Fordyce-Voorham interviewed home economics educators, dietitians and nutritionists, chefs, community educators, homemakers and young people (Fordyce Voorham, 2011). Parmenter and Wardle consulted dietitians and psychologists to develop their nutrition knowledge questionnaire (Parmenter & Wardle, 1999). This variation in sample selection may reflect the varying purposes of these studies.

This Delphi Study began with telephone interviews. Quotes from these interviews were used to form the second round survey to which participants registered their views. This method was used to retain the interviewees intended meaning. It is possible, however, that the interpretation of statements may have been difficult when taken out of the context of the interview. Some statements included several themes which made registering agreement difficult. The Delphi method suited measuring agreement on a definition of food literacy and the identification of its core components. For other research objectives such as its position within public health nutrition strategy, little additional insight was gained beyond round one interviews. The inclusion of these questions added to respondent burden and affected response rates.

**4.3.2 Young People Study**

This study examined food literacy from the perspective of young people aged 16-25, with a specific focus on disadvantage. The qualitative research design was well suited to the exploratory nature of this study. The life-course interview technique was useful in describing where food and eating sat in people’s lives. This
information was valuable in illuminating assumptions of the knowledge and skills employed to meet food needs, in particular, their relationship to disadvantage.

**Sampling, recruitment and participation**

This research was successful in reaching population groups which are typically difficult to reach and therefore under-represented in research. Partnerships with service providers were critical to sample recruitment and participation. Alignment with service providers helped to build trust and rapport with participants. Meetings with partners also influenced the research design in a range of ways including the feasibility of inclusion criteria, likely sample numbers and appropriate reimbursement for participation. This ultimately enhanced the research quality and aligned well with research values of having a practitioner focus, supporting equity and taking an assets approach.

A limitation of the use of service provider partners is that while they provided access to typically difficult to reach groups, all potential participants were, by virtue of their association with the service, socially connected. Although for participants at the Australian Red Cross Night Café and the Albert Park Flexible Learning Centre, their connection was quite recent and they were able to reflect, over their life-course, to times when they had been extremely disconnected. Additionally young people not connected to social services were accessed through peer recruitment. One example of this was Vince, who was peer recruited through the Ipswich City Council site. Vince was unemployed, had disengaged from school and was homeless. He was not connected to any community or health services in an ongoing way, although by virtue of the recruitment method, he was connected to his peers.

The study was interested in looking at the working poor as one of its participant groups. This group, however, was both difficult to define, and then difficult to recruit. The study defined this group as young people who had completed their schooling, whose highest level of schooling was year 12, were employed but lived in a disadvantaged area (as defined by SEIFA score). Service agencies did not typically work with this group and employers found the criteria a little confrontational, making advertising participation difficult. In asking for people who had year 12 as their highest level of schooling, agencies assumed this was seen as
inferior, rather than as a variable of interest without a pre-existing value judgment. This is a valuable insight into trust and power perceptions and relationships between university educated health professionals and other workers. The working poor were ultimately accessed using personal contacts with whom trust existed, the research significance of examining this group could be explained, the agency had confidence that participants would be treated respectfully and that an assets-based approach would be used.

Participation was voluntary. There is a potential bias in that participants tended to be those that felt comfortable to speak about themselves and were more likely to be socially engaged and value social interaction. It is unclear if there was also a bias towards people who had an interest in food. This may have been particularly true for participants recruited through QUT and Nutrition Australia Queensland. For other groups, the $30 supermarket voucher was a strong incentive for participation. In approaching the researcher at the Night Café or Flexible Learning Centre, participants usually asked “are you the lady with the food vouchers?”, rather than being particularly interested in the research content. While there are ethical concerns that this amount of money served as an inducement when its intention was compensation, it did help attract young people to the study who may not otherwise have participated as the research topic did not interest them. This added to the diversity of the sample.

The Young People Study controlled for age and geography, and examined diversity across levels of disadvantage, gender and cultural background. Data analysis focused on identifying components of food literacy which consistently appeared across this diversity. It is unclear, however, if the findings would be transferable to different contexts. However, this method allowed for the examination of the influence of context.

The duration of interviews varied across participant groups with interviews with advantaged groups being longer (refer to Table 4.5). There are several possible reasons for this. They may have been more familiar and trusting of the research process and so more comfortable with discussing their lives. They may have had more experience in articulating their reflections on their behaviour and so could do this more fully. The interviewer also notes that across all participants groups, interviews went longer when the interviewer had a shared experience with the
participant for example living in a similar area, having young children, being from a similar cultural group.

**Conceptualising disadvantage**

The study considered several dimensions of disadvantage. It specifically looked at poverty and social exclusion. The relationship between these two dimensions is also of interest. For the age group in the study, social exclusion tended to be a significant contributor to disengagement with education, which then influenced participation in employment and then poverty. These effects then further impacted on social exclusion. The measurement of poverty (and its contributors of income, employment and level of education) alone, while still useful, tended to mask the importance of social inclusion. Conversely, measurement of social inclusion alone would under-represent poverty, the disadvantage dimension most often identified by participants as influencing food intake.

**Instruments**

*Dietary intake*

Participants in this study were asked about their food intake in the previous 24 hours or previous day (whichever was easier for them to recall) and if this intake was not typical, what their usual daily intake was. These questions were to asked prompt discussion about other food and eating behaviours for example, where the food was eaten, where it was sourced; and to gain some insight into dietary patterns for example, were meals missed, was food intake predominantly fresh foods. The lack of detail in this method meant that analysis of intake was limited and so too was comparability with other studies. More detailed dietary intake data would have been useful in being able to align food literacy components with food group intake. However, the researcher was keen to keep the focus of the interview on food rather than nutrition. A more detailed diet history would have quickly focused the interview on nutrition and potentially biased the data.
Food security

It is likely that participants were at different levels of food security. There are validated tools which measure and then classify levels of food insecurity. This allows comparability to other studies. This study did not use these tools. The interview was semi-structured and its purpose was to identify components of food literacy which were commonly identifiable across levels of disadvantage. These components were linked with participant’s satisfaction with their ability to meet their own food needs. As the purpose of the study was not specifically interested in food security, it was thought that the inclusion of such measures would have negatively impacted on the flow of conversation in interviews. It was felt that structured tools would have positioned the researcher as the expert rather than the explorer and so could potentially compromise data quality. The use of food security measures would, however be useful in future quantitative studies to more comprehensively examine its relationship with food literacy.

Assets-based approach

Components of food literacy were determined using an assets-based framework. While this was a refreshing re-framing of food and nutrition behaviours, it has resulted in aspirational rather than descriptive set of food literacy components. It could be conceptualised that a food literate person has all of these components of food literacy, however in the study, few participants demonstrated this. The components are a collection of what young people do, what they think people should be able to do and what they consider being “good with food” involves.

The purpose of this study was to explore food literacy, its components, their development and relationship to food intake from the perspective of young people experiencing disadvantage. The methodology was effective in reaching marginalized groups which are typically under-represented in research. The researchers and their service delivery partners worked hard to ensure the interview process encouraged participation, delivered valid data and was a positive experience for participants. This often meant a compromise with the detail of data that could be obtained, however, engagement of the target group was a priority in this exploratory stage.
Chapter 5: Defining Food Literacy

Defining food literacy and identifying its components was an iterative process. At different times throughout the research, each informed the other. In The Expert Study food experts were asked both what people needed to know and understand about food to use it to meet their needs, and questions relating to the term itself. In rounds two and three of the Delphi process, participants were presented with several definitions against which to register their support. In the Young People Study, participants were asked a range of questions about being “good with food” in order to conceptualise food literacy. Participants typically responded by giving examples of knowledge, skills and behaviours which predominantly informed the development of components. Where the Expert Study began with a definition and then isolated components, Young People Study worked backwards from examining components and their enactment to develop a definition. The following section presents results from both studies, then synthesises them to define food literacy.
5.1 EXPERTS’ USE AND UNDERSTANDING OF THE TERM “FOOD LITERACY”

The term “food literacy” was not well understood by participants in The Expert Study. Their opinion of the term and its application varied. Round one interviews revealed that while most participants (69.8%) had heard the term “food literacy”, few used it. When asked what they understood it to mean, responses varied considerably. Participants spoke of the ambiguity surrounding the term. They tended to interpret the term as related either only to language or to individual empowerment and control.

5.1.1 Interpretation

The language of food

Some respondents understood the term literacy to apply only to the language of food:

Reading a brochure in a supermarket. It’s reading recipes. It’s reading packets. It’s reading labels, and interpreting that information.

*Education practitioner 1*

Speaking the language of food and nutrition.

*Food industry advocate 2*

Those participants who interpreted the term this way also discussed that this was not sufficient or particularly important in helping to choose healthy foods.

Empowerment

The majority of participants talked about control and empowerment in their understanding of the term.

It’s about people having autonomy to make wise and ethical choices where people are not feeling dependent upon expert outsiders to tell them what is a safe choice.....It’s the skill set to negotiate those claims rather than just defer to a scientific expert or a nutritionist or just defer to Woolworths or Coles to tell us what’s healthy to eat or what’s in season.

*Production researcher 2*
It’s those knowledge skills and attitudes to be able to ... well... call the shots for the foods that they eat.

*Education advocate 1*

This included elements of having control over food choice despite changes in environments and circumstances.

Being able to do it (use food) in different contexts ... being able to have the flexibility to do it in a range of situations and a range of needs and everything.

*Education policy advisor 2*

Respondents differed in whether this required a comprehensive understanding of all elements of food and eating or an elementary understanding. Those that interpreted food literacy this way interpreted the term “literacy” to imply the essential nature of this knowledge and skills. This included themes of resilience and security.

It could go from anywhere from cooking and food preparation to maybe, food heritage. You know, where did this food originate? What processes has it gone through to get to you?

*Industry practitioner 1*

There’s the whole business of being able to prepare food, being able to choose food, being flexible about food, having an “I’m so savvy about food” feeling.

*Nutrition researcher 2*

Regardless of our age or background, we are all consumers, we all need to shop for food, we all need to bring it into our house and be able to do something with it.

*Education researcher 1*
That ability to functionally meet your needs in terms of everyday stuff.

*Industry policy advisor 1*

I just mean you need to be literate to read, you need to have some food literacy to really understand food and make full use of it.

*Nutrition advocate 1*

Some participants referred to food literacy being linked with enjoyment and pleasure.

Getting enjoyable and nutritious food on a plate.

*Nutrition practitioner 1*

Being able to embrace the pleasure of spending time with food.

*Production researcher 2*

These statements were made in the context of the individual being confident, comfortable and empowered enough to make food choices that they found positive and satisfying. Irrespective of their interpretation of the term, participants implicitly and explicitly discussed the need to reclaim control and choose foods in a more self-determined way.

### 5.1.2 Response to the Term

Only 37% of round one participants liked the term “food literacy”. Negative impressions of the term included that it:

- is elitist.
- is jargonistic.
- implies that food is so complex it requires an expert to explain it.
- does not logically describe what others might understand it to mean.
- (literacy) is an overused concept that does not have relevance for food.

Those that liked the term thought it:

- is useful in describing the group of knowledge and skills.
- is more professional sounding than other terms and so therefore more likely to be taken seriously.
implies a fundamental, lifeskills element.

Thirteen statements regarding opinions of the term were presented to participants in round two (see appendix D). They were asked to select all those they agreed with. In this round more positive statements were chosen although most believed that the term is more useful in academic and policy settings and should not be used with the general public. In considering the need for the term more believed that existing terms were inadequate in describing the totality of skills and knowledge and that there was a need to describe these collectively.

5.1.3 The Experts’ Definition of Food Literacy

Key themes from round one were presented to participants in round two in the form of twelve possible definitions (see appendix D). Participants were asked to rank order the three that they most agreed with. To determine the most popular definitions, first, second and third ranked selections scored three, two and one points respectively. Where participants chose more than three definitions, no scores were recorded. There were 28 valid responses. The three most popular definitions were then re-presented in round three (see appendix E and Figure 5.1). Participants were also given the option of not selecting any of these. The most popular response (45.8%) following round three was definition “a”.

| a) The relative ability to basically understand the nature of food and how it is important to you, and how able you are to gain information about food, process it, analyse it and act upon it. |
| b) The capacity to implement positive strategies around food preparation and consumption that serves your body, lifestyles and wellbeing in a positive way. |
| c) Being able to embrace the pleasure of spending time with food. Being comfortable with the social, environmental, cultural and health aspects of food so you can negotiate through them when make food choices. |

Figure 5.1: The Three Most Popular Definitions of Food Literacy Following Round Two of the Expert Study
5.1.4 Testing the Face Validity of Findings

The face validity of the definition and components of food literacy developed in the Expert Study were tested in the external review of interventions (refer to Appendix F for review details). Interventions which the researcher and practitioners considered addressed food literacy were reviewed. What interventions included, their purpose and their outcomes, therefore, contributed to the scope of meaning of food literacy.

Prior to this review, it was considered that a food literacy intervention would need to address all component domains. However, it became clear that not only is it not necessary, but that it is unlikely that one intervention could simultaneously address all domains well. That is, that although food literacy is a collection of inter-related knowledge, skills and behaviours, they need not all be present at the same time in all contexts. This thought was extended to the conceptualisation of food literacy more broadly. That is, it was considered that an individual is unlikely to demonstrate all domains of food literacy all the time. Moreover, it may be the role of practitioners, or the individual, to identify which elements of food literacy may require strengthening to subsequently strengthen one’s relationship with food.
5.2 YOUNG PEOPLE’S DESCRIPTIONS OF “BEING GOOD WITH FOOD”

The term “food literacy” was not used in the Young People Study. Instead, participants were asked if they thought they were “good with food”, what being “good with food” included and if they knew anyone who was, to describe why. Data from these and other questions were primarily used to identify components of food literacy. From these components, a scope of meaning and definition of food literacy developed.

The responses fell into four main themes of health, pleasure, choice and certainty. These themes are represented in the final model of the relationship between food literacy and nutrition and are articulated in the descriptions of components (refer to chapters six and eight). That is, the components include dimensions of health, pleasure, choice and certainty. For example, Component 3.1 is the ability to:

Make a good tasting meal from whatever food is available. This includes being able to prepare commonly available foods, efficiently use common pieces of kitchen equipment and having a sufficient repertoire of skills to adapt recipes (written and unwritten) to experiment with food and ingredients.

This component reflects the theme of pleasure; through its reference to taste, choice; through its reference to experimentation, and certainty; through its reference to having a sufficient repertoire. Taste was a strong element of the pleasure and choice dimensions. Certainty and taste were also described as making sure people were fed despite resource constraints.

Overarching themes of self-determination, empowerment and context were prominent and related to each other. That is, food literacy described an individual who was able to meet their food needs irrespective of changes in circumstance. In this quote, Amy reflects on a period of living in a household with heavy drug use to describe why she thinks she is “good with food”:

I love food. I’ve been in a situation with my ex-partner where other things have come before food and I was not very happy in that situation. I was not satisfied with the way I was living. So I got out of there for that reason. Food comes first.  

Amy
This quote from Ben, a university student, illustrates the importance of context to self-determination:

So I don’t necessarily think I’m a good cook but I like cooking, so someone who – can cook to a certain degree, like it doesn’t have to be Master Chef quality, but, kind of, knows what goes with what and isn’t going to – like my dad tried to put things that shouldn’t go together together. So someone who is confident in serving up food for friends or family, or for someone else to eat, and not freaking out, is I’d say that is someone good with food.

Ben

While the context differs, the sentiment from Sharni, a formerly homeless teenage mum is the same when she describes why she considers herself to be “good with food”:

I just like trying different things and I - I’ve taught myself a lot and learnt a lot by reading recipes and watching TV shows and learning some about portions and flavour combinations and all that kind of stuff

Sharni

The example of Component 3.1 demonstrates the inclusion of empowerment, self-determination and context themes. It also includes theme of empowerment by conceptualising the component as an ability; and the themes of context and resilience; by referring to the ability to make a food tasting meal from whatever is available. This highlights the related processes of definition development and isolation of components and the manner in which they informed each other.
5.3 CONCEPTUALISING FOOD LITERACY: A FINAL DEFINITION

Analysis of data from both studies were used to formulate the following definition of food literacy. The definition has three elements; (i) what food literacy includes, that is, its components; (ii) its purpose; and (iii) its action.

*Food literacy is a collection of inter-related knowledge, skills and behaviours required to plan, manage, select, prepare and eat foods to meet needs and determine food intake.*

*Food literacy is the scaffolding that empowers individuals, households, communities or nations to protect diet quality through change and support dietary resilience over time.*

This can simply be interpreted as:

*The tools needed for a healthy life-long relationship with food.*

The results of the Expert Study contributed an overall concept of what the primary users of this term understood it to mean and what the purpose of this term could be. The Young People Study examined what it included and what its action is likely to be. This definition was also informed by the examination of the development of food literacy in the Young People Study (refer to Chapter 7). Food literacy continuously developed as a result of interactions within and between individuals, households, communities and national institutions throughout the life-course. The methods chapter describes how the data from each study was analysed to contribute to the development of a definition.


5.4 DISCUSSION

The Expert Study confirmed that the term “food literacy” is not well understood and its scope of meaning varies considerably. The participants in this study were representative of key policy, practices and investment settings where the term is used or applied. The variability in conceptualisations of what we need to know and understand about food to use it to meet our needs was highly individual. This further complicates communication and collaboration regarding the coordination and effectiveness of work and investment in this area.

Results of the Young People Study confirmed that constructs such as cooking, food preparation and nutrition knowledge on their own, inadequately represent the totality of knowledge, skills and behaviours used in day to day eating. As such, it rationalised the emergence of the term “food literacy” to collectively describe them.

Participants in the Expert Study applied the term to the individual rather than a collective. This may have been due to the nature of the interview questions. Most participants spoke of the significant contribution of broader socio-cultural, economic and environmental determinants of food choice, yet described food literacy at an individual level. These individuals, however, were often then described as empowered food citizens, which suggests a contribution to a collective. These attributes align well with the Ottawa Charter for Health Promotion, in particular, the development of personal skills to then increase the capacity for community action (World Health Organisation, et al., 1986). This conceptualisation helps to locate food literacy within public health practice.

Similarly, in the Young People Study, participants discussed those who were “good with food” as being able to control or self-determine the quality of their diet. Participants in both studies acknowledged that this was not to diminish the significance of broader environmental factors which impact on food intake, but rather to arm the individual to combat the obesogenic environment. This broader conceptualisation which includes national, community/organizational, household and individual food literacy, re-enforces that environmental and individual behaviours are interdependent. This conceptualisation is useful in considering the range of existing food literacy efforts and their potential role in empowering countries, communities, households and individuals to determine diet quality. Conceptualising
food literacy at these levels borrows from frameworks used to describe food security (Bickel, et al., 2000; Maxwell, 1996; Prime Minister’s Science Engineering and Innovation Council, 2010). This can then extend to the multi-strategic nature of investment and monitoring and surveillance.

Food literacy has been conceptualised as supporting resilience. Broader conceptualisations of resilience acknowledge that it too, is dynamic, rather than being a fixed attribute. It is a process shaped by social context. Rutter (2012) defines resilience as “a reduced vulnerability to environmental risk experiences, the overcoming of stress or adversity or a relatively good outcome despite risk experiences” (p336). In defining food literacy as protecting diet quality through change and strengthening dietary resilience over time, it too has to be conceptualised as dynamic.

Health literacy frameworks were used to structure questions in round one of the Expert Study. They had some relevance in helping to conceptualise food literacy but were of limited use in considering its relationship to nutrition. In round one, experts interpreted the term as relating to either language or empowerment. This is consistent with how health literacy is used and conceptualised although the language application was much weaker for food literacy (Nutbeam, 2000; Organisation for Economic Co-operation and Development). Food literacy was seen to have a continuum, however the “functional”, “interactive” and “critical” categories used in health literacy did not appear to have particular relevance (Nutbeam, 2000). It appeared that to meet nutrition recommendations one could remain at the “functional” end. Experts described multiple continuums for food literacy around certainty, choice and pleasure which related to a continuum of nutrition outcomes from universal wellbeing to specific special diet requirements.

Participants in the Expert Study discussed the over-application of the literacy analogy; technological literacy, science literacy, financial literacy, and its intended meaning. Concepts of language and empowerment are common across these applications. Perhaps the increased use of the term is a result of a world in which unlimited information is freely available, however the skills to interpret and use it are not. In this environment, individuals are given the freedom but also the responsibility to make their own decisions. “Literacies” are perhaps an attempt by various professional groups to support their lay peers to understand how to use this
information. For individuals, however, the rejection of institutionalised methods of teaching, traditional knowledge brokers and knowledge transfer systems may be more about a breakdown of trust in these institutions.

The findings of this research are consistent with more modern conceptualisations of literacies, for example, health literacy, in extending beyond language and recognising their multidimensional and contextual nature (Frisch, Camerini, Diviani, & Schulz, 2012). A recent review of these literacies, their definitions and components revealed that the nature of the components identified in this study are consistent with those identified in other literacies in that they include components related to functional literacy, factual and procedural knowledge, awareness and critical dimensions (Frisch, et al., 2012).

Throughout both studies, the contextual nature of food literacy was strongly emphasised. Experts found it difficult to describe core components without a context within which to apply them. When a specific context was applied, through the study of Young People, the dynamic nature of food literacy was further emphasised. The definition emphasises the importance of context. This is an important reflection for practitioners who are challenged to apply the science of nutrition, which is typically context free, to individuals, households, communities and nations which are contextually defined. This definition reminds practitioners to locate their efforts within the contexts they are working. The participation of diverse sectors in the Expert Study and the assets based framework used in the Young People Study re-enforce the importance of context. The Young People Study in particular described how participants adjusted their food knowledge, skills and behaviours to meet changing food needs in response to their everyday life. Eating is an everyday essential life event that by its nature changes constantly, it follows then that food literacy would be contextually defined. The conceptualisation of food literacy presented in this thesis presents a new construct to describe our ability to meet nutrition recommendations. One that is assets based and recognises that healthy eating is a lifelong commitment that is challenged by everyday life.
5.5 CONCLUSION

This thesis presents the first known attempt to systematically and empirically define and analyse the term “food literacy”. Consistent, commonly understood terminology supports effective comparison and interpretation of research to help build the evidence, facilitate communication, inform practice and increase awareness and activity in an issue. The development, analysis and reporting of the research presented in this thesis has been informed by practitioners from a range of sectors. Their active contribution has resulted in findings that will help inform practice and investment. The contribution of the lived experience of feeding yourself by young people, adds to the rigour of findings and gives practitioners confidence in the validity of results.

The broad conceptualisation of food literacy to include national, community/organisational, household and individual applications, re-enforces that environmental and individual behaviours are interdependent. It is essential to ensure that food literacy is not reduced to an individual responsibility or used to replace efforts in addressing well established environmental factors associated with diet-related disease. This conceptualisation is useful in considering the range of existing food literacy efforts and their potential role in empowering nations, communities, households and individuals to determine diet quality.

Food literacy is the scaffolding that protects diet quality through change and supports dietary resilience over time. It is a collection of contextually defined inter-related knowledge, skills and behaviours. These are identified and described in the following chapter.
In the previous chapter the term “food literacy” was defined as an inter-related set of food knowledge, skills and behaviours used to meet needs and determine food intake. It is the scaffolding that protects diet quality through change and supports dietary resilience over time. In understanding this term, therefore, identification of the components of food literacy is essential. Data from both studies contributed to this process. First, Australian food experts from diverse disciplines were asked “what do you need to know and understand about food to use it to meet your needs?” This interpretation of the components identified by experts was tested in a review of interventions. Then the knowledge, skills and behaviours described by young people as being useful in feeding themselves were examined. The results of this final study were privileged over the Expert Study, that is, the Young People Study was used to validate the results of the Expert Study.
6.1 THE IDENTIFICATION OF FOOD LITERACY COMPONENTS BY FOOD EXPERTS

Round one participants were asked, “what do you need to know and understand about food to be able to use it to meet your needs?” Additional questions regarding the necessity of cooking, the level of nutrition knowledge and its relationship to food, and a continuum of food literacy were used to assist participants in more comprehensively considering what these components might be. Eighty potential components emerged (refer to Table 6.1). Axial coding was applied to group these into eight domains of access, planning and management, selection, knowing where food comes from, preparation, eating, nutrition and language.

In round two, participants ranked each of these eighty components as either “irrelevant”, “core” (need to know) or “desirable” (nice to know). There was very little agreement on potential components in the second round survey. Frequencies are reported in Table 6.1. Of the eighty possible components of food literacy presented, only six achieved the a priori consensus level of at least 75%. They are highlighted in Table 6.1. These components were also those which fewer participants considered “irrelevant”. Bolded statements in the table received the highest “irrelevant” score.

Table 6.2 describes the distribution of “irrelevant”, “core” and “desirable” ratings. Participants tended to rate components as either “core” or “desirable”. Far fewer components were rated as “irrelevant”. Those items which were most likely to be rated “irrelevant” were consistent with the items least likely to be rated “core”. There were no components which met the consensus criteria for “irrelevant” or “desirable”. Components which at least a third of respondents considered “irrelevant” are highlighted in bold in Table 6.1. Of the twenty eight items represented in round three, only one was considered to be core by more than 75% of respondents.
Table 6.1: Identification of Food Literacy Components and Percentage Agreement by Food Experts (consensus defined as at least 75% agreement)

<table>
<thead>
<tr>
<th>Domain</th>
<th>Food literacy components identified in round one (n=43)</th>
<th>Round Two % Agreement (n=34)</th>
<th>Round Three % Agreement (n=24)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Irrelevant</td>
<td>Core</td>
</tr>
<tr>
<td>1. Access</td>
<td>1.1. Being able to find food anywhere, that you can eat.</td>
<td>23.5</td>
<td>50.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td>14.7</td>
<td>79.4</td>
</tr>
<tr>
<td></td>
<td>1.2. Knowing that some places are cheaper than others.</td>
<td>23.5</td>
<td>17.7</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6.1</td>
<td>52.9</td>
</tr>
<tr>
<td></td>
<td>1.3. Getting out in the garden and growing food, even if its herbs in a pot.</td>
<td>50.0</td>
<td>2.9</td>
</tr>
<tr>
<td></td>
<td></td>
<td>50.0</td>
<td>11.8</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Planning and management</td>
<td>2.1. Looking forward about what you are going to be eating and how to access that.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2.2. Planning ahead to make sure you meet your nutrition requirements.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2.3. Knowing quantities of food to buy so that nothing’s wasted.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(Components identified as being “core” are highlighted. Those receiving the highest “irrelevant” scores are bolded.)
### Domain | Food literacy components identified in round one (n=43) | Round Two % Agreement (n=34) | Round Three % Agreement (n=24)
--- | --- | --- | ---
<p>| <strong>Core</strong> | Irrelevant | Core | Desirable | Core |
| 2.4. The ability to handle and manage money. | 14.7 | 58.8 | 26.5 | 50.0 |
| 2.5. Knowing which foods fill your belly so that everyone has got something to eat. What food goes the furtherest and costs the least. | 11.8 | 44.1 | 44.1 | |
| 2.6. Being able to plan in terms of how long something’s going to take to prepare. | 14.7 | 47.1 | 38.2 | |
| 2.7. Being able to choose foods that are within your skill set and available time. | 8.8 | <strong>76.5</strong> | 14.7 | |
| 2.8. Consuming food in the context of the total responsibilities placed on individuals and also within families. | 17.7 | 52.9 | 29.4 | 37.5 |
| 2.9. Parenting skills; some sort of ability to talk to their family and say “no” and be able to moderate their intake. | 20.6 | 50.0 | 29.4 | 29.2 |
| <strong>3. Selection</strong> | Understanding how the foods that are grown influence the environment and how our food choices influence the environment and also the other way around. How climate change is going to influence what we eat. | 20.6 | 29.4 | 50.0 | |
| 3.2. Knowing the environmental, social and ethical consequences of the ways in which foods are produced, packaged and distributed. | 23.5 | 35.3 | 41.2 | |
| 3.3. Knowing how to choose culturally and socially acceptable food. So I’m not going to be stigmatised because I’ve chosen a particular food and not others. | 29.4 | 32.4 | 38.2 | |</p>
<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(Components identified as being “core” are highlighted. Those receiving the highest “irrelevant” scores are bolded.)</td>
<td>Irrelevant</td>
<td>Core</td>
</tr>
<tr>
<td>3.4.</td>
<td>Being able to critically judge advertisements, promotions, marketing and everything that’s coming your way.</td>
<td>2.9</td>
<td>67.7</td>
</tr>
<tr>
<td>3.5.</td>
<td>Having the critical skills so that when a new food comes onto the market you’re able to make an informed decision about it.</td>
<td>2.9</td>
<td>73.5</td>
</tr>
<tr>
<td>3.6.</td>
<td>Being able to judge the quality of raw and processed food which might include freshness and how does the price compare to other times in the year.</td>
<td>5.9</td>
<td>58.8</td>
</tr>
<tr>
<td>3.7.</td>
<td>Choosing native and seasonal foods in keeping with where you live</td>
<td>17.7</td>
<td>29.4</td>
</tr>
<tr>
<td>3.8.</td>
<td>Knowing how to read the labels but also being able to read what’s not on the label</td>
<td>8.8</td>
<td>58.8</td>
</tr>
<tr>
<td>3.9.</td>
<td>Being able to read the nutrition information panel and how to use the per 100g versus the per serve column and compare.</td>
<td>8.8</td>
<td>47.1</td>
</tr>
<tr>
<td>3.10.</td>
<td>Being able to understand what the ingredient list means.</td>
<td>5.9</td>
<td>58.8</td>
</tr>
<tr>
<td>3.11.</td>
<td>Having enough English language literacy skills to understand what the food is.</td>
<td>5.9</td>
<td>61.8</td>
</tr>
<tr>
<td>3.12.</td>
<td>Being able to understand what’s in the product and how to store and use it.</td>
<td>0.0</td>
<td>73.5</td>
</tr>
<tr>
<td>3.13.</td>
<td>Being able to read the label and understand that information in context.</td>
<td>0.0</td>
<td>58.8</td>
</tr>
<tr>
<td>Domain</td>
<td>Food literacy components identified in round one (n=43)</td>
<td>Round Two % Agreement (n= 34)</td>
<td>Round Three % Agreement (n=24)</td>
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<tr>
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</tr>
<tr>
<td></td>
<td>(Components identified as being “core” are highlighted. Those receiving the highest “irrelevant” scores are bolded.)</td>
<td>Irrelevant</td>
<td>Core</td>
</tr>
<tr>
<td>4. Knowing where food comes from</td>
<td>4.1. Getting down and dirty, experience food, plant it, grow it, harvest it, prepare it, eat it.</td>
<td>35.3</td>
<td>11.8</td>
</tr>
<tr>
<td></td>
<td>4.2. Just being able to look at a processed food and know what’s in it so you might be able to categorise what it is. Being able to recognise what would have been the primary form of that food.</td>
<td>14.7</td>
<td>44.1</td>
</tr>
<tr>
<td></td>
<td>4.3. Some knowledge of where the food came from and what resources were required for its production. Was this healthy, sustainable or ethical.</td>
<td>23.5</td>
<td>32.4</td>
</tr>
<tr>
<td></td>
<td>4.4. Trusting your food supply.</td>
<td>23.5</td>
<td>35.3</td>
</tr>
<tr>
<td></td>
<td>4.5. Knowing where your food was farmed.</td>
<td>35.3</td>
<td>14.7</td>
</tr>
<tr>
<td></td>
<td>4.6. Being aware of the broader political, ecological and social contexts in which the food is grown.</td>
<td>32.4</td>
<td>17.7</td>
</tr>
<tr>
<td></td>
<td>4.7. Having enough food preparation experience to know what might have gone into a food or dish.</td>
<td>11.8</td>
<td>44.1</td>
</tr>
<tr>
<td>5. Preparation</td>
<td>5.1. Knowing how to prepare foods in a way that’s attractive and edible.</td>
<td>8.8</td>
<td>70.6</td>
</tr>
<tr>
<td></td>
<td>5.2. Knowing what tastes and flavours go together.</td>
<td>8.8</td>
<td>38.2</td>
</tr>
<tr>
<td>Domain</td>
<td>Food literacy components identified in round one (n=43)</td>
<td>Round Two % Agreement (n=34)</td>
<td>Round Three % Agreement (n=24)</td>
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</tr>
<tr>
<td></td>
<td>(Components identified as being “core” are highlighted. Those receiving the highest “irrelevant” scores are bolded.)</td>
<td>Irrelevant</td>
<td>Core</td>
</tr>
<tr>
<td>5.3.</td>
<td>Knowing how to follow a recipe.</td>
<td>5.9</td>
<td>55.9</td>
</tr>
<tr>
<td>5.4.</td>
<td>Being able to make four to six meals by yourself that you can repeat week in week out.</td>
<td>20.6</td>
<td>41.2</td>
</tr>
<tr>
<td>5.5.</td>
<td>Knowledge of some basic commodities and how to prepare them.</td>
<td>0.0</td>
<td>82.4</td>
</tr>
<tr>
<td>5.6.</td>
<td>Knowing how to prepare some foods from all of the food groups, for example, how to prepare meat, how to cook pasta, how to prepare vegetables and then there are spin offs from there.</td>
<td>2.9</td>
<td>79.4</td>
</tr>
<tr>
<td>5.7.</td>
<td>Knowing how to prepare the same foods that you have access to in different ways so that they’re interesting.</td>
<td>5.9</td>
<td>35.3</td>
</tr>
<tr>
<td>5.8.</td>
<td>Having a whole repertoire of skills so you can try more adventurous recipes, make up your own recipe or cooking style, adapt things to suit your preferences and equipment.</td>
<td>20.6</td>
<td>20.6</td>
</tr>
<tr>
<td>5.9.</td>
<td>Being able to pull a meal together that might consist of four or five different parts for example, a baked dinner.</td>
<td>23.5</td>
<td>38.2</td>
</tr>
<tr>
<td>5.10.</td>
<td>Being able to prepare foods in the most efficient manner.</td>
<td>17.7</td>
<td>32.4</td>
</tr>
<tr>
<td>5.11.</td>
<td>Being able to prepare a meal for two to six people without any difficulty.</td>
<td>14.7</td>
<td>41.2</td>
</tr>
<tr>
<td>Domain</td>
<td>Food literacy components identified in round one (n=43)</td>
<td>Round Two % Agreement (n=34)</td>
<td>Round Three % Agreement (n=24)</td>
</tr>
<tr>
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<td>-------------------------------------------------------</td>
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</tr>
<tr>
<td></td>
<td>(Components identified as being “core” are highlighted. Those receiving the highest “irrelevant” scores are bolded.)</td>
<td>Irrelevant</td>
<td>Core</td>
</tr>
<tr>
<td>5.12.</td>
<td>Knowing how to stretch food if more people come over or are staying at your house.</td>
<td>11.8</td>
<td>38.2</td>
</tr>
<tr>
<td>5.13.</td>
<td>Being able to conceptualise what you want to put together.</td>
<td>11.8</td>
<td>44.1</td>
</tr>
<tr>
<td>5.14.</td>
<td>Having knife skills.</td>
<td>23.5</td>
<td>26.5</td>
</tr>
<tr>
<td>5.15.</td>
<td>Being able to confidently use common pieces of kitchen equipment such as a stove top, oven, microwave, can opener and saucepans.</td>
<td>2.9</td>
<td>76.5</td>
</tr>
<tr>
<td>5.16.</td>
<td>Knowing a few little short cuts so you can prepare food without it taking much time.</td>
<td>11.8</td>
<td>35.3</td>
</tr>
<tr>
<td>5.17.</td>
<td>Being able to substitute with alternatives if what you want is unavailable.</td>
<td>0.0</td>
<td>52.9</td>
</tr>
<tr>
<td>5.18.</td>
<td>Enough food hygiene and food safety so that you don’t poison anyone.</td>
<td>0.0</td>
<td>85.3</td>
</tr>
<tr>
<td>5.19.</td>
<td>Knowing how to store food to optimise its value and quality.</td>
<td>0.0</td>
<td>70.6</td>
</tr>
<tr>
<td>5.20.</td>
<td>How to dispose of waste in an environmentally considerate manner.</td>
<td>14.7</td>
<td>38.2</td>
</tr>
<tr>
<td>6.</td>
<td>Eating</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.1.</td>
<td>Being able to join in, sit down and eat in a social way.</td>
<td>11.8</td>
<td>55.9</td>
</tr>
<tr>
<td>Domain</td>
<td>Food literacy components identified in round one (n=43)</td>
<td>Round Two % Agreement (n=34)</td>
<td>Round Three % Agreement (n=24)</td>
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<td>--------</td>
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</tr>
<tr>
<td></td>
<td>(Components identified as being “core” are highlighted. Those receiving the highest “irrelevant” scores are bolded.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>6.2. Interacting with food and being able to eat in a way that doesn’t restrict you being able to be part of a group</td>
<td>17.7</td>
<td>52.9</td>
</tr>
<tr>
<td></td>
<td>6.3. Knowing what food transports well and how to pack it so it still looks appetising when you’re going to eat it.</td>
<td>20.6</td>
<td>32.4</td>
</tr>
<tr>
<td></td>
<td>6.4. Being willing to try an unfamiliar food</td>
<td>11.8</td>
<td>23.5</td>
</tr>
<tr>
<td></td>
<td>6.5. Knowing principles for everyday eating: only eat when you’re hungry, try and get some routine, slow down, eat consciously and reflectively, and be more contemplative about what you’re doing and how you’re relating to the world.</td>
<td>5.9</td>
<td>44.1</td>
</tr>
<tr>
<td></td>
<td>7. Nutrition</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>7.1. Just what’s healthy and what’s not.</td>
<td>14.7</td>
<td>58.8</td>
</tr>
<tr>
<td></td>
<td>7.2. Understand the overall message of a food selection guide such as the dietary pyramid or plate.</td>
<td>8.8</td>
<td>61.8</td>
</tr>
<tr>
<td></td>
<td>7.3. Knowing that all foods are good. It’s just the amounts you eat them in. So you need to know about portions and frequency.</td>
<td>14.7</td>
<td>58.8</td>
</tr>
<tr>
<td></td>
<td>7.4. Knowing how to categorise foods into the Food Groups, that you need generally some of each every day and what sort of proportions to eat them in.</td>
<td>11.8</td>
<td>52.9</td>
</tr>
<tr>
<td>Domain</td>
<td>Food literacy components identified in round one (n=43)</td>
<td>Round Two % Agreement (n=34)</td>
<td>Round Three % Agreement (n=24)</td>
</tr>
<tr>
<td>--------</td>
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<td>-------------------------------</td>
</tr>
<tr>
<td></td>
<td>(Components identified as being “core” are highlighted. Those receiving the highest “irrelevant” scores are bolded.)</td>
<td>Irrelevant</td>
<td>Core</td>
</tr>
<tr>
<td>7.5.</td>
<td>Knowing the composition of Food Groups, for example, meats give you iron and protein.</td>
<td>29.4</td>
<td>32.4</td>
</tr>
<tr>
<td>7.6.</td>
<td>I don’t want to be locked into saying Food Groups, but knowing what are the components for a healthy basic diet.</td>
<td>5.9</td>
<td>73.5</td>
</tr>
<tr>
<td>7.7.</td>
<td>Understanding the Australian Dietary Guidelines.</td>
<td>26.5</td>
<td>26.5</td>
</tr>
<tr>
<td>7.8.</td>
<td>Understanding of what a diverse diet looks like and why it is important from a health and ecological perspective. It doesn’t make sense to get our foods from a limited number of agricultural sources or limited number of corporate actors.</td>
<td>20.6</td>
<td>38.2</td>
</tr>
<tr>
<td>7.9.</td>
<td>Understanding how to translate the Australian Dietary Guidelines into food and food habits.</td>
<td>29.4</td>
<td>38.2</td>
</tr>
<tr>
<td>7.10.</td>
<td>Being aware of the role of fats, proteins, carbohydrates and so on.</td>
<td>26.5</td>
<td>38.2</td>
</tr>
<tr>
<td>7.11.</td>
<td>Knowing what your food is made up of in terms of nutrients and how they all interact.</td>
<td>32.4</td>
<td>23.5</td>
</tr>
<tr>
<td>7.12.</td>
<td>Knowing that you need vitamins and minerals in certain quantities and what foods they are in.</td>
<td>32.4</td>
<td>26.5</td>
</tr>
<tr>
<td>7.13.</td>
<td>Knowing about different requirements for different stages of life.</td>
<td>11.8</td>
<td>47.1</td>
</tr>
</tbody>
</table>
### Food literacy components identified in round one (n=43)

(Components identified as being “core” are highlighted. Those receiving the highest “irrelevant” scores are bolded.)

<table>
<thead>
<tr>
<th>Domain</th>
<th>Round Two % Agreement (n=34)</th>
<th>Round Three % Agreement (n=24)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Irrelevant</td>
<td>Core</td>
</tr>
</tbody>
</table>

| 7.14. Knowing the specifics of nutrition recommendations for example, how much fat is too much fat, what does low salt mean on a label. | 14.7 | 55.9 | 29.4 | 29.2 |
| 7.15. Understanding the interaction between food and physical activity, and monitoring that by looking at their body composition. | 23.5 | 47.1 | 29.4 |
| 7.16. Being aware that you have unique individual requirements and understanding how food affects your body when you look at your blood results etc. | 38.2 | 26.5 | 35.3 |
| 7.17. Understanding how your body functions so you can understand how to fuel it or feed it. Not just nutrition but satiety, sensory factors, things like that. | 17.7 | 35.3 | 47.1 |
| 7.18. Understanding how a particular food might interact with your physiology and what the implications might be if you have a diet-related disease. | 17.7 | 32.4 | 50.0 |
| 8. Language | 8.1. Being able to communicate around food, be able to articulate and explain things about it. | 14.7 | 47.1 | 38.2 |
| | 8.2. Knowledge of terminology, so that they can for example, follow recipes, read labels, make consumer choices. Read stuff in popular magazines and know that you can follow the terminology. | 11.8 | 52.9 | 35.3 | 62.5 |
Table 6.2: Distribution of “Irrelevant”, “Core” and “Desirable” Ratings (total possible votes=34)

<table>
<thead>
<tr>
<th>Descriptive statistic</th>
<th>“irrelevant”</th>
<th>“core”</th>
<th>“desirable”</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lowest number of votes for any one components</td>
<td>0</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Highest number of votes for any one component</td>
<td>17</td>
<td>29</td>
<td>22</td>
</tr>
<tr>
<td>Mean</td>
<td>5.4</td>
<td>15.7</td>
<td>12.9</td>
</tr>
<tr>
<td>Median</td>
<td>5</td>
<td>15</td>
<td>13</td>
</tr>
</tbody>
</table>

6.1.1 Cooking

Given the practicalities of food use are often simplified to cooking, round one participants were specifically asked about cooking; if it was essential and why, and if nutrition needs could be met without it. The large majority (79%) believed nutrition needs could not be met without knowing how to cook. Components within the “Preparation” domain in Table 6.1 represent the range of skills described. Participants were keen to highlight that while food literacy needed to be about more than cooking, it was considered to be an essential part. The following excerpts are indicative of the breadth of participant responses to cooking and its role in navigating the contemporary food supply and eating environments.

I think a lot of people are also a bit intimidated by it (cooking) and I’m sure that these last few weeks that the 12 year old children hasn’t really helped that situation because what they’ve been watching on television (Junior Masterchef) is, I could almost call it a lie. You know, the behind the scenes goings on can make a 12 year old present that sort of food is enormous. We’re not watching real time television there. And so, in effect, they are passing off something that is not truthful. But if you are a 25 year old, you don’t have any good cooking skills or worse, you’re a 35 year old with children already, and you don’t have good cooking skills already, and then you look at that and think, “God, I’m never going to do what that 12 year old did so why would I bother?” It’s actually quite defeatist in many ways.

_Gastronomy practitioner 1_
They really do feel like they’re cooking, but the consumers that use those products (packet sauces) and I may feel like they’re doing a shortcut but they really believe they’re cooking and they do by adding their own ingredients as well. …… Which is why I think it’s unrealistic to expect people to cook from scratch, they believe they are cooking from scratch.

*Industry practitioner 2*

I don’t think you have to do it (*cooking*) all the time; I don’t have a problem with people who do use takeout on occasion, and whatever else, or more than occasion, I do. But I’m able to know what will taste nice, and what will be reasonably good for me, and so on, in part, because I know how to cook, I think.

*Gastronomy researcher 1*

Food preparation components of food literacy were identified as more important than components in other domains, in all Delphi rounds. When commenting on the importance of cooking, themes of security, choice, pleasure and empowerment emerged.

### 6.1.2 Profession, Sector and Setting Comparisons

Round two results were analysed to determine if the views of nutritionists (across all sectors and settings) were significantly different to those of non-nutritionists. Components which nutritionists rated significantly differently to non-nutritionists are presented in Figure 6.1.

Although the study was too small to calculate statistically significant differences in responses between sectors or work settings, frequency tables tended to indicate that there was little difference. The sector which most commonly differed was the welfare sector, due to their focus on disadvantaged groups. In interviews the food industry sector differed from others in that it was less interested in what people should do and more interested in gaining a better understanding what they currently do.
1.4 Knowing how to access the shop, how to access the funds to purchase what you require and the knowledge in regards to if it’s not coming from a shop for example, bush foods, aid agencies. \( (p=0.02 \text{ more nutritionists rated this as core}) \)

2.1 Looking forward about what you are eating and how to access that. \( (p=0.047 \text{ more nutritionists rated this as desirable}) \)

2.4 The ability to handle and manage money. \( (p=0.024 \text{ more nutritionists rated this as core}) \)

7.16 Being aware that you have unique individual requirements and understanding how food effects your body when you look at your blood results etc. \( (p=0.027 \text{ more nutritionists rated this as irrelevant}) \)

7.18 Understanding how a particular food might interact with your physiology and what the implications might be if you have a diet-related disease. \( (p=0.003 \text{ more nutritionists did not rate this as core}) \)

Figure 6.1: Food Literacy Components Which Nutritionists Rated Significantly Differently in Round Two of the Expert Study.

### 6.1.3 The Importance of Context

The identification of core components by food experts appeared less linked to their work setting or sector and more influenced by their individual values and beliefs. There were no components which experts agreed were “irrelevant”. The identification of only eight core components, however, may indicate the extent to which they were essential is contextually driven. Few knowledge, skills and behaviours were considered critical in all contexts. Components were also considered to be interdependent. That is, the absence of one component may require the strengthening of another. For example, if food preparation skills were poor and the individual relied on food prepared by others, understanding food origins may become more important.
Participants may have found it simpler to identify core components of food literacy when a particular context was applied for example, a young person leaving the parental home. However, not applying a context at this early stage of the research allowed exploration of mediators and mechanisms which are useful in considering the relationship between food literacy and nutrition. The relative importance of components appeared to vary according to a range of external factors such as food supply, values and the nutrition outcome being sought. This implies that rather than food literacy being composed of a universal set of competencies that can be applied to all settings, the necessity of components is likely to be contextually determined. This presents challenges for monitoring and surveillance, programme design and evaluation. The influence of context and the interdependence of components are important findings in the overall conceptualisation of food literacy.

6.1.4 Testing the Face Validity of Findings

Food literacy interventions were reviewed by a nutritionist external to the research to test the face validity of findings. The reviewer categorised the elements of each intervention into the food literacy component domains identified in the Expert Study. The results are presented in Appendix F.

The results demonstrated that food literacy domains identified in the Expert Study were consistent with what practitioners more broadly considered to be part of food literacy. What the domains specifically included, however, was ambiguous. Many of the components within domains included more than one concept which made their interpretation difficult. There was also significant overlap between components within different domains for example, component 1.5 “getting out in the garden and growing food, even if its herbs in a pot” was categorised under the access domain, while “getting down and dirty, experience food, plant it, grow it, harvest it, prepare it, eat it” was categorised under the “knowing where food comes from” domain.

This study revealed that interventions rarely address all domains of food literacy. Furthermore, addressing all domains within the one intervention did not appear to be necessary. Individuals are likely to be at different levels of ability within each domain. It may be more effective for practitioners to work with clients to
explore which domains require greater focus as determined by the individual and their context.

One of the key contributions of this review was the conceptualisation of food literacy. The term is useful in describing the collection of knowledge and skills needed to practically use food to meet nutrition recommendations, however it is not necessary for an intervention to address them all. It may be more useful to propose that practitioners and policy need to be aware of all components but address them selectively in response to individual or population need taking a multistrategic approach.
6.2 KNOWLEDGE, SKILLS AND BEHAVIOURS USED BY YOUNG PEOPLE TO MEET FOOD NEEDS: IDENTIFYING A FINAL SET OF FOOD LITERACY COMPONENTS

Data from interviews with young people was coded to identify components of food literacy. All interview data was used, including what young people actually did which resulted in better diet quality, what they described as “being good with food” or “meeting food needs”, and those knowledge, skills and behaviours which they considered young people needed in order to live independently. These codes generally aligned well with those identified in the Expert Study, particularly those which experts agreed were “core” components of food literacy.

When the face validity of the Expert Study findings were tested, it was clear that a simpler set of succinct, unambiguous, potentially measurable components was needed. Borrowing from quantitative analysis, the researcher aimed for “parsimony” in isolating food literacy components. Codes from both the Expert and Young Peoples Studies were re-examined for the essence of their meaning with the intention being to reduce them to the minimum set of components needed to adequately describe food literacy. This included a process of peer debriefing with the project advisory team at the penultimate stage.

This section presents a final set of eleven components grouped into four domains of planning and management, selection, preparation and eating. They are presented in Figure 6.2. This section uses the voices of young people to describe each component and their relationship to food intake across the spectrum of disadvantage. The alignment of each domain and component with Expert Study findings is also presented. These components were consistently identified across the spectrum of disadvantage in the Young People Study.

The components could be considered descriptors of a food literate person. This inter-related set of components is conceptualised as the scaffolding to protect diet quality through change and support dietary resilience over time. Food literacy can be thought of as a basket of knowledge, skills and behaviours whose specific contents will vary over the life-course in response to changes. Change may be at the individual level, for example, feeding dependants for the first time, or at the environmental level, for example, changes in the local food supply.
1. Plan and Manage

1.1 Prioritise money and time for food.

1.2 Plan food intake (formally and informally) so that food can be regularly accessed through some source, irrespective of changes in circumstances or environment.

1.3 Make feasible food decisions which balance food needs (e.g. nutrition, taste, hunger) with available resources (e.g. time, money, skills, equipment).

2. Select

2.1 Access food through multiple sources and know the advantages and disadvantages of these sources.

2.2 Determine what is in a food product, where it came from, how to store it and use it.

2.3 Judge the quality of food.

3. Prepare

3.1 Make a good tasting meal from whatever food is available. This includes being able to prepare commonly available foods, efficiently use common pieces of kitchen equipment and having a sufficient repertoire of skills to adapt recipes (written or unwritten) to experiment with food and ingredients.

3.2 Apply basic principles of safe food hygiene and handling.

4. Eat

4.1 Understand food has an impact on personal wellbeing.

4.2 Demonstrate self-awareness of the need to personally balance food intake. This includes knowing foods to include for good health, foods to restrict for good health, and appropriate portion size and frequency.

4.3 Join in and eat in a social way.

**Figure 6.2: Components of Food Literacy**
In both studies food literacy was found to be highly contextual. That is, it is likely that the nature of each component and its importance relative to other components will be contextually driven for example, for a food insecure young person, Component 1.1 may focus on budgeting, for a young professional it may be about allocating time to food preparation and both will determine the depth of food preparation described in Component 3.1. The diverse application of each component in different contexts is described using the stories of young people. Determinants of this context are many and include the social determinants of health. While it is unlikely that an individual will demonstrate all components of food literacy all of the time, these descriptors help practitioners to identify where to focus their efforts. Components may not always be present in every individual but each is an important piece of scaffolding to strengthen our relationship with food. Conversely, in the absence of one or more components, diet quality will be more vulnerable. The role of context in influencing the relationship between food literacy and nutrition is further discussed in Chapter 8.
6.2.1 Component Descriptions

1. Planning and Management

Planning and management emerged as strong themes when participants reflected on unsatisfying food arrangements in households where they had lived over their life-course. Older participants frequently mentioned planning and management when reflecting on the key skills they had acquired since living independently. This domain was a “deal breaker” for many households and relationships. Participants discussed living arrangements and relationships ending over differences in how food was prioritised. Similarly, participants in the Expert Study discussed the fundamental nature of this domain, particularly when negotiating the complex food supply to routinely select and consume healthy foods.

The components within this domain are about making time for food in your life, having a plan to make sure it happens but also having the skills to make sure the plan is feasible and likely to deliver the expected outcome. The planning and management components give some predictability or certainty to food intake, particularly when the individual is trying to achieve a specific dietary goal for example, eating two and a half cups of vegetables per day. These components also help the individual minimise the impact of restricted resources or other changes in circumstance on food choice. Components 1.1 (prioritising money and time for food) and 1.2 (planning intake in the context of change) refer predominantly to planning aspects and Component 1.3 (making feasible food decisions) refers to both planning and management of food intake particularly when usual routines are disrupted.
1.1 Prioritise money and time for food

Prioritising food was a strong theme that emerged in young people’s conceptualisations of someone who was “good with food”. This differed from having adequate money for food. This quality referred to a person who, with limited resources, be it money or time, will consider food and eating above other needs. This differs from someone who is a “foodie” and will spend time and money on food predominantly for pleasure. This component refers to routinely prioritising food. For those with limited income, this usually refers to prioritising money for food, for others, it may refer to prioritising time. While it is unlikely that prioritising money and time for food will automatically result in healthier choices, it is clear that in order to make healthy choices, food needs to be prioritised.

Angelica 20, was completing year 12 and subletting her rental home. She reflects on when she first left her parental home as a pregnant 15 year old:

That was a lot harder because I was the only one who was getting money and so I had to try and feed myself for $30 a week. I was just “I really want chocolate. Do I want chocolate, or do I want food?” And it was the first time I’d ever lived in my own house, as well. It was different money-wise, I was used to always going into shops and just putting whatever I wanted into the trolleys, and now it’s sort of like – it’s – yeah. I think money’s a big factor.

Angelica

This can be contrasted with Vince, 23 a father of two, who was chronically unemployed, and couch surfing:

I was in a relationship and I had a little girl and so I had to take off, that’s when I did time and went down a very bad path for three months, hit drugs real hard and stuff like that. Yeah, I wasn’t in a very good state back then. So, yeah, I never had money for food.

So what would you do?
Nothing, just not eat ’til I get paid. You know, there was like 13 of us in the house so just wait for someone to get paid and get some food. It’d all be gone by that afternoon. Yeah, I never ate at all. I’d eat probably maybe once, maybe twice a fortnight if I’m lucky.

Vince
1.2 Plan food intake (formally and informally) so that food can be regularly accessed through some source irrespective of changes in circumstances or environment.

This component describes the ability to adapt to changes in the macro and micro environment. Themes of resilience were strong throughout interviews with young people. The participants in this study were typically at a transition point in their lives. This was more significant for some than for others who had undergone many large transitions in their life. Regardless, young people could describe the types of skills they use to adapt to change. From a nutrition perspective, resilience and adaptability to change is an important component of maintaining a healthy diet over time.

Planning was a key aspect of this component. It involved consciously considering eating ahead of time and determining how this would happen. In the examples that follow, this typically involved planning for adequate intake that will meet a range of needs. With respect to meeting nutritional needs, however, this component is likely to be particularly important when planning to meet food group serve recommendations. Eating two and a half cups of vegetables per day, for example, may require planning to be able to access them as this might not happen automatically in the typical local food environment. Again, the relative importance of this component is contextual. It may be more important when other resources, such as food preparation skills, money and equipment, are limited. This component particularly highlights that food literacy needs to extend beyond food preparation.

Ann had been homeless for 3 months. She was not an Australian resident and so was not eligible for Centrelink payments and therefore had no income at all. Here she describes her typical eating pattern and demonstrates her ability to think ahead about her food intake and where it might come from.

Usually for breakfast, we go to Coles® and steal some pies for breakfast. But that’s usually our dinner and our breakfast, but during the day, we go to YOS, the Youth Outreach Service. We go there, have a feed for lunch and then when that closes at 12, so we’re there from nine to 12, and then from one to four, we go to BYS, Brisbane Youth Service, and we have another feed there. So we - we’re always well fed during the day, it’s just the
morning when you wake up and you’re hungry, that’s all you can do is steal like something to eat, or for dinner.

Ann

James was a 25 year old first year university graduate whose parental home was in a relatively disadvantaged area. He had been living independently since finishing year 12 and had also been financially independent since that time. Here, in a series of quotes from his interview, James discusses how he prioritised money for food when he had little, and describes and reflects on how his prioritization of food, so the relative importance of this component, has changed over time.

I’ve never got to the point where I’ve had no money, ever in my life. I refuse to. Nah, it’s scares me. I’ve always had enough money that if I needed to go and buy food I could go and do it.

…. When I was single and eating crap, and not being social with my food, I was eating garbage and I felt like crap. And if I go out and have a dozen beers I’ll be – I’ll feel like crap the next day. I won’t have the motivation to make myself something nice for breakfast, I won’t feel like it ‘cause I feel sick in my guts. When I get home I’ll eat something crap, and then I’ll wake up and either not eat anything or eat something crap, and then I won’t have the motivation to make a nice dinner. .

…… I lived by myself for a while and hated it. Monday night I’d go to Dad’s and have dinner. Tuesday night I would go to The Caxton Hotel, ‘cause it was two for one’s, with some friends. Wednesday night I would go to my sister’s place and I’d usually steal a couple of -, she used to cook a big meal up every Sunday, or two big meals every Sunday, and have done for the week.

…..Once I left home, I think I was exposed to friends and family that did good food, and did it well, and it was social for them and I really liked that. I never had that ‘cause my dad worked night shift and my mum would come home at six or seven at night and go to bed by eight thirty. So I just like the – I like the idea of sitting down together and having –with Kate (his girlfriend) I love sitting down and having dinner with a glass of wine, it’s great.

James
Some people described quite formalised planning while others tended to start with what food was available and then planned their food intake from there. This appeared to be a personal preference, rather than related to income or disadvantage. It may be that when first being responsible for feeding yourself, formalised planning is helpful, with this process becoming more automatic with experience.

Here, Amy 17, who had recently returned to her parental home, describes how she plans her weekly food expenditure.

I will write down – I will sit down – Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, Sunday, and plan it out every day what I’m going to eat and only buy that amount, so I’m not going over what I need. I’m not buying chocolates and lollies and crap, unless I have the money for it.

Amy

Tina, 24, had been responsible for feeding herself and her son for the past six years. She was working full time, studying and had her own sideline business. Throughout her interview, Tina spoke about food in a very functional, routine way. Here she describes her very efficient approach to planning her food intake.

I tend to buy whatever’s on special, like in the meat section and stuff, and then plan meals from that. I do the meat section first, because it is first in my grocery store. So if I get mince, then I’m going to have spaghetti bolognese or rissoles, if I buy sausages then I’m going to have a casserole or sausage and veggies, steaks, or steak and veggies. So I just work it out from whatever meat’s on special.

Tina
1.3 Make feasible food decisions which balance food needs (for example, nutrition, taste, hunger) with available resources (for example, time, money, skills, equipment).

People who described this behaviour spoke of the need to consider a range of resource limitations and to be able to compromise between the range of needs food can fulfill. This rarely meant deciding between a simple set of factors. The relative importance of needs and restriction of resources varied regularly and this meant food decisions would also. This component tended to require an element of self awareness which typically came from self-reflection, particularly of prior unsatisfactory food decisions.

This component is important in implementing a planned behaviour or actioning a health goal. It is also indicative of an individual who can meet their food needs in changing environments and resources and conversely use existing resources to adapt to changing food needs. In the Expert Study:

Being able to choose foods that are within your skill set and available time

was one of only seven components which experts agreed were a core part of food literacy. The findings of the Young People Study extend this component further.

Julia, 16 had been living under a bridge for the past four months and had been homeless on and off for the past two years. She describes how she very creatively used extremely limited resources to meet a diverse range of identified food needs. Here she talks about how she decides how to spend a food voucher when she happens to receive one.

It must be hard to work out what to do when you know you’re not getting it all the time.

Yeah. I try to get things like – I get some bread because you know that it will last at least – tonight’s meal and then maybe tomorrow, toast for breakfast. Some sausages, just sausages for everyone. I try to get things that – will last or feed people. We have a kitchen and stuff at our place. Last night we go to like to Roma Street or to Southbank, they have barbecues and stuff like that. ....I try to get meat, more meat than anything, meat, and bread, because they’ll eat it. Yeah. I like seafood salad, I’ll get myself seafood salad. Ham sandwiches, try and get some tomatoes or something like that just to mix it up a bit.....I make sure I have enough because there’s a –
there’s a lot of us, oh well not – a lot of us, but a lot of people live under the bridge, easy 20 sometimes and we all kind of care about each other, so I always make sure everyone is fed.

Julia

Angelica, 20, who left her parental home for the first time as a pregnant fifteen year old, used self-reflection to evaluate her previous food decisions to improve future ones.

I guess it took me a while to figure it out. You, sort of, have to get yourself in a routine sort of thing. Because when I first used to go to the shops, I used to just get things – “I’m going to make this, I’m going to make that”. And half the time, I never made it. You have to really think about if you’re actually going to be able to make a roast on Wednesday at 5 o’clock in the afternoon to have for dinner. Do you know what I mean? Because I used to do that; and I’d get home at six and try and make a really nice dinner. And I would be trying to keep Ruby awake and everyone’s hungry. Now I cook really basic and easy meals, that take 10 minutes. Like pasta or even Chicken Tonight®. I guess a lot of my meals are pretty similar in the way they always have rice or pasta and meat in them. Or if they’re not like a dish like that, I’ll have lamb chops with potatoes and – yeah. So I always have the same things in my cupboard; I’ve always got veggies and potatoes and pasta packets and stuff like that. All the sides that I can put with something or the jars for the flavours of something that I want to make. I guess for me it’s organisation. Because when I’m not organised a big thing doesn’t go well. And I end up eating noodles at 8 o’clock.

Angelica
2. Selection

This component refers to the skills needed to choose individual food items. It refers to both grocery (for example, choosing apples) and food service items (for example, choosing between several takeaway food options). The planning and management domain refers to the relationship between those choices and food intake, whereas this component refers to the selection of the food itself.

The selection of food was referred to much more often in the Expert Study. In the Young People Study, it was rarely highlighted spontaneously without probing by the interviewer. Food labels, in particular, were a common theme in the Expert Study. They were mentioned once in the Young People Study. There are a number of factors that could explain the limited identification of this component. Perhaps food selection is quite routine or subconscious, perhaps choosing foods within available resources (Component 1.3) is more important than the detail of the food itself, or perhaps this participant group is not aware of the variability in food quality and origins.

The “knowing where your food comes from” domain identified in the Expert Study has been included within this component as it was considered an element of food selection. In the Expert Study, an awareness of the provenance of foods was often identified in the first round interviews, but not seen as a core component of food literacy in the subsequent two rounds of the Delphi process. “Knowing where food comes from” was of interest to very few young people. Those that were interested, spoke about the individual benefits of this, for example, taste and health, not the broader societal and global benefits such as national food security, climate change, ethical and sustainable farming and food production, as identified in the Expert Study. Young people spoke nostalgically about eating foods they knew the provenance of, for example, grandparents who grew vegetables. However, they did not tend to relate this information to their current food intake and did not consider this to be something they would seek to be involved in.

“Being willing to try new foods” has been conceptualised as being a desirable quality in food consumers (Queensland Health, 2009), however, participants rarely mentioned adding new foods to their day-to-day eating rather, food routines were commonly referred to in interviews with young people. This is consistent with the findings of other studies (Blake, et al., 2008; Jastran, Bisogni, Sobal, Blake, &
Devine, 2009; Meat and Livestock Australia, 2009). Most young people had a standard repertoire of foods that they chose on a regular basis. For homeless young people, this was expressed as standard foods stolen or food aid agencies frequented. For those that were not homeless, standard pantry foods or standard shopping items were referred to. The criteria used to determine what these foods were differed, for example, some referred to convenience, others taste, comfort foods, long shelf life, available equipment or required skills. These criteria did not appear to be linked with level of disadvantage although the foods considered to meet these criteria did for example a convenient food for a university student was Subway®, for a disadvantaged young person it was mi goreng noodles. This standard repertoire of foods referred to ingredients rather than dishes, that is, people seemed happy to try new dishes made from familiar ingredients or foods, rather than trying new ingredients. Interview excerpts for this component, therefore, are more often about the selection of known or related foods rather than completely new foods. For those professionals advising dietary changes, it is clear then, that food recommendations that extend or have a relationship to the client’s standard repertoire may be more successfully made than the introduction of completely new foods.

Participants tended to refer to previous experiences when determining their criteria for food selection. This came from both their own behaviour and those of others, typically the person they mainly learnt about food from. A food literate person had a broad understanding of their access options, some knowledge of what was in a food, where it came from, how to store it and use it, and then used this information to make a judgement on the quality of the food to select.
2.1 Access food through multiple sources and know the advantages and disadvantages of these sources.

This component refers to knowledge of the local food supply and the ability to make an informed decision about where to access food to best meet needs. This component is highly contextual. As evidenced by the data, this can mean understanding options to access food without an income, understanding the options in a new geographical location or when income is secure, and having a more critical understanding of the food supply to make a more empowered choice.

Here, Riahnnon who was seventeen and in her first job since completing year 12, demonstrates her knowledge of the differences in the food supply, of both grocery and foodservice options, since moving from her parental home in a small satellite town, to living in a share-house with friends in centre of Ipswich.

So the IGA® at Lowood had basically all the fruit and veg that you needed. But the variety of stores (in Ipswich) have kind of changed, like where you could buy your food like, and how much it costs as well. Because now I can go to a Harvest Market®, and a butchers, whereas when we were living out in the country, we had to go one store to buy all our food. So the kind of quality of products has changed which means yeah, it’s just better.

... In Lowood, we were too far away from Maccas® to be able to get it. Now we’re just around the corner, we can walk to Maccas®. We eat it all the time. It’s awful.

Riahnnon

Ben, a final year university student, describes the differences between when he lived in a share house in London on a student exchange at 19, to returning to live at his long time parental home in a relatively advantaged suburb of Brisbane where he was responsible for his own food.

When I was in London I was in a unit with six of us including me. And it was easier just for everyone to do their own food. I did big shops that would last me really two or three weeks, especially pantry items. I bought all my meat at once and put it in the freezer. And then in between that I’d just get fresh fruit and veggies. It worked out cheaper and I didn’t have a car, so I didn’t want to be running to the shops all the time.
Now, I get most of my food from Coles®. And the Coles® shopping centre that I go to also has a spice place, like an Indian and Moroccan spice place nearby. So I usually would go to that but if its – if I’m at home and I just need like one ingredient or two ingredients then there’s a smaller FoodWorks® that’s longer hours and is about a two minute walk from my house. So, I’ll walk down there usually. That’s just a quick fix.

Ben

Todd, a second year university student, describes how he has organised feeding himself since leaving his parental home in north Queensland for the first time.

Well, when I was at home Mum cooked most of my dinners, and generally there was food in the pantry for breakfast. …Now, I grocery shop, like, semi regularly. ‘Cause I, kind of, need to be fairly frugal when I buy food, so I obviously go to shopping centres to save money. When I go shopping I usually buy single serve microwave or oven meals, which are a big one. Pizzas particularly. I have, like, lasagnes and pastas that you can just microwave and eat. So yeah – and I always go to the Coles® down the road from my house because it’s the closest, and I don’t have a car. I know Coles® is too expensive though, if I had a choice I would shop elsewhere, and probably go to markets and stuff if I could, but without the transport possibility I have to go to Coles®.

Todd

Jimmy, an eighteen year old who had been living on the streets for four years, demonstrates his knowledge of food supply options. He also had a good knowledge of the differences between food supply in geographically different areas and their impact on health, as he demonstrates in his reflections on his life in Samoa. Jimmy left Samoa at 14 and came to live with his aunt which was not successful.

I always go YOS (Youth Outreach Service) in the morning and after YOS there’s BYS (Brisbane Youth Service) in the afternoon and they always like – they cook you food and stuff like that and they give you a towel and stuff to have a shower, shampoo, and stuff like that. They cook like pasta, mashed potato, bread, soup kind of stuff like that. They can’t get any meat, they can’t – give us meat and stuff like that. You have to have diet food like pasta, like mashed potato and stuff like that. …..If I need money sometimes I go to BYS. I clean the courtyard and stuff like that or cleaning the room.
where they put the clothes. And they give you $20, or sometimes I hassle for some money, like $2 - $3 to get a feed or something, yeah, when I’m hungry at night time. Oh sometimes at night time I go to a food van. There’s a food van in the city because I always go to get food and stuff like that and I always take food home, to my spot. I always take food home and when I’m hungry at night time like 12 o’clock at night time, I just wake up and eat and go back to bed, stuff like that.

…. Well in Samoa because I always eat like low fat food, healthy food, like I always eat like mango and stuff like that, I always eat those kind of little things. I always eat like – always eat taro and stuff like that, they always eat chicken, those kind of things. Because in Samoa you have your own farm, because I live in the bush and my grandma always have heaps of chickens because my grandma always get it off her friends and she always keep her chicken when she need something, she was hungry or something, kill up a chicken and eat it. And we always – we always get our taro, we got heaps of taro from plants, and you always go pull them off and peel them, you cook and eat it.

Jimmy
2.2 Determine what is in a food product, where it came from, how to store it and use it.

This component refers to a broad range of information about the food itself. In the Expert Study it was referred to as:

*Being able to understand what's in a product and how to store and use it*

This was one of only seven components of food literacy which the experts agreed were “core”.

The level of knowledge required to make a good food selection is highly contextual and was influenced by needs and values. Participants more often referred to the lack of food knowledge of others rather than consciously reflecting on their own food knowledge. Many young people used their experience in preparing food to help them select foods prepared outside the home, be they bought in a grocery or food service outlet. An understanding of what was in the food tended to come from having some experience preparing it. From a nutrition perspective, this component is particularly important as it helps consumers make a choice when confronted with foods outside their standard repertoire and to reassess the foods they currently consume.

The importance of this component differed between experts and young people. Experts talked a lot more about the importance of the “conscious consumer” and that a greater knowledge of food, particularly its components and origins, contributing to this. This did not appear to be a strong theme in the Young People’s Study. In their conceptualisations of someone who is “good with food”, skills were valued more than knowledge. The composition and origins of food were of little interest. It remains unclear, therefore, what level of consumer knowledge is useful in supporting healthy eating as few participants sought this information even when it was available. The interview excerpts for this component demonstrate the limited extent of participants’ knowledge and interest in food in comparison to the expectations of experts as expressed in the earlier study. In keeping with an assets-based approach, these interview excerpts are taken from those participants who actively discussed the origins of foods, for the majority, it simply was not a consideration.

Silke, 17, usually lived with her mother, older sister and younger brother. She had been responsible for feeding herself and sometimes others in the family since she...
was 11. She was used to changing environments as she estimates moving home around 40 times. Here she discusses food selection in responding to a question about the level of food skills needed to be healthy.

I think you can eat healthy no matter what. If you’ve got to cook it yourself, you need a little bit of skill but you just need to know what you’re ingesting to be nutritious.

**So what do you mean? – you need to know where your food comes from?**

Yeah, well your drinks, cause people think a lot of soft drinks are good – fruit drinks and stuff like that. You need to analyse crap like that. Kid’s lunches are the worst for it. I shopped a lot for my brother. Everything’s bad man. There’s these strings, and they’re actually made of fruit; they’re so good. But yeah, they’re really nutritious. You need to look at the label and see what’s in it.

_Silke_

Silke was one of the only participants who proactively spoke about what was in food. She and her sister tended to rely on pre-made foods in feeding themselves and their family. As she had been feeding her family from such a young age, it may be that these foods were within her capability at that time and have now remained and become a part of her standard repertoire. When asked about her food intake in the previous 24 hours, Silke had a schnitzel for dinner and was asked if her sister had bought it already made or crumbed it herself. Her response demonstrates that even as one of the most “conscious consumers” interviewed, her knowledge of food origins was limited, particularly against the standards expressed in the Expert Study.

You can make them yourself? Yeah, she bought it. I didn’t know you could make them. That’s pretty cool.

_Silke_

Kelli, a 24 year old university graduate, left her parental home at 20. Kelli, her separated parents and two sisters were all morbidly obese during her adolescence. Kelli had lost 85kg over the past three years with the help of a personal trainer. When reflecting on learning about food at home, Kelli did not consider her weight was related to her parental home environment. To lose weight Kelli followed a very rigid meal regime for a fortnight at a time and complemented this with home
delivered diet meal packs. Kelli relied heavily on her personal trainer to help her select food.

I think I have a lot to thank her, because I could text her, and it would be “I’m out – my options are like McDonald’s® or Red Rooster®, what’s the best?” and she would text me back and say “you want the skin free chicken from Red Rooster® and salad”.

Kelli

Here, Jenna, a 23 year old university graduate reflects on the range of different house mates she has had since first leaving her parental home at 20 and the relationship between food preparation, knowing what is in food and selection. Jenna indicated a strong interest in nutrition and fitness.

I mean, people can go ahead and eat this really saucy full cream carbonara and not think twice about it, but people that cook will know that this cream has been used, and this bacon has been used, and this is how it’s been chopped up. And – and maybe it’s not the best choice for you to eat every – seven days a week, but it’s a treat. Some people I don’t think have that education which is why they just eat whatever they want.

Jenna

Todd, a 19 year old university student describes the tension between knowing where food comes from and the feasibility of selection decisions.

I research a fair bit about global warming and stuff, I understand that food gets transported a lot, and if it were my choice I would eat locally to avoid that. But I can’t really do that with my transport issues. Also with noodles, like mi goreng and stuff, it’s alarming to me because I have no idea what’s in it, and it comes from a foreign country, but I, kind of, sacrifice those for the ease of use. Yeah.

Todd

Todd was the only participant to discuss the ethics and origins of food, although as Todd states, this has little influence on his food intake decisions. In the 24 hours prior to the interview, Todd had eaten pizza. Every Tuesday Todd buys two for one take-away pizza, then eats only this for the next 1-2 days. He indicated
that part of the appeal of this food choice is that lack of washing up which was also why he chooses noodles.
2.3 Judge the quality of food.

This component involves using the information about the food, where it came from and how to store it and use it to judge the quality of an available food and make a selection that will meet their food needs. This can contribute to the predictability and pleasure of eating.

Lucy was 16 and lived with her mother, step father and his family for the first time since leaving her father six months ago. She was preparing to be responsible for feeding the household when her mother has surgery in a month. Here she describes how she shops for food including the criteria she uses to select individual foods within her standard repertoire.

What level of confidence do you reckon you feel when you’re choosing foods, like if you go to the supermarket?
I’m pretty good. I probably have a rough idea of what I want, so it’s pretty much in and out.

And if you’re picking fruits and vegetables?
With bananas, they have to be ripe but they can’t be too ripe, like when they’re just green, kind of they smell funny, if they smell really wrong. I don’t know – how soft – like some fruits aren’t meant to be soft, but if they’re soft I won’t take them. Lettuces or like if the leaves are starting to go brown or not.

And what about things like, you know how people get into like knowing where your food was grown. Do you?
No. Not really.

Lucy

Nic, 20, had recently moved out of his parental home for the first time with some friends. His father owned a restaurant. Here he reflects on how he determines the quality of food and makes a selection decision.

When I was living with my parents we would buy high quality meats. So they would spend a fair bit a week on good meats.

What do you mean “good meat”?
I don’t really know how to explain it. Just go to a butcher and get the prime cuts and everything like that. Yeah. And now we tend to buy the packaged stuff from the supermarkets. So it’s not as high quality but it’s the same sort of thing. ...I just tend to pick the bits of meat that look nicer. If it’s a grey
dull colour I tend to steer away from it but if it’s steak, if it’s a nice full red
colour, I tend to think it’s a nicer cut. But I don’t know if it’s correct that
way or not, I just assume that.
I picked up a lot of stuff just by watching my dad. He would be in the
kitchen every afternoon cooking for a couple of hours and I would help him
every now and then and always helped with the shopping. So I would know
what nice fruit and veg is or fruit and veggies would look like.

Nic
3. Preparation

Almost all young people agreed that the ability to prepare food was an essential life skill. This is consistent with findings of the Expert Study. Most agreed that the level of ability only needed to be “basic”, however conceptualisations of “basic” differed. This is also consistent with the findings of the Expert Study.

While young people agreed that the level of preparation skill only needed to be “basic”, they also had an expectation or desire that everyday food and eating should “taste good” and that the level of skill needed to produce food that “tasted good” was beyond “basic”. It is likely then, that in order for an individual to choose to prepare food rather than buy it already prepared, their skill level needs to be beyond basic. Taste is consistently identified in the literature as a strong driver of food choice and so the role of this component in influencing this driver is substantial (Candel, 2001; Connors, et al., 2001; Devine, et al., 2005; Fulkerson, et al., 2010).

The preparation component is also highly related to the selection component as most participants indicated they used their food preparation knowledge to help them determine what was in food, where it came from, how to store it and use it. It is clear, therefore, that food preparation from a nutrition perspective is important in the literal sense, that is, increasing the consumption of foods prepared in the home which tend to be healthier (Marks, et al., 2001), and also in informing the selection of foods prepared outside the home. Conversely, those with limited food preparation skills and experiences are likely to be doubly disadvantaged.

This component principally describes the ability to transform food ingredients, using the facilities that are available, such that they are acceptable to the people eating them. As the interview excerpts show, the demonstration of this ability is highly variable. In interviews with young people this component was discussed in the context of making eating a more pleasurable experience. Enhancing one’s skills in this domain were motivated by the making food taste better rather than enhancing choice or improving food security. This has implications on where, how and by whom interventions targeting food preparation are conducted.
3.1 Make a good tasting meal from whatever food it available. This includes being able to prepare commonly available foods, efficiently use common pieces of kitchen equipment and having a sufficient repertoire of skills to adapt recipes (written or unwritten) to experiment with food and ingredients.

Being able to make a good tasting meal from whatever food is available was very strongly identified across all participant groups in their conceptualisation of someone who was “good with food”. This component includes several ambiguous terms “meal”, “taste” and “common”. The meaning of each can be largely contextual and broadly interpreted, so their use has been criticised in the literature. However, as this was committed to capturing the insights of young people, a range of meanings as defined by the participant were documented.

“Meal” has very specific cultural meanings. It has been defined as including multiple food components eaten at the same time although others include single ingredient snacks in their conceptualisations (Douglas, 1972). When thinking about meals and meal preparation, there is a tendency to only consider those conscious, planned and/or shared eating occasions rather than snacking and grazing which is often more common and of greater nutritional concern (Kristensen & Holm, 2006; Poulain, 2002; Sobal & Nelson, 2003). Settings can also define meals. Participants in this study varied in how they defined meals to include single food ingredients and snacks.

Conceptualisations of a “proper meal” are additionally complex and may relate to the nutrient content or the components of the meal. This is highlighted in one participant’s observation that:

Well I think a good meal is meat and vegetables. My partner thinks a good meal is a meal deal at Maccas®.

Riahannion

Similarly, “good tasting” was broadly defined, as evidenced by the interview excerpts. This is an important finding to highlight in the planning of interventions. Being able to produce food that tastes good was a common theme in participants’ imaginings of someone who is “good with food” rather than entry level competence as this quote highlights.
Because I found, when I first started cooking, it was just to cook something and just to eat it like that. But now the taste concerns me a lot more that I’ve got past the basics. I think it’s very important to enjoy your food.

Michael

Being able to prepare a good tasting meal involved the ability to prepare commonly available foods, efficiently use common pieces of kitchen equipment and adapt recipes (written and unwritten) to experiment with food. These elements are explored in further detail below.
3.1.1 The ability to prepare commonly available foods

In the Expert Study, this component was described as

*Knowledge of some basic commodities and how to prepare them*

and

*Knowing how to prepare some foods from all of the food groups for example, how to prepare meat, how to cook pasta, how to prepare vegetables and then spin offs from there.*

These were two of only seven components from a possible eighty that experts agreed were “core” elements of food literacy. Consistent with the findings of Expert Study, participants in the Young People Study discussed the use of “basic” commodities. The Food Groups, were however, rarely used to categorise these commodities. It was perhaps more appropriate to discuss “commonly available” foods rather than “basic” foods, as the need to be able to prepare these was defined more by what was typically available in their food environment rather than what society as a whole used. Additionally, for people not born in Australia, there were foods that may have been “basic commodities” in their home country but were now unavailable and so the skill included adapting to this new environment.

The main motivation to prepare foods was taste and so participants appeared to imply that this required skills beyond “basic”. Being able to make a good tasting meal from whatever food is available requires being familiar enough with a range of foods to be able to deliver a predictable result. The extent of one’s repertoire, or the number of foods participants’ considered one needed to know how to prepare, was highly variable. The following interview excerpts demonstrate this and the variation in conceptualisations of “taste”.

Tina was a 24 year old mother of a six year old. She had been responsible for feeding herself and others since she was sixteen. Throughout her interview she describes a very routine approach to eating. In this series of excerpts she describes preparing food.

*I can cook good, I’m a good cook. I’ve got five basic meals that I do really well….. I think by the time you leave home you need to know how to make a roast, a good stir fry and the basic pasta - then if you can know how to cook meat without making it chewy, vegetables, the basic pasta and roast,*
you’re pretty much set. I think you’re right with that. …… My partner, he made really, really good, you know that pasta you get in the packet, you add the milk and the butter. He made that really good.

*Tina*

Nic, 20 who lived in a sharehouse in a disadvantaged area discusses the relationship between food preparation ability and healthy eating, describing what he considers “the basics”.

A lot of healthy foods, they’re really simple to prepare. A salad; cut the veggies up, done. Fruit salad, cut the fruit up, done. It’s basic knowledge of how to use a knife and not cut your own fingers off. For the more complex stuff, yes, but then why be too complex for something that’s not necessarily needing to be made.

*Nic*

Similarly, Aiden, a university graduate who lived in an advantaged area, reflects on former housemates and describes what he considers the skills needs by the time you leave your parental home.

Just the basics, you know, how to prepare food; how to handle it; how to store it, like, those sort of really basic things that you should know about food. And it doesn’t have to be like, you don’t have to cook a three course meal. But just to be able to sustain and be somewhat interesting rather than putting a bowl, you know, a can of baked beans in the microwave and with a slice of toast for dinner, you know. Be able to cook yourself a balanced, nutritious meal for yourself. I think that’s a key essential that you need to know before leaving.

*Aiden*

Meg had been homeless since she was 12 and could not recall ever having a meal prepared in her parental home. She had been in a range of youth accommodation and flexible schools over the past seven years, many of which had practiced food preparation. Here she reflects on her own ability to prepare commonly available foods. Meg was couch surfing and eating only a carton of eggs every day, which she prepared in the microwave while other members of the house were asleep.
I do know how to make some things. I can make a stir fry ‘cause like when you stay in youth shelters they make you cook, and you have to cook a new recipe every week. So I can make stir fry and I can make potato bake and I can make spaghetti, but like really dero spaghetti like bogan spaghetti, not like the Italian one.

**So what’s bogan spaghetti?**

Bogan spaghetti is like frozen vegetables and pasta sauce. You know how like Australians take everything that’s really nice and cultured from overseas and then they just simplify it and make it bogan, yeah like.

**So could you cook pasta?**

Yeah I can cook pasta, but it’s always either too soft or too hard, but it’s edible.

Meg

Commonly available foods are also culturally influenced. Here Connor, a 17 year old Aboriginal man who lived in a highly disadvantaged area on his own with his mother, describes his use of cultural foods and knowledge of how to prepare them. On a recent home visit, school staff found that there were no food preparation utensils in the house at all and so supplied them for the family. Connor demonstrates that many young people, particularly those living in disadvantage, have been responsible for preparing foods for some time. This challenges assumptions that this group require a particular focus on skill development.

**Do you think that there is anything about being Aboriginal that has to do with food?**

Like fishing and whatever, kangaroo? …. Sometimes I like make a stew out of it and that.

**So what would you do to make a stew?**

Just put the thing on low and just put everything in it and then just let it cook. (You put in) some of the meat, veggies and that, gravy and that, like peas and corn and all that. You get the meat first. Just keep it separate, yeah.

I mix gravy with wine. Then you add onion and tomatoes and that. Yeah.

Connor

Here Joanna, a 17 year old Maori woman who often cooked for her family, talks about what she ate yesterday and describes her use and knowledge of foods that are common to her, but not the researcher.
We had a boil up, that’s a Maori thing. It’s got meat and puha and all that in it. We had corn and potatoes.

**What’s puha?**

It’s like – do you know what water cress is?

**Yeah.**

It is like water cress.

**And do you grow that here? Where do you get it from?**

You can get it from the supermarket or from the markets on a Sunday. Get it from there.

**Do you have much Maori food?**

Yeah. I eat a lot. Like, rewena bread – its bread but its’ got yeast, like the New Zealand yeast and that in it. There’s the hangi which is under the ground where you can steam it and all that. There’s the seafood chowder with like all seafood, crab meat and mussels and anything else that you want to put in there. What else is there? And there is some other like – I can’t remember but there is heaps more.

*Joanna*
3.1.2 Being able to efficiently use common pieces of kitchen equipment.

Young people across all groups described needing to know how to use common pieces of kitchen equipment. This included those experiencing homelessness who typically transitioned in and out of a range of different living arrangements and whose eating on the street sometimes involved the use of equipment, for example, microwaves and barbeques. This component was also identified in the Expert Study as “core”. Unlike food ingredients, kitchen equipment was less culturally and socially defined and so “common pieces” were consistent across all participant groups.

When asked if they could use common pieces of cooking equipment, all participants indicated they could. When asked what equipment that included, they tended to list off ovens, stoves, and microwaves. It was difficult to determine their ability to use other pieces of equipment for example, knives, in the most efficient way. Efficient use of equipment can influence the time spent preparing food and the satisfaction with the end result for example, using a large knife to chop a small ingredient is cumbersome and slow, using a low temperature to seal meat will result in it being chewy rather than juicy. In this way, being able to efficiently use common pieces of kitchen equipment is a sub-component of being able to “make a good tasting meal from whatever food is available” (Component 3.1).

In describing what they considered fundamental knowledge, participants were more likely to describe people they had lived with who could not use equipment. Sharni had been preparing family food since her mother left their home at age seven. By 12 she was solely responsible for the food preparation for her household. At 15 she left home and moved to the city. Here she reflects on her time living in shared youth agency assisted accommodation where typically residents take turns preparing food.

This girl she was trying to make vegetables one day and she was steaming them. And she was steaming cucumber and capsicum with peas and carrot and I’m like, “Oh, my God.” And she didn’t put any water in the bottom of the pan and it was burning. And so she put some water in, it was like this much, and they just tasted burnt at the end.

Sharni
Here Dan discusses his confidence in using kitchen equipment. Dan, 24, lived in an area of relative disadvantage, was unemployed and completing year 12. He described a fairly limited diet which regularly saw him run out of food and rely on instant noodles. His level of confidence is similar to many young people who did not often prepare foods that included more than one ingredient.

I can’t honestly think of much kitchen equipment that would confuse me that I’d use. Because I mean I’m sure there’s some equipment out there that has some strange French name that does three different meals at once, but I’m never going to use it. So I don’t know.

Dan

Many youth and welfare agencies are involved in the delivery of food preparation classes. These often aim to get clients “housing ready”. Here Meg discusses her experience with food preparation interventions over her time being homeless, in particular, their use of equipment.

Like I went to the (youth service) class, they were making muffins and I was like, “excuse me, I don’t have an oven, right, this has like 11 ingredients in it, right, and I don’t have an oven or a cake tray or like, what’s wrong with you? Why are (you) teaching homeless people how to make muffins right?"

Meg

Meg was chronically homeless and food insecure. She had never owned any kitchen equipment and found it difficult to envisage a time when she would be living in a situation where she could apply these skills.
3.1.3 Having a sufficient repertoire of skills to adapt recipes (written or unwritten) to experiment with food and ingredients.

This component refers to having sufficient experience with food preparation to adapt to a range of environments and circumstances. Participants often referred to recipes, but not in the formal sense of a written recipe in a book, rather a procedure they followed in order to get a predictable result. If used, written recipes more often served as inspiration rather than being followed per se. This component was highly linked to taste. It implies the individual has sufficient food experiences to draw on to produce a meal that is palatable despite unfamiliar circumstances. It is unclear what a “sufficient” repertoire would be. This is likely to depend upon the individual. The repertoire would need to include all of the commonly available foods and be adequate to meet nutrition needs. Beyond this, it may depend upon the individual’s requirements. This component also requires self efficacy, which is influenced by experience and mastery.

Having a sufficient repertoire of skills to adapt recipes and experiment with food relies on the ability to prepare commonly available foods and use common pieces of equipment. It also facilitates planning and management and selection in that the individual has a larger repertoire to call upon.

Experimentation was often referred to by participants, but more typically for the purposes of being resourceful and adaptable rather than being inquisitive and innovative in a foodie sense. Here Tyler, 16 is asked to think of someone who he considers is “good with food”. He describes his friend’s mum with whom he was currently living. She was feeding three young people in her home using her Centrelink payment.

She’ll cook up some spaghetti chops and get the cans of spaghetti, heat that there up, and mix it all in together and it tastes really mad. She can work with anything and make a really mad meal.

*Tyler*

Similarly Sharni talked about her experience of living in shared youth accommodation where the food budget was limited.

Sometimes, me and my youth worker, we’d just go to the fridge at the end of the week and we were like, “What will we have?” And we’d just throw
together two minute noodles with frozen veggies and lentils and just experiment. So it was fun, but it was tough at the same time.

Sharni

Bella, a university graduate who moved out of her parental home for the first time in the last 12 months gives her description of someone who is “good with food”.

I have a good friend and he is very good with cooking meat, I guess, maybe that’s the thing - like he’ll be very specific and then he’ll take a photo and send it to me, and it always looks amazing and he’s always got like 10 different ingredients going on. And I’ve been over to his house for dinner a few times and he never seems to be stressed when he’s cooking, and he comes out and it’s like this amazing meal and it’s like often like some Moroccan tagine thing, and I’m like, “How did you do that? Awesome.”

Bella

Participants differed in what they considered a “sufficient” repertoire of skills. This is perhaps also contextually defined. The repertoire of skills needed to feed oneself in a food secure environment may not be sufficient to feed a family of young children using a welfare payment. Regardless, in general, participants appeared to be quite confident in their food preparation skills. While most thought they could improve, few thought they needed to. Here James, who had been responsible for feeding himself since 15, talks about his girlfriend’s food preparation skills. This is the first time she had been responsible for feeding herself.

I rate myself as a decent cook. I’m not amazing, but I can cook all the things that I like to eat, and if there’s something new that I want to try I’m able to follow a recipe. And Kate’s cooking’s improved considerably since she started dating me. She was – she didn’t have – she hadn’t done much cooking and she didn’t have the – she didn’t multi-task well, so she’d cook one thing and then – it would be burning while this was – but she’s – yeah, she’s good at it now. She cooks really well actually.

James

Similarly, here Jewel, who was homeless and had a severe physical disability discusses his confidence in experimenting with food in response to a question about his participation in any formalised classes, for example, at youth services or accommodation venues.
Yeah. I don’t know what it is, but when it comes to anything I do, food, getting food, cooking food, I click onto things really quickly. So it’s like if I see something I do it, I can replay it in my head and copy it out. I might get it wrong the first, second time, but after a while I start getting it. So I’ve never been to a class or support groups.

Jewel
3.2 Apply basic principles of safe food hygiene and handling

In the Expert Study the component which achieved the highest level of consensus was:

*Enough food hygiene and food safety so that you don’t poison anyone*

In the Young People Study, food hygiene and handling was rarely mentioned. When it was discussed it was primarily described in relation to higher risk foods, for example:

If you eat meat, you should probably know how to cook meat, so that you don’t die of food poisoning or something.

*Dan*

You should be able to prepare it; be able to make sure there’s no health risk. Like you’ve got to know, don’t cut up raw meat on one cutting board and then cut up vegetables on it.

*Riahannion*

These excerpts again describe a “broad brush”, “general principles” level of safe food handling knowledge.
4 Eating

This component includes both the act of eating and the consequences of eating. This is the component which most highly featured nutrition. Nutrition can be considered to be both a component and a potential consequence of food literacy. Its inclusion as a component of food literacy followed much consideration and peer debriefing. In both the expert Study and the young people Study, conceptualisations of being “good with food” or “what you need to know and understand about food to be able to use it to meet your needs”, included nutrition.

In both the studies participants considered there were two main elements to nutrition knowledge; (i) an understanding of the effects of healthy eating and (ii) an understanding of what healthy eating means that is, foods to eat more of, food to eat less of. This domain refers to knowledge and awareness of nutrition concepts as opposed to actively demonstrating a nutrition behaviour. The value young people placed on nutrition, their thoughts of how it related to food literacy and their typical dietary intake are presented elsewhere in this thesis. The components within this nutrition domain are very closely related, so interview excerpts typically address multiple components and should be read together.

Commensal eating is the other key component of this domain. The combination of these components emphasizes the importance of balancing a range of food needs which is further highlighted in the planning and management domain. Those that valued eating with others tended to prioritise food and plan their eating and food intake.
4.1 Understand that food has an impact on personal wellbeing.

This component refers to an understanding that food intake and health, which extends beyond obesity prevention, are related. The interview excerpts selected come from young people with diverse backgrounds and demonstrate the individualized nature of the motivation to consider nutrition. This then influences the relative importance of other components for example Component 2.2. It will also influence the level of nutrition knowledge needed.

Laura was 20 and completing secondary school. She suffered from a mental illness which she described as currently being managed well. Throughout the interview she reflected on when she had not managed as well, including a seven month period when she lived in a tent. In this series of interview excerpts Laura describes the relationship between her food intake and her wellbeing.

I’ve always been very organised with food and eating and stuff like that because I know it affects the way that I think. Cause I’ve some mental health issues and I know if I don’t eat or if I don’t eat properly or regularly then it can affect the way that I think. So I’ve always been pretty good with that……So a lot of people that I speak to don’t really – I think that kids get told like – it’s sort of like the anti-smoking campaigns, where junk food is bad for you and all this other kind of stuff. But I know they’re not really educated on how it sort of affects the way that you think, like it can affect you mentally and no, I don’t think they really realise that.

So what kind of nutritional stuff do you think they should know? Do you sort of mean eat more of this, eat less of that or these are the main groups you need to eat from or…

The food pyramid’s a good place to start but I remember being taught that in primary school.

Do you remember what’s in the different bits of the food pyramid?

Ah, yeah. I remember the top being junk food and then it was, I think it was nuts and pasta and stuff and then it was all meat. I can’t remember somewhere around there. And then it was fruit and vegetables the most.

Laura

Hamish, a university student, talked about going through phases of healthy eating. Here he describes what prompts him to enter a healthy phase.
It gets to a point where I just realise that I’m just, like, I’m feeling – I don’t want to sound, like, weird, but, like, I feel, like, I feel heavy, I feel gross, like, up until about a week or two ago, I constantly felt – although I was hungry, I constantly felt, like, full and bloated. And so since then – I think that was ‘cause I was eating not fantastically, but I’ve started to, like, smaller down my intake, eat more meals, and that sort of stuff.

_Hamish_

Tyler, 17 from a highly disadvantaged area, describes his motivation for eating healthy foods. This domain includes several quotes from Tyler who demonstrates an optimal understanding of food, nutrition and health, which would have been missed using quantitative data collection.

I’m just Aboriginal-Australian. I think that because most Aboriginals have fairly bad health, it’s sort of encouraged me to sort of look at what I eat and try to stay a bit healthier.

_Tyler_
4.2 Demonstrate self awareness of the need to personally balance food intake. This includes knowing foods to include for good health, foods to restrict for good health and appropriate portion size and frequency.

The concept of balance is central to healthy eating. Included within this component are three related elements which contribute to this balance; foods to include, foods to limit and portion size and frequency. In the interview excerpts that follow, participants demonstrate an awareness of their own behaviour using self-reflection. They also demonstrate an awareness of their macro and micro environments and their influence on food intake. In this way, this component is closely related to the Planning and Management components.
4.2.1 Foods to include for good health

Participants were asked if they could name the five core foods groups (breads, cereals, rice, pasta, noodles; vegetables, legumes; fruit; milk, yoghurt, cheese and meat, fish, poultry, eggs, nuts, legumes) to get a sense of their knowledge of common nutrition messages, (Kellett, et al., 1998). The interviewer stressed that exact names of groups were not important, rather knowledge of the general categories of foods recommended for good health. This is in keeping with the findings of Expert Study. Experts considered “knowledge of the basic components of a health diet” and an “understanding the overall message of a food selection guide such as the healthy eating pyramid or plate” were sufficient.

Few participants could name foods from each group although all had a concept of foods to include more or less often. As noted in other sections of this report, the five food groups did not appear to be a criterion which participants typically used to group foods. So it seemed that even if participants had known these grouping they would not have influenced food intake. Participants tended to recite them as something that had been learnt at school but was not used as a guide to healthy eating. Several of the quotes below demonstrate that while this basic nutrition tool was not used, many still understood the concepts of healthy eating. It is interesting to note, however, that healthy eating was conceptualised as that which prevents overweight and obesity, rather than that which nourishes. In this excerpt we again hear from Tyler who had spent his whole life living in disadvantage including interrupted and delayed schooling.

So with nutrition, would you know the food groups?
Nope.

Could you sort of guess? If you had to guess what the general groups of food are?
I wouldn’t have a clue.

Okay. Okay. So do you think of nutrition at all when deciding what to eat?
I try to eat healthier things on a regular basis.

So what things do you think of – the healthy?
Fruit, vegetables, meat and stuff like that. Dairy products, milk and bread and eggs. Other than that I don’t know.

Tyler
Jewel had been homeless for several years. Here he describes his decision-making regarding foods to steal. He does not identify these as nutritious food choices, in fact, later in the interview he actively distances himself from nutrition and health, however, his decision is based on foods that will nourish and sustain him.

And when you’ve got no money, what do you do?
Me and my brother normally go to Coles® and grab a few things.

So what sort of stuff do you normally take?
Oh, the same thing every time; chicken, mayonnaise, bread, butter. I’ve been on and off streets for five years of my life. And I’ve always learnt one major rule. When you steal, steal for what you need, not for what you want. Something that you really, really, need, then yeah, I’ll steal. But if it’s something small it’s like I’m hungry I want some chips or I want some chocolate, no. I have rules to breaking the law. I mean like, if I’m busking for a whole day and not made any money and it’s raining, so no one’s out, I’ll go steal that one day, yeah. Because I know I’m not going to make any money………

Do you ever think about nutrition when you - - -
No.

Do you think there’d ever be a time where you’d think that that was important?
No.

Okay.
I’m the total opposite of healthy. I know what’s healthy, I know how to eat healthy; I choose not to.

So if you had to sort of name the food groups, what would the food groups be?
What do you mean by food groups? Triangle of food group thingy?

Yeah, that stuff.
Everything I eat is on the bottom two. That goes with ice-cream, chocolates, fatty foods, fried foods, I can keep going.

Jewel
4.2.2 Foods to restrict for good health

A knowledge of foods to restrict, is more complex than foods to include. While it is simple to say that unhealthy foods should simply be avoided, often the local food environment includes only unhealthy foods. Additionally, our contemporary food supply blurs the lines between healthy and unhealthy foods. Participants from relatively advantaged backgrounds tended to proactively discuss restriction and had an almost “fad diet” approach to restricting intake of certain foods. This component, rather, refers to the understanding of balance over the longer term.

Here Tyler again demonstrates his understanding of healthy eating despite being in an unhealthy food environment.

When I was living with my mum I actually did eat a lot of take-away. But since I’ve moved away, I – because I ate so much, I just didn’t like it. My mum’s had so many boyfriends it’s not funny. And she used to keep on going back to them, and because they live down the road from my KFC®, they’d walk straight down there and get dinner, and then they’d come back. There was one month I went on KFC® for a whole month and then I just felt sick and couldn’t eat anything for days because it just made me sick. Plus, because – another thing, one of my best friends worked in the fast food industry. He’s actually told me half the stuff that goes into these things, and it’s really disgusting.

So why do you think you’re like that though, and a lot of other people aren’t? Because there’s a lot of people that eat a lot of that a lot of the time, and they just keep eating it.

I suppose they don’t really see that it makes a difference. No, they don’t really see how much of an effect it can have on your life, and your energy to do things until they actually see the change.

Tyler

Aiden, a 24 year old university graduate who lives in an area of relative advantage describes how he balances his food intake.

Ever since I started, you know, going to the gym and everything like that. There were phases were I was very, very health conscious and quite strict and wouldn’t let myself eat many things.

So what do you sort of mean?
For example if I’d be, you know, at a friends’ dinner, you know, for just to catch-up or whatever and, you know, they’d have cake or dessert afterwards and I would flat out refuse to have it, yeah, that sort of thing. So I’d be – I was very strict at one point – wouldn’t indulge or anything like that.

And what would that, sort of, coincide with?

Just gym and weights and trying to put on – for just – you know, lean up and also put on muscle and, you know, that sort of thing, so I was being quite diligent. But I, yeah, then I’ve – I’ve always been health conscious in that way – body conscious – but this time round it’s not so strict, I’m a bit more forgiving of myself and it seems to work better to be honest, yeah.

Yep, yep. So would you, kind of, know what the food groups are?

Yeah, I know roughly, yeah. Fruit and vegetables; meats; dairy; and then is it like wholegrain, cereals, carbs and stuff? Yeah, and then you’ve got the fats.

Aiden
4.2.3 Appropriate portion size and frequency

Professional dietary advice at the individual and population level typically includes recommendations on appropriate portion size and frequency. The Australian Guide to Healthy Eating features serve size definitions and serve number recommendations by age group and activity level (National Health and Medical Research Council, 2013). However, participants did not reference these recommendations when discussing these concepts.

Riahannon, 18 in her first job out of high school, included nutrition in her list of things young people should know by the time they are ready to leave their parental home.

Probably nutrients; what you’re going to get the most out of for the least cost for the needs of someone of my age and the values of the healthy diet I reckon. …

So would you kind of know what the food groups are?
Yes I guess. Sugars and oils, carbs, fruit and veg and meat. I think. Am I missing one?

Riahannon

Hamish describes what he considers to be unhealthy eating. This is largely about portion size. He spoke about nutrition frequently in his interview. He often read fitness magazines and gym websites for nutrition and exercise information.

It’s not horrible; I think it’s just, like, portion sizes are quite extreme, and I think just, like, I don’t restrain myself. If I want to go and have, like, a snack, I’ll open up a box of Jatz (crackers) and have two or three of those, and then I will end up in eating the entire box of Jatz. So I just can’t – like, I don’t have any self control, so that’s why I get, like, full of food, and then I get hungry again and I eat more, and I just don’t have time to, like, process it all. So I’ve stopped doing that, and then I start, like, eating smarter type thing. Yeah.

You know how they group foods into nutrient groups, could you name them?
Mm hm. Veggies, like sweets, sugars, and then wheat and dairy and stuff like that. It’s been a while since that’s been brought up.

Hamish
Jenna, a university graduate from an advantaged area, reflects on her ability to personally balance food intake and the role of nutrition in her food choices.

When I was going through the anorexia and bulimia stage, I was very pedantic about what the nutritional value was for everything, and – and how many kilojoules, and how many – all that sort of thing. Now, I’m very – I know what to buy and I know – I buy very similar every single week. I looked at the content six months ago when I first bought the product, I’m happy with what the contents is, so I then just use it. But the meals, I do think about the carbohydrate – you shouldn’t be having such a very heavy meal in the evening, you should have it more during the day ‘cause then you have more time to burn it. Those things still play, but not every day. I mean, some days I have pasta and – and it’s okay, and I know that was fine, so it’s all about moderation and I’m constantly thinking about that all the time.

Jenna
4.3 Join in and eat in a social way.

Commensal eating was a very strong theme in interviews, with all participant groups acknowledging that being “good with food” included being able to socialize with food. This was strongly linked with pleasure. Participants frequently described sharing a meal as being an important part of eating. Similarly, eating alone was usually viewed unfavourably.

Here Lucy, 16, talks about the pleasure of sharing a meal. She compares eating at her parental home to a share house with her friend, his girlfriend and her mother the year previously. She did not enjoy the experience and later returned to her parental home.

At home we always ate at the table unless it was something like pizza or hotdogs. In the share house... Well they didn’t – we didn’t even have a table. It was such a big change, it was horrible. You just pretty much ate whenever you felt like eating.

*Lucy*

Sharing meals was an important part of building a sense of belonging and social inclusion. Participants tended to share meals with people they could identify with. Conversely, participants also used meal times as a way to distance themselves from groups they did not want to be a part of for example, eating meals at separate times and places to their parents or other members of their household. This is consistent with findings of other similar studies (Eldridge & Murcott, 2000; Wills, 2005). Clare was interviewed at the Australian Red Cross Night Café. She was on the streets that night but planned to go home to sleep. She would often stay on the streets for one to two days at a time before returning to her mother and new step-father. She had recently arrived from New Zealand where she lived with her grandmother who she described as a “mean as” (good) cook. She now uses meal times to distance herself from her household.

*And so when you eat, do you eat together?*

Not really. I don’t like eating with them.

*Clare*

Young people who did not typically eat commensally in their parental home sometimes found it difficult to do so now with others which impacted on their ability
to make social connections. Participants who enjoyed sharing meals also tended to prioritise food in their lives (Component 1.1). For financial reasons, few young people prepared food to feed groups of people outside their household. More often they took turns in supplying or preparing food and identified times and places where they could eat together regularly. The fragmentation of time meant that this did not necessarily occur on a daily basis but was highly valued when it did occur. Eating together was sometimes difficult as their schedules often conflicted with other people in their household. Here Nic, who had recently moved out with his girlfriend and a friend demonstrates the value they place on shared eating and the efforts they go to, to maintain this. Nic, 20, worked an afternoon/evening shift at a service station, his girlfriend, 18, worked 9am-5pm in a junior administrative position and their other housemate, 17, was unemployed. They lived in a disadvantaged area:

> Everyone tends to wait ‘til I get back, which is not terribly good for them. I keep telling Riahnnon and Fiona to eat at a more appropriate time so Riahnnon isn’t too tired to go to work at 8 o’clock in the morning, ‘cause she’s still digesting at 10:30, you’re not going to get to bed until midnight. You’re not going to get enough sleep. So, yeah, we tend to eat together, everyone late at night.

**And did you eat together as a family when you were at home?**

Yeah, all the time, at about 7 o’clock every night we would just sit down and have dinner. ‘Cause everyone was so busy there was the one time at night that everyone would be together.

Nic

For individuals and families experiencing disadvantage, the ability to prepare and share food was described by service providers in the Delphi study as being associated with a feeling of being in control of their lives and their capacity to care for others.

Evidence in the literature of the importance of commensal eating on diet quality is unclear (Demory-Luce, et al., 2004; Kristensen & Holm, 2006; Larson, Nelson, Neumark-Sztainer, Story, & Hannan, 2009; Larson, Perry, et al., 2006). Some propose that shared meals are more often planned and so more likely to be nutrient dense. Others consider that shared meals may mean more conscious and
therefore, measured, consumption. Here James and Angelica talk about their experiences of living alone and its impact on their eating.

I hate cooking for myself ‘cause you cook for yourself, you eat by yourself, you clean up by yourself. It’s the most depressing thing in the world, and I see food as a social thing. Food to me is really social and I hated living by myself for that reason.

James

When I have people that live with me, I eat a lot better, because you know, I cook. And it’s more the atmosphere, I like it. But when I’m on my own, I sort of just don’t.

Angelica

This study was focused on young people experiencing disadvantage. For young people at the extremes of social exclusion, traditional images of family meals and familial handing down of food knowledge were not representative of their lived experience. However the value of sharing eating occasions with others, having meal times and learning about food from the people you are living with, were all strongly represented in the data collected from this group. This is consistent with a San Francisco study of female gang members aged 15-26 years which more accurately describes the heterogeneity of eating and food provisioning as a function of household rather than family (Hunt, Fazio, MacKenzie, & Moloney, 2011). Like our study, this study found that eating was not static around a household and included family eating but not in the household setting, for example, living in a share house where people eat alone but return to their family home for a weekly shared meal. Several young people in our study went to extraordinary lengths to sustain shared meal times. There were several stories of the parent no longer preparing food and the children instead taking on this role, despite the parent not participating in the meal. Young mothers saw shared meal times as part of defining their role as a mother and establishing a family. Hunt describes similar behaviour in his study. Larger quantitative studies suggest that young people often try to avoid family meals and that family meals are on the demise (Abbott, et al., 2007; Fulkerson, et al., 2009; Videon & Manning, 2003). Our study would suggest that while the structure of families and provisioning of food within them may be more heterogeneous, young people still seek to share eating occasions in a planned and social way. Current
monitoring and surveillance which only measures the participation of a parent is likely to under represent this phenomenon.
6.2.2 Dietary Intake

Each participant group included individuals whose usual daily intake included all five Core Food Groups. Table 6.3 shows the number of food groups eaten each day by each participant group. Dairy, fruit and vegetables were the groups most often missing. Those participants who went one or more days without eating several times a week were classified as consuming zero food groups on a daily basis.

Table 6.3: Usual Daily Intake of Food Groups by Young People Study Recruitment Site (n,%)  

<table>
<thead>
<tr>
<th>Participant group</th>
<th>Usual number of food groups eaten each day</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Five</td>
</tr>
<tr>
<td>Nutrition Australia Queensland</td>
<td>2 (100)</td>
</tr>
<tr>
<td>QUT School of Business</td>
<td>6 (75)</td>
</tr>
<tr>
<td>Ipswich City Council</td>
<td>4 (67)</td>
</tr>
<tr>
<td>Albert Park Flexible Learning Centre</td>
<td>3(33)</td>
</tr>
<tr>
<td>Kingston Flexible Learning Centre</td>
<td>1(20)</td>
</tr>
<tr>
<td>Australian Red Cross Night Café</td>
<td>1(14)</td>
</tr>
<tr>
<td>TOTAL</td>
<td>17 (46)</td>
</tr>
</tbody>
</table>

Core Food Group consumption was linked to eating frequency. Across all participant groups, those that typically ate four or more food groups usually ate at least three times a day at planned meal times and usually ate at least one meal with others. All these participants valued the social aspects of eating. They prioritised time for eating and planned their food intake. Those consuming two or fewer food groups usually ate alone, rarely planned their meals, typically only ate once or twice a day and relied of convenience foods and fast foods bought spontaneously. This behaviour did not appear to be related to income or food access. While all those who usually ate more than four food groups prepared their own foods, so did those who ate fewer food groups. Meal frequency appeared to be a greater determining factor. While meal frequency was associated with disadvantage (see Figure 6.3), within the
disadvantaged groups, those eating more often, demonstrated these attributes. Information on body weight was not collected in this study, however from interviewer observations, those that missed meals were less likely to be overweight or obese than those that ate a more balanced diet.

![Figure 6.3: Usual Number of Eating Occasions per Day by Young People Study Recruitment Site](image)

**6.2.3 Attitudes to Nutrition**

Most young people did not identify nutrition as a significant determinant of food choice. Nutrition was very much conceptualised only with respect to its relationship to body weight rather than its broader contribution to wellbeing and optimal health. As a result several participants considered that while they were not overweight or obese, nutrition was not important. Here Todd, a university student, discusses the position of nutrition in his food decision-making. His quote highlights the breadth of determinants of food choice beyond knowledge.
I know a lot about food. I did, like, nutrition and education in high school, and my mum’s always – my mum’s always educated me. Like, I’m fully aware, but at this stage in my life because I burn so much energy I’m not going get fat, and that’s the main – the largest consequence to me for eating poorly is that I’ll get fat, and that’s not going to happen now. So, I guess, it just – I don’t have the pressure to do it, even though I know I’m not getting enough vitamin and minerals, my energy is – fluctuates like crazy, like - I understand the risk factors, but I’m just too time poor.

Todd

Similarly, Nic, who lives in a disadvantaged area in a sharehouse, is employed, completed year 12 and grew up in his family’s restaurant, demonstrated a good knowledge of food and nutrition content but did not action this in his own life.

Well when they’re growing, as when they’re a child, and when they’re a teenager it's very important so your body doesn’t have a lack of necessary nutrients as you’re growing, so you weren’t deficient in certain areas. When you’re pregnant and when you’re older. So when your body does start to function a little bit not as well. So you have to keep that in mind a little bit more so you can just keep on top of things. You should always eat healthily but I think it’s 25 to 40 you don’t have to really worry about it too much, just don’t eat too unhealthily.

Nic

Young people experiencing poverty discussed the compromise between getting enough food to eat and meeting nutrition recommendations. Those that ate at least four food groups each day, actively considered nutrition but acknowledged that this required extra effort and was not always their principal concern.

Restriction and balance were two concepts which were strongly associated with healthy eating. These are reflected in Component 4.2. Across all participant groups, self efficacy and valuing self were key themes that emerged among those young people that were more likely to restrict and balance their food intake. Young people needed to consider that they were worth looking after and needed to believe that they were able to make healthy changes. This was not to say that young people considered their dietary intake to be completely self-determined. Participants that proactively considered nutrition in their food selection were able to identify a range
of other factors that made healthy choices more difficult. These included the cost of healthy food in comparison to unhealthy food, the disproportionate marketing of unhealthy foods, the importance of introducing healthy foods early in life and a range of lifestyle factors and changes that impacted on the ability to maintain a healthy diet for example relationship breakdowns, other health issues. This was linked to the Planning and Management components, particularly an understanding of their local food environment and the impact of restricted resources.

Most young people talked about going through healthy and unhealthy “phases”, almost like “falling off the wagon”. They discussed a range of motivations which prompted this. These differed significantly between genders and participant groups. For females, body weight and body image was a common motivation; for males not experiencing disadvantage it was going to the gym, strength and fitness; for young mothers, it was the health of their children and their own health for the purposes of being able to look after their children.
6.3 DISCUSSION

These studies combined to identify the components of food literacy. In doing so, they contributed to the conceptualisation of the term and its scope of meaning. The need for this research emerged from practice and the ambiguity surrounding the use of the term in key documents that guide practice. It is useful, therefore, to compare these findings to the use of the term in policy and practice. The application of other terms and tools used to measure and describe the everyday practicalities of meeting food needs are considered with respect to their measurement of food literacy.

The findings of this study, however, describe components whose precise elements and relative importance are contextually defined. This presents challenges for their use and measurement. Practitioners typically work in positivist environments where the outcome of investment in influencing nutritional status and diet quality is determined by a single cross-sectional measurement of food intake. The conceptualisation of food literacy being made up of a dynamic set of components, therefore requires a re-examination of contemporary nutrition practice and the use and application of existing measures.

6.3.1 Policy and Practice

The Giessen Declaration of 2005, re-defines nutrition science as focused on not only biological, but also social and environmental food systems. This includes a comprehensive understanding of “how food is grown, processed, distributed, sold, prepared, cooked and consumed” (International Union of Nutrition Sciences, 2005 p 784). This conceptualisation of nutrition guides contemporary practice. Several of these elements appear in current nutrition policies and plans. The components of food literacy identified in this research represent each of these key concepts. The four domains of planning and management, selection, preparation and eating, reflect a social, environmental and functional understanding of food systems. The conceptualisation of food literacy existing at individual, household, community and national levels, described in Chapter 5, reflects an understanding of these systems and their reciprocal relationship to food intake and nutritional status.
When this research began there were few published definitions of food literacy. In the past three years the use of the term has grown and more definitions have emerged, however they focus on either the individual knowledge and skills (Block, et al., 2011; Bublitz, et al., 2011; Chambers, 2012; Drummond & Caraher, 2007; Fordyce Voorham, 2011; Kolasa, et al., 2001; Onyene & Bakare, 2011; Probst, 2006; Thomas & Irwin, 2011; von Normann, 2009; Vrhovnik, 2012; Withers, 2012) or population level thinking on the role of food production and supply systems (De Campo, 2011; Farnworth, et al., 2008; Stinson, 2010; Von Sehlen, 2007). Definitions that focus on both, do not articulate components, leaving interpretation up to the reader (Bellotti, 2010; Schlegel, Reynolds, Getty, Henshel, & Reidhaar, 2010; Vaughan, 2011). A full list of published uses of the term and its definitions appears in appendix A.

While the Giessen Declaration does not use the term “food literacy”, other key nutrition documents do. In each of these, its definition, developed by the authors of the respective documents, differs. The UK Government’s Foresight Tackling Obesities Future Choices Report defines food literacy as:

Degree to which people are able to assess nutritional quality and provenance
p40 (Vandenbroeck, et al., 2007)

In this document and the recent European Union Discussion Paper on Sustainable Food Consumption and the US Institute of Medicine’s Committee of Accelerating Progression in Obesity Prevention Report, food literacy is conceptualised as being “taught” in schools to children rather than a continuously developing relationship (European Union Committee, 2011; Glickman, et al., 2012). This implies an endpoint of competence. This research instead, discovered that food literacy is constantly evolving and responds to biological, social and environmental determinants of nutritional status at individual and population levels. Components are described globally rather than specifically to reflect this.

In Australia, since the commencement of this thesis, four State Health Departments have tendered for food literacy work. Within their tender documents, food literacy has been described as including:

- skills around budgeting, cooking and shopping for healthy meal preparation;
- awareness of the recommended types and amounts of foods and drinks to
consume and the benefits of healthy eating. (Queensland Health, 2011), p11)

knowledge and skills around healthy eating, including how to budget, choose, purchase, store and prepare nutritious food (Department of Health, 2011)

Skills such as menu planning, food budgeting and shopping for, preparing and cooking healthy meals and snacks; increase(d) preferences for and consumption of fruit and vegetables instead of energy-dense and nutrient-poor foods, and reduce negative perceptions of fruit and vegetables; and confidence and skills to introduce changes to their own and their family’s way of eating and to maintain these changes and gain the support of relevant others. (Government of South Australia, July 2009)

These documents re-enforce the need for a standardised definition, agreed scope of meaning and clear shared understanding of what work described as “food literacy” includes.

The elements described in these tenders align well with the components identified in this research, but, they fail to capture the full extent of food literacy and thereby risk limiting the effectiveness of interventions. This alignment, however, indicates the identified components are useful in capturing the essence and enhancing practitioners’ understanding of the term. It is likely therefore that the results of this research will contribute greater clarity to communication, research and practice in this area.

In each of these documents, the food literacy is used to describe competence related on one or several aspects of food and eating. Definitions appear to assume a commonly understood level of competence which could be universally applied. This is particularly reflected when the term is used to describe the outcomes of key institutional investment and activity, for example, teaching food literacy in schools. This research, however, describes a fluid food literacy made up of broadly defined universal components but who precise enactment, and therefore measurement, will be contextually driven. An examination of existing measures and their application to this conceptualisation of food literacy is useful.
6.3.2 Measuring Food Literacy

As described in the literature review, historically, a range of other terms have been used to describe and measure the day-to-day practicalities of meeting food needs. While these were considered inadequate in describing the totality of knowledge, skills and behaviour, they may contribute to the conceptualisation of individual components of food literacy and their potential measurement. In evaluating the suitability of these measures, the temporal and dynamic nature of food literacy must be considered. If food literacy is defined as protecting diet quality through change and supporting dietary resilience over time, its measurement needs to capture this dimension.

Planning and management

Food management skills have been described in the literature. Bisogni describes them as including budgeting, preparation, an ability to multi task and adjust to changing schedules (Bisogni, et al., 2005). The Food Involvement Scale measures a range of attitudes towards food and eating (R. Bell & Marshall, 2003). This tool may be useful in measuring Component 1.1, the ability to prioritise time and money for food, although validation of the tool was against one’s ability to discriminate between the taste intensity of different foods, rather than food intake. Crawford et al examined a range of “food-related behaviours” and their relationship to fruit and vegetable intake (Crawford, et al., 2007). While many of the questions examined attitudes, those used to measure planning food intake and purchases and eating practices may be useful in the measuring the planning of food intake (Component 1.2) and the social dimensions of eating (Component 4.3).

Selection

A range of tools exist to measure food shopping and selection practices. These are predominantly used by food marketers. The Food Related Lifestyles instrument measures a range of declarative and procedural knowledge constructs such as label reading, use of speciality shops and attitudes to shopping (Scholderer, Brunsø, Bredahl, & Grunert, 2004). Elements within the tool may be useful in describing
food selection practices related to quality and access (Components 2.1 and 2.3), however the tool’s application is primarily for describing consumer behaviour rather than its link to food intake or diet quality.

**Preparation**

Many studies have examined food preparation. Studies typically measure frequency or confidence to perform this task (Caraher, et al., 1999; Smith, et al., 2011; Winkler & Turrell, 2009). Fordyce-Voorham’s conceptualisation of food skills includes the arbitrary element of “taste” (Fordyce Voorham, 2011). Consistent with the results of this research, her definition includes the ability to use equipment, prepare a diverse range of commonly available foods, trouble shoot and use recipes. While the application of her research is the assessment of secondary school students, there are likely to be elements that could be used in the measurement of preparation Components 3.1 and 3.2.

Other food preparation studies examine confidence which may not accurately describe ability or frequency (Lang, Caraher, Dixon, & Carr-Hill, 1999) or prescribe a level of skill which may not be contextually relevant (A. Anderson, et al., 2002; Larson, Perry, et al., 2006). This is significant as both Expert and Young People Studies, indicated that experts’ and individuals’ perceptions of competent food preparation are likely to differ. In the Young People Study, most participants were confident in their ability to prepare food, despite the likelihood that within the sample their actual ability varied.

**Eating**

A tool measuring nutrition knowledge has been validated for use in Australia and may be useful in measuring elements of components 4.1 and 4.2 (Hendrie, et al., 2007; Parmenter & Wardle, 1999). The survey is made up of 113 questions and takes 15 minutes to complete so its inclusion as part of a larger tool to measure food literacy may not be practical (Hendrie, et al., 2007).

Many studies measure commensal eating. These are usually included in children’s surveys and typically measure how often meals are shared and with whom (Abbott, et al., 2007; Hardy, et al., 2011; Martin, et al., 2010). It is unclear if these
tools have been validated to determine to what extent commensal eating influences diet quality.

6.3.3 Constructing a Food Literacy Taxonomy of Learning

The eleven components of food literacy include knowledge (for example, knowing what foods to include for good health), attitudes (for example, prioritising money and time for food) and skills (for example, being able to prepare a good tasting meal). This is consistent with components identified in other literacies for example, information or health literacy (Frisch, et al., 2012). They also include the key elements of Blooms Taxonomy of Learning (L. W. Anderson, et al., 2001). This taxonomy, typically applied to planning school curricula, moves students along a continuum of factual to conceptual, procedural, and metacognitive. This is perhaps similar to the accepted conceptualisation of health literacy which sees individuals move along a continuum from functional to interactive and finally, critical (Nutbeam, 2000). However, the results of this research did not suggest that similar continuums can be applied to food literacy. Within each domain, there may be a continuum of knowledge, skills or behaviours, however the optimal position will be context dependant. Additionally, the individual may slide up and down these continua over their lifecourse, and simultaneously sit at different levels of competency across different components.

6.3.4 The Translation of Context Driven Components to Policy and Practice

When this research began, the development of a measure of food literacy was an expected outcome. This was driven by an appreciation of the environment in which investment and practice decisions are made, particularly the need for transparency and accountability. Investment in nutrition is typically publically funded and as such is scrutinised by the media and other forums in which do not afford the time or space for lengthy discussions on the fluid application of contextually driven practice. Rather, universally applied and monitored investment is easier to understand and implement. The results of this research describe a food literacy that is contextually driven in every way. How then, can they be used to inform policy, investment and practice?
The answer is, that they already are. Practitioners who work effectively and closely with communities understand the influence of context. They take the time to understand their clients’ lived experience of food and eating. They understand the importance of looking for existing assets. This research provides further support to this approach to practice. These practitioners are already using the descriptions of components to more reflexively consider their application in context. The components guide the practitioner in what broad concepts to consider.

The findings help to disrupt the discourse in nutrition measurement, monitoring and surveillance. This conceptualisation of food literacy describes a way of considering the temporal and dynamic nature of every day eating. It emphasises that healthy eating is about more than meeting nutrition recommendations; it’s about how to do this on a day to day basis over a lifetime.
6.4 CONCLUSION

Many terms and tools have been used to measure the everyday practicalities of food and eating. In each of these constructs and the tools that measure them, the “expert” be it the researcher, practitioner or policy maker, has determined what the knowledge, skills and behaviours to meet food needs are. These parameters are then measured alongside food intake to look for correlations to determine their importance. This research, however, considered this phenomenon from multiple perspectives.

Within the Expert Study, meeting food needs was examined from the perspective of people who were seeking different outcomes; nutrition, life skills, gastronomic skill, environmental sustainability and economic growth. Interventions were reviewed to check the use of these concepts. These views were then validated by the descriptions of young people across a spectrum of disadvantage. The results from these studies were distilled to isolate eleven components of food literacy which embellish the definition of food literacy to give policy makers, practitioners and researchers a clear picture of what this term means, and what working in it includes. The following chapter presents results on how food literacy developed in young people and further relates this to theories of learning and development and why, therefore, moving through an overall continuum may not be relevant. It is followed by a conceptualisation of how food literacy relates to nutrition and health more broadly.
Chapter 7: The Development of Food Literacy

The Young People Study included an exploration of factors contributing to the development of food literacy. This objective was originally conceived as contributing to research question three, “how does food literacy relate to nutrition?” However, data contributed additional information that was considered useful to policy and program planning. For this reason this chapter was added. It presents results of where and from whom young people learnt about food, when this happened over their life-course, what factors prompted this learning and how this differed across participant groups. The discussion considers these results alongside learning and development theory to propose how food literacy develops, including the role of individuals, households, communities and nations.

Prior to the commencement of this study practitioners had anecdotally observed key transition times at which interest in developing food knowledge, skills and behaviours was heightened. Interventions often assume critical learning opportunities which this research what interested in examining further. Only the results of Young People Study were used.

7.1 WHERE AND WHO YOUNG PEOPLE LEARNT ABOUT FOOD FROM

Most participants learnt about food at home. Across all participant groups this was most often from a female household head. Among less disadvantaged participants, mothers were the main avenue for learning about food and the person participants identified as being “good with food” (refer to Table 7.1). Participants that were more satisfied with how they used food tended to have this person in their life earlier and more consistently although this was not exclusively the case (refer to appendix J). It appeared as though when the adult carer in the household was constantly changing the task of transferring domestic life skills, including feeding yourself, suffered.
Males still contributed to young people’s relationship with food with several identifying fathers, stepfathers and male housemates as the main person from whom they learnt about food. When reflecting on their childhood, the large majority of participants did not consider that food work was necessarily a female role although most agreed that females more often did this work. Most identified males typically only taking on this role when the female head of the household was unable to or was not present. Several young people talked about the impact of male celebrities in breaking down these stereotypes.

Despite specifically being asked about their involvement in cooking, food or health classes at school, very few young people identified these as being significant in the development of their food literacy. Cooking classes and demonstrations that took place in other settings, for example, youth shelters, seemed to be of interest to young people who already had a base level of skills and were interested in extending them, rather than those who were perhaps in greater need. Young people also learnt from peers, particularly boyfriends and girlfriends, housemates and older siblings. In identifying someone who they considered to be “good with food” all participants chose someone they knew personally rather than a celebrity.

Few young people followed recipes; rather, recipe books, television shows, celebrity chefs, magazines and their experiences of eating out were used as motivation and inspiration to try new foods, expand their repertoire, and experiment with ingredients. This was identified across all participant groups except those recruited through the Australian Red Cross Night Café. These strategies, however, were primarily used by those young people who already had experience with food rather than those who did not. Young people tended to talk about expanding their repertoire at calmer times in their lives rather than at key milestones. When first moving out of home, for example, young people tended to use convenience and take-away foods in the first instance. They then typically reached a point of needing to establish routines and budgets and then looked for recipes and other food choices that would help them to do that.
Table 7.1: The Person Participants Identified as Being “Good with Food” or the Primary Person They Learnt About Food From by Young People Study Recruitment Site

<table>
<thead>
<tr>
<th>Person</th>
<th>Recruitment site</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Aust Red Cross</td>
</tr>
<tr>
<td></td>
<td>Night Café</td>
</tr>
<tr>
<td></td>
<td>Albert Park</td>
</tr>
<tr>
<td></td>
<td>Flexible Learning Centre</td>
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<td></td>
<td>Kingston Flexible Learning Centre</td>
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<td></td>
<td>Nutrition Australia</td>
</tr>
<tr>
<td></td>
<td>Qld</td>
</tr>
<tr>
<td></td>
<td>total</td>
</tr>
<tr>
<td>Family member:</td>
<td></td>
</tr>
<tr>
<td>• Mother</td>
<td>0 4 1 2 6 1 14</td>
</tr>
<tr>
<td>• Grandmother</td>
<td>2 2 2 0 1 0 7</td>
</tr>
<tr>
<td>• Father</td>
<td>1 0 0 2 0 0 3</td>
</tr>
<tr>
<td>• Aunt</td>
<td>1 0 0 0 0 0 1</td>
</tr>
<tr>
<td>• Stepmother</td>
<td>0 1 0 0 0 0 1</td>
</tr>
<tr>
<td>• Stepparent</td>
<td>0 0 0 1 0 0 1</td>
</tr>
<tr>
<td>• Sister</td>
<td>0 0 0 0 1 0 1</td>
</tr>
<tr>
<td>Peer:</td>
<td></td>
</tr>
<tr>
<td>• Housemate</td>
<td>0 1 0 1 1 0 3</td>
</tr>
<tr>
<td>• Boyfriend</td>
<td>0 2 0 0 0 0 2</td>
</tr>
<tr>
<td>• Girlfriend</td>
<td>1 0 0 0 0 0 1</td>
</tr>
<tr>
<td>• Personal Trainer</td>
<td>0 0 0 0 0 0 1</td>
</tr>
<tr>
<td>• Best Friend’s Mother</td>
<td>0 0 1 0 0 0 1</td>
</tr>
<tr>
<td>• Youth Worker</td>
<td>0 1 0 0 0 0 1</td>
</tr>
<tr>
<td>No one identified</td>
<td>2 1 1 0 0 0 4</td>
</tr>
<tr>
<td>total</td>
<td>7 12 * 5 6 9 * 2 41</td>
</tr>
</tbody>
</table>

* some participants identified more than one person

Most young people were content with their level of food knowledge. They were confident that they had all the knowledge and skills they needed to keep themselves fed and that they could access additional support or information to develop their skills and knowledge further over their life-course if they needed to. Young people eating a simple, limited and nutritionally inadequate diet were not interested in expanding their food intake beyond those foods they currently...
consumed. These young people may have identified that they had limited food literacy but did not consider this to be problematic or something that needed to be addressed.

It is unclear from the data if different components of food literacy developed differently across the life-course, although this seems likely. There were a few participants who had rarely ate commensally during their childhood and now found it difficult to do so as an adult which impacted on their food intake and potentially, their ability to connect socially. Some young people had been thrust into being responsible for feeding themselves at quite a young age (that is, while still in their primary school years). This typically occurred in households where the responsible adult changed regularly or was absent. Those responsible for food provision for themselves and others at a young age, tended to choose simple dishes that required simple preparation and assembly, for example, Spaghetti Bolognese made by boiling a packet of pasta and opening a jar of sauce; or scrambling eggs and microwaving frozen vegetables. As young adults, these participants maintained this routine of preparing food this way and considered themselves competent providers of foods despite having a quite narrow repertoire of meals and limited skills in traditional cooking techniques.

Participants who were responsible for feeding themselves early also ate fewer meals and regularly missed meals. These participants talked about not taking any food to school rather than preparing anything. This habit developed over the years with many young people routinely eating only once a day. This was compounded by a lack of access and affordability of food. These participants more often had to rely on foodservice options, for example, chips and soft drink from a petrol station on the way home from school, which tend to be more expensive over time. Participants who had similarly poor access to affordable food but came from a home environment where food was prepared and shared more often by a consistent adult carer, were more likely have a healthier food intake, that is, ate regularly and ate from the Core Food Groups.
7.2 WHEN YOUNG PEOPLE DEVELOPED FOOD LITERACY

There were few milestones that were common to all participants, more specifically, the significance of these milestones as transition points varied greatly, most often according to level of disadvantage. Exiting school, for example, is considered a standard milestone for all young people in Australia, however, for most of the young people experiencing disadvantage, the end of school varied considerably. This included interrupted schooling, lengthy absences, abrupt exiting, not actively participating in their schooling for some time and so then gradually disengaging and then re-engaging years later. For those young people not experiencing disadvantage, finishing school was a fairly standard experience, that is, it happened at the age of 17, at the end of a school year, with a plan of what might happen next for example, further education, employment. As already described in Table 4.5 in the Chapter 4, those young people who were most disadvantaged were also least likely to have completed their schooling and had interrupted schooling.

This study originally planned to examine the milestone of leaving the parental home envisaging that this may have been a key transition point for developing one’s relationship and identity with food. Service providers, however, suggested that while this might be a significant milestone and potential transition point for the mainstream population, for marginalized young people, its significance was less important and in fact, they may be unable to identify neither their parental home nor when they left it. The study instead sampled young people who were responsible for feeding themselves, asked questions about when this first began and different homes and households they had lived in.

Table 7.2 describes the mean and range of ages that each participant group first left their parental home and became responsible for feeding themselves. These terms were not defined, for example, participants determined what they considered “leaving home” and “responsible for feeding themselves” meant. It is clear from the table that as the groups became more marginalized and more disadvantaged, their age for leaving home and being responsible for feeding themselves decreased. In the most disadvantaged groups, girls tended to be made responsible for feeding themselves younger than boys. This responsibility also often included being responsible for feeding other children and adults in the household. The following interview excerpts further describe these experiences.
Table 7.2: The Age When Participants First Became Responsible for Feeding Themselves and First Left Their Parental Home by Young People Study Recruitment Site

<table>
<thead>
<tr>
<th>Recruitment site</th>
<th>Age when first left parental home</th>
<th>Age when first became responsible for food</th>
<th>Total number of participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australian Red Cross Night Café</td>
<td>Mean 15.0* Range 12-19*</td>
<td>Mean 14.6 Range 7-19</td>
<td>7</td>
</tr>
<tr>
<td>Albert Park Flexible Learning Centre</td>
<td>15.8 14-18</td>
<td>14.7 7-18</td>
<td>9</td>
</tr>
<tr>
<td>Kingston Flexible Learning Centre</td>
<td>16.0*** 16***</td>
<td>12.0 8-16</td>
<td>5</td>
</tr>
<tr>
<td>Ipswich City Council</td>
<td>17.0 15-19</td>
<td>17.0 15-19</td>
<td>6</td>
</tr>
<tr>
<td>QUT School of Business</td>
<td>19.6** 17-23**</td>
<td>19.1 17-24</td>
<td>8</td>
</tr>
<tr>
<td>Nutrition Australia Queensland</td>
<td>21.0 20-22</td>
<td>19.5 17-22</td>
<td>2</td>
</tr>
</tbody>
</table>

* one participant had not left their parental home; **two participants had not left their parental home; ***three participants had not left their parental home

Silke was interviewed at the Kingston Flexible Learning Centre where she was aiming to complete year 12. She describes her current living situation and her movements over time.

I’m seventeen. I live at McCarthy; it’s in Browns Plains. I’ve been living there for about four months now with my dad and my sister. Before that I lived with my mother in Marsden for eight years in the same place and before that we were everywhere. Forty places, at least. We never – Marsden was the longest we ever stayed put. We were moving constantly, almost every month pretty much. Just within the area – we just changed from Nanango or the coast or Sunshine, everywhere – we couldn’t stay still. I was usually with my mum, my sister and my little brother.

The first time in all that, that I was responsible for feeding myself was probably around about when we moved to Marsden, my mum did her own thing and all of us kids took care of ourselves. I was probably about 11 or so. My sister would make a four meal course and I would make another one, I usually made the desserts. Us kids just ate. Mum wasn’t usually hungry – she was too stressed to eat, so sometimes she would but sometimes not.
Neither Silke’s mother nor her father ever cooked. In these households, Silke typically ate only one meal a day, which either she or her sister prepared or it was take-away. When asked if that had always been her food intake pattern, Silke describes when she lived with her grandmother during her early primary school years. When asked to think of someone who she considered “good with food”, Silke thought of her Nanna straight away.

Well, I used to live up at Nanango. I don’t know where my Mum was. Me and my sister stayed with her before my brother was born and we stayed up there for a very long time and went to school there. Nanna was really, really picky on the food. We had porridge for breakfast, we had this for lunch and we had this for dinner. It was all really good, healthy stuff. My Nanna, she’s crazy. She grows her own vegetables. …… She’s not a part of our lives anymore apparently.

For young people who were homeless, their life-course and movements from their parental home were even more complex. Here Julia, who was 16 at the time of the interview, describes where she has lived over her life so far. Julia started being responsible for feeding herself at seven. She did not consider herself particularly good with food but was remarkable in how she organized her day-to-day eating to include food from each of the core food groups every day. Interview excerpts from Julia also appear in Component 2.3 where she demonstrates high level decision-making skills and adaptability to changing environments.

I was born in New Zealand and came to Australia at the start of 2008. I lived with my mother and then she – she had to go away to work and I lived with my aunty. I lived with my other aunty, stayed with my father, I came over to Perth when I was about six, I stayed here for about a year and then my mother took me back, lived with my uncle, my dad’s brother, moved back in with my mum, I lived with my aunty again and then we moved over here. Now I live in Red Hill. We just got a place there yesterday actually. Before that I lived under a bridge for easy four months, and about two years ago before that, for about a year. Yeah. In between that I was – was with my mother actually. Just kind of sorted stuff out and then she went through
a rough patch again and back out here and yeah. Now I have my own place. It’s a motel. Yeah.

*Julia*

Here, Jewel, 20, interviewed at the Australian Red Cross Night Café, talks about where he has lived and its influence on his food intake. Jewel had a profound congenital physical disability requiring the use of a wheelchair. He was homeless.

I live in the city. I’ve lived there for nine months. I travel a lot. I normally don’t stay in towns for more than a year – a year to two years, and then move. I was born in New Zealand. My mum’s from over here. So I came over back and forth for years. And then when I turned 16, I just moved over here to live by myself. Moved over, stayed by myself. Lived with my dad for a bit. He put me back through school. When I was living with my mum, two little brothers, me, stepdad, mum, there were five of us. With my dad, it was on and off. At some point it was 12 people, some point it was four people, or two people. At one point, it was my dad, his wife, me, my brother, workmate, uncle, his wife, his two kids, uncle, his wife, his one kid in a five bedroom house. Whereas sometimes it could be just me and my dad.

I’m the type of person where I eat like once every two, three days. But it’s been like that for about two or three years now. Before, I used to eat more than three meals a day constantly until I was about 17. I moved out on my own and to save money, I ate less. And my body got used to just eating less so I just kept going. I could either eat a lot of food but that I could be eating for a long time, or I could eat little bits here and there for a couple of days.

*Jewel*

Other disadvantaged young people had moved less often but leaving their parental home for the first time was usually abrupt and not their choice or a result of their planning. Here Lucy, 16 discusses her recent move to Brisbane.

At the moment I’m living with my mum and my step-dad and his family. I’ve been there about two weeks. I moved up here about two and a half months ago, moved in with my big sister and then moved in with my mum a couple of weeks ago because she needs to have knee replacement so she needs me around a bit. She lives with my step dad, his brother and his mate.
I only just met my step dad but he’s been with mum for about four years. Yeah. I left my dad’s place last year and I moved in with my friend, his girlfriend and his mum and it was pretty much well you pay your board and then you sort everything – you feed yourself so. Before that I lived with my dad, my step-mum for eight years.

Lucy

Five women who had become mothers as teenagers participated in this study. For all of these women, this coincided with leaving their parental home. Here, Tina, the oldest mother, reflects on her living arrangements since becoming pregnant at 16. At the time of her interview, Tina worked full time, was studying and had her own business. Pregnant young women typically move through a series of family-like relationships. Their food literacy is particularly significant in that it potentially influences the subsequent generation.

I currently live at Collingwood Park with my son. He’s six. He’s really cute. I’ve been living there four and a half years now. Before that I was living at Springfield with his father for 3 years. I grew up in The Gap. I moved here (Ipswich area) when I was about 13, and I was living in Bellbird Park. It was like my mum and dad, my family, and then I got kicked out of home, and I moved in with my friend and her family. From Bellbird Park I moved to Springfield with my friend and her family. And then I moved in with my surrogate grandfather - he was like my nan’s boyfriend, but not really, in Goodna, and then from there I moved back in with my grandparents in The Gap, and from there I moved in with my friends in Redbank Plains, and from there I moved to Springfield, and from there I went to Collingwood Park.

Tina

Interview excerpts from all of these young people appear in the descriptions of food literacy components. They had all developed significant knowledge, skills and behaviours regarding food and eating at a younger age than the more advantaged participants. Those participants who were university graduates and whose parental home was in Brisbane, typically were not responsible for feeding themselves until their early twenties when they got their first job and left home. Prior to this their involvement in meal preparation for more than one person was limited, and in the planning and purchasing, of food almost non-existent.
7.3 DISCUSSION

An examination of how food literacy develops is useful in helping practitioners plan interventions. In analysing and explaining results, child development theories were more useful than learning theories, even those which describe social learning. This is an important finding as food literacy is often described as something to be “taught” resulting in an individual who is “competent” or not (Glickman, et al., 2012; Pendergast, et al., 2011; Public Health Association of Australia, 2009; Vandenbroeck, et al., 2007). The findings of this study, however, describe a continuously evolving relationship with food that is influenced by and responds to social, biological and environmental systems. In considering interventions to address food literacy, therefore, it follows that they would need to target not just individuals, but also households, communities and nations.

Home is clearly the primary setting for learning about food. Household members continue to be important over the lifecourse. Schools, cooking classes, mass media and food industry only had an influence when an initial interest in food had been developed in the childhood household. Brofenbrenner’s ecological model of human development describes the core central function of families in child development (see Figure 2.6 in Chapter 2) (Shaffer, 2005). This microsystem extends as children get older to include peers, schools and neighbourhoods. His model extends to describe an exosystem of health services, social welfare services, workplaces, the mass media and a macrosystem of broader cultural attitudes and ideologies each with a gradually weakening but significant influence on development. This model is useful in describing the findings of this study. When the initial interest in food was not established in the home the importance of these other settings increased. However, only social learning approaches appeared to be effective (Bandura, 1977). For example, in the welfare services settings, group cooking classes were not attractive to people who were not already engaged with food, however these participants spoke about learning from individual caseworkers or peers at the service.

A second element of Brofenbrenner’s model is the influence each of these systems have on each other. Close values and relationships between them optimize development. Conceptualising food literacy as existing at individual, household, community, population and national levels acknowledges their inter-relationship.
For example, if a household values food preparation, the child may engage more in cooking classes at school. Brofenbrenner’s model includes a temporal dimension which highlights the changes in the strength of influence of the systems over time. In this study, young people who could identify someone who they learnt about food from early in their lives demonstrated more components of food literacy.

There was a broad range of ages at which participants in this study had been responsible for their food. Being responsible for food early was associated with gender and level of disadvantage. Young people in this study did not consider food to be the role of one gender only which is consistent with other Australian studies of food provisioning (Lupton, 2000a). However, in Australia and in this study, food work is typically done by women (Australian Bureau of Statistics, 2008). If the origins of food literacy are in the childhood home, these gendered stereotypes are unlikely to shift. Participants spoke about the role of celebrities in challenging these stereotypes, however these are likely to predominantly capture the attention of those already engaged in food. Additionally, celebrities are more likely to represent special occasion, rather than every-day, food provisioning. In her ethnography of Brisbane households, Schubert examines the broader social, cultural and economic factors which influence food provisioning and encourages nutritionists to challenge these norms and acknowledge their role (Schubert, 2008). Schools play a role in universally developing food literacy and addressing gendered norms. However, despite recent reviews, the Australian curriculum continues to pay little attention to hands on food experiences, particularly in children under 12 years (Australian Curriculum and Assessment Reporting Authority, 2012a, 2013).

Disadvantage impacted on the development of food literacy in a range of ways. Young people were responsible for food earlier, they were more likely to be responsible for multiple household members, they were less likely to have lived with a parent or learnt about food from them and their poverty meant they were less able to experiment with food. Each of these factors worked in various ways to both enhance and inhibit the development of food literacy. Participants described different responses to what could be considered similar experiences. For example, some participants described having a mother who never cooked as motivation to learn to prepare food, others cited this as the reason they never learnt. Knowledge is considered a determinant of attitudes and beliefs, however in this study values and
beliefs influenced the demonstration and acquisition of knowledge (Nutbeam & Harris, 1999).

This research examined the nature and source of “food expertise”. It contrasted the views of national food experts against those for whom they write policies, develop interventions, practice, measure and judge behaviour. Many of the disadvantaged young people in this study had been responsible for food since they were in primary school. They considered themselves experts. They could feed themselves and others in very resource restricted circumstances. This often did not include the use of core foods, cooking from scratch or multiple courses, all of which are outcomes of current interventions and measures (Department of Health, 2011; Government of South Australia, July 2009; Larson, Perry, et al., 2006; Queensland Health, 2011). Practitioners must acknowledge these significant skills and experience and critically appraise the need for their extension. Across all levels of disadvantage, participants ate within a standard repertoire of foods. Practitioners should begin their activity within this repertoire. Vygotsky describes the role of the practitioner in scaffolding the learner to extend from what they can do on their own to what they need help to do (Berk, 1995). Bandura describes self-efficacy coming from the mastering of skills developed through opportunities to experiment and try new skills (Bandura, 1977). Education, welfare and health services can provide the opportunity to experiment when the resources of the individual or household make this difficult.

Leaving home did not appear to be a key transition point for diet quality, although it may be important in expressing one’s food identity. Young people who enjoyed family foods and mealtimes continued these habits when living independently. Others chose to distance themselves from the food of their parental home. Neither of these approaches appeared to be associated diet quality. A study of 18-25 year olds in Liverpool found the quality of the diets of people living independently was more likely to be ‘good’ than that of those living in their parental home. While over 40% considered their diet since leaving home was less healthy, this was significantly less for those who had been living independently for more than two years (Beasley, Hackett, & Maxwell, 2004). This is consistent with findings of this study in which participants described establishing routines about food and eating some time after first moving into a new household. A study of over 18 000
adolescents aged 11-21 (mean 16 years), examined parental influence on food intake (Videon & Manning, 2003). Neither adolescent autonomy, parental control, nor the presence of a parent when the child left or arrived home from school, was associated with healthier food intake. The greatest influence came from the number of meals eaten in the presence of a parent. The significance increased with the frequency of meals consumed together. This highlights the complexity of parental influence.

Prior to this study, nutrition practitioners had anecdotally identified that food literacy appeared to be of greater interest to clients at key life transition points, including leaving the parental home. Literature regarding the existence or importance of key transition points to food choice is mixed (Riddell, et al., 2011; Wills, 2005; Zhang, Tan, Dai, Huang, & He, 2012). The findings of this study indicate that there are few standard transition points across all population groups. Moreover, the significance of transition points varied considerably, and in this sense, their importance in shaping identity did also. For young people who are already socially excluded, mainstream transition points such as completing school, getting your first job and leaving the parental home for the first time, have little relevance. This is consistent with the youth literature (Wyn & White, 1997). Interventions which target these times, therefore, are likely to further marginalize these groups. For example, interventions which focus only on the conventional school setting may miss some of the most vulnerable groups.

It is unclear if transition points are significant for populations not experiencing disadvantage. While transitions, such as finishing school were more homogeneously experienced that is, people were 17 years old, living at home and it happened at the end of the year with their peers, their clustering with others, such as living independently or earning an income, was not. It may be that practitioners who have anecdotally observed key transitions, are identifying individuals who are ready for action in a phase of behaviour change, rather than a transition milestone that could be more universally applied (Prochaska, et al., 1992). Learning about food and developing a relationship with it appear to continually happen over a lifetime. Participants identified multiple influences and key points in the development of their relationship with food.
7.4 CONCLUSION

Theories of learning appeared inadequate in describing the complexity of how food literacy develops. Models of child social development were more relevant. This is perhaps because learning about food does not have an endpoint, rather it develops over a lifetime. Being “good with food”, too, is not simply about knowledge and skills but also about a social relationship because it is part of our day-to-day lives.

Bronfenbrenner’s model of child development is widely used in policy and practice (Australian Institute of Family Studies, 2009). This model describes various influences on child development. The influence of these levels grow stronger the closer they are to the centre of the circle. The model is useful in describing who is involved in the development of our relationship with food and what might happen if there is a breakdown in one of these levels. Learning theories are then useful to describe how this relationship might develop, what factors will support and inhibit it, while taxonomies of learning help to organise what elements need to be part of this development.

Perhaps the most important finding of this study, however, is the significance of social, rather than educational, systems in the development of food literacy. In particular, the results challenge mainstream thinking about the role of traditional family structures in the development of food literacy. It is critical that practitioners acknowledge and consider this when planning their work.
Chapter 8: Relating Food Literacy to Nutrition and Health

The aim of this research was to explore the relationship between food literacy and nutrition. This first required an understanding of the term and what it included. The preceding chapters address these two aspects. The Young People Study also explored the development of food literacy which contributed insights into the influence of social and environmental systems. This chapter describes the evolution of a model to help conceptualise the relationship between food literacy and nutrition. Both studies contributed to its development. This chapter sequentially presents the results of each study to describe how and why the model developed and the contribution of each to this process.

The first iteration of the model of the relationship between food literacy and nutrition was developed following the Expert Study. Its application and face validity was then tested. Data from the Young People Study was analysed to look for intersecting themes. Throughout the research process, the model was presented to peers in a range of forums to test the clarity of the representation of concepts. This chapter discusses the results of these studies in order of their implementation, presents the evolution of model diagrams, and finally describes the relationship between food literacy and nutrition.

Both studies re-enforced that practitioners and policy makers invest in food literacy with outcome expectations beyond diet quality. For this reason, a second model was developed to conceptualise the role of food literacy with respect to food security, body weight and chronic disease risk. While this research was designed to explore the relationship between food literacy and nutrition, this second model helps to position food literacy within multi-strategic public health nutrition and chronic disease plans which was an expected outcome of this research. The first model, rather, is designed to inform existing and future efforts that aim to address food literacy per se. This chapter describes the evolution of both.
8.1 FOOD EXPERTS’ CONCEPTUALISATION OF THE RELATIONSHIP BETWEEN FOOD LITERACY AND NUTRITION

This section describes how data from the Expert Study was used to develop a model of the relationship between food literacy and nutrition. The profile of participants allowed for a deep exploration and discussion of this relationship with them that was not possible with the Young People Study. Expert Study participants were selected as a result of their extensive experience and expertise in food (refer to Chapter 3 for participant selection criteria). As such, they had very considered views of the potential relationship between food literacy and nutrition. This section describes supporting data for each of the constructs presented in the model.

Data from all three Delphi rounds was used to theorise the relationship between food literacy and nutrition. Data indicated that experts considered the relationship between food literacy and nutrition to be indirect. In discussing possible mechanisms for this relationship, the three themes of providing security and certainty; improving choice; and making eating more pleasurable emerged. Experts discussed that the strength of this relationship, was likely to be mediated by the food supply and the individual’s values. Participants talked about the relative importance of components of food literacy being dependent upon these mechanisms and mediators. Food literacy interventions targeting individuals living in a remote town with limited fresh fruit and vegetables, for example, may focus more on access components than language. The level of nutrition outcome being sought may also impact on the relative importance of proposed components. For example, a client needing to avoid a particular food ingredient such as gluten, may need to focus more on knowing where food comes from.

To help illustrate these relationships, a conceptual model was developed, from the findings of this study (refer to Figure 8.1). The following section presents data to support these findings.

8.1.1 Mechanisms

Participants tended to discuss the way in which knowing and understanding how to use food improved nutrition, in three key ways. It improved nutrition by:
• providing more **choice** and consequently being less restricted by the local food environment and resources;

• making healthy foods more **pleasurable** and so more likely to be eaten; and

• improving food **security** by providing greater certainty in the availability, accessibility and acceptability of food.

These three mechanisms were all considered in the context of empowering the individual, giving more control over food and eating, and consequently, greater resilience to protect diet quality through change.

**Choice**

Choice was conceptualised in two ways by participants. The first related to individualism; the right to exercise choice and establish one’s own goals and needs. The second related to the proliferation of food choices and the need to make sense of these. This second interpretation is linked with food security and certainty. These constructs presented a paradox. Several participants talked about the emergence of a focus on food literacy being related to the increase in the number and diversity of foods in our contemporary food supply and the complexity of skills and knowledge needed to navigate through it. In contrast, others discussed the limited number of healthy choices.

...what I’m thinking about in all this is to give people the option to be able to prepare their own food, rather than having to buy it pre-prepared. I certainly, see people who are in that situation, who really have so few skills that they feel they have to go out to the pub if they want to have a hot meal. They don’t feel confident or skilled or whatever to do it themselves....... Obviously, you can have a perfectly adequate diet and healthy diet restricting yourself to what you might regard as a classical Anglo-English type cuisine, but, I wouldn’t think that that indicated the highest level of food literacy, if that’s what you were restricted to.

*Industry researcher 1*
It was much easier before we were so sophisticated with the food products that are out there in the supermarket, because the majority of people still shop in a supermarket and are faced with a barrage of, as you know, breakfast cereals and dairy and yoghurts and ice-creams. And because everything’s fortified and we’re taught nutrients, it’s difficult for kids to think, “Oh, I can get my calcium from orange juice, or I can get my ...” It’s not easy to teach. It’s much harder to teach. So I think we’ve got the challenges. It’s more challenging for us now, I think, than ever before, from a nutrition point of view, to help people get through the myriad of information.

*Industry practitioner 3*

**Pleasure**

Pleasure was conceptualised broadly. It ranged from taste, flavour, contentment, satisfaction and accomplishment. It included pleasure in healthy eating.

So you’re less likely to – and this is really my personal opinion, but I just feel that you’re less likely to eat bad food, because you know what good food tastes like.

*Production practitioner 1*

I think generally people are more concerned about what they eat and a greater emphasis on wellness; how different people actually act to that may vary but I think there’s a common theme that people want to be healthier. Fruit and vegetables still resinates I believe with a greater majority of people of the first step to wellness and then obviously there’s a lot of sub-steps around the, what we called food that’s good for me. So that could be for some people organic product, it could be free range, it could be more natural.

*Industry practitioner 4*
Food that you genuinely like and that you’re genuinely happy with. If that is just a simple lamb chop and some steamed vegetables, that’s fine. That’s a fabulous meal.

*Gastronomy practitioner 1*

It was noted that often, however, nutrition is not associated with pleasure and that other sectors perform much better in this domain.

I think nutrition – I think it’s the most boring word on earth. I don’t know that we’ve got to invent a new word but it’s not a sexy word, there’s no doubt about it. You know, it’s an instructional word. It’s an institutionalised word and when you hear the word, I don’t think it rings bells and says “my gosh, we’re going to have a jolly good time.” You know, it just doesn’t have that feel about it unfortunately, so I think that in a way the less that word is used the better.

*Gastronomy practitioner 1*

**Security**

Both choice and pleasure are relevant to both the food secure and the food insecure. This mechanism predominantly examined the construct of certainty, which was more significant for those who were food insecure but could also be interpreted more broadly.

I guess around the issue of choice I could comment, you know, and I would agree that much of the definition, if you like, crudely of what constitutes poverty is around the levels of choice that people are able to exercise.

*Welfare researcher 1*

For people that are disadvantaged or have less resources at their fingertips, I guess there will be choices that they have to make. And I guess prioritising different – there’s competing demands in people’s lives and for disadvantaged people, there’s a host of – you know, the competing demands are even higher but to some degree, some level, basic level of food skills will
assist, I would have thought, in procuring food and making do with what is at hand.

In the context of food security, food literacy was conceptualised as providing greater resilience and resistance to changing economic and social changes. It was seen as helping to protect diet quality. This could also be interpreted as giving a greater degree of certainty around food, particularly its availability and quality.

8.1.2 Sector Differences

While sectors did not particularly differ in their identification of possible components of food literacy, they did vary in why they thought it was important and how it might relate to nutrition. The education and welfare sectors tended to talk about themes of resilience and certainty, the gastronomy and food industry sectors had a greater focus on pleasure, the production sector talked more about choice and the nutrition sector discussed security and choice. For several of these sectors these mechanisms are an endpoint in themselves. They represent where the expertise and core business of these sectors lie.

8.1.3 Mediators

Participants described the extent to which food literacy might influence nutrition being mediated by values and the local food supply. Some respondents discussed these in terms of “pre-requisites” or “facilitators”. These factors were also described as influencing the relative importance of food literacy components. For example, for a food insecure young mother knowing how to stretch food further might be more important than understanding the provenance of a food product. A chef who values taste and appearance over health may have high food literacy but this will have little impact on their nutrition. This link with values and food supply may indicate where food literacy could be positioned within broader food and nutrition systems.
Values

An extremely broad range of values were discussed by participants. The breadth of values is reflective of the complexity of food in our society.

So it really depends on the resources that people have and other aspects as well. Whether they’re highly motivated, and their values surrounding food, whether they’re willing to improve their food skills because they value their nutrition, or they value aspects of, say, vegetarianism, or they have particular ethical views about food, and that they should eat organic food. Now, sometimes, by having these sorts of values, they can be motivators for people wanting to improve their food skills.

Education researcher 1

A lot of them appear not to value it (nutrition), because a lot of young people think they’re invincible and they don’t recognise what harm they’re doing to their body. So I think a positive attitude towards health is important. I think a positive attitude towards being able to learn new things and that they can do things.

Education advocate 1

My friend, the chef, who uses loads of butter and loads of salt in everything that she does because she’s focusing on the taste rather than – and so it’s about what’s of value in there. So that’s a personal values thing because she probably does know, nutritionally, what’s balanced but she likes the taste.

Industry policy 1

All right, I’ll focus more then on young people themselves in which case the scope is, probably, in terms of a continuum from absolutely no knowledge whatsoever and a desire not to have any knowledge, an active desire not to have any knowledge. Because having that knowledge would seen to be some form of control from people that they don’t trust and if I give over that sense of control to people I don’t trust then I become vulnerable. So, you’re almost talking about an anti-knowledge, through to the other end of the spectrum is someone who has a sense of their social collateral being connected in with their body who have received previous experiences that have been positive in relation to adults who see healthy food and nutrition as being valuable.
I mean for example, if I look at my parents who are in their mid 80s, they have a structured meal pattern that’s based on you know, sort of cooking most of it themselves, that they’ve done most of their lives. And they eat a very healthy diet based on lots of fruit and vegetables and sort of lean meat and you know, bread and breakfast cereals. I don’t think that they would be at that more complex end of food literacy but they believe that it’s really important and they think health is very important and they’ve lived you know, active lives based on you know, sensible healthy eating. And I think that, that’s because they grew up in an environment where that was the habit and the culture.

Values are important in targeting and engaging population groups. They link to the expression of identity for individuals, groups and populations. Values may also change as people transition and respond to change, for example, when becoming a parent. Understanding a community or individual’s values are important for engagement. This is particularly so for those who do not value health or nutrition.

Food supply

Participants discussed food supply as the key determinant of nutrition and the irrelevance of food literacy when food supply was inadequate. Others discussed the increased need for food literacy given the complexity of the food supply and how its relative importance depended on this complexity.

I think if you’re a poor person, or you’re a person living in an area where you can’t get easy access to cheap, good, fresh products, which is actually a lot of people, then it’s going to be really hard.

You had to get people “housing ready” was the terminology and one of the critical parts of that around what they call living skills was learning how to cook. But I often, in my interviews and research with people experiencing homelessness, the majority of them found it very insulting and unnecessary. And, in fact, their nutritional capacity among - most of them was quite good.
and in effect on par with the general community, their food literacy levels. But again, it’s simply a question, as I said at the outset of the interview, that it’s their capacity to exercise their food literacy is diminished by their financial poverty. Yeah, that was the governing factor, it wasn’t a lack of nutrition knowledge, it was a lack of money to execute that knowledge.

*Welfare researcher 1*

We’ve been doing some research about what one would call the Depression era Australians and what they ate, and this was prior to Dietary Guidelines, and they would describe their meat and three veg meals. They’d describe a highly routinised diet without much going out to eat and very little use of convenience foods. That generation, because of the local food environment that they inhabited with far less choice, they didn’t need to consciously have nutritional knowledge to eat well.

*Gastronomy researcher 1*

Our skills in food production and have reduced and possibly the home influences around cooking have reduced and that’s happened at the same time that our food supply’s increased remarkably and become more complicated and trying to navigate.

*Nutrition policy 2*

In public health nutrition plans, food literacy is most often categorised as a component of food supply (Prime Minister's Science Engineering and Innovation Council, 2010; Queensland Public Health Forum, 2009). Its relationship, however, is more likely to be multidirectional. Improved food literacy improves individual food supply, however concurrently; the extent to which food literacy can influence nutrition is limited by the food available. The relative importance of components of food literacy will also be influenced by the food supply, for example in a remote community with one store and typically poor quality fruits and vegetables, preparation or growing food may be more important.

### 8.1.4 Nutrition Outcomes

Three main nutrition themes emerged from the data; the variability in interpretation of healthy eating and its influence on food literacy; the mutual
exclusivity of food literacy and nutrition; and nutritionism. Participants differed in what they thought was an important level of nutrition knowledge. These are represented by the range of components listed in the nutrition domain in the round two survey (refer to Table 6.1 in Chapter 6). The nutrition end-point sought appeared to differ depending upon the setting and context. Many discussed overall broad nutrition goals, perhaps best described as universal population-wide wellbeing. This included knowing the general proportions in which to eat foods and broad principles regarding foods to include and avoid for general good health. These sort of broad goals are probably best articulated in Dietary Guidelines although most participants had limited familiarity with these nutrition tools and measures and so did not mention them specifically (National Health and Medical Research Council, 2003). Food literacy was also considered with respect to its relationship to meeting food group serve recommendations and further to individualised nutrition needs for example when following a special diet (Kellett, et al., 1998; National Health and Medical Research Council, 2005).

The relative importance of food literacy components seemed to differ depending upon the nutrition endpoint being sought, as did the mechanism through which nutrition would be improved. It may be that the importance of each of these domains is relative to each other. For example, if you do not prepare food from raw ingredients then the labelling aspects from the selection domain may be more important. Domains of food literacy that a dietitian focuses on with an individual client following a restricted renal diet, for example, may be motivated by increasing the choice of foods within the client’s usual food environment.

For most, it was acknowledged that nutrition was a specific component of food literacy and that it would not naturally follow if other domains were met. Views varied as to why and to what extent this was important. Some considered this to be a function of our contemporary food environments, that is, in years past or in nations where the local food environment is predominantly made up of core foods, food literacy is more likely to result in a healthy diet. Some considered nutrition knowledge to be a subset of food literacy. Others considered it to be a different set of knowledge, skills, attitudes and beliefs. Participants discussed the need to explicitly focus on nutrition. The depth of this focus was a function of the nutrition endpoint being sought.
Thai’s don’t need nutrition science to tell them what is a healthy diet. They, until very recently, have done it, because the traditional diet for them has been a healthy diet. I think the same pertains to Italy and to Greece where there have been their traditional diets, perhaps haven’t had the diversity that nutritionists would want. But, the reliance on fruit and vegetables and complex carbohydrate, I mean it’s fantastic. So, there are many places in the world where the traditional diet is so lined up with now what nutrition science is saying, that you actually didn’t need the knowledge to eat healthily. But, I think things have changed in all those countries and in Australia, with the rise of food offerings and the local – our local food environments have changed so dramatically, so that there’s food on every corner.

Gastronomy researcher 1

I think back to the messages that we give out in nutrition, like, two serves of fruit a day, five serves of veg, no more than three or four meat meals per week, ideally two sorts of fish meals. That really goes back to the planning and the access for people, that it’s not a matter of just selecting what’s on special, or perhaps what a family preference is, or people’s own preferences, but that you’d have to specifically be undertaking some sort of plan, really, to make sure that you’ve met those requirements.

Nutrition researcher 1

This study sought the views of a diverse group of experts with interest and experience in health eating. Non-nutritionists in particular expressed strong views on nutrition promotion and its impact on people’s relationship with food. These views were often in conflict with how nutritionist participants described their role.

Rather than constantly bombarding people with the latest nutrition science as X, Y and Z, because I think that that adds to this under confidence, this fear of food, this, “look I don’t know what to do”. (non-nutritionist)

Gastronomy researcher 1

I’ve got a very strong view, because for me, if you, let’s use the term ‘good with food’ — if you grow your own vegetables, or buy from farmer’s markets, you go with the seasons, you cook just simply and beautifully, nutrition is just a by line for it. (non-nutritionist)

Gastronomy practitioner
We’re so confused, we’re so frightened. That sends us into the embrace of commercial food providers and other food providers, because we say, “Oh, we can’t do it.” And, for me, unless we reclaim that mastery over food, that ease with it, then we’re in deep trouble. And that’s far more than ease and mastery over nutrients. (non-nutritionist)

_Gastronomy researcher 2_

Well, I live in a world where the amount of nutrition information, misinformation overwhelms the nutritional information and it’s me just trying to get a few people to get their heads above all the crap. (nutritionist)

_Industry practitioner 1_

I think that there has been distortion of quantities and people I think have lost their way in terms of what is reasonable to eat, how often to eat certain foods. (nutritionist)

_Industry advocate 3_

I’m not at all in favour of professionalism but it strikes me that we actually are not able to effectively communicate to our colleagues what this nutrition stuff is about. Them appreciating that we’re not being exclusive or precious but that to sort of eat well and appropriately is complex. But on the other hand I guess I don’t, I think that it’s complex largely because of all the, the messiness around eating in society at the moment. (nutritionist)

_Nutrition policy 1_

Food literacy, and its various components were discussed as a mechanism or medium for discussing and developing an interest in nutrition in addition to being an end in itself. For example, several participants discussed the success of _Masterchef_ in getting people excited about food, finding out what is in food and where food comes from although it does not explicitly address nutrition.

### 8.1.5 Testing the Face Validity of Findings

One of the expected outcomes of this research was to develop a conceptual model of the relationship between food literacy and nutrition against which existing
investment could be assessed and future investment could be informed. To test the model’s face validity an external reviewer used it to evaluate and order interventions identified as addressing food literacy. Interventions were identified through the literature and by practitioners. This tested both the extent to which the presentation of the model was self-explanatory enough to be used and if the model was useful in capturing the concepts and constructs which practitioners consider important in addressing food literacy. Further details of the results of this review are presented in Appendix F.

When the model was developed, the mechanisms were conceptualised as possible ways that food literacy influenced nutrition. The mediators were conceptualised as influencing the strength of the relationship between food literacy and nutrition. That is, mechanisms were possible measures for impact evaluation and mediators could be considered as variables to control for, or factor into, the measurement of an intervention’s effect on dietary intake, rather than be an endpoint of evaluation in themselves. The external reviewer, however, assessed interventions according to the extent to which they measured their influence on mechanisms and mediators.

The external reviewer’s use of the mediators as end points differed from the intention of the model. However, this categorisation of evaluation is useful to consider. All bar one intervention addressed either food supply or values, perhaps indicating that practitioners implement interventions cognisant of their role within multi-strategic approaches to addressing healthy eating. Many of the elements were categorised in the Expert Study model as “values”. Several could perhaps more accurately be described as attitudes or beliefs. “Intention to cook” or “attitudes towards eating fruit and vegetables” may be important steps in changing values but are unlikely to indicate long-term behaviour modification. Similarly, in the model, “food supply” referred to the local food environment in recognition of its influence on food intake. The external reviewer categorised those interventions which included a gardening component as addressing food supply. These elements would be more accurately classified within “access” or “knowing where food comes” from domains of food literacy.

The proposed mechanisms of security, choice and pleasure appeared to be useful in capturing the themes of impact evaluation although the descriptions of these
terms were ambiguous. “Security” was interpreted as referring to food security rather than certainty, predictability and consistency in food intake more broadly. This highlighted the need to clarify or replace the term.

In the model only nutrition outcomes are documented. These range in specificity from general dietary habits consistent with the Dietary Guidelines, to Food Group Serves to intakes of specific nutrients. Reviewed interventions which evaluated dietary intake did so at all of these levels indicating that the model captured the scope of dietary intake outcomes well. However, several studies extended this to include changes in chronic disease risk factors such as BMI and blood pressure. Others examined more global outcomes such as social and school learning environment, community engagement and social inclusion. These additional factors were not addressed in the Expert Study model. Their absence potentially limits the use of the model.

This test of the face validity of the findings of the Expert Study revealed that the definition, components and model were useful in describing interventions which practitioners considered address food literacy. All elements were able to be categorised into domains, indicating that they effectively capture the totality of food literacy. The definition, components and model were, however, too ambiguous, which compromised their use. Clear definitions of components, domains and other model elements are critical to its use. Outcomes presented in the model should also be extended as practitioners are likely to be interested in capturing these in their planning and evaluation.

8.1.6 Conclusion

This model was the first attempt to conceptualise the relationship between food literacy and nutrition. Practitioners and researchers were keen to use the results of the first study of this thesis. As part of the service agreement with Queensland Health, the project report was published and available online (Helen Vidgen & Gallegos, 2011b). A review of interventions was required by Queensland Health as part of the funded food literacy project. This provided an excellent opportunity to test the face validity of the model. In addition, the model was presented at a variety of practitioners forums including conferences and less formal practitioner meetings.
At the time of writing this thesis, the report had been downloaded over six hundred times in twenty-nine countries. Several researchers and practitioners contacted the researcher. Feedback from all of these avenues was considered in the ongoing evolution of the model. The following section describes the contribution of the Young People Study and how its results were considered alongside those of the Expert Study, practitioner input and peer review to develop a final model.
Figure 8.1: A Conceptual Model of the Relationship Between Food Literacy and Nutrition Resulting From the Expert Study
8.2 RESULTS OF THE YOUNG PEOPLE’S STUDY: A FINAL MODEL OF THE RELATIONSHIP BETWEEN FOOD LITERACY AND NUTRITION

Data from the Young People’s Study was examined for new themes and then re-examined the with the results of the Expert Study to look for areas of intersection. This led to the development of a final model. This section describes the model and its development. It does not present interview excerpts from the Young People’s Study as this would be repetitious. Instead, excerpts presented in Chapter 6 are referred to as descriptors of the key constructs in the model.

Unlike the Expert Study, participants in the Young People’s Study were not asked about the relationship between food literacy and nutrition, rather they were asked about how they go about feeding themselves, and what they considered meeting food needs “well” meant, that is, their conceptualisations of “being good with food”. This data was considered alongside information on dietary intake, and attitudes towards nutrition and healthy eating. From this, the Expert Study model was re-examined and modified to better communicate the relationship between food literacy and nutrition. This section describes each of the constructs presented in the final model. Many of the constructs as described in the results of the Expert Study model were retained, however, the understanding of their meaning and contribution to the overall model, deepened following the Young People Study and tests of its application with practitioners.

The construction of the model involved both the development of a theory of the relationship between constructs and the clarity of their representation graphically. This latter process was informed by peer debriefing. Various model options were first presented and discussed with the project reference group composed of practitioners and research from health, welfare and education sectors. These options are shown in Figure 8.2 and Figure 8.3. The group chose Figure 8.2. This diagram was then included in the final project report to the Queensland Health Department and presented at various practitioner conferences, seminars and forums nationally and internationally (Helen Vidgen & Gallegos, 2012a, 2012b, 2012c; Helen Vidgen, Gallegos, & Caraher, 2012). The model was then sent to two different graphic designers to more professionally represent results. Their presentations are shown in Figure 8.4. Practitioners were again consulted. They considered that these designs failed to capture the essence of concepts and so they were not used. These designs
did, however, highlight the need to stylize the model and consider the application of its use in various media. These design concepts led to the development of the final diagram, shown in Figure 8.5.

In the final model, the inner circle describes the core relationship between food literacy and nutrition. It illustrates that food literacy improves diet quality by contributing to the certainty, choice and/or pleasure of food intake. Diet quality can be described at varying levels of specificity. Those depicted align with key nutrition recommendations (National Health and Medical Research Council, 2005, 2013). Food literacy may also result in other outcomes such as social connectedness and food security. The outer circle illustrates the importance of context. The extent to which food literacy can influence nutrition will be influenced by the food supply and early childhood experiences with food, shown in the first circle. These in turn, will be influenced by the social determinants of health, particularly poverty, geography, social exclusion and social support. The overarching influence of these contextual factors on all of these relationships, that is, the nature of food literacy components, their contribution to certainty, choice and pleasure, and the extent to which they will contribute to improving diet quality, is depicted by the circle shapes. The following section describes the model and each of these constructs in detail.
Figure 8.2: A Conceptual Model of the Relationship Between Food Literacy and Nutrition Developed Following the Young People Study.
Figure 8.3: Options for the Representation of the Influence of Disadvantage Presented to the Project Reference Group
Figure 8.4: Graphic Designers’ Representations of the Relationship Between Food Literacy and Nutrition
Figure 8.5: The Final Model of the Relationship Between Food Literacy and Nutrition
8.2.1 Food Literacy

Food literacy has been defined in Chapter 5: as:

A collection of inter-related knowledge, skills and behaviours required to plan, manage, select, prepare and eat foods to meet needs and determine food intake. It is the scaffolding that empowers individuals, households, communities or nations to protect diet quality through change and support dietary resilience over time.

The diagrammatic representation of food literacy aimed to reflect the key themes in this definition. The final model shows that food literacy is made up of several components. In the revised model they are grouped into four domains. Chapter 6 describes the process of moving from eight domains following the Expert Study to four in the final model. All four domains are essential parts of food literacy.

The inter-related nature of domains was represented differently in different drafts of the model. In earlier versions it is shown using a series of lines to represent scaffolding (see Figure 8.2). This was thought to show that like scaffolding, when a link is missing, our relationship with food does not collapse, but is weakened. The final model, however, returned to the linking circles used in the model following the Expert Study. This communicates the dynamic nature of each domain and their influence on each other.

Data from all studies revealed that food literacy is contextually driven and changes over time. The relative importance of domains to improving or maintaining diet quality will constantly vary. For example, within the same individual, the level of food preparation skills needed to feed themselves will differ from that needed to feed dependants. Similarly, the planning and management knowledge would differ between when an individual is in stable housing to when they are not. As a consequence, the degree to which a set of knowledge, skills and behaviours can influence diet quality will also vary.

Domains are also related in that competence within a domain may influence the level of competence needed in another. For example, if one has limited food preparation skills and relies on pre-made foods, a higher level of competence in food selection may be needed to maintain diet quality. Circles represent this relationship and food literacy as a whole concept, rather than separate parts.
8.2.2 Mechanisms

As with the Expert Study model, this model shows that the relationship between food literacy and nutrition is not direct, rather, it improves nutrition by making food intake more certain (or predictable), more pleasurable and gives more choice (or helps to inform choice in our complex food environment). These mechanisms aligned well with the main themes identified in young people’s conceptualisations of being good with food. They are described in more detail in chapters five and six. For example, component 3.1 of food literacy is the ability to:

Make a good tasting meal from whatever food is available. This includes being able to prepare commonly available foods, efficiently use common pieces of kitchen equipment and having a sufficient repertoire of skills to adapt recipes (written or unwritten) to experiment with food and ingredients.

The mechanisms of certainty, choice and pleasure all contribute to this component.

In the final model these mechanisms have been given greater emphasis than in the Expert Study model. Pleasure, certainty and choice are often endpoints in themselves for service providers and individuals. They are also more likely than nutritional status to be the motivation for developing one’s food literacy. The Young People’s Study re-enforced that for food literacy to improve nutrition, it must travel through one of these mechanisms. Attendance, participation and engagement with an intervention relied on it addressing one or all of these mechanisms.

The health sector’s role is to work in partnership with those service providers who specialise in these mechanisms to extend their work to include a nutrition outcome. In many cases, these service providers are better placed to address these mechanisms than those working in health. For example, the use of the gastronomy sector to engage people in food literacy programmes which promote healthy eating with a pleasure focus may be more successful than those programmes being conducted within health care settings with a nutrition focus.

In the first model, values were included as a moderator of the relationship between food literacy and nutrition (refer to Figure 8.1). These might however, better describe the mechanisms of choice, certainty and pleasure. Schwartz has identified nine domains (refer to Section 2.2 of the literature review) to universally
define values (Schwartz, 1994). The value domains are useful in describing individuals, groups and populations. Botonaki applied these domains to explain convenience orientation in food consumption (Botonaki & Mattas, 2010). In mapping values and convenience food seeking, the study found that those who favoured convenience valued power, achievement, and hedonism. Those that favoured food preparation, shopping in specialised stores and the sensory appeal of food, valued security and conformity. These mechanisms, therefore, may represent different motivations through which to engage individuals in food literacy and may help to explain the different emphasis that nations place on population level food literacy development.

Moreover, these three mechanisms are representative of key elements of the new modernity described by contemporary social theorists. In his work, Modernity and Self-Identity, Giddens (1991), describes the inter-connection between certainty and choice in modern society. He describes a “post-traditional order” in which key institutions which have guided society, such as religion, have broken down. In their place, individuals are left to determine their own identity from a greater choice of options but less certainty than these key institutions provided. Here he describes the complexity of this task

Modernity institutionalises the principle of radical doubt and insists that all knowledge takes the form of hypotheses: claims which may very well be true, but which are in principle always open to revision and may have at some point to be abandoned. (Giddens, 1991) p3

Giddens goes on to describe this as then occurring amid a “puzzling diversity of options and possibilities” p3. The certainty of tradition and habit have been replaced by the need to make decisions based on rational knowledge. He refers to trust as being crucial to personality development. He asserts that a small number of simple decisions are based on past experience but others requiring a more critical knowledge rely on trust. In describing how trust is used in modern society, he refers again to the fluidity and lack of certainty around knowledge and how experts have replaced traditional institutions in providing this. For those excluded from key social systems and institutions, this trust is likely to be diminished.

The emergence of food literacy as a relatively new construct may be explained by Giddens’ modernity. He describes the pace, scope and profoundness of social
change as faster than in any prior system. Food systems and our interaction with them are part of this. The individual’s knowledge and trust of these systems cannot keep up with this pace of change.

The emergence of food literacy may be an attempt to make sense of it all, try to order the choice and restore trust and certainty. It may be, like personality development, this trust is a crucial element of developing a health relationship with food. Giddens describes this as being difficult in a global modern society which re-orders time and space in everyday life. Food is available in many different forms, places and times than ever before. Eating, consequently, also includes more options than ever before.

Gabriel and Lang highlight the commodification of food and eating (Gabriel & Lang, 2006). They describe the consumer as a “god-like figure” for whom pleasure is the ultimate pursuit. Choice is central to consumerism. More choice is associated with more pleasure and greater consumer power. They too, describe a breakdown of traditional institutions, now replaced with the market.

It is perhaps not surprising, therefore, that the results of these studies identified the mechanisms of certainty, choice and pleasure. They are, perhaps, more a modern representation with an everyday event, eating, rather than being unique to the application of food literacy. Regardless, these mechanisms help to explain the emergence of the construct of food literacy in policy, practice and society. More importantly, they help to describe how the practical elements of day to day eating relate to nutrition in contemporary society.

8.2.3 Nutrition Outcomes

Results of the Young People’s Study and a review of food literacy interventions, re-enforced that nutrition outcomes are broadly defined. The nature of the nutrition outcome sought should be articulated in programme planning and will influence the depth of knowledge and skill in each food literacy component. Throughout this thesis the term ‘diet quality’ has been used to broadly describe a range of nutrition outcomes. Measures of diet quality typically capture the extent to which food intake meets both dietary guidelines and food group intake recommendations (McNaughton, Ball, Crawford, & Mishra, 2008). Dietary patterns
may also be a useful end measure as they can be used to describe more contemporary styles of eating (Cunha, de Almeida, Sichieri, & Pereira, 2010). At the individual level, food literacy could be targeted with a specific food component as the outcome. For example, a dietitian may work with a client to improve planning and management, selection and preparation domains for the purposes of avoiding gluten.

It is useful to consider different levels of nutrition endpoints and their application in practice across the health care continuum Figure 8.6 (Queensland Health, 2007). This could be used as a framework to inform a multi-strategic “model of care” for food literacy. For example, food literacy programmes targeting the well population might aim for outcomes at the level of dietary guidelines and be the responsibility of Population Health Services, whereas those targeting the management of a chronic condition may focus on specific nutrients and be the responsibility of those working in acute, rehabilitation and extended care. This application would help determine what components of food literacy practitioners could support the development of, in what settings, for what populations and for what purpose. It also inherently describes food literacy supported at national, community, household and individual levels.

<table>
<thead>
<tr>
<th>Well population</th>
<th>At risk population</th>
<th>Early identification and intervention</th>
<th>Acute consequences and conditions</th>
<th>Chronic consequences and conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prevention, promotion and protection</td>
<td>Primary health care</td>
<td>Ambulatory care</td>
<td>Acute care</td>
<td>Rehabilitation and extended care</td>
</tr>
</tbody>
</table>

Figure 8.6: The Continuum of Care and Service Responsibilities Across the Health Care Sector (Queensland Health, 2007)

The research findings acknowledge that food literacy will lead to additional outcomes beyond nutrition, examples include but are not limited to, social connectedness, ethical and sustainable food choices, and food security. For this reason, they have been included in the final model. This research, however, was
designed to explore its relationship to nutrition. Insufficient data was collected on these other outcomes to generate a model of their relationship to food literacy. This is represented in the model by a greater emphasis on nutrition outcomes. The model acknowledges that they may be primary outcomes for other sectors delivering food literacy interventions and would therefore be included in evaluation frameworks as appropriate.

8.2.4 Context

Both studies revealed the relative importance of the components of food literacy and its capacity to influence nutrition is highly contextual. In the Expert Study model (see Figure 8.1), this was represented by the mediators of food supply and values and their influence on the nature and emphasis of food literacy components. In influence of context was then further explored through a case study of young people and disadvantage. The life-course style of interviewing and analysis in the Young People Study allowed the exploration of these contextual factors over time. Disadvantage was described in terms of poverty, social exclusion, social support, geography and transport. They are consistent with the social determinants of health identified by the World Health Organisation (Wilkinson & Marmot, 2003). These in turn, influenced the nature of the local food supply and early childhood development of food literacy (refer to Chapter 7). This is represented in the model by two co-centric circles.

Disadvantage influenced the capacity of food literacy to contribute to choice, certainty and pleasure, and ultimately, nutrition and other outcomes. These determinants influenced the relative importance and depth of knowledge or skills for individual components. This is described in quotes presented in the preceding chapters from participants across a spectrum of disadvantage. Two co-centric circles were chosen as best representing that the influence of disadvantage is not direct or linear but rather influences the relationship between food literacy and nutrition in a range of ways.

The findings of the Young People Study indicate that people from all backgrounds were capable of demonstrating the components of food literacy and working towards meeting nutrition recommendations. However, the depth of
knowledge, skill and behaviour required in each component and the extent to which food literacy was capable of influencing nutrition was determined by social exclusion, poverty, social support, geography and transport. For example, for a person without transport, determining how to access food is more complex, for a single mother on welfare payments and without social support, feeding her family may require more planning and management.

Disadvantage can be defined by the restriction of choice. The emergence of the theme of choice and its related themes of certainty and pleasure in the findings of this study are particularly noteworthy in the context of disadvantage. In a society in which its members are described as consumers rather than citizens, advantage is defined by one’s capacity to consume, choose what to consume and derive pleasure from it (Gabriel & Lang, 2006). Conversely, those with limited capacity to do so are marginalised and excluded. This very society which boasts empowerment and self-actualisation for some, creates suppression for others (Giddens, 1991). In exploring the meaning of the term food literacy, empowerment was a key theme, but so too was that of fundamental life skills. This perhaps reflects the multiple purposes for which practitioners invest in food literacy interventions. At a whole of population level, food literacy may empower citizens to enhance their diet quality, navigate a food supply with greater autonomy and engage in a dialogue over their food system. When working with disadvantaged groups, rather, it may empower through the expansion of choice and inclusion in food and social systems that were otherwise inadmissible.

Components which specifically described critical consumerism and informed food citizenship were not identified as core components of food literacy in the Expert Study. This was supported by the results of the Young People Study in which knowing where food comes from and other more critical aspects of selection were not described by participants. It may be difficult to consider a food literacy which empowers, without this. These results may be due to the nature of case study. The profound level of disadvantage experienced by some young people may have overemphasised the immediate needs which food was required to meet. However its lack of identification by both Expert Study participants and more advantaged participants in the Young People Study, could also indicate a more general lack of
awareness of the impact of social, cultural, economic and environmental systems on individual food intake, their capacity to influence it or demand that it changes.

In the model developed following the Expert Study, food supply and values were thought to be mediators. However, following the Young People’s Study, it became clear that these were a manifestation of the social determinants of health rather than existing separately on their own. Food literacy, for example, has an influence on nutrition, irrespective of food supply because being able to work within the local food supply is part of it. However, for those who live in a remote area, have no transport and little income, the planning and management required to routinely access healthy food may be a more important component of food literacy than it is for a wealthy urban dweller living in an apartment above a supermarket. This further highlights the increased complexity of choosing healthy foods for those experiencing disadvantage and the need for efforts to improve nutritional status to extend beyond the individual. Embedding the food literacy and nutrition relationship within the social determinants of health helps to consider where it might sit within broader health, education and social services plans.

8.2.5 Implications for Practice and a Framework for Evaluation

The purpose of the model is to describe the relationship between food literacy and nutrition; to identify elements to include in the planning, implementation and evaluation of interventions including the identification of target populations, settings and partners. This model can guide evaluation frameworks and measures.

- the components represent process evaluation;
- the mechanisms box containing choice, pleasure and certainty represent impact level evaluation, and
- the hierarchy of nutrition endpoints for outcome evaluation.

When the model was tested in the review of interventions, it revealed that most looked at these elements. For example, process evaluation examined behaviour change in preparing food, impact evaluation measured increased enjoyment in eating healthy food and outcome evaluation measured food intake.
The two outer circles in the model help practitioners to consider the context of their intervention. This together, with mechanisms, will help practitioners to determine who their practice partners may be. These need to be considered and articulated in service policy and planning, monitoring and evaluation.
8.3 FOOD LITERACY AND HEALTH

Throughout both studies and in the literature, themes of food insecurity, body weight and chronic disease risk and their relationship with food literacy emerged. For this purpose, a second model was developed. It is presented in Figure 8.7. The model proposes the contribution of food literacy to each of these health risk factors.

The research identified that food literacy includes multiple components, the exact nature of which are contextually driven. Additionally, these studies suggested that food literacy is likely to influence health in a range of ways. The literature regarding the relationship between various components of food literacy and dietary intake is inconclusive (refer to Chapter 2). This relationship is particularly weak when extended to examine body weight (Crawford, et al., 2007; Kenny, et al., 2008; Larson, Story, et al., 2006; Smith, et al., 2011). It is likely therefore, that food literacy is an enabler to healthy eating and health overall rather than a risk factor per se. That is, focusing on food literacy alone is unlikely to influence health outcomes, rather it is an important adjunct to other strategies which address health and wellbeing.

Due to its multi-component, contextual nature, strategies that address food literacy are likely to influence health in a range of ways making them a good investment. This model proposes the points of influence of food literacy along the causal pathway to chronic disease. Confounder arrows show where food literacy could link into broader frameworks which address disadvantage, food insecurity, nutritional status, body weight and chronic disease risk. While a focus on food literacy may buffer against an obesogenic or food insecure environment multi-strategic plans still need to continue to work towards influencing them. If food literacy is the scaffolding that empowers individuals, households, communities or nations to protect diet quality through change and support dietary resilience over time, then it follows that it acts to protect health and wellbeing at various points along the causal pathway to chronic disease.

This second model helps to position food literacy within broader health plans, particularly those addressing chronic disease. It guides evaluation in articulating the likely contribution of food literacy along a risk factor pathway. At times, food literacy related interventions have been expected to more directly affect food
insecurity, body weight and chronic disease risk than can reasonably be expected from such interventions. This was demonstrated by some of the outcomes measures used by existing interventions (refer to Appendix F). When the intervention fails to do so, investment ceases and work in the area is abandoned. This model, together with food literacy and nutrition model in Figure 8.5, should be used to articulate expectations of food literacy work, including evaluation frameworks to judge their effectiveness.
Figure 8.7: A Conceptual Model of the Role of Food Literacy in Food Security, Nutritional Status, Body Weight and Chronic Disease Risk.
8.4 CONCLUSION

This research used an assets-based philosophy to formulate protective rather than risk factor pathways for health. This innovative approach shifts nutrition promotion out of its current punitive paradigm and re-instates it as being focused on wellbeing, nourishment and sustainability in the full sense of those terms. The Expert Study asked best selling cookbook authors, food historians, food producers, school text book writers, food relief agencies and other food experts, what we needed to meet food needs. This represented the diversity of needs food fulfils for all of us and the biological, social, cultural, and economic systems it exists within. In the Young People Study, participants described what being good with food and meeting food needs meant. Neither of these studies applied a health endpoint, rather they used Constructivist Grounded Theory to let the protective factors of healthy eating emerge.

In describing the relationship between food literacy and nutrition and other health outcomes, the models presented in this chapter can inform practice and investment decisions. They describe what to do and why; what to measure and the nature of performance indicators at each point. The involvement of practitioners in the presentation of these models has contributed to their translation into practice.
Chapter 9: Conclusion

The impetus for this thesis arose from the emergence of a new term in policy and practice: “food literacy”. The term had no agreed meaning, its components were unspecified and its relationship to nutrition, was assumed but unexplored. Over the course of the research period, the use of the term rose, however these questions remained. This research contributes knowledge to the field by providing a scope of meaning for the term, a shared understanding of its components and a conceptual model of its relationship to nutrition and health more broadly. These are critical foundations to further work in this field.

Before undertaking this research I expected to develop a universal screening tool that could be used in various applications across the health continuum to quickly ascertain a client’s level of food literacy and direct them to a program accordingly. However, what soon became apparent was that the everyday practicalities of meeting nutrition recommendations were not simple or static. While the science of nutrition is context free, its application is embedded in context. Developing a definition of food literacy was an opportunity to describe the role of context. The emergence of this term emphasises that healthy eating necessitates a long term commitment which by virtue means its enactment is dynamic. Importantly, the definition of food literacy developed by this research stresses the role of context and the illogical application of a finite measure or cut off of competence. Practitioners, however, work in settings in which they require quantitative evaluation for sustained investment of effort and funding. Similarly, for policy makers, food literacy needs to be included in monitoring and surveillance systems if it is to remain a focus. This research is the critical groundwork needed to inform the development of a measure by describing the scope of constructs to be considered.

The term food literacy emerged to describe the everyday practicalities of meeting nutrition recommendations within our contemporary food environment. In taking an assets-based and case-study approach, this research uniquely provides an insight into the knowledge, skills and behaviours that people use to protect their diet quality, rather than the deficit model more typically taken in health. This thesis’ conceptualisation of food literacy, therefore, reflects what people can and do, do in
their efforts to meet nutrition recommendations rather than prescribe what they should do. The definition describes a dynamic food literacy which responds to evolving social, cultural and economic systems across which people navigate, over their life-course. It describes a food literacy that is not just a function of the individual but also households, communities and nations. It describes the reciprocal influence of each of these on the health of their relationship with food. The thesis goes on to propose how food literacy relates to nutrition and its position in broader health plans to address food security, body weight and chronic disease risk.

This research was practitioner led. Its purpose was entirely translational. At this point of completion, therefore, it is useful to reflect on the nexus between research, practice and the politics of implementation. The need for this work presented in 2009 with food literacy being identified as a “smart buy” in *Eat Well Queensland: Midpoint Implementation Review* (Queensland Public Health Forum, 2009). In response to the review, research was commissioned to inform the direction the State should take in optimally investing in food literacy (Queensland Health, 2009). This thesis includes the results of that research. Three years and a change of government later, not only had the State Health Department’s interest in investing in food literacy vanished, so had its nutrition workforce who was so closely involved in informing this research.

Researchers are often frustrated when their efforts are ignored by organisations that espouse a commitment to evidence based practice. Similarly, policy writers and practitioners call on researchers to better align their efforts with planning frameworks and service needs. Overlaid on all of this are the politics of research and practice which must be acknowledged and understood for research to truly be translational. A wide range of sectors and stakeholders within and beyond health were engaged in the design, implementation and communication of this research. As a result, its findings have already been used in other nations and jurisdictions, in government and non-government organisations and in diverse sectors.

Now that the term food literacy has been defined, its components identified, and its relationship to food intake and health conceptualised; practitioners, policy writers and researchers have a common language through which to further practice in the area. Important next stages would be the development of a measure for food literacy across varying contexts so that the models can be tested to further inform...
policy, practice and investment and monitor the relationship of food literacy to nutrition over time.


## Appendices

<table>
<thead>
<tr>
<th>Appendix</th>
<th>Description</th>
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<tr>
<td>Appendix A</td>
<td>Use of the Term “Food Literacy” in the Literature</td>
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<tr>
<td>Appendix B</td>
<td>The Expert Study Interview Script for Round One</td>
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<td>Appendix C</td>
<td>The Expert Study Participant Information Sheet</td>
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<td>The Expert Study Round Two Survey</td>
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<td>Appendix E</td>
<td>The Expert Study Round Three Survey</td>
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<td>Appendix F</td>
<td>Interventions Review Report</td>
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<td>Appendix G</td>
<td>The Young People Study Recruitment Sheet</td>
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<td>Appendix H</td>
<td>The Young People Study Consent Form</td>
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<td>Appendix I</td>
<td>The Young People Study Interview Guide</td>
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<td>Appendix J</td>
<td>Life-course Pathways of Young People Study Participants</td>
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Appendix A

Use of the Term “Food Literacy” in the Literature
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<tr>
<th>REFERENCE</th>
<th>YEAR</th>
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<th>COUNTRY</th>
<th>CONTEXT</th>
<th>DEFINITION</th>
<th>WHERE USED</th>
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<tr>
<td>(Committee on Labor and Human Resources, 1990)</td>
<td>1990</td>
<td>Government hearing</td>
<td>USA</td>
<td>X</td>
<td>N</td>
<td>The term was used in the American Dietetic Association submission to the hearing. “ADA believes that nutrition information on food labels, as addressed in S 1425, and in food advertising, governed by the FTC, can improve the food literacy of Americans” p107</td>
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<tr>
<td>(Demas, 1998)</td>
<td>1995</td>
<td>Journal</td>
<td>USA</td>
<td>X</td>
<td>N</td>
<td>“If the earth is to continue to feed its population, if diet is to help prevent the development of chronic diseases, and if we are to learn to accept other cultures, then we need to view food literacy as an educational priority”.p82T</td>
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<tr>
<td>(Solin &amp; Dalton, 1997)</td>
<td>1997</td>
<td>Journal</td>
<td>USA</td>
<td>X</td>
<td>N</td>
<td>Refers to the use of a “food literacy quiz” which assesses “basic cooking knowledge”.</td>
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<td>(1998)</td>
<td>1998</td>
<td>Journal</td>
<td>USA</td>
<td>X</td>
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<tr>
<td>(Kolasa, Peery, Harris, &amp; Shovelin, 2001)</td>
<td>2001</td>
<td>Journal</td>
<td>USA</td>
<td>X</td>
<td>Y</td>
<td>“the capacity of an individual to obtain, interpret and understand basic food and nutrition information and services as well as the competence to use that information and services in ways that are health enhancing” p2</td>
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<tr>
<td>(Elrick, Samaras, &amp; Demas, 2002)</td>
<td>2002</td>
<td>Journal</td>
<td>USA</td>
<td>X</td>
<td>N</td>
<td>“Schools must make food literacy a priority and encourage parents to participate in food-education in the classroom” p1104. Term later used in conjunction with “wellness literacy”.</td>
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<td>(Halweil, 2002)</td>
<td>2002</td>
<td>Book</td>
<td>USA</td>
<td>X</td>
<td>N</td>
<td>“But despite its many advantages, the local alternative nevertheless stand</td>
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<th>Y/N</th>
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<td>(Truswell, 2003)</td>
<td>2003</td>
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<td>Australia</td>
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<td>against the daunting tide of agribusiness consolidation, the decline of crop diversity and the loss of food literacy by the average consumer.... detaching themselves from long distance cuisine to live within their food sheds.” P17</td>
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<tr>
<td>(McMichael, 2005)</td>
<td>2005</td>
<td>Journal</td>
<td>Australia</td>
<td>X</td>
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<td>Refers to one of the nutrition problems in Australia being “Consumers' food knowledge and food handling skills are found by research to be weaker than often assumed. Teaching in schools about food and nutrition (&quot;Food literacy&quot;) was never high status and is costly if practical work is included. It has suffered by being split between D &amp; T (Design and Technology) and PDHPE (Personal Development, Health and Physical Education)” p232.</td>
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<tr>
<td>(Probst, Krnavek, Lockyer, &amp; Tapsell, 2005)</td>
<td>2005</td>
<td>Journal</td>
<td>Australia</td>
<td>X</td>
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<td>Article is about nutritionists needing to consider environmental sustainability. Final sentence of discussion “the other essential step is to increase the population’s food literacy and to thereby re-direct food demand and consumption towards health-supporting and environmentally benign foods.” P713.</td>
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<tr>
<td>(Probst, 2006)</td>
<td>2006</td>
<td>Thesis</td>
<td>Australia</td>
<td>X</td>
<td></td>
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<td>N</td>
<td></td>
<td>Term used in reference to discussing the limitations of dietary record taking methods. “the limitations of memory and food literacy will, however remain key obstacles” p60.</td>
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<td>(Smith, 2006)</td>
<td>2006</td>
<td>Journal</td>
<td>Canada</td>
<td>X</td>
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<td>Referring to antenatal and early life</td>
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<td>Edwards, Varcoe, Martens, &amp; Davies, 2006)</td>
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<td>care for Indigenous families: “Food security and food literacy were also described as urgent concerns ....a gap in knowledge and skills resulting from the loss of traditional food sources .....so they didn’t learn how to cook. Therefore, they didn’t do what you’re doing with your family. They didn’t make from scratch or teach their children what is a balanced meal. So we’ve got some [food] illiteracy.” pE39</td>
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<td>(Bifulco &amp; Caruso, 2007)</td>
<td>2007</td>
<td>Journal</td>
<td>Italy</td>
<td>X</td>
<td>N</td>
<td>“Persistent education, especially directed to young people, will help to develop a conscious “food literacy” and awareness of the importance of the connections among food, health, and regular sports activity.” P2059</td>
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<td>(Drummond &amp; Caraher, 2007)</td>
<td>2007</td>
<td>Book section</td>
<td>Australia</td>
<td>X</td>
<td>Y</td>
<td>“Food literacy comprises knowledge, skills and capacities to grow, select, store, prepare, cook and serve food.” (eprint)</td>
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<td>(Lang &amp; Rayner, 2007)</td>
<td>2007</td>
<td>Journal</td>
<td>UK</td>
<td>X</td>
<td>N</td>
<td>Article discusses obesity policy failure Food literacy development seen as the domain of government culture and education policy which has failed. A solutions table is presented which includes “ensuring all citizens have a requisite level of food choosing, sourcing and preparation, and general food literacy”. P177. Social eating, nutrition and health knowledge, moderation, and taste listed as separate domains.</td>
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<td>(Rawl, Kolasa, Lee, &amp; Whetstone, 2007)</td>
<td>2007</td>
<td>Journal</td>
<td>USA</td>
<td>X</td>
<td>Y</td>
<td>“Health literacy defined as ‘the degree to which individuals have the capacity to obtain,</td>
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<td>(Von Sehlen, 2007)</td>
<td>2007</td>
<td>Thesis</td>
<td>USA</td>
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<td>“means educating all people about the food system, making apparent and meaningful the role they play within the system, and the effect the food system has on their lives, in an effort to encourage widespread, informed participation as a “food citizen” in a “food democracy.”” p51</td>
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<tr>
<td>(Vandenbroeck, Goossens, &amp; Clemens, 2007)</td>
<td>2007</td>
<td>Government report</td>
<td>UK</td>
<td>X</td>
<td>Y</td>
<td>“Degree to which people are able to assess nutritional quality and provenance” p40</td>
<td>Also listed in companion “Foresight-tackling obesity” publications.</td>
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<td>(Jones, Swanson, &amp; Fairchild, 2008)</td>
<td>2008</td>
<td>Journal</td>
<td>USA</td>
<td>X</td>
<td>X</td>
<td>N</td>
<td>“Research conducted ... demonstrates that middle school, high school, and college students have limited food literacy and preparation skills. Research conducted by the same faculty also shows that student interest in food is increasing. With the abundance of convenience foods and changing demographics of American households, children are less likely to learn cooking skills. Students want to</td>
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<td>(Farnworth, Thomas, &amp; Jiggins, 2008)</td>
<td>2008</td>
<td>Book</td>
<td>Various</td>
<td>X</td>
<td>“food literacy is not just about the physical origin of food but also about the social context and quality of life aspirations of those who produce it. If consumers have not grasped this then they will not have achieved food literacy. ... food literacy is not just a matter of factual knowledge about the origin of food. Food literacy involves an enmeshment of one’s life with the process of growth. This instils a deep sense in “things”, a sense that has been largely lost in the modern world” p231.</td>
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<td>(Lee, Leonard, Moloney, &amp; Minniecon, 2009)</td>
<td>2009</td>
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<td>Australia</td>
<td>X</td>
<td>“school-based nutrition promotion projects, and community food literacy and budgeting projects” identified as “best buys” to improve Indigenous nutrition and health. P547</td>
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<td>(Nordahl, 2009)</td>
<td>2009</td>
<td>Book</td>
<td>USA</td>
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<td>Chapter 5 of this book is entitled “food literacy”. It discusses Americans being “food illiterate” because they “do not learn how to cook, or know what grows in a particular region or during what season” (p116). He states “we will have to learn what parts of a plant are edible, and which are not. ...We will have to learn growing cycles for particular</td>
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<td>(Pollard, Nicolson, Pulker, &amp; Binns, 2009)</td>
<td>2009</td>
<td>Journal</td>
<td>Australia</td>
<td>X</td>
<td></td>
<td></td>
<td>Y/N</td>
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<td>geography: generally, when certain produce is available, and, specifically, when it is ripe... and we will have to learn (and appreciate) forgotten foods that were once commonly enjoyed, but have now disappeared from our diet.” P117 (referring to native foods)</td>
<td></td>
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<tr>
<td>(Gale Smith, 2009)</td>
<td>2009</td>
<td>Journal</td>
<td>Canada</td>
<td>X</td>
<td></td>
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<td>Y/N</td>
<td></td>
<td></td>
<td>Article referred to food literacy once re: the development of recipes. “Consideration was given to consumer issues such as time scarcity, cooking skills, food literacy, and ingredient cost and availability.” P224</td>
<td></td>
</tr>
<tr>
<td>(Snyder, 2009)</td>
<td>2009</td>
<td>Journal</td>
<td>USA</td>
<td>X</td>
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<td>Y/N</td>
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<td>The article does not define the term but proposes some possible attributes: that it restores the connection between food and the environment; ant that food systems interact with the family system, the ecological system, the economic system, the political system etc. “We need a conception that explores the socio-cultural-spiritual significance and enjoyment of sharing food and eating together “(p57). Look at the “relationship between eaters and food, not eaters and nutrients”. Refers to a home ec curriculum that would include the topics referred to by (Caraher &amp; Reynolds, 2005)</td>
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<tr>
<td>(von Normann, 2009)</td>
<td>2009</td>
<td>Journal</td>
<td>Germany</td>
<td>X</td>
<td>X</td>
<td>Y</td>
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<td>Extend the OECD</td>
<td>Uses the term once in introduction of</td>
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<td>2009)</td>
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<td>definition of literacy (Organisation for Economic Co-operation and Development) to “the ability to organise one’s everyday nutrition a self-determined, responsible and enjoyable way.”</td>
<td>the article about food knowledge and dietary patterns and then only talks about food knowledge after that.</td>
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<td>“Food Literacy” is described as a concept involving three main domains; food, nutrition and health; agriculture, environment and ecology; and social development and equity. A greater focus on food literacy has the potential to benefit all stakeholders in the food supply chain, and that means all of us. A greater focus on food literacy is part of the shift in agricultural science away from a simple focus on maximising productivity towards a more complex focus that integrates health, food, sustainable agriculture and social equity outcomes.”</td>
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<td>(Bellotti)</td>
<td>2010</td>
<td>Journal</td>
<td>Australia</td>
<td>X</td>
<td>Y</td>
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<td>“Food literacy” provides a framework for rediscovering our relationship with food, learning how our food choices impact on our health, our environment,</td>
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<td>(Dreas &amp; Hassel, 2010)</td>
<td>2010</td>
<td>Journal</td>
<td>Germany</td>
<td>X</td>
<td>N</td>
<td>“The article reviewed nutrition interventions in kindergartens. One criterion was “projects mainly focus on at least one of the following modules: food literacy, physical activity or the achievement of a healthy weight status” p147. This was later described as “nutrition”, “physical activity” and “healthy body weight” modules.</td>
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<td>(Drummond, 2010)</td>
<td>2010</td>
<td>Journal</td>
<td>Australia</td>
<td>X X Y</td>
<td></td>
<td>“Food literacy comprises knowledge, skills and capacities to grow, select, store, prepare, cook and serve food.”p43</td>
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<td>(A. H. Kimura, 2010)</td>
<td>2010</td>
<td>Journal</td>
<td>USA</td>
<td>X</td>
<td>N</td>
<td>Term used once to conclude about the effectiveness of a community developed food safety audit. The author remarked “Independent Auditing by Manu certainly improves the level of food literacy among members as it requires them to study the product and its production process.” P138</td>
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<tr>
<td>(Kornelsen, 2010)</td>
<td>2010</td>
<td>Thesis</td>
<td>Canada</td>
<td>X X</td>
<td>N</td>
<td>“food skills”, “food literacy” and “food education” used interchangeably. Difficult to identify the distinct meaning of each.</td>
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<td>(Pollard, et al., 2009)</td>
<td>2010</td>
<td>Book</td>
<td>Australia</td>
<td>X</td>
<td>N</td>
<td>Food literacy and skills listed in a diagram describing drivers of food choice.</td>
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<tr>
<td>(Schlegel, Reynolds, Getty, Henshel, &amp; Reidhaar, 2010)</td>
<td>2010</td>
<td>Book</td>
<td>USA</td>
<td>X X Y</td>
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<td>“the understanding and motivation to act on the interrelated social, economic, and ecological dimensions of food</td>
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<td>(Stinson, 2010)</td>
<td>2010</td>
<td>Thesis</td>
<td>Canada</td>
<td>X</td>
<td>X</td>
<td>Y</td>
<td>production, distribution, preparation, consumption, and waste management, recognising the roles of individuals, communities, and societies at local to global scales.”</td>
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<tr>
<td>(Vitale, Wengreen, &amp; Bevan, 2010)</td>
<td>2010</td>
<td>Journal</td>
<td>USA</td>
<td>X</td>
<td>X</td>
<td>X</td>
<td>N</td>
<td>“a deeper understanding of the complex environmental and social components of food in our lives”</td>
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<tr>
<td>(Block, et al., 2011)</td>
<td>2011</td>
<td>Journal</td>
<td>USA</td>
<td>X</td>
<td>Y</td>
<td>“Food literacy entails both understanding nutrition information and action on that knowledge in ways consistent with promoting nutrition goals and food wellbeing... The conceptual or declarative component of food literacy involves reading and acquiring knowledge about food, food sources, nutrition facts and other knowledge acquisition and apprehension activities involving food and nutrition. In contrast, procedural knowledge involves applying such knowledge to food decision making.”</td>
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Poster presentation describing a project whose “learning concepts included teamwork, teaching and communication skills, food literacy and basic gardening and food preparation skills.”
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<th>REFERENCE</th>
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<td>HEALTH</td>
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<td>inclusion food shopping and preparation skills. Procedural knowledge involves the development of food scripts. p7... The development of food literacy involves the ability, opportunity, and motivation to identify, understand, interpret, communicate and use information about food in various contexts. &quot;p8</td>
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<td>(Melissa G. Bublitz, et al., 2011)</td>
<td>2011</td>
<td>Journal</td>
<td>USA</td>
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<tr>
<td>(De Campo, 2011)</td>
<td>2011</td>
<td>Journal</td>
<td>Australia</td>
<td>X</td>
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<td>REFERENCE</td>
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<td>HEALTH</td>
<td>AGRI</td>
<td>EDU</td>
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<tr>
<td>(Driscoll, 2011)</td>
<td>2011</td>
<td>Thesis</td>
<td>USA</td>
<td>X</td>
<td>N</td>
<td>decisions, and recognise the implications – social, environmental, political, cultural and economic – of the food we eat”</td>
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<td>(European Union Committee, 2011)</td>
<td>2011</td>
<td>Government document</td>
<td>United Kingdom</td>
<td>X</td>
<td>X</td>
<td>N</td>
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<tr>
<td>(Fordyce Voorham, 2011)</td>
<td>2011</td>
<td>Journal</td>
<td>Australia</td>
<td>X</td>
<td>X</td>
<td>Y</td>
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<td>REFERENCE</td>
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<tr>
<td>(Hornung, 2011)</td>
<td>2011</td>
<td>Thesis</td>
<td>Canada</td>
<td>HEALTH</td>
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This thesis examines barriers and enablers to use of fresh, local foods in foodbanks. The following themes were grouped under “food literacy”
- Processing/preserving produce
- Career training for food industry
- Cooking/preparing food
- Growing food
- Eating vegetables and trying new things
- Nutrition p101


This article proposes that food literacy is a neoliberal approach to food education that positions the responsibility for overweight and obesity on the individual and so should be avoided. It conceptualises food literacy as a narrow re-incarnation of food education that focuses on individual skills while ignoring the influence of broader environmental, social and economic factors.


The article concludes by stating “Development of healthy school environments through the establishment of effective food policies and a sound food literacy program incorporating hands-on approaches to application of nutrition knowledge may be an effective way to help students develop life-long healthy eating habits.” p92

Earlier in the article “lack of familiarity with food and lack of food preparation skills” are discussed.
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<tr>
<td>(Lekvoe, 2011)</td>
<td>2011</td>
<td>Journal</td>
<td>Canada</td>
<td>HEALTH X</td>
<td>Term used to describe some of the work done by alternative food initiatives. “Community health initiatives address regional capacity to produce and distribute adequate nutritious, safe and culturally acceptable foods such as community-shared agriculture projects, farmers’ markets, food box schemes and food literacy (skills and information training).” P 689</td>
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<tr>
<td>(Macdiarmid, et al., 2011)</td>
<td>2011</td>
<td>Journal</td>
<td>UK</td>
<td>HEALTH X AGRI X</td>
<td>“Increase food literacy” was used as a subheading to group participant responses to likely outcomes of the Scotland Schools Act. Clustered under this subheading were: “Increase children’s preferences for healthy foods; encourage children to make healthier food choices outside school; increase children’s knowledge of healthy eating and a balanced diet; and increase children’s awareness of healthy foods”. P 734</td>
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<td>(Onyene &amp; Bakare, 2011)</td>
<td>2011</td>
<td>Article</td>
<td>Nigeria</td>
<td>EDUC cult</td>
<td>“Food literacy – deals with how to obtain process and understand basic information about food, so as to make appropriate health choices.” p294</td>
<td>Article refers to women in a rural province of Nigeria who are food insecure.</td>
</tr>
<tr>
<td>(Pendergast, Garvis, &amp; Kanasa, 2011)</td>
<td>2011</td>
<td>Journal</td>
<td>Australia</td>
<td>HEALTH X</td>
<td>“More recently, the term ‘food literacy’ as a component of health literacy has emerged, adopting the three levels generally used in the health schema. That is, an amalgamation of functional, interactive,</td>
<td>Following this definition, the authors continue that likely elements of food literacy are well articulated in the IFHE statement: “According to the International Federation for Home Economics (IFHE), the essential ingredient that all subjects, courses of study, and professionals identifying as home</td>
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</table>
and critical dimensions of food and nutrition that collectively can be described as food literacy.” P 418.

- A focus on fundamental needs and practical concerns of individuals and family in everyday life and their importance both at the individual and near community levels, and also at societal and global levels so that well-being can be enhanced in an ever-changing and ever-challenging environment;
- The integration of knowledge, processes, and practical skills from multiple disciplines synthesized through interdisciplinary and transdisciplinary inquiry and pertinent paradigms; and
- Demonstrated capacity to take critical/transformative/emancipatory action to enhance well-being and to advocate for individuals, families, and communities at all levels and sectors of society” (International Federation of Home Economics, 2008)

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<tr>
<td>(Ramirez, Ch alela, Gallion, Green, &amp; Ottoson, 2011)</td>
<td>2011</td>
<td>Journal</td>
<td>USA</td>
<td>X</td>
<td>N</td>
<td>“Food literacy education on healthy eating on a limited budget” listed as a policy option p256.</td>
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<tr>
<td>(Reisch, Lorek, &amp; Bietz, 2011)</td>
<td>2011</td>
<td>Government document</td>
<td>Europe (multiple countries)</td>
<td>X</td>
<td>N</td>
<td>“there are some ongoing efforts to develop the “food literacy” of young consumers with regards to choosing and preparing healthy (e.g., more fruit and vegetables) and sustainable (i.e.,</td>
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<td>(Rondinelli, et al., 2011)</td>
<td>2011</td>
<td>Journal</td>
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<td>X</td>
<td>N</td>
<td>In discussion of article refers to piloting “small programs intended to increase knowledge and access to nutritional food items, including starting a farmers market ... and introducing food literacy programs at schools”. P167</td>
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<td>(Thomas &amp; Irwin, 2011)</td>
<td>2011</td>
<td>Journal</td>
<td>Canada</td>
<td>X</td>
<td>Y</td>
<td>“The ability to make healthy food choices by having the skills and knowledge necessary to buy, grow and cook food with implications for improving health” P2</td>
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<td>(Vaughan, 2011)</td>
<td>2011</td>
<td>Thesis</td>
<td>UK</td>
<td>X</td>
<td>Y</td>
<td>“Food literacy for the Bangladeshi community was broken into two broad areas. For the first generation food literacy related to the desire and need to purchase foods with which they were familiar and knew how to prepare based on their past experiences and not understanding of how to incorporate new, non-Bangladeshi, foods into traditional recipes. This lack of knowledge means for some that they continue to buy more expensive imported foods rather than those which may be more readily available and are therefore more affordable. For the second generation food literacy linked into issues relating to new food knowledge where many members of the community may want</td>
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<td>(Wingert, Wasileski, Peterson, Mathews, &amp; Joy, 2011)</td>
<td>2011</td>
<td>Journal</td>
<td>USA</td>
<td>X</td>
<td>N</td>
<td>to make dietary changes to increase variety in their diet and experiment with new tastes however without family and friends as role models, there was confusion about how to prepare and cook the unfamiliar foods.&quot; p314</td>
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<td>(Baumbach, 2012)</td>
<td>2012</td>
<td>Thesis</td>
<td>Hungry</td>
<td>X</td>
<td>N</td>
<td>Article was about teaching across curriculum. A tool was used to measure <strong>food literacy</strong> and was made up of self reported confidence to: ● “Read and interpret a nutrition facts label on foods ● Distinguish between food ingredients that are healthy and less healthy ● Understand labeling on food packaging Understand the nutritional benefits of the foods I eat ● Evaluate the trade-offs involved in purchasing organic, local, unprocessed, or fair-trade foods” p52</td>
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<td>(M.G. Bublitz, et al., 2012)</td>
<td>2012</td>
<td>Journal</td>
<td>USA</td>
<td>X</td>
<td>N</td>
<td>“Besides this function, urban food producers have numerous more functions, especially with respect to <strong>food literacy</strong> (as counter move to increasing obesity rates), biodiversity, pollination, cooling effects etc” p100</td>
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<td>(Chambers, 2012)</td>
<td>2012</td>
<td>Thesis</td>
<td>USA</td>
<td>X</td>
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<td>The third of a series of related theses assessing food literacy in nutrition students. Survey tool is very focused on “trouble shooting” food preparation knowledge.</td>
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**DEFINITION**:
- **HEALTH**: Health contexts
- **AGRI**: Agriculture contexts
- **EDU**: Education contexts
- **cult**: Cultural contexts
- **Y/N**: Yes/No
- **ACTUAL**: Whether the food literacy was actually used in the study.
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<td>(Glickman, Parker, Sim, Del Valle Cook, &amp; Miller, 2012)</td>
<td>2012</td>
<td>Book</td>
<td>USA</td>
<td>X</td>
<td>“practiced to make better food decisions.” P4</td>
<td>“Recommendation 5.3: Ensure food literacy, including skill development, in schools” p16 Focuses on USDA dietary guidelines.</td>
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<td>(Lester, 2012)</td>
<td>2012</td>
<td>Thesis</td>
<td>USA</td>
<td>X</td>
<td>N</td>
<td>Term used once in thesis to describe the work of a local food growing group who also work with schools to improve the food literacy of students.</td>
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<td>(Miller, Hayward, &amp; Shaw, 2012)</td>
<td>2012</td>
<td>Journal</td>
<td>USA</td>
<td>X</td>
<td>N</td>
<td>This article discusses a focusing of social work efforts to linking the individual to the environment. “food literacy as part of public education curriculum” is listed as an example of this principle in action (p274).</td>
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<td>(Naylor, 2012)</td>
<td>2012</td>
<td>Article</td>
<td>USA</td>
<td>X</td>
<td>N</td>
<td>Term used frequently in the article in a negative way. Food literacy appears to be considered a set of knowledge and skills that white cultural histories and colonial projects seek to impose on welfare groups p489.</td>
</tr>
<tr>
<td>(Nowak, Kolouch, Schneyer, &amp; Roberts, 2012)</td>
<td>2012</td>
<td>Journal</td>
<td>USA</td>
<td>X</td>
<td>Y</td>
<td>“the relative ability to basically understand the nature of food and how it is important to you, and how able you are to gain information about food, process it, analyse it and act upon it.” Taken from (Vidgen &amp; Gallegos, 2011).</td>
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<td>(Ohberg, 2012)</td>
<td>2012</td>
<td>Thesis</td>
<td>Canada</td>
<td>X</td>
<td>N</td>
<td>Thesis conclusions include: “food literacy skills including identifying and preparing locally produced foods from...”</td>
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<td>REFERENCE</td>
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<td>PUBLICATION TYPE</td>
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<td>(Pailoor, 2012)</td>
<td>2012</td>
<td>Journal</td>
<td>India</td>
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<td>N</td>
<td>More like a trade article. Would have been excluded except for its use in another country not previously listed. The article is about the re-introduction of Indigenous millet in the Indian diet, has a subheading “food literacy, the step ahead” (p19) which refers to the use of millet in school lunch programs and in classroom teaching.</td>
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<td>(Vrhovnik, 2012)</td>
<td>2012</td>
<td>Thesis</td>
<td>Canada</td>
<td>X</td>
<td>Y</td>
<td>“the ability to read and understand food information” p12</td>
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<td>(Wadkins, 2012)</td>
<td>2012</td>
<td>Thesis</td>
<td>USA</td>
<td>X</td>
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<tr>
<td>(Coveney, et al., 2012)</td>
<td>2012</td>
<td>Journal</td>
<td>Australia</td>
<td>X</td>
<td>N</td>
<td>Mentioned once in the conclusion to posit why people with lower educational qualifications may be price sensitive when selecting foods. “In terms of people with lower educational qualifications, this price-sensitivity may be a function of lower incomes in this group, but again may raise the need for research and policy action on food literacy.” p 467</td>
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<td>(Winslow, 2012)</td>
<td>2012</td>
<td>Thesis</td>
<td>USA</td>
<td>X</td>
<td>?</td>
<td>Only the abstract was available. Full thesis not available until August 2013. Examine the development of critical food literacy through college student’s engagement with food activism to understand food systems at local, regional, national and global levels.</td>
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<tr>
<td>(Withers, 2012)</td>
<td>2012</td>
<td>Thesis</td>
<td>USA</td>
<td>X</td>
<td>Y</td>
<td>“the degree to which people are able to obtain, process and understand...”</td>
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<tr>
<td>HEALTH</td>
<td>basic information about food in order to make appropriate health decisions.</td>
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<td>AGRI</td>
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<td>Y/N</td>
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<td>ACTUAL</td>
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</tbody>
</table>

| WHERE USED |


Chambers, C. (2012). *A pilot study: the use of a survey to assess the food knowledge of nutrition students at various levels of nutrition education*. University of Nebraska, Lincoln.

*Nutrition Labeling and Education Act of 1989: Hearing before the Committee on Labor and Human Resources, United States Senate, United States Senate, First Session Sess.* (1990).


Hornung, L. (2011). *Cultivating change: building on emergency food by incorporating fresh, local produce into Hamilton's food banks to overcome the good food gap*. McMaster University, Hamilton, Ontario.


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Appendix B

The Expert Study Interview Script for Round One
FOOD LITERACY DELPHI STUDY

ROUND ONE: SEMI STRUCTURED INTERVIEW QUESTIONS

Introductory blurb:

Hi, my name is Helen Vidgen. I am a nutritionist working for QUT as a senior researcher on a Queensland Health funded project trying to answer the question “food literacy: what is it and does it influence what we eat?” The consortia that formed to undertake this work includes people from health, welfare, education and community. This research also forms part of my PhD.

The idea for this research came about because nutritionists were noticing that what people know and understand about food and how to use it was getting in the way of them being able to take up healthy eating messages. Many have developed programmes or resources which they intuitively think will help meet this need but would like to be more informed in their practice. Once we’ve started to look into things, we’ve found that lots of different groups think food literacy is important but there isn’t agreement on what this term means, why it’s important and what it’s got to do with healthy eating. This research has been funded to specifically look at food literacy and health, specifically in the context of disadvantaged young people as they transition from school to adulthood.

The research plan we have developed is made up of 4 studies:

- This one, which is a Delphi study of experts and key stakeholders from a range of sectors
- Study 2 are qualitative interviews with young people about what knowledge and skills they use when feeding themselves
- study 3: a review of existing work to address food literacy
- and study 4 will be a quantitative study informed by these others to look at the link between food literacy and nutrition.

A Delphi study is a survey that continues for a number of rounds until group consensus is reached. The aim of this study is to come up with an agreed scope of meaning for “food literacy” which is informed by experts from a range of backgrounds involved in food. This Delphi study will consist of three rounds in consideration of both time and response rates.

The first round semi-structured interview will take around 30 minutes and, with your consent, will be tape recorded. I will summarise your responses with you at the end of the interview should you wish to modify them. The taped interview will be transcribed verbatim and your name will be taken off to de-identify you. The results from this round will be thematically grouped and then anonymously presented to participants via an online survey to gauge level of agreement. As much as possible we will try to keep the exact wording of your response so that we do not lose its meaning. This second round which will ask participants to respond to statements using a scale.

In round 3, those items with a high level of agreement (to either reject or accept) will be reported, alongside your individual responses to round 2. You will be asked to respond again to statements to which there was low agreement. So the end of round three will yield a series of statements which participants agreed were within the scope of food literacy, those which they agreed were not within the scope, and those to which there was poor consensus. All statements will be retained and reconsidered following results of work with the young people.

The round 2 survey will be sent to you in the last week of January and round 3 will be sent three weeks after that.
At the end we hope to have a scope of meaning for the term food literacy that makes sense to experts, those working in the area and young people.
1. What do you think are the knowledge and skills needed to use food to meet an individual’s needs?

PROMPTS: What do you need to be able to do and know about food to meet your needs? You can be specific about these or think of them as domains. What can someone who’s “good with food” do, what do they know? Processed foods, core foods.
2. Is this set of knowledge and skills different for meeting nutrition needs? If so how?

PROMPTS: Is it a larger/broader set or a subset?
3. Does cooking have to be a part of this set of knowledge and skills? Why?

PROMPTS: is cooking an essential food skill? Can you meet your food needs without knowing how to cook? Can you meet your nutrition needs without knowing how to cook?
4. Do you think there is a continuum or levels and if so how do they differ/what are they made up of?

PROMPT: for example, health literacy and conventional literacy talk about a continuum of “functional”, “interactive” and “critical”. Do you think this is applicable? b) and if so how do they differ/what are they made up of? what are the different things that people at different levels would be able to do? What would be base level? What are the fundamentals? What is essential knowledge and skills? Where’s the starting point?
5. Food literacy is a term being used to describe this set of skills and knowledge. Have you heard of the term “food literacy” and if so where and under what circumstances? What does the term “food literacy” mean to you? PROMPT: can put Q5,6,7 all together
6. Do you think it’s a good term? Why? Why not?
7. Do you think there is a better term to use than “food literacy”? what

PROMPTS: there are a lot of terms that exist in the literature and in practice: food skills, meal preparation, cooking, food management.... do you think these are better terms or is there another that you have used or heard of that you think would be better?
8. You have been chosen an expert/key stakeholder in food literacy. Are there any other people that you think should be interviewed for this study? PROMPT: Show sampling framework.

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| __________________________________________________________________________ |
9. As a later part of this study we will be reviewing existing programs and interventions, are there any in particular that you would recommend we particularly look at?
Well that’s the end of the official questions. I would like to now read through the questions and summarise your responses to confirm I have understood your answers correctly, please feel free to add or remove any part of your response as I do this.

READ THROUGH

Thank you very much for your time in participating in this study. My next job is to summarise the interviews and collate them into themes to make up a survey. The survey will be made up of a series of statements which you will be asked to respond to using a likert scale. This will be sent to you electronically in the last week of January. This will form the second round of the Delphi study. The final round will be made up of the results of this second round. So the end of round three will yield a series of statements which participants agreed were within the scope of food literacy, those which they agreed were not within the scope, and those to which there was poor consensus. All statements will be retained and reconsidered following results of work with the young people.

At the end we hope to have a scope of meaning for the term food literacy that makes sense to experts, those working in the area and young people.
Appendix C

The Expert Study Participant Information Sheet
PARTICIPANT INFORMATION for QUT RESEARCH PROJECT

Food Literacy Delphi Study

Research Team Contacts

<table>
<thead>
<tr>
<th></th>
<th>Helen Vidgen – PhD Student</th>
<th>Dr Danielle Gallegos – Supervisor</th>
</tr>
</thead>
<tbody>
<tr>
<td>QUT – Faculty of Health, School of Public Health</td>
<td>QUT – Faculty of Health, School of Public Health</td>
<td></td>
</tr>
<tr>
<td>(07) 3138 5805</td>
<td>(07) 3138 5799</td>
<td><a href="mailto:Danielle.gallegos@qut.edu.au">Danielle.gallegos@qut.edu.au</a></td>
</tr>
<tr>
<td><a href="mailto:h.vidgen@qut.edu.au">h.vidgen@qut.edu.au</a></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Description
This project is being undertaken as part of PhD project for Helen Vidgen at Queensland University of Technology. The project is funded by Queensland Health. The funding body will have access to the de-identified data obtained during the project.

The purpose of this project is to build an understanding of what food literacy is and if it has a relationship to healthy eating.

The research team requests your assistance because we think you have expertise and experience in this area.

Participation
Your participation in this project is voluntary. If you do agree to participate, you can withdraw from participation at any time during the project without comment or penalty. Your decision to participate will in no way impact upon your current or future relationship with QUT or with Queensland Health.

Your participation will involve an initial telephone interview, followed by two online questionnaires.

It is anticipated that the round one telephone interview will take 30 minutes and round two and three online questionnaires will take 25 minutes each. It is anticipated that there will be approximately three weeks between each round.

Expected benefits
It is hoped that this project will benefit you by giving some clarity over the term of food literacy and expose you to the scope of its meaning across different sectors. Its primary benefit will be to inform practice in the area of food literacy. Developing a scope of meaning for food literacy is important in furthering this research area and practice in the field. It will provide clarity and focus for both researchers and practitioners. Consistent terminology also allows the comparison of research to help build the evidence, facilitate communication, inform practice and so increase awareness and activity in an issue. This methodology aims to consider food literacy from a range of contexts beyond nutrition and so hopes to inform work across a range of sectors and improve collaboration.

Risks
As the Delphi study is a repetitive process, participants may be concerned that their responses are identifiable despite being anonymous. Those participants whose statements are rejected or receive a low level of agreement may feel their expertise has been challenged. Identifiable data will only be seen by one of the researchers. Data will be collected by this same researcher. Data will be coded by two researchers but will be de-identified for coding. Participant responses will remain anonymous throughout the Delphi study. As your responses will be presented to the group as a whole you may decide to consider your phrasing of responses to limit the extent to which they are identifiable as yours. It is hoped that as much as possible the exact wording of your response will be used so as not to lose their meaning. Responses which are rejected or receive a low level of agreement through the Delphi process will be reconsidered following consultation with young people.

Confidentiality
All comments and responses will be treated confidentially and will be made anonymous when transcribed. The names of individual persons are not required in any of the responses.

At the end of the round one telephone interview, the researcher will re-visit key points from the respondent. Respondants will be given the opportunity to revisit their responses in subsequent Delphi rounds.

Audio recordings of the telephone interviews will not be used for any other purpose other than the research and will be destroyed after the contents have been transcribed. It is possible to participate in the project without being audio recorded.

Consent to Participate
Your agreement to this email invitation to participate in this study will be taken as consent. Failure to respond to any round of this Delphi study will be taken as withdrawal.

**Questions / further information about the project**
Please contact the researcher team members named above to have any questions answered or if you require further information about the project.

**Concerns / complaints regarding the conduct of the project**
QUT is committed to researcher integrity and the ethical conduct of research projects. However, if you do have any concerns or complaints about the ethical conduct of the project you may contact the QUT Research Ethics Officer on +61 7 3138 5123 or ethicscontact@qut.edu.au. The Research Ethics Officer is not connected with the research project and can facilitate a resolution to your concern in an impartial manner.
Appendix D

The Expert Study Round Two Survey
Thank you for taking the time to participate in the second round of Food Literacy Delphi study. As you are aware in developing this survey we have predominantly used direct statements from interviews in an effort to keep their meanings intact. This survey focuses on the use and possible scope of meaning of the term “food literacy”. While interviews also generated a lot of other useful information, this has not been included in this survey but will be analysed, reported and used elsewhere in the study. Survey questions may be answered in any order.

Q 1: The first round of this study generated varied responses to the term “food literacy”. Please indicate your thoughts on the term (tick all those that you agree with):

<table>
<thead>
<tr>
<th>Yes</th>
<th>It’s a useful term. It could be shorthand for a lot of things that it encompasses. Other terms are not complete enough.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>I think it’s a more professional sounding term than food skills and we like that.</td>
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<tr>
<td></td>
<td>It’s well scaffolded, it’s logical but it also provides scope to understand where components fit within a bigger story.</td>
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<tr>
<td></td>
<td>The word “literacy” is useful in describing the everyday fundamental life skills nature of using food.</td>
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<tr>
<td></td>
<td>I don’t think it logically describes all the things that I have come to think it means.</td>
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<tr>
<td></td>
<td>Food literacy, technological literacy, scientific literacy, it’s just becoming a hackneyed concept and losing meaning.</td>
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<tr>
<td></td>
<td>Please keep it to the papers and don’t talk about it to the general public. It’s a poor term to use to the general public</td>
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<tr>
<td></td>
<td>It’s adapting a kind of imperfect metaphor for a much more complex domain.</td>
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<tr>
<td></td>
<td>Jargon creates elitism around it where you’ve got to be part of an inner cabal to understand what it means.</td>
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<tr>
<td></td>
<td>It makes me a little bit squeamish because it sounds suspiciously like people knowing what we think they should know and acting like we think they should act.</td>
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<tr>
<td></td>
<td>All those activities have been done for years without being given special terminology so why does it all of a sudden need to be basketed into something.</td>
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<tr>
<td></td>
<td>It sort of implies that you have to be highly educated to be able to choose a healthy diet and I think it’s a mistake to push that idea.</td>
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<tr>
<td></td>
<td>It implies an assessment process. You pass or you fail.</td>
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</table>

Q2: Since your interview, have you thought of an alternative term to food literacy that better describes what we discussed?

☐ no     ☐ yes (please list) ___________________________________________________________
Q3: Please add any further comments related to questions 1 or 2:

Q4: Accepting that “food literacy” may not be the best term, select the three definitions that best describe this set of knowledge and skills and rank them, with 1 indicating the best definition. Leave the remaining definitions blank.

<table>
<thead>
<tr>
<th>Ranking</th>
<th>Food literacy is . . .</th>
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<tbody>
<tr>
<td></td>
<td>Understanding the language of food: reading a brochure in the supermarket, its reading recipes, its reading packets, its reading labels and interpreting that information. It also requires a certain level of knowledge to process that information effectively.</td>
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<tr>
<td></td>
<td>The relative ability to basically understand the nature of food and how it is important to you, and how able you are to gain information about food, process it, analyse it and act upon it.</td>
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<tr>
<td></td>
<td>Getting enjoyable and nutritious food on a plate.</td>
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<tr>
<td></td>
<td>Being able to organise one’s everyday nutrition in a self-determined, responsible and enjoyable way.</td>
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<tr>
<td></td>
<td>Having the autonomy to be able to make wise and ethical food choices without feeling dependent upon expert outsiders.</td>
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<td></td>
<td>The capacity to implement positive strategies around food preparation and consumption that serves your body, lifestyles and well being in a positive way.</td>
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<td></td>
<td>Being able to use food in a broad way and having the flexibility to do it in a range of situations and for a range of needs.</td>
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<td></td>
<td>Feeling at ease and confident with handling food.</td>
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<td></td>
<td>Being able to get your food and use your money in the best possible way for you.</td>
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<td></td>
<td>Being able to select food so that when I’ve eaten it, I don’t feel revolted or troubled, but I feel at ease with what I’ve eaten culturally, from a food safety angle as well as psychologically that it’s going to do something for me.</td>
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<td></td>
<td>Having the confidence, the courage and the comfortableness to mix some ingredients together and make something that tastes good, that’s pleasurable to eat and is reasonably good for you.</td>
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<td></td>
<td>Being able to embrace the pleasure of spending time with food. Being comfortable with the social, environmental, cultural and health aspects of food so you can negotiate through them when making food choices.</td>
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</tbody>
</table>
Q 5: Please add any further comments related to question 4

Q 6: During interviews participants identified the following “pre-requisites” for food literacy. Please register your level of agreement with them. (*SD* = strongly disagree, *D* = disagree, *N* = neither agree nor disagree, *A* = agree, *SA* = strongly agree)

<table>
<thead>
<tr>
<th></th>
<th>SD</th>
<th>D</th>
<th>N</th>
<th>A</th>
<th>SA</th>
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<tr>
<td>Ability to access support.</td>
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<td>Some control over your food supply.</td>
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<tr>
<td>Access to food, money, transport, and equipment.</td>
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<td>The cognitive ability to be able to comprehend and understand food labelling, food make up and how food and health interact.</td>
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<tr>
<td>Self efficacy: a degree of confidence and capability that you have some mastery.</td>
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<tr>
<td>Ability to assess risks and know how to respond.</td>
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<tr>
<td>Know how to identify and consider all the factors that influence your needs, and weigh them up against each other.</td>
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<tr>
<td>Know how to go about making changes.</td>
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<tr>
<td>It’s very difficult to practice good food habits if you don’t live in a stable situation and particularly one where you don’t share food with others on a regular basis.</td>
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Q7: Interviews identified the following possible components of food literacy. Please indicate if you consider them to be irrelevant (i.e. not a component of food literacy), core (i.e. something all adults NEED to know or be able to do), or desirable (i.e. NICE to know or be able to do).

<table>
<thead>
<tr>
<th>Possible components of food literacy are .....</th>
<th>Irrelevant</th>
<th>Core</th>
<th>Desirable</th>
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<tbody>
<tr>
<td>Access</td>
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<tr>
<td>Being able to find food anywhere, that you can eat.</td>
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<td>Being able to access food through some source on a regular basis with very limited resources.</td>
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<tr>
<td>Knowing that some places are cheaper than others.</td>
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</table>
**Possible components of food literacy are .....**

<table>
<thead>
<tr>
<th>Knowing how to access the shop, how to access the funds to purchase what you require and the knowledge in regards to if it’s not coming from a shop e.g. bush foods, aid agencies.</th>
<th>Irrelevant</th>
<th>Core</th>
<th>Desirable</th>
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<tbody>
<tr>
<td>Getting out in the garden and growing food, even if its herbs in a pot.</td>
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<tr>
<td>Being critical of the food supply system and being able to advocate for improvements.</td>
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</table>

**Planning and management**

<table>
<thead>
<tr>
<th>Looking forward about what you are going to be eating and how to access that.</th>
<th>Irrelevant</th>
<th>Core</th>
<th>Desirable</th>
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</thead>
<tbody>
<tr>
<td>Planning ahead to make sure you meet your nutrition requirements.</td>
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<tr>
<td>Knowing quantities of food to buy so that nothing’s wasted.</td>
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<tr>
<td>The ability to handle and manage money.</td>
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<tr>
<td>Knowing which foods fill your belly so that everyone has got something to eat. What food goes the furtherest and costs the least.</td>
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<tr>
<td>Being able to plan in terms of how long something’s going to take to prepare.</td>
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<tr>
<td>Being able to choose foods that are within your skill set and available time.</td>
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<tr>
<td>Consuming food in the context of the total responsibilities placed on individuals and also within families.</td>
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<tr>
<td>Parenting skills; some sort of ability to talk to their family and say “no” and be able to moderate their intake.</td>
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</table>

**Selection**

<table>
<thead>
<tr>
<th>Understanding how the foods that are grown influence the environment and how our food choices influence the environment and also the other way around. How climate change is going to influence what we eat.</th>
<th>Irrelevant</th>
<th>Core</th>
<th>Desirable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowing the environmental, social and ethical consequences of the ways in which foods are produced, packaged and distributed.</td>
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<tr>
<td>Knowing how to choose culturally and socially acceptable food. So I’m not going to be stigmatised because I’ve chosen a particular food and not others.</td>
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<tr>
<td>Being able to critically judge advertisements, promotions, marketing and everything that’s coming your way.</td>
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<tr>
<td>Having the critical skills so that when a new food comes onto the market you’re able to make an informed decision about it.</td>
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<tr>
<td>Being able to judge the quality of raw and processed food which might include freshness and how does the price compare to other times in the year.</td>
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<tr>
<td>Choosing native and seasonal foods in keeping with where you live</td>
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</tbody>
</table>

**Being able to read food labels**

<table>
<thead>
<tr>
<th>Knowing how to read the labels but also being able to read what’s not on the label</th>
<th>Irrelevant</th>
<th>Core</th>
<th>Desirable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Being able to read the nutrition information panel and how to use the per 100g versus the per serve column and</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Possible components of food literacy are ..... | Irrelevant | Core | Desirable
---|---|---|---
Possible components of food literacy are ..... | | | |
Being able to understand what the ingredient list means. | | | |
Having enough English language literacy skills to understand what the food is. | | | |
Being able to understand what’s in the product and how to store and use it. | | | |
Being able to read the label and understand that information in context. | | | |
Knowing where food comes from | | | |
Getting down and dirty, experience food, plant it, grow it, harvest it, prepare it, eat it. | | | |
Just being able to look at a processed food and know what’s in it so you might be able to categorise what it is. | | | |
Being able to recognise what would have been the primary form of that food. | | | |
Some knowledge of where the food came from and what resources were required for its production. Was this healthy, sustainable or ethical. | | | |
Knowing where your food was farmed. | | | |
Knowing where your food was farmed. | | | |
Knowing where your food was farmed. | | | |
Knowing where your food was farmed. | | | |
Knowing where your food was farmed. | | | |
Knowing where your food was farmed. | | | |
Having enough food preparation experience to know what might have gone into a food or dish. | | | |
Preparation | | | |
Knowing how to prepare foods in a way that’s attractive and edible. | | | |
Knowing what tastes and flavours go together. | | | |
Knowing how to follow a recipe. | | | |
Knowing how to follow a recipe. | | | |
Knowing how to follow a recipe. | | | |
Knowing how to follow a recipe. | | | |
Knowing how to prepare some foods from all of the food groups, e.g. how to prepare meat, how to cook pasta, how to prepare vegetables and then there are spin offs from there. | | | |
Knowing how to prepare the same foods that you have access to in different ways so that they’re interesting. | | | |
Knowing how to prepare the same foods that you have access to in different ways so that they’re interesting. | | | |
Having a whole repertoire of skills so you can try more adventurous recipes, make up your own recipe or cooking style, adapt things to suit your preferences and equipment. | | | |
Being able to pull a meal together that might consist of four or five different parts e.g. a baked dinner. | | | |
Being able to prepare foods in the most efficient manner. | | | |
Being able to prepare a meal for two to six people without any difficulty. | | | |
Knowing how to stretch food if more people come over or are staying at your house. | | | |
Being able to conceptualise what you want to put together.
Possible components of food literacy are .....  

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<th>Core</th>
<th>Desirable</th>
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**Irrelevant**

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**Eating**

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**Nutrition**

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- Having knife skills.
- Being able to confidently use common pieces of kitchen equipment such as a stove top, oven, microwave, can opener and saucepans.
- Knowing a few little short cuts so you can prepare food without it taking much time.
- Being able to substitute with alternatives if what you want is unavailable.
- Enough food hygiene and food safety so that you don’t poison anyone.
- Knowing how to store food to optimise its value and quality.
- How to dispose of waste in an environmentally considerate manner.

**Eating**

- Being able to join in, sit down and eat in a social way.
- Interacting with food and being able to eat in a way that doesn’t restrict you being able to be part of a group
- Knowing what food transports well and how to pack it so it still looks appetising when you’re going to eat it.
- Being willing to try an unfamiliar food
- Knowing principles for everyday eating: only eat when you’re hungry, try and get some routine, slow down, eat consciously and reflectively, and be more contemplative about what you’re doing and how you’re relating to the world.

**Nutrition**

- Just what’s healthy and what’s not.
- Understand the overall message of a food selection guide such as the dietary pyramid or plate.
- Knowing that all foods are good. It’s just the amounts you eat them in. So you need to know about portions and frequency.
- Knowing how to categorise foods into the Food Groups, that you need generally some of each every day and what sort of proportions to eat them in.
- Knowing the composition of Food Groups, e.g. meats give you iron and protein.
- I don’t want to be locked into saying Food Groups, but knowing what are the components for a healthy basic diet.
- Understanding the Australian Dietary Guidelines.
- Understanding of what a diverse diet looks like and why it is important from a health and ecological perspective. It doesn’t make sense to get our foods from a limited number of agricultural sources or limited number of corporate actors.
- Understanding how to translate the Australian Dietary Guidelines into food and food habits.
- Being aware of the role of fats, proteins, carbohydrates and so on.
<table>
<thead>
<tr>
<th>Possible components of food literacy are .....</th>
<th>Irrelevant</th>
<th>Core</th>
<th>Desirable</th>
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<tbody>
<tr>
<td>Knowing what your food is made up of in terms of nutrients and how they all interact.</td>
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<td>Knowing that you need vitamins and minerals in certain quantities and what foods they are in.</td>
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<td>Knowing about different requirements for different stages of life.</td>
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<td>Knowing the specifics of nutrition recommendations e.g. how much fat is too much fat, what does low salt mean on a label.</td>
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<tr>
<td>Understanding the interaction between food and physical activity, and monitoring that by looking at their body composition.</td>
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<tr>
<td>Being aware that you have unique individual requirements and understanding how food effects your body when you look at your blood results etc.</td>
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<td>Understanding how your body functions so you can understand how to fuel it or feed it. Not just nutrition but satiety, sensory factors, things like that.</td>
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<td>Understanding how a particular food might interact with your physiology and what the implications might be if you have a diet-related disease.</td>
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</table>

### Language

- Being able to communicate around food, be able to articulate and explain things about it.
- Knowledge of terminology, so that they can e.g. follow recipes, read labels, make consumer choices. Read stuff in popular magazines and know that you can follow the terminology.

Q 8: Please add any further comments related to questions 6 or 7.
Q9. Interviews revealed many interesting statements around food literacy. While not directly related to developing a scope of meaning, they are useful in contextualising its application. Please register your level of agreement with the following (SD= strongly disagree, D= disagree, N = neither agree nor disagree, A= agree, SA = strongly agree)

<table>
<thead>
<tr>
<th>Comments on context</th>
<th>SD</th>
<th>D</th>
<th>N</th>
<th>A</th>
<th>SA</th>
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<tr>
<td>It’s important that we do more than get the messages to individuals, but we actually</td>
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<td>do something about the environment they live in and make healthy food available</td>
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<td>to them.</td>
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<td>There’s a theory that there’s a lack of skills but it’s not that bloody hard</td>
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<td>to eat a banana instead of a packet of crisps.</td>
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<td>The problem isn’t that there isn’t enough information. It’s that there’s too</td>
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<td>much. People are overwhelmed about who to believe and what to believe.</td>
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<td>There’s not a huge level of skill involved in selecting food because it’s usually</td>
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<td>the same pattern repeated over and over.</td>
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<td>We’ve got to do something about our work culture that promotes a model of having</td>
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<td>someone at home doing domestic work and someone as the breadwinner.</td>
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<td><strong>Individual food security:</strong></td>
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<td>I remember visiting a teenage mum with two kids 3. They were living in a single</td>
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<td>room. Dinner was on the bed, no car, no money. I don’t know exactly what</td>
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<td>influenced her food choice but it wasn’t food literacy.</td>
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<td>You need access to good quality healthy food. Ensuring people have adequate food</td>
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<td>skills so they can turn old apples into something tasty so they’ll be eaten is a</td>
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<td>medieval concept.</td>
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<td>Food literacy may be a protective factor for food insecurity.</td>
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<td><strong>Contemporary food supply:</strong></td>
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<td>Now our food supply is so much more complex and so selecting foods that are</td>
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<td>nutritious has become far more complicated. Therefore the requirement for</td>
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<td>nutrition education and some basic guidelines around food selection is now</td>
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<td>greater than what we have needed in the past.</td>
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<td>In generations past, the local food environment had much less choice and so</td>
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<td>they didn’t need to consciously have nutrition knowledge to eat well.</td>
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<td>There’s no doubt that there’s a nutrition paradox at the moment. We have such a</td>
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<td>wide variety of food that’s been so affordable. Theoretically it’s never been</td>
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<td>easier to construct a healthy diet. We’ve also never had such a depth of nutritional</td>
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<td>information, and yet we have a paradox that many consumers are still unable to</td>
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<td>eat their nutritional requirements.</td>
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<td>People want freshness, naturalness, tastiness, healthfulness. Some might want</td>
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<td>to know the detail of where their food comes from but even these people really</td>
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<td>just want to trust that whoever’s selling it to them is taking care of that.</td>
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<td>The idea that people consciously think about food beyond its immediate ability to</td>
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<td>fulfil their needs is not a terribly realistic portrayal of where most people are</td>
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<td>at.</td>
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## Comments on context

### Where nutrition fits

Nutrition is the most boring word on earth. The less that word is used the better.

A narrow focus on nutrition is not a useful way for people to be thinking about what a healthy diet looks like.

Nutrition is a science and so is constantly evolving and changing. There’s enough unknown about nutrition, food and the body not to dismiss some of the alternative discourses.

It doesn’t make sense just to focus on the nutritional aspects of foods. Some of these functional and modified foods that really push the nutritional benefits whether a nutrient has been added, or there’s been genetic engineering, I mean the energy implications of producing these foods are just absurd.

You need practical food preparation skills in order to be food literate otherwise you’ve got someone making decisions about the nutrient content and ethics of production but they can’t actually go away and prepare their own lunch.

Finding a carrot that really tastes good that you sourced from somewhere that has the right variety of carrot and a really good flavour may be more important and more effective than telling you that it’s a good source of beta-carotene.

You have to look pretty hard to find people who don’t know the general principles of healthy eating.

I think of it as a pyramid, the three sides being health and nutrition, food literacy and environmental sustainability.

Unless we reclaim that mastery over food, that ease with it then we’re in deep trouble. And that’s far more than ease and mastery over nutrition.

If you come to appreciate good flavour and well prepared food and respect the effort that goes into making it, then on the whole it’s going to be nutritionally better for you and you’re more likely to choose it than junk food.

You should never talk about nutrition without talking about food.

### About a continuum of functional to critical literacy

You need to be working on all aspects of the continuum at the same time: functional, interactive and critical.

It would be great if people could move along from functional to critical but in reality that’s not going to happen for a lot of people and it probably doesn’t need to.

You want to move people along the continuum as much as possible so that people are more empowered and have more choices.

I know plenty of people that wouldn’t be at the complex end of food literacy but they believe health is really important and they’ve lived healthy lives and eaten sensibly.

There’s a continuum of health and nutrition comes into that. And there’s a continuum around food. But the two aren’t necessarily related.
Q 10: Please add any further comments related to question 9 or any other aspect of this study.

THANK YOU VERY MUCH FOR CONTRIBUTING YOUR TIME AND EXPERTISE TO THIS STUDY.

PLEASE RETURN YOUR SURVEY TO h.vidgen@qut.edu.au BY FRIDAY 11 FEBRUARY 2011.

THE FINAL ROUND WILL BE SENT TO YOU IN THE FINAL WEEK OF FEBRUARY.
Appendix E

The Expert Study Round Three Survey
This is the third and final round of the Food Literacy Delphi Study. As you are aware, one of the aims of this study was to investigate possible core components of food literacy. Results of the round 2 survey indicate that there was little consensus on what these core components might be. Prior to the commencement of the survey, consensus was defined as at least 75% agreement.

Of the 80 possible components presented in Round 2, there was consensus on six core components. They are:

- Being able to access food through some source on a regular basis with very limited resources.
- Being able to choose foods that are within your skill set and available time.
- Knowledge of some basic commodities and how to prepare them.
- Knowing how to prepare some foods from all of the food groups, eg how to prepare meat, how to cook pasta, how to prepare vegetables and then there are spin offs from there.
- Being able to confidently use common pieces of kitchen equipment such as a stove top, oven, microwave, can opener and saucepans.
- Enough food hygiene and food safety so that you don’t poison anyone.

There were no agreed irrelevant components and there were no components which no one considered core. Rather than represent you with the 74 remaining components again, the following are those components which between 50 and 74% of respondents considered core.
### Q1: Please select all those items which you consider to be CORE components of food literacy (i.e. something all adults NEED to know or be able to do).

#### Access
- Being able to find food anywhere, that you can eat.
- Knowing how to access the shop, how to access the funds to purchase what you require and the knowledge in regards to if it’s not coming from a shop e.g. bush foods, aid agencies.

#### Planning and management
- Looking forward about what you are going to be eating and how to access that.
- Planning ahead to make sure you meet your nutrition requirements.
- The ability to handle and manage money.
- Consuming food in the context of the total responsibilities placed on individuals and also within families.
- Parenting skills; some sort of ability to talk to their family and say “no” and be able to moderate their intake.

#### Selection
- Being able to critically judge advertisements, promotions, marketing and everything that’s coming your way.
- Having the critical skills so that when a new food comes onto the market you’re able to make an informed decision about it.
- Being able to judge the quality of raw and processed food which might include freshness and how does the price compare to other times in the year.

#### Being able to read food labels
- Knowing how to read the labels but also being able to read what’s not on the label
- Being able to understand what the ingredient list means.
- Having enough English language literacy skills to understand what the food is.
- Being able to understand what’s in the product and how to store and use it.
- Being able to read the label and understand that information in context.

#### Preparation
- Knowing how to prepare foods in a way that’s attractive and edible.
- Knowing how to follow a recipe.
- Being able to substitute with alternatives if what you want is unavailable.
- Knowing how to store food to optimise its value and quality.

#### Eating
- Being able to join in, sit down and eat in a social way.
- Interacting with food and being able to eat in a way that doesn’t restrict you being able to be part of a group

#### Nutrition
- Just what’s healthy and what’s not.
- Understand the overall message of a food selection guide such as the dietary pyramid or plate.
- Knowing that all foods are good. It’s just the amounts you eat them in. So you need to know about portions and frequency.
- Knowing how to categorise foods into the Food Groups, that you need generally some of each every day and what sort of proportions to eat them in.
- I don’t want to be locked into saying Food Groups, but knowing what are the components for a healthy basic diet.
- Knowing the specifics of nutrition recommendations e.g. how much fat is too much fat, what does low salt mean on a label.

#### Language
- Knowledge of terminology, so that they can e.g. follow recipes, read labels, make consumer choices. Read stuff in popular magazines and know that you can follow the terminology.
Q2. The following statements were identified as the most suitable definitions of food literacy. Please select the ONE that you think should be used.

<table>
<thead>
<tr>
<th>Statement</th>
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<tbody>
<tr>
<td>The relative ability to basically understand the nature of food and how it is important to you, and how able you are to gain information about food, process it, analyse it and act upon it.</td>
</tr>
<tr>
<td>Having the autonomy to be able to make wise and ethical food choices without feeling dependent upon expert outsiders.</td>
</tr>
<tr>
<td>The capacity to implement positive strategies around food preparation and consumption that serves your body, lifestyles and well being in a positive way.</td>
</tr>
<tr>
<td>Being able to embrace the pleasure of spending time with food. Being comfortable with the social, environmental, cultural and health aspects of food so you can negotiate through them when making food choices.</td>
</tr>
<tr>
<td>I do not think any of these statements suitably describe food literacy</td>
</tr>
<tr>
<td>I do not think the term food literacy should be used</td>
</tr>
</tbody>
</table>

Q3: We invite you to add any comments regarding this study

Thank you very much for the significant amount of time and extremely valuable insight that you have contributed to this study.

PLEASE RETURN YOUR SURVEY TO h.vidgen@qut.edu.au BY FRIDAY 11 MARCH 2011.

A full report will be sent to you when it is available.
Appendix F

Interventions Review Report
Faculty of Health

A review of food literacy interventions targeting disadvantaged young people

K Cullerton, H Vidgen and D Gallegos
A review of food literacy interventions targeting disadvantaged youth

KATHERINE CULLERTON, HELEN VIDGEN, AND DANIELLE GALLEGOS

School of Nutrition and Exercise Sciences
Faculty of Health
Queensland University of Technology
Brisbane, Queensland, Australia

For tender 00.01/025 Health Promotion Queensland
Queensland Health

2012
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Components of food literacy identified by Australian food experts ........................................ 40
1. Introduction
Food literacy is an emerging term used to collectively describe a range of knowledge and skills needed to use food. The term is increasingly used in policy, practice, research and by the general public, however, until recently there has been no shared understanding of its meaning or what its components might include.

In 2010, a consortium led by Queensland University of Technology (QUT) was contracted by Queensland Health “to undertake a comprehensive research project which demonstrates the effectiveness of strategies to improve food literacy in men and women encompassing the school to adulthood transition years (16 years to 25 years) who have low literacy and/or education levels and who experience a high level of social disadvantage” (Queensland Government, 2009). The research project is made up of three studies:

1. A Delphi study of food experts
2. Qualitative interviews with young people
3. A review of existing efforts to address food literacy.

This report presents the results of study three. This review was completed in January 2012. At this stage study one had taken place and the results had been reported, data had been collected for study two, however it was yet to be analysed. This review, therefore, uses the constructs and definitions of food literacy identified in study one for its framework. The full report of the study of the Delphi study of Australian Food Experts can be found at [http://eprints.qut.edu.au/45902/](http://eprints.qut.edu.au/45902/).

The working definition of ‘food literacy’ that will be used in this report was developed via a Delphi process with food experts and is:

_The relative ability to basically understand the nature of food and how it is important to you, and how you are able to gain information about food, process it, analyse it and act upon it._

(Vidgen & Gallegos, 2011)

From the Delphi process a model to describe food literacy also emerged (refer to Figure 1). This model includes the component domains that make up food literacy, namely:

- Access
- Eating
- Planning and Management
- Selection
- Knowing where food comes from
- Preparation
• Nutrition
• Eating
• Language

These domains are wide ranging in their scope and some may include up to 20 different components, for example, preparation, includes ‘knowing how to prepare foods in a way that is attractive and edible’ through to ‘how to dispose of waste in an environmentally considerate manner’.

As part of the model the Australian Food Experts study also identified three mechanisms and two mediators that reflect the relationship between food literacy and nutrition. These are:

• Mediators
  o Values
  o Food Supply

• Mechanisms
  o Better food security
  o More choice
  o More pleasure

Vidgen and Gallegos (Vidgen & Gallegos, 2011) suggest that the Food Literacy Model can guide evaluation frameworks and measures. The ‘components’ of the model represent process evaluation; the ‘mechanisms’ and ‘mediators’ represent impact level evaluation; and the ‘nutrition’ section of the model represents outcome evaluation.
Figure 1: Conceptual model of the relationship between food literacy and nutrition
1.1 Purpose of this review
The purpose of this review is to identify and evaluate intervention strategies that address the key components of food literacy currently used with disadvantaged young people using the developed model as a guide. The review will then determine strategies that represent a “smart buy” for the target populations. The criteria for “smart buys” were taken from the Eat Well Queensland (Queensland Public Health Forum, 2009). The criteria are listed below in Table 1.

Table 1: Criteria used to select the Smart Buys (Queensland Public Health Forum, 2009)

<table>
<thead>
<tr>
<th>Issues that were considered in determination of Smart Buys in public health nutrition intervention</th>
<th>include support for the intervention as assessed by NHMRC level of evidence and whether the intervention:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Has the potential for significant health gain (likely to contribute to reduction of burden of disease; is practical, able to be generalised, sustainable; is likely to be acceptable to the target group)</td>
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<tr>
<td>2. Addresses risk assessment (including relative risk of maintaining the status quo, which frequently and unfortunately involves doing nothing in the case of public health nutrition)</td>
<td></td>
</tr>
<tr>
<td>3. Is supported by expert consensus opinion (this is no longer included in the NHMRC level of evidence scale)</td>
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<tr>
<td>4. Builds on past investment supported by observational effectiveness</td>
<td></td>
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<tr>
<td>5. Has potential for collaboration (inter-disciplinary, intra- and inter-agency)</td>
<td></td>
</tr>
<tr>
<td>6. Supports a partnership approach with consumers within a community development framework</td>
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<tr>
<td>7. Addresses socio-environmental determinants of health (service access, macro environment, for example, food supply, social attitudes, knowledge, beliefs, attitudes and behaviour)</td>
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<tr>
<td>8. May acknowledge new ideas or methods (i.e., is innovative)</td>
<td></td>
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<tr>
<td>9. Has the potential to address social justice and equity issues</td>
<td></td>
</tr>
<tr>
<td>10. Has the potential to deliver ‘early wins’, i.e., health gain achieved within a short to medium time frame.</td>
<td></td>
</tr>
</tbody>
</table>

The primary research questions answered by this review are:

1. What is the evidence for potential interventions to address and promote food literacy amongst disadvantaged young people?

2. Is the model a useful framework for informing food literacy investment?
1.2 Scope
The area of food literacy as defined above and outlined in the model is very broad and as a result the review had to be scoped to ensure that it remained salient for the primary purpose. For the purposes of this review the following definitions, inclusions and exclusions were applied.

The term ‘young people experiencing disadvantage’ is defined in this report as those aged between 11 to 25 years who are stated as having a level of social disadvantage in the interventions reviewed. The review initially did not include those aged less than 16 years however practitioners in the field identified that many interventions, including those targeting younger age groups, are designed to prepare young people for adulthood. With this in mind it was decided to include interventions that targeted those from 11 years up to 25 years of age.

Inclusion criteria
The review has focussed on interventions that incorporate one or more of the component domains of food literacy as identified earlier in the methodology.

Due to the large number of studies in the published and grey literature the following inclusion criteria were used:

- Published in the English language;
- Published between 1997 and 2011;
- Demonstrated clearly defined outcomes in terms of impacting on the components of food literacy as defined in the methodology of this review. This was determined either via an evaluation design that had a minimum of pre-test/post-test quantitative design or a qualitative design with triangulation;
- Interventions occurring in an OECD country.

Exclusion criteria
Studies were not included in the review if they focused on interventions with:

- Participants younger than 11 years or older than 25 years
- A weaker evaluation design than described in the inclusion criteria
2. Methodology
A literature search was conducted to identify recent food literacy interventions. However, when the review started there was not a conclusive definition for food literacy and most interventions conducted in this field did not use the term ‘food literacy’. Therefore, the reviewers searched for interventions that included the following components (as specified originally by the Health Promotion Queensland tender):

- Selection/purchase of food
- Preparation of food
- Consumption of food
- Food budgeting
- Confidence to perform this food work
- Improvements in fruit and vegetable consumption
- Frequency of using basic ingredients for the preparation of meals
- Confidence in cooking
- Buying less convenience food
- Increased likelihood to taste and experiment with new food
- Increased awareness of food preparation and production

Due to the limited time for this review, the reviewer (KC) used multiple sources to access the most appropriate interventions, these included:

1. The Australian Food Experts study literature review was used as a starting point. This literature review included a search of electronic databases Science Direct, EBSCO Host, Australian Digital Thesis, Academic Search Elite Medline and CINAHL;
2. Participants in the Study of Australian Food Experts identified numerous food literacy interventions, which were followed up by the reviewer (KC);
3. The Queensland Food Literacy Network identified the food literacy interventions occurring in Queensland. The reviewer (KC) sought further information on all of these to determine whether any impact evaluation had been conducted;
4. The reviewers forward and back referenced papers from the interventions identified above
5. A Google search using the term: ‘food literacy’, was conducted.

2.1 Study selection
All abstracts and grey literature were scanned by the reviewer (KC) for relevance to the subject under review and to ascertain if the inclusion criteria were met. Where there was doubt about possible relevance/inclusion, the citation or grey literature was assessed by a second reviewer (HV).
Articles appearing to contain information pertinent to the review were obtained and examined in further detail. Reference lists of these articles were scanned for further sources of applicable information.

2.2 Review criteria
There was wide variability in the types of interventions, implementation settings, target populations and evaluation methods described in the studies. As the interventions were so varied it was decided to use an abbreviated version of the Rychetnik et al (Rychetnik, Frommer, Hawe, & Shiell, 2002) Schema to appraise the identified studies (see Table 2). The Schema was developed to be used as guide in the appraisal of evidence on public health interventions. It is designed to be applied to evidence in the form of a collection of research papers or evaluation reports that examine and describe the effects (benefits and harms) of an intervention (Rychetnik, et al., 2002).

The Schema covers two stages of evidence appraisal. The first is the appraisal of individual papers or reports to determine whether they provide credible and useful information about an intervention. The second is the formulation of conclusions about the value of the available evidence, enabling the preparation of a summary statement on what is known, and what is not known, about a type of public health intervention (Rychetnik, et al., 2002).
Table 2: Criteria for evaluation interventions adapted from (Rychetnik, et al., 2002).

<table>
<thead>
<tr>
<th>Assessment criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>• What type of intervention is reported?</td>
</tr>
<tr>
<td>• What was the aim/goal of the intervention?</td>
</tr>
<tr>
<td>• Who was the provider of the intervention?</td>
</tr>
<tr>
<td>• Who were the stakeholders?</td>
</tr>
<tr>
<td>• Was the intervention or selection of strategies based on theory or research?</td>
</tr>
<tr>
<td>• Was the intervention evaluated?</td>
</tr>
<tr>
<td>• What research methods were used to evaluate? for example quantitative or qualitative or both.</td>
</tr>
<tr>
<td>• What was the timing of the intervention evaluation in relation to the implementation?</td>
</tr>
<tr>
<td>• What study designs were used in the evaluation? Where does the study sit on the NH &amp;MRC hierarchy of study designs (refer to Table 3)?</td>
</tr>
<tr>
<td>• How rigorous was the evaluation for example sample size.</td>
</tr>
<tr>
<td>• What measures of effect or intervention outcomes were examined?</td>
</tr>
<tr>
<td>• What findings were reported?</td>
</tr>
<tr>
<td>• Were the intervention outcomes sustainable?</td>
</tr>
<tr>
<td>• Is the intervention reproducible or applicable in an Australian context?</td>
</tr>
</tbody>
</table>

Table 3: National Health and Medical Research Council Levels of Evidence (National Health and Medical Research Council, 2000)

<table>
<thead>
<tr>
<th>Study design</th>
<th>Level of evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Systematic review of all relevant randomised control trials (RCT)</td>
<td>I</td>
</tr>
<tr>
<td>Properly designed RCT</td>
<td>II</td>
</tr>
<tr>
<td>Well-designed pseudo-randomised controlled trial (for example alternate allocation)</td>
<td>III-1</td>
</tr>
<tr>
<td>Comparative studies (or systematic reviews of such studies) with concurrent controls and allocation not randomised, cohort studies, case-control studies, or interrupted time series with a control group</td>
<td>III-2</td>
</tr>
<tr>
<td>Comparative studies with a historical control, two or more single arm studies, or interrupted time series without a parallel control group</td>
<td>III-3</td>
</tr>
<tr>
<td>Case series, post-test or pre-test/post test, with no control group</td>
<td>IV</td>
</tr>
</tbody>
</table>
3. Results
The search strategy identified 74 abstracts and titles. After screening the abstracts the review team obtained 58 full text studies/reports or made phone calls to program leaders for further investigation. Thirty-seven studies were excluded (see Appendix 1) because they either failed to describe outcomes of interest or did not meet the inclusion criteria, several of these included interventions in which Queensland Health had previously invested.

Stage 1
- Literature review
- Interventions identified by Australian Food Expert Study
- Interventions identified by QLD Food Literacy Network
- Forward and back referencing of papers
- Google Search
  = 74 interventions

Stage 2
- Children and/or adults 11-25 yrs
- Published 1997-2011
- English language
- Clearly defined outcomes
  = 58 interventions

Stage 3
- Participants younger not in age range
- Weak evaluation design
  = 21 interventions

The final 21 studies are summarised in Table 4.
<table>
<thead>
<tr>
<th>Author/ Lead agency</th>
<th>Intervention Description</th>
<th>Validated tool</th>
<th>Level of evidence</th>
<th>Target Group</th>
<th>Timing of post-intervention evaluation</th>
</tr>
</thead>
</table>
| National Institute of Food & Agriculture * (Townsend, Johns, Shilts, & Farfan-Ramirez, 2006) | **Expanded Food and Nutrition Education Program**  
Youth program with 7 school based lessons including some cooking, food tasting and food safety. This randomized controlled evaluation showed increases in food prep skills, food safety & nutrition knowledge but no difference in consumption. This intervention developed great evaluation tools. Facilitated by teachers. | ✓ | II | Low income children aged 9-11 in California, n=5111 | Immediately after |
| Colorado State University (Clifford, Anderson, Auld, & Champ, 2009) | **Good Grubbin’**  
A randomised control trial composed of 4 x 15 minute cooking episodes on TV focusing on increasing F & V. Post-intervention evaluation showed significant improvement in cooking motivation, barriers and self-efficacy but at 4-month follow-up, the only improvement was in knowledge no change had occurred in F & V intake, motivators, barriers or self-efficacy. Facilitated by dietitian. | ✓ | II | University students living off campus n = 101 | 4 months |
| Stephanie Alexander Kitchen Garden Foundation (Stephanie Alexander Kitchen Garden Foundation, 2009) | **Stephanie Alexander Kitchen Garden Program**  
40 mins of gardening/week + 90 mins cooking/week. The program is embedded into curriculum. Planning flows from the garden’s seasonal growing cycles over a four-year period. The mixed method (Quasi-experimental, observation, focus groups) evaluation of teachers, parent’s & children found strong evidence that children were more likely to try new foods as well as increased knowledge, confidence & skills in cooking & gardening. Program was particularly effective at engaging ‘non-academic learners & children with challenging behaviour. Facilitated by teachers. | | III-2 | 8-12yr olds n=~640 | Immediately after |
| Food standards agency UK (Wrieden et al., 2002) | **Cookwell**  
Flexible but standardized community based food skills initiative 10 week x 2 hr program. The quasi-experimental multiple pre & post-test evaluation showed slight increase in fruit consumption but no changes in energy or nutrients. There was an increase in people cooking from scratch + an increase in confidence & pride (6 mths after) + increased likelihood to taste & experiment new foods. Unexpected results were increased confidence in other areas resulting in acquisition of jobs, attendance at other classes + increased friendships. Facilitated by community health workers. | ✓ | III-2 | Low income adults in Scotland n = 113 | 6 months |
<p>| WA Health (Foley &amp; Pollard, 1998) | <strong>Foodcents</strong> is an education program that helps families to achieve a healthy diet and to save money on their grocery shop. Pre-test/post-test eval results showed positive changes in self reported dietary, cooking and shopping behaviours. However due to data identification issues, this result was based on only 22% of participants. Facilitated by community volunteers. | | IV | Low SES adults n=33 | Immediately after |</p>
<table>
<thead>
<tr>
<th>Author/Lead agency</th>
<th>Intervention Description</th>
<th>Validated tool</th>
<th>Level of evidence</th>
<th>Target Group</th>
<th>Timing of post-intervention evaluation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uni of Southern California (Davis, Ventura, Cook, Gyllenhammer, &amp; Gatto, 2011)</td>
<td>LA Sprouts: a gardening, nutrition, and cooking intervention 90mins x 12-week, after-school gardening, nutrition, and cooking program. Participants learnt easy, healthy recipes, tips for improving diets, identifying hidden sugar in beverages, and other food info. A master gardener taught students gardening basics. Students were given Farmers Market vouchers where they bought fruits &amp; vegetables for their families every month. Parents of participants received three separate 60-minute nutrition &amp; gardening classes during the intervention. The quasi-experimental evaluation found that compared to control group, participants had increased fibre intake &amp; decreased diastolic blood pressure. For the overweight subsample, participants had a significant change in fibre intake, reduction in BMI and less weight gain compared to the control group. Participants also showed a 16% increase in overall preference for vegetables. Participants’ view of their ability to cook &amp; garden changed, &amp; most believed fruits and vegetables from the garden tasted better than store-bought fruits &amp; vegetables. Facilitated by nutrition educator and gardener.</td>
<td>✓</td>
<td>III-2</td>
<td>Low income Latino 10-12 yr olds n=104</td>
<td>1 week</td>
</tr>
<tr>
<td>Idaho State University (McAleese &amp; Rankin, 2007).</td>
<td>Garden based nutrition education in Idaho 3 treatment groups: 1 x 12 week nutrition program, 1 x 12 wk nutrition program + gardening, 1 x control. Quasi-experimental evaluation showed nutrition + gardening program resulted in greater intake of F &amp; V than other 2 groups. Nutrition + gardening gp significantly increased their numbers of fruit servings, vegetable servings, vitamin A intake, vitamin C intake, and fibre intake. Facilitated by teacher.</td>
<td></td>
<td>III-2</td>
<td>12 yr olds, n=99</td>
<td>Immediately after</td>
</tr>
<tr>
<td>Frankstown Community Health (Trezise, 2006)</td>
<td>Community Kitchens A Community Kitchen is a group of people that comes together on a regular basis to cook healthy and affordable meals for themselves and their families with the support of a facilitator. The program aims to improve the nutritional status, mental health, economic skills and general wellbeing of participants. Pre-test/post-test evaluation showed participants were more motivated to cook at home, more likely to use a shopping list and have a higher reported intake of F &amp; V and a general increase in confidence. However, methodology for this intervention was poorly reported so poor validity &amp; rigour is assumed. Facilitated by community volunteer or worker.</td>
<td></td>
<td>IV</td>
<td>Low SES adults n = unknown</td>
<td></td>
</tr>
<tr>
<td>National Institute of Food &amp; Agriculture USA * (Greenwell Arnold &amp; Sobal, 2000; Rajgopal, Cox, Lambur, &amp; Lewis, 2002)</td>
<td>Expanded Food and Nutrition Education Program Participants learn how to improve the nutritional quality of meals by increasing their ability to select food &amp; gain new skills in food production, prep, storage, safety &amp; hygiene, and managing food budgets. The program is 10-12 lessons, over several months, run by peer educators &amp; volunteers, many indigenous to the target population. The program has shown a benefit/cost ratio of $10.64/$1.00 A prospective, within subject evaluation showed knowledge increased but no change in intake. +ve effect on education, health, employment &amp; comm. Engagement. Facilitated by para professional.</td>
<td>?</td>
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<tr>
<td>Dept of Health UK (Hyland, Stacy, Adamson, &amp;</td>
<td>Food Club After school cooking club for 11-12 yr olds in north east England 20 week x 2hr program at no cost to children. Part of program was taking food home for family to have for dinner. This qualitative study used</td>
<td>IV (qual)</td>
<td>Deprived 11-12 yr olds n=28 students,</td>
<td>Immediately after</td>
<td></td>
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<tr>
<td>Author/Lead agency</td>
<td>Intervention Description</td>
<td>Validated tool</td>
<td>Level of evidence</td>
<td>Target Group</td>
<td>Timing of post-intervention evaluation</td>
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<tr>
<td>Moynihan, 2006)</td>
<td>group discussions with participants &amp; their parents. Evaluation showed some limited positive changes to food intake, gains in confidence &amp; skills in cooking &amp; more involved in cooking at home. However, does not seem they are able to influence food cooked at home. Facilitated by teacher.</td>
<td>✓</td>
<td>IV</td>
<td>n = 20 parents.</td>
<td>Immediately after</td>
</tr>
<tr>
<td>Food Literacy partners program *</td>
<td>Learn &amp; Serve nutrition program 20 hrs of food and nutrition education which includes interactive food prep + shopping tour, graduates must then provide 20 hours of community education nutrition service to low income adults. Course has 14 modules which includes 2 healthy food prep sessions &amp; supermarket tour. Pre-test/post test evaluation showed graduates self reported intake of vegetables &amp; fruit had increased and sweetened beverages had decreased. Facilitated by dietitian.</td>
<td>✓</td>
<td>IV</td>
<td>Adults in East Carolina willing to pass on info learnt to low income adults n=186</td>
<td>Immediately after</td>
</tr>
<tr>
<td>(Rawl, Kolasa, Lee, &amp; Whetstone, 2007)</td>
<td>Youth Farm and Market Project Participants were exposed to gardening, cooking and nutrition lessons for 3 days a week for 10 weeks in the community. Evaluation via pre-test/post test 24 hr recall &amp; survey found boys’ F&amp;V intake significantly increased from baseline to follow-up (fruit from 2.0 to 3.0 servings, vegetables from 2.0 to 3.4), but girls’ intake did not change. Focus groups found when compared to non-garden participants, garden participants were more willing to eat nutritious food, try ethnic &amp; unfamiliar food, expressed greater appreciation for individuals &amp; cultures, and were more likely to cook &amp; garden. Facilitated by nutrition educator.</td>
<td>✓</td>
<td>IV</td>
<td>Low income youth in Minneapolis 8-15 yrs, n=66</td>
<td>Immediately after</td>
</tr>
<tr>
<td>(Lautenschlager &amp; Smith, 2007)</td>
<td>Cooking up fun! 6 x 90 min sessions designed to help young people acquire independent food skills that will support healthful eating and +ve youth development. Two adults work with 6-8 youth, young people help plan the cooking sessions. Skill building activities include reading recipes &amp; food labels, food safety &amp; nutritional choices. Pre-test/post-test evaluation reports skills were gained in knowledge, behaviours &amp; food prep, however evaluation methodology for this intervention was poorly reported so poor validity &amp; rigour is assumed. Facilitated by para professional.</td>
<td>✓</td>
<td>IV</td>
<td>Low income 9-15yr olds in New York n = 128</td>
<td>Immediately after</td>
</tr>
<tr>
<td>Cornell University *</td>
<td>Cooking with a Chef Teams a chef with nutrition educator for 5 cooking sessions. Pre-test/post-tests, observations &amp; focus group evaluation showed an increase in cooking skills, home prepared meals, selection of healthier food, cooking self efficacy &amp; confidence (although small numbers for evaluation (n=29) + high course attrition rates). Facilitated by chef and dietitian.</td>
<td>✓</td>
<td>IV</td>
<td>Parents n = 29</td>
<td>Immediately after</td>
</tr>
<tr>
<td>(Thonney &amp; Bisogni, 2006)</td>
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<td></td>
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<tr>
<td>Clemson University USA (Condasky et al., 2009)</td>
<td>Sisters in Health 6 x 90 min sessions. Participants share their existing knowledge &amp; skills. They help choose the topics and recipes they will cover. Emphasis is on enjoying good food, having fun &amp; supporting one another. The program is delivered by community nutrition para-professionals. The quasi-experimental, pre-test/post-test evaluation showed an increase in F &amp; V intake &amp; positive change in attitude in ability to prepare F &amp; V. Facilitated by para professional.</td>
<td>✓</td>
<td>III-2</td>
<td>Disadvantaged women n = 269</td>
<td>Immediately after</td>
</tr>
<tr>
<td>Author/Lead agency</td>
<td>Intervention Description</td>
<td>Validated tool</td>
<td>Level of evidence</td>
<td>Target Group</td>
<td>Timing of post-intervention evaluation</td>
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<tr>
<td>Food Standards Agency Wales (Beaufort Research, 2004)</td>
<td>Get Cooking Wales 6 sessions over 5-6 weeks. Participants prepared, cooked and ate a meal at each session. The aim was to teach young people basic cooking skills so they feel a sense of achievement and enjoy the experience. At end of the course it was hoped participants would feel more motivated about cooking for themselves and friends, and understand basic principles concerning healthy eating and food hygiene. Pre-test/post-test evaluation plus focus groups found improvements were seen in perceived cooking ability, confidence &amp; enjoyment levels following course completion. However, due to low numbers this was not statistically significant. Facilitated by community volunteers/youth workers.</td>
<td>✓</td>
<td>IV</td>
<td>Low income youth &amp; adults 13-25 yrs n = 15</td>
<td></td>
</tr>
<tr>
<td>Kent State University, USA (Ha &amp; Caine-Bish, 2008)</td>
<td>General nutrition course for promoting F &amp; V consumption among college students 15 week x 50 mins basic nutrition class with the aim of increasing F&amp;V consumption. Mostly consisted of lectures &amp; group activities. Pre-test/post-test evaluation showed increase in F &amp; V consumption and decrease in consumption of french fries. Weakness was students were all health undergraduates in a nutrition course &amp; no control group. Facilitated by nutrition educator.</td>
<td>✓</td>
<td>IV</td>
<td>18 – 24 yr old college students n = 80</td>
<td></td>
</tr>
<tr>
<td>Colorado State University (Levy &amp; Auld, 2004)</td>
<td>Cooking Classes outperform Cooking Demonstrations Two treatment groups, intervention group had 4 x 2hr cooking classes + supermarket tour. Demonstration group attended cooking demonstration. Pre-test/post-test evaluation showed those who attended cooking classes had better gains in knowledge, attitude &amp; behavior. Facilitated by a chef.</td>
<td>✓</td>
<td>IV</td>
<td>Sophomore students approx 19yrs old, n=65 3 months</td>
<td></td>
</tr>
<tr>
<td>Oklahoma Co-op extension service * (Brown &amp; Hermann, 2005)</td>
<td>Oklahoma Cooking classes program Cooking classes (either demonstration or hands on) are used to provide education on basic fruit and vegetable prep skills, food safety practices, and nutrition related to produce. Pre-test/post-test evaluation showed fruit consumption increased significantly from 1.1 to 2.3 servings/day for youth and from 1.5 to 2.1 servings/day for adults. There was a 39% increase in youth and a 17% increase in adults who consumed 2 fruit servings/day. Average number of vegetable servings significantly increased from 1.4 to 2.4 servings/day for youth and from 2.1 to 2.7 servings/day for adults. There was a 25% increase in youth and an 18% increase in adults who consumed 3 vegetable servings/day. Significant improvements were also observed in safe food-handling behaviours for both youth and adults. Also, 69% of youth and 48% of adults reported “eating a new fruit or vegetable” and 67% of youth and 47% of adults reported “preparing fruits or vegetables in a new way.” Facilitated by a para professional.</td>
<td>✓</td>
<td>IV</td>
<td>Low income youth (average age = 12yr) &amp; adults in 28 counties (n=602) Immediately after</td>
<td></td>
</tr>
<tr>
<td>Education dept Spain (Perez-Rodrigo &amp; Aranceta, 1997)</td>
<td>Nutrition Education of schoolchildren living in a low-income area in Spain 2 hr sessions x 5 weeks, included cooking, education, changes to school lunches &amp; parental involvement + Food &amp; nutrition incorporated into curriculum. After 2 yrs of implementation pre-test/post-test evaluation showed increased nutrition, food hygiene &amp; food prep knowledge, an increase in cooking skills &amp; preparing dishes at home. Also increased intake of fruit, salad, fish &amp; dairy. Facilitated by a teacher.</td>
<td>✓</td>
<td>IV</td>
<td>Gypsy children in Bilbao 8-12 yrs, n= 150 2 years</td>
<td></td>
</tr>
<tr>
<td>(Reinhardt Howarth, Cason,</td>
<td>Comparison of 2 Cooking Education Strategies for Adults</td>
<td>✓</td>
<td>IV</td>
<td>Low income adults in South Immediately after</td>
<td></td>
</tr>
</tbody>
</table>
& Condasky, 2009) 3 groups of participants were enrolled in the pantry method & 3 groups in the recipe method. Each method had 8 x 90-120 minute practical sessions. The pantry method required participants to create their own recipes using basic pantry items & prepare, then share & discuss recipes. Pre-test/post-test surveys + post intervention focus groups were conducted. Few differences were found b/w the interventions. All participants improved in food related health practices as well as number of meals prepared at home, healthfulness of meals and reduction of food costs. However, the majority of participants preferred pantry method as it was more realistic & they learnt from their peers. Facilitated by a para professional.

Carolina, USA, n= 71
The interventions have been reported using a variety of study designs. Of the 21 interventions described, two have been conducted as randomised controlled trials, four as quasi-experimental studies, 14 used pre-test/post-test design and one was wholly qualitative.

Evaluation rigour varied greatly within and across the studies. Several studies did not provide justification for variance in attrition rates (Beaufort Research, 2004; Condrasky, et al., 2009) or detailed methodology (Beaufort Research, 2004; Thonney & Bisogni, 2006; Trezise, 2006) and one study (Trezise, 2006) did not note the pre-test results, thereby limiting the strength of the conclusions drawn from the post-test evaluations.

Typically follow-up, to test if an intervention has had an influence on long-term behavior change, occurs a six months plus. Most follow-up evaluations were undertaken within 6 weeks, however, one study measured outcomes at three months (Levy & Auld, 2004) one at six months (Wrieden, et al., 2002), one at 12 months (Greenwell Arnold & Sobal, 2000) and one at 2 years post intervention (Perez-Rodrigo & Aranceta, 1997).

Only three studies were based in Australia with the remainder conducted in the United States of America, the United Kingdom and Spain. The studies were conducted by a range of facilitators, see Table 5. The description of some of the facilitators, for example, nutrition educator were poorly defined and their qualifications were not stated. A number of interventions involved two types of workers, for example chef and dietitian or nutrition educator and gardener.

Table 5: Type of facilitators conducting food literacy interventions

<table>
<thead>
<tr>
<th>Type of facilitator</th>
<th>Number of interventions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Para-professional/Nutrition assistant</td>
<td>6</td>
</tr>
<tr>
<td>Dietitian</td>
<td>3</td>
</tr>
<tr>
<td>Chef</td>
<td>2</td>
</tr>
<tr>
<td>Teacher</td>
<td>4</td>
</tr>
<tr>
<td>Community volunteer</td>
<td>2</td>
</tr>
<tr>
<td>Community worker/youth worker</td>
<td>4</td>
</tr>
<tr>
<td>Nutrition educator</td>
<td>3</td>
</tr>
<tr>
<td>Gardener</td>
<td>2</td>
</tr>
</tbody>
</table>
3.1 Participants
Samples ranged from 15 to 200,000 participants with a median of 102 participants. One study (Trezise, 2006) did not note the number of participants. Most of the participants were from low-income families, although four studies did not report financial status, these included the Stephanie Alexander Kitchen Garden project, Cooking with a Chef and two studies involving college students (Clifford et al, 2008; Levy & Auld, 2004).

3.2 Recruitment and retention
Many of the studies did not provide detailed information on recruitment and retention strategies. For those that did, however, the most important factor for successful recruitment and retention was the importance of positive social contact and group support with the ability to develop friendships. This was aided by the flexible, informal nature of the programs, downplaying the health aspect and making learning fun and relevant (Devine, et al., 2005; Hyland, et al., 2006; Stead et al., 2004; Trezise, 2006; Wrieden, et al., 2002).

Other recruitment and retention strategies included:

- Offering programs in familiar community locations (i.e., community cafes, adult education centres, child & family centres);
- Offering programs at flexible times;
- Having a non-health agency take on the responsibility of running the group (Trezise, 2006) or the involvement of a community worker (Wrieden, et al., 2002);
- Community ownership, where local people are regarded as partners was considered another key factor for engaging disadvantaged communities (Stead, et al., 2004; Trezise, 2006);
- Providing incentives increased attendance at some group sessions and assessments. These included, college students receiving extra credit on completion of one intervention and given the opportunity to win two gift certificates to the local grocery store (Clifford, et al., 2009); providing participants with cooking equipment (Devine, et al., 2005). Homeless youth, a particularly difficult group to recruit and retain, were attracted to programs that had a transparent link between program completion and the ability to gain certificates and recognised credentials (Beaufort Research, 2004);
- Providing child-care with familiar workers was considered crucial for attendance of participants with young children (Wrieden & Symon, 2003).

For interventions targeting children and young people, recruitment and retention was facilitated by having the lessons incorporated into the curriculum at school or college (Perez-Rodrigo & Aranceta, 1997; Stephanie Alexander Kitchen Garden Foundation, 2009). Hyland et al (2006) found that an
after-school cooking club was “something to do” for many young people (Hyland, et al., 2006).

Interestingly, one study (Wrieden & Symon, 2003) that was not included in the final twenty-one studies, as it did not meet the evaluation criteria, found that providing a range of incentives did not attract participants. This intervention was designed for teenage pregnant women and involved seven food preparation sessions delivered by midwives at community centres. Despite offering free food, transport and retail vouchers only a small number attended initially and an even smaller number completed the course, making evaluation impossible. Reasons for not attending the program were distance, work and educational commitments.

3.3 Components of food literacy
As discussed earlier, there are eight essential component domains of food literacy in the Food Literacy Model developed from the study of Australian Food Experts (refer to Figure 1 on page Error! Bookmark not defined.). As can be seen in Figure 2, most of the interventions reviewed included ‘nutrition’ (n = 20), ‘preparation’ (n = 19), ‘eating’ (n = 18) and ‘language’ (n = 18) as domains. The next most popular domain was ‘selection’ with 12 interventions addressing this. Fewer interventions addressed ‘access’ (n=5), ‘planning and management’ (n=7) and ‘knowing where food comes from’ (n =6).

Figure 2: The presence of food literacy domains in reviewed interventions

As outlined in Appendix 2 Australian Food Experts identified eighty potential components of food literacy in the expert study. These were grouped into eight domains. The individual components which were grouped into the domains were used to determine the scope and definition of that
domain. No intervention had all eight domains, however, five of the interventions had seven food literacy domains, these included:

- Cooking with a Chef;
- Youth Farm & Market project;
- LA Sprouts;
- Stephanie Alexander Kitchen Garden project; and
- Food Cents

3.4 Mediators and mechanisms of food literacy (Impact Evaluation)
The majority of interventions measured changes in ‘values’ (n=19) and ‘increased choice’ (n=20). The next most popular change measured was ‘increased pleasure’ (n=13). Very few interventions resulted in a change in food supply (n = 4) or food security (n = 5). These are outlined in Figure 3. It should be noted several more of the interventions may have resulted in increased pleasure and a change in values, however these concepts were not formally measured.

Figure 3: The presence of food literacy mediators and mechanisms in reviewed interventions

No intervention included measurement of all five mediators and mechanisms, however, six of the interventions did incorporate four, including:

- Cooking with a Chef
- Youth Farm and Market Project
- LA Sprouts
- Stephanie Alexander Kitchen Garden project
- Cookwell
 Comparison of 2 cooking education strategies: the recipe and pantry methods

3.5 Measured outcomes
Some of the studies measured a number of areas not covered by the Food Literacy Model, these included decreased blood pressure or BMI (Davis, et al., 2011), increased general confidence (Trezise, 2006), effectiveness at engaging children with challenging behaviour (Stephanie Alexander Kitchen Garden Foundation, 2009), increased friendships and improvement in employment or community engagement (Wrieden, et al., 2002).

This review was primarily focused on impact evaluation as outlined in the Food Literacy Model (refer to Figure 1). However, several of the studies looked in detail at dietary changes that occurred during the interventions. This is represented by the nutrition section of the Food Literacy Model, which could be used for outcome evaluation. The dietary changes measured took the form of either specific nutrients eg vitamin A and C intake, fibre intake (Davis, et al., 2011; McAleese & Rankin, 2007) or the majority of interventions (n=14) recorded positive changes in the consumption of certain food groups for example fruit, vegetable, fish, and/or dairy servings.

3.6 Validated tools
Ten studies reported the use of validated tools to evaluate the effectiveness of their intervention. The tools and what they measured are listed in Table 6. Readers should note that this table refers to tools identified in studies reporting on interventions. A broader review which also included the development of measurement tools would be likely to retrieve additional publications. This was beyond the scope of this project.
### Table 6: Validated tools used in food literacy interventions

<table>
<thead>
<tr>
<th>Author/ Lead agency</th>
<th>Name of intervention</th>
<th>Outcomes measured</th>
<th>Measurement tool</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oklahoma Co-op extension service * (Brown &amp; Hermann, 2005)</td>
<td>Oklahoma Cooking classes program</td>
<td>Consumption of fruit and vegetables Self-reported change in food safety and food preparation behaviours.</td>
<td>Pre-post test survey developed by authors and tested for reliability.</td>
</tr>
<tr>
<td>Colorado State University (Clifford, et al., 2009)</td>
<td>Good Grubbin’</td>
<td>Dietary intake Fruit, vegetable and cooking motivators and self efficacy</td>
<td>Food frequency questionnaire (adapted from National Cancer Institute Health Habits and History Questionnaire) Personal factors survey (content validity and test-retest reliability)</td>
</tr>
<tr>
<td>Clemson University USA (Condarsky, et al., 2009)</td>
<td>Cooking with a Chef</td>
<td>Qualitative data re: • Amount of home meal production • Attitudes towards cooking at home • Knowledge of nutrition and confidence in cooking skills • Availability and consumption of fruit and vegetables • Use of low sodium preparation strategies when cooking at home</td>
<td>unpublished in validity and reliability in thesis manuscript of P. Michaud 2007. Instrumental social support parents scale Emotional social support parents scale</td>
</tr>
<tr>
<td>Uni of Southern California (Davis, et al., 2011)</td>
<td>LA Sprouts: a gardening, nutrition, and cooking intervention</td>
<td>Changes in dietary outcomes (reported at macronutrient and food group level) Changes in health outcomes</td>
<td>2007 Block Food Screeners for ages 2-17 years (ref in paper) Height Weight Percentage fat (using Tanita scales) Waist circumference Blood pressure</td>
</tr>
<tr>
<td>Wisconsin Nutrition Program * (Devine, et al., 2005)</td>
<td>Sisters in Health</td>
<td>Fruit and vegetable consumption</td>
<td>Behavioural Risk Factor Surveillance System (from US Centre for Disease Control : referenced in paper) Attitude scale developed and validated from formative research (including ability to judge quality, knowledge of preparation methods for good taste, family liking, adequate time for preparation, satisfaction with the way vegetables turn out) Validated tool from previous study (includes number of serves participant thought they should eat and confidence in their ability to do so)</td>
</tr>
<tr>
<td>Kent State University, USA (Ha &amp; Caine-Bish, 2008)</td>
<td>General nutrition course for promoting F &amp; V consumption among college students</td>
<td>Body weight Food intake • Fruit and vegetable intake</td>
<td>BMI 3 –day dietary record</td>
</tr>
<tr>
<td>Colorado State University (Levy &amp; Auld, 2004)</td>
<td>Cooking Classes outperform Cooking Demonstrations</td>
<td>Changes in attitudes, knowledge and behaviours regarding cooking</td>
<td>Eating habits survey including • Childhood dietary patterns, eating Cooking survey Food preparation survey • 72hr food preparation recall All surveys developed by authors and tested for content validity</td>
</tr>
</tbody>
</table>

Review of Food Literacy Interventions Targeting Disadvantaged Youth  Page 23
<table>
<thead>
<tr>
<th>Author/ Lead agency</th>
<th>Name of intervention</th>
<th>Outcomes measured</th>
<th>Measurement tool</th>
</tr>
</thead>
</table>
| Food Literacy partners program * (Rawl, et al., 2007) | Learn & Serve nutrition program   | Better food choices  
Better physical activity choices  
Improves health outcomes  
Increase in nutrition knowledge  
Increase in individuals trained to provide accurate nutrition information  
Increased access to educational resources | Project logic model developed and available in article.  
Tools used include:  
- Key informant interviews  
- Individual course evaluations  
- Physical activity and nutrition behaviours (PAN) questionnaire from North Carolina Healthy Weight Initiative 2003.  
- 31-item survey re: motivation for taking the course |
| National Institute of Food & Agriculture * (Townsend, et al., 2006) | Expanded Food and Nutrition Education Program | Nutrition and food safety knowledge  
Food preparation skills | Kids Kartoons (evaluation instrument developed for self-administration by children. Tested for reliability, content and face validity. Tool not in article but available from author). |
| Food standards agency UK (Wrieden, et al., 2002) | Cookwell                          | Changes in food purchases  
Food expenditure  
Meal composition  
Main meal menus  
Dietary intake | General interview questionnaire:  
- Family composition  
- Family meal times  
- Frequency of eating out and buying take-aways  
- Cooking information  
Cooking skills questionnaire:  
- Changes in family meals  
- Confidence in cooking certain foods, techniques and following a recipe  
- Kitchen equipment  
- Factors influencing food choice and shopping behaviour  
- Addition of salt  
Food frequency questionnaire  
Food diaries  
Shopping diaries (including collection of dockets)  
Height and weight  
All tools available in report appendices |
4. Discussion
This review identified evaluated interventions currently used with disadvantaged young people that address the key components of food literacy. The interventions and their food literacy components have been identified to help food and nutrition professionals determine which interventions are the ‘best fit’ and ‘best buy’ for their target population.

As stated at the beginning of this report an agreed definition of food literacy has only recently been determined and the field is very much in a state of development. When initially reviewing the interventions, it was thought by the reviewers that the more components of the Food Literacy Model an intervention contained, the better. However, as the review has progressed it seemed this may not be the case and may, in fact, not be possible. What appears to be more important is that the organisation commissioning the intervention has a clear idea of what component or components they want addressed and a clear way of measuring their success and/or progress.

The findings of this review suggest that food literacy interventions are effective in improving some of the mediators and mechanisms of food literacy, in particular a change in values, increased pleasure and increased food choice. This translates into direct changes seen in increased cooking knowledge, skills and confidence, increased fruit and vegetable intake and reported general dietary change. Although effect sizes were variable and few studies measured long term change, positive effects were seen with most of the interventions.

Very few interventions reported improvements in increased food security and food supply. This can be partly explained by some interventions not measuring these factors but also because they are inherently difficult to change as it is affected by factors beyond the control of the individual. The interventions that were most successful in these areas were those that included:

- A gardening component;
- A supermarket tour (aiding selection of food and thereby decreasing waste);
- Guidance in managing a food budget; and
- Used the pantry method of cooking (not using a recipe but using basic ingredients found in a pantry).

This final project compared the two methods in relation to changes in the number of meals prepared at home, the healthfulness of meals prepared at home, the healthfulness of the overall diet (based on MyPyramid guidelines), and food costs following the cooking intervention versus prior to the cooking intervention. The results found improvements in all of these measures.
Garden-based nutrition education programs for youth are gaining in popularity and are viewed by many as a promising strategy for changing preferences and improving dietary intake of fruits and vegetables. There were only four interventions with a gardening focus reviewed for this report, however, all seemed to deliver positive outcomes. These programs had the highest number of food literacy mediators and mechanisms and made a difference in the difficult food security and food supply areas. All four of the gardening programs saw positive results for participants in the areas of increasing fruit and vegetable intake, trying new foods, and being more likely to cook and garden in the future compared to non-participants. As nutrition professionals continue to seek creative, innovative, and effective nutrition-education strategies aimed at improving youth dietary intake, garden-based nutrition intervention programs are worth further investigation.

Another key success factor for the interventions was participating in hands-on cooking rather than demonstrations. Offering hands-on cooking classes provided a number of benefits including helping to recruit and retain participants (Devine, et al., 2005) and providing a more effective method of teaching cooking skills. This was particularly seen in the intervention by Levy and Auld where those who attended cooking classes had better gains in cooking knowledge, attitude and behaviour compared to those who attended cooking demonstrations (Levy & Auld, 2004). Also, the Good Grubbin’ program, which consisted of four 15 minute cooking episodes on TV, showed that four months post intervention, participants only had improvement in cooking knowledge with no improvement in cooking motivation, or self-efficacy (Clifford, et al., 2009).

The model of how you should teach hands-on cooking classes was investigated by Howarth et al (2009) who compared 2 cooking education strategies; the recipe and pantry methods. The traditional recipe method is where participants are given a recipe to prepare a food item whereas the pantry method is where participants create and prepare a meal on the basis of food found in the pantry. Few differences were found between the interventions based on comparison of data. Participants in both groups tended to improve in their health related behaviour as well as the number and healthfulness of meals prepared at home. However, the majority of participants preferred the pantry method as they learnt from peers, it was more realistic and it was good for low literacy/numeracy levels.

Some outcomes of the interventions that were not identified in the food literacy model were ‘increased general confidence’, ‘effectiveness at engaging children with challenging behaviour’, ‘increased friendships’ and ‘improvement in employment or community engagement’. When considering the social determinants of health these outcomes were very encouraging. The programs that showed outcomes in these areas went for at least six weeks with many going for 10-12 weeks.
and one program was ongoing. Most of these programs were held in community settings run by community organisations and involved community workers in the recruitment and retention of participants.

An interesting model to promote food literacy that this review has highlighted is the National Institute of Food and Agriculture’s Expanded Food and Nutrition Education Program. Seven of the interventions reviewed in this report are run under the auspice of this program. The Expanded Food and Nutrition Education Program (EFNEP) was established in 1969 by the U.S. Department of Agriculture (USDA) Cooperative Extension Service to assist limited-resource audiences in acquiring the knowledge, skills, attitudes, and changed behaviour necessary for nutritionally sound diets, and to contribute to their personal development and the improvement of the total family diet and nutritional well-being. Over the past 30 years, EFNEP has become the largest federally funded program in the United States of America exclusively offering nutrition education. The program serves about 200,000 families with young children per year and operates in all 50 U.S. states and in several territories (Greenwell Arnold & Sobal, 2000). The funding is available to each county in each state. This funding employs trained paraprofessionals who are supported by nutrition professionals to provide nutrition education to low-income adults and young people.

EFNEP has been shown to be successful in increasing nutrition knowledge, and empowering participants to change dietary practices between entry and graduation using various educational techniques and recruitment practices. This positive effect has also been seen to continue after the programs have finished. Additional non-nutritional benefits of EFNEP have also been described, showing health, family, and work changes after completion of the program. This is a model that policy-makers in Australia may want to consider in the future.

4.1 Weaknesses of existing interventions

Collectively, results from the studies in the current review provide some important insight into the feasibility and effectiveness of food literacy interventions, however, many involve limitations in evaluation methodology and study design. Investigators utilised a range of evaluation tools, of which only half were validated, to measure a range of food literacy outcomes, making it hard to compare interventions. Some studies were limited by small sample sizes and a lack of long-term follow-up data. In addition, some of the study descriptions lacked details about intervention design and information regarding the successes and challenges of implementation. It is important that future studies include process evaluation to inform future research interventions.

With regard to study design, investigators routinely relied on convenience samples involving youth who may or may not have had a prior interest in nutrition or gardening, thus biasing the results and
limiting their generalisability. In addition, while all studies provided pre and post intervention data, many did not include a control group. However, the review also highlights the challenges and limitations of the ‘gold standard’ randomised controlled trial design in the context of real world interventions. It is likely that a randomised controlled trial design will be challenging to undertake in hard-to-reach populations and that alternative evidence may need to be sought to test the impact of intervention approaches. The challenging and sometimes chaotic nature of the participants’ lives means that many may struggle with the research process and may drop out altogether.

To ensure statistical rigor, future research should consider a quasi-experimental evaluation design. With the growing interest in food literacy, the need for well-designed studies is critical.

4.2 Food literacy model as an evaluation tool

The Food Literacy Model used in this review to assess interventions has provided a valuable framework to broadly describe food literacy interventions. It will be a useful first stage model for practitioners seeking an intervention that meets certain components, mechanisms or mediators of food literacy. It is also very useful in showing the areas which most food literacy interventions focus on and what they neglect. This provides valuable learning for those in the food and nutrition field in terms of providing more effective interventions in the future and filling gaps in current interventions.

However, a shortcoming of this method of evaluating food literacy interventions is that the food literacy components are wide ranging in their scope and some may include up to 20 different elements. For example, “Preparation” which includes ‘knowing how to prepare foods in a way that is attractive and edible’ through to ‘how to dispose of waste in an environmentally considerate manner’. Another wide ranging component is “Selection”, that incorporates elements which cover ‘knowing the environmental, social and ethical consequences of the way in which foods are produced, packaged and distributed’ to ‘being able to understand what the ingredient list means on a food label’. Having component domains that are so broad makes it difficult to truly conceptualise the work as it is currently not possible to determine which individual strategies are contained in the interventions and which are not.

Also, the mediator and the mechanism categories of the model, at this point, do not have set definitions and therefore the reviewer (KC) had to use her judgment when classifying the outcomes of the interventions. As this way of evaluating interventions is subjective, it will need to be addressed by the researchers if the model is to be used by others as an evaluation tool in the future.
4.3. Limitations
The complexity of searching for evidence, the need to search multiple databases, the resources available (budget and time), and the emergent nature of food literacy were key constraints to this review. As stated earlier, when the review started there was no conclusive definition for food literacy and most interventions conducted in the field of food literacy did not actually use the term ‘food literacy’. This meant a large amount of time was spent searching a very wide field of work to find appropriate interventions which the reviewers considered may be part of food literacy without having an agreed definition of the term and its scope of meaning.

A further limitation is that evaluation of food literacy work tends to be of small projects, predominantly using qualitative methods and focusing on subjective impacts. Unfortunately, most of the food literacy interventions that have occurred in Australia to date have weak or non-existent evaluation. These interventions tend to occur at the grassroots level by various sectors and are often not even reported. More conclusive evidence is required to make higher-level claims about the effectiveness of such interventions. Many emergent programs would benefit from a strengthening of research design to enable the measurement of more robust outcomes. Finally, the accessibility of health promotion evidence is also challenged by the degree to which evidence of effectiveness is published and by the ease with which it can be sourced.
5. Conclusion and recommendations
The findings of this review suggest that food literacy interventions can have a positive effect on food behaviour. It has also shown that the Food Literacy Model (refer to Figure 1 page 4) provides a valuable framework to describe food literacy interventions and to identify gaps in this field. The model is useful in clarifying process, impact and outcome evaluation targets and clarifying the purpose of the intervention to all those involved in its implementation including funders. It is also useful in identifying key partners for program recruitment, implementation and sustainability.

When designing a food literacy program, practitioners should first consider whether any of the twenty-one food literacy programs reviewed here are appropriate for their audience. If not, the framework used to review these interventions could be used to determine if programs used in other areas are worth investing in. When developing a new program or modifying an existing one, practitioners should consider the finding of this review, in particular, the factors which help to facilitate participation and community engagement.

Finally, at the planning stage of an intervention, facilitators need to ensure there is well-designed pre and post-evaluation. There are numerous validated evaluation tools used in the interventions in this review that practitioners may want to consider using. This review has highlighted that although there are a large number of interventions occurring in the field of food literacy, very few have well-designed evaluation. With the growing interest in food literacy, having strong evidence regarding effectiveness is critical.

This review of existing interventions was one of three studies commissioned by Queensland Health. It should be read in conjunction with results of the study of Australian Food Experts and Young People’s study. Together, these reports aim to guide investment in food literacy and to better focus practitioner’s efforts to improve the health of Queenslanders.
References


Queensland Public Health Forum. (2009). *Eat Well Queensland: are we half way there yet?: midpoint implementation review*.


Appendix one:

Interventions that were excluded from the review
<table>
<thead>
<tr>
<th>INTERVENTION NAME AND DESCRIPTION</th>
<th>QUEENSLAND PROGRAMS</th>
<th>LEAD AGENCY</th>
<th>TARGET GROUP</th>
<th>IMPACT EVALUATION</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cook for Life: QLD Health &amp; Tafe Cooking classes.</strong></td>
<td>Programs are different in each area run to cater to needs of local community.</td>
<td>TAFE &amp; Queensland Health</td>
<td>Adults at risk of chronic disease &amp; disadvantaged</td>
<td>Will be occurring in 2012</td>
</tr>
<tr>
<td><strong>Cooking Skills for Gympie</strong></td>
<td></td>
<td>Sunshine Coast HSD</td>
<td>Whole community</td>
<td>Unable to be located</td>
</tr>
<tr>
<td><strong>Good Quick Tukka: cook it, plate it, share it</strong></td>
<td>Similar to Jamie’s Ministry of Food. Group cooks 1 recipe per session for 10 wks resulted in small (not stat signif) increase in cooking more often at home</td>
<td>Queensland Aboriginal and Islander Health Council</td>
<td>Aboriginal and Torres Strait Islander people</td>
<td>✓ only self reported post eval. Showed recipes weren’t “passed on”</td>
</tr>
<tr>
<td><strong>Healthy Communities Initiative</strong></td>
<td>– Incorporates FoodCents training + cooking demo’s, garden tucker box &amp; looking at doing TAFE cooking classes</td>
<td>Whitsunday Regional Council</td>
<td>Unemployed</td>
<td>Will be occurring.</td>
</tr>
<tr>
<td><strong>Jamie’s Ministry of Food</strong></td>
<td>Program runs for 10 wks, cost $10/class, concessions avail</td>
<td>The Good Foundation</td>
<td>Residents of Ipswich</td>
<td>Will be occurring</td>
</tr>
<tr>
<td><strong>Need For Feed</strong></td>
<td>3 options: afterschool 8 weeks holiday program, 5 days 4 hrs/day Sat morn, 5 weeks 4 hrs/week</td>
<td>Diabetes Australia (Queensland)</td>
<td>High school students, partic disadvantaged</td>
<td>Waiting to get copy</td>
</tr>
<tr>
<td><strong>Your Healthy Life</strong></td>
<td>A cooking program supporting newly arrived refugees. Have developed an evaluation tool which will be used from March 2012</td>
<td>Brisbane City Council Moreton Bay Council Ipswich City Council Nutrition Australia</td>
<td>Refugee communities</td>
<td>Unable to be located</td>
</tr>
<tr>
<td><strong>Older &amp; Bolder, Shaft, Fit &amp; Fuelled Gold &amp; Gold n’kids, Chill Out,</strong></td>
<td>Ongoing series of one off cooking classes</td>
<td>Metro South Health Service District Queensland Health</td>
<td>Over 50’s Children, teens Children &amp; their grandparents</td>
<td>Unable to be located</td>
</tr>
<tr>
<td><strong>Feed yourself</strong></td>
<td>- healthy eating program</td>
<td>Albert Park Flexi School + QUT</td>
<td>Young people at risk of homelessness</td>
<td>Unable to be located</td>
</tr>
<tr>
<td><strong>Food Security Project</strong></td>
<td>Improving the nutritional quality of emergency food parcels distributed, enhance capacity of staff in NGO’s to support consumers &amp; develop a network of community food champions. Food literacy will be addressed through community food champions. Community foodies training to occur</td>
<td>Metro South Health Service District Queensland Health</td>
<td>Clients of emergency food agencies and their clients</td>
<td>Early stages of design</td>
</tr>
<tr>
<td><strong>Healthy Lifestyle &amp; Food Literacy project</strong></td>
<td></td>
<td>Hervey Bay Neighbourhood Centre</td>
<td>Socio econ disadvantaged</td>
<td>Only at Lit R/V stage</td>
</tr>
</tbody>
</table>

<p>| AUSTRALIAN PROGRAMS | |
|---------------------|-----------------------|-----------------|------------------|
| <strong>Healthy Cooking, Healthy Living</strong> | 6 session program looks at chronic disease &amp; how to reduce risk through food | Nutrition Australia WA | Older men | ✓ not in target age range |
| <strong>Cooking for health in remote Indigenous communities</strong> | Cooking classes | Palyalatju Maparnpa Health Committee | Remote WA Indigenous communities | ✓ RIST monitoring stated but could not find detail |
| <strong>YHunger</strong> | Aim is capacity-building with supported accommodation services to develop living skills with young people and to provide, prepare and store nutritious food. | Southwestern Sydney | Homeless youth or those at risk | ✓ only for youth accom services |
| <strong>Family Food Patch</strong> | | Eat Well Tasmania | Parents of infants &amp; children | Only for trained |</p>
<table>
<thead>
<tr>
<th>INTERVENTION NAME AND DESCRIPTION</th>
<th>LEAD AGENCY</th>
<th>TARGET GROUP</th>
<th>IMPACT EVALUATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peer education program conducted in 23 sites</td>
<td>Isis - Victoria</td>
<td>Any</td>
<td>✓</td>
</tr>
<tr>
<td><strong>Cook &amp; Chat</strong> 4 sessions, clients are charged $3 concession or $5 full fee (they found fee paying resulted in greater attendance)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diabetes Cooking Class 18 weekly classes of 4 hrs duration. Important lessons in course strengths &amp; weakness but TAFE aims of engaging more Aboriginal people in vocational programs were not met.</td>
<td>Aboriginal Medical Service Western Sydney + Western Syd TAFE</td>
<td>Indigenous</td>
<td>✓ only used post-evaluation</td>
</tr>
<tr>
<td>Kids in the kitchen Can’t find program information</td>
<td>WA Health Dept</td>
<td>Can’t find any eval</td>
<td></td>
</tr>
<tr>
<td><strong>Community Foodies</strong> Aims to build the capacity of communities to make healthier food choices by training and supporting volunteer community members ('Foodies') to act as agents for change. To become a 'foodie' you undertake 24hrs of training.</td>
<td>SA Health</td>
<td>Only process</td>
<td></td>
</tr>
<tr>
<td>Cooking classes in remote communities</td>
<td>NT Health, Alice Springs</td>
<td>Remote Indigenous communities</td>
<td>Not evaluated</td>
</tr>
<tr>
<td>Parental Guidance Recommended 4 workshops + extra workshop on healthy community</td>
<td>Cancer Council &amp; WA Health</td>
<td>Carer’s of children b/w 2-12yrs</td>
<td>Being conducted</td>
</tr>
<tr>
<td>Be Well with Pride Young people exit YOTS residential programs with basic food preparation skills, recipes and information package (DVD). Youth workers receive some food and nutrition training in their induction process, including the original YHUNGER manual</td>
<td>Children’s Food Education Program + Youth off the streets (YOTS)</td>
<td>Young homeless</td>
<td>Requested but did not receive anything.</td>
</tr>
<tr>
<td>Juvenile Justice Centre Cooking classes</td>
<td>Ultimo TAFE + Uni of Syd</td>
<td>Inmates of juvenile detention centre</td>
<td>Can’t find any eval</td>
</tr>
<tr>
<td><strong>Cook It, Eat It, Love It</strong> Flexible program runs for 8 weeks, 6 weeks exclusively for adults/parents &amp; 2 weeks for parents with children. Participants receive basic kitchen tool kit &amp; recipe book.</td>
<td>Hunter TAFE</td>
<td>Disadvantaged adults</td>
<td>Pilot run, looking for funding. Can’t find evaluation</td>
</tr>
<tr>
<td>Social Café Meats program run in several locations in Victoria, subsidized meals program run in cafes &amp; canteens.</td>
<td>Being evaluated as part of PhD</td>
<td>Homeless youth</td>
<td>Being conducted</td>
</tr>
<tr>
<td>Kooris in the kitchen Community kitchen project. Project’s leader highlighted success factor’s as strong partnerships, time to to adequately plan and support ground staff</td>
<td>Victorian Aboriginal Medical Service with Swinburn TAFE</td>
<td>Young Aboriginal people (15-24 year olds)</td>
<td>Not evaluated</td>
</tr>
<tr>
<td><strong>The Blue Mountains Food Circle</strong> 8-week program focusing on healthy affordable food and cooking skills. Free group with child-care provided.</td>
<td>Blue Mountains (BM) Food Services Inc + SWAMS, Wentworth Falls TAFE, BM Youth Services &amp; BM City Council</td>
<td>Young people and sole parents</td>
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</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>PROGRAMS FROM OTHER COUNTRIES</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Let’s Get Cooking</strong> 5000 Out of school cookery clubs with a 6 week course</td>
<td>School Food Trust UK</td>
</tr>
<tr>
<td>INTERVENTION NAME AND DESCRIPTION</td>
<td>LEAD AGENCY</td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>-------------</td>
</tr>
<tr>
<td><strong>Chef’s Adopt a School</strong>&lt;br&gt;2 sessions, one practical, 21,000 children have taken part. Shown small but signif improvements in eating behav &amp; confidence cooking. Not included in r/v as evaluation methodology was weak.</td>
<td>Academy of Culinary Arts UK</td>
</tr>
<tr>
<td><strong>Cookshop Program</strong>&lt;br&gt;Program took a whole school approach focusing on curriculum, cooking, school meals &amp; parent info. 3 intervention groups + 1 control, showed improved pref for F &amp;V, improved knowledge &amp; improved behaviour intentions was greater for those who took cooking classes</td>
<td>Harlem Education, USA</td>
</tr>
<tr>
<td><strong>Dining with Diabetes</strong>&lt;br&gt;3 lessons of cooking demo’s &amp; taste testing&lt;br&gt;Behaviour and knowledge changed. Average age = 63yrs</td>
<td>Illinois Extension Service, USA</td>
</tr>
<tr>
<td><strong>Cooking for your life</strong>&lt;br&gt;Cooking &amp; nutrition education program for adults with type 2 diabetes. 3 hands on cooking classes and shopping tour co-facilitated by dietitian and a cook.</td>
<td>Canadian Diabetes Association</td>
</tr>
<tr>
<td><strong>License to Cook</strong>&lt;br&gt;A framework to aid practical delivery of a minimum 16 hrs of practical cooking lessons within schools. 2700 schools participating.</td>
<td>Education Dept UK</td>
</tr>
<tr>
<td><strong>Swedish tasting classes</strong>&lt;br&gt;10 lessons for 12 yr old children. Aim is to develop pupils into conscious consumers capable of finding words to describe tastes, enabling them to make healthier food choices</td>
<td>National Inst of Public Health Sweden</td>
</tr>
<tr>
<td><strong>Food for Life: Nutrition education program for pregnant teenage women</strong></td>
<td>National Health Service, Scotland</td>
</tr>
<tr>
<td><strong>Active Kids Get Cooking</strong></td>
<td>Sainsbury’s supermarket + British Nut. Foundation</td>
</tr>
<tr>
<td><strong>Picasso Café</strong>&lt;br&gt;Work based training program, 450-750 hrs of training to receive accreditation. Goal is to enter chef apprenticeship at end of program</td>
<td>Option Youth Society, Vancouver</td>
</tr>
</tbody>
</table>
Appendix two:

Components of food literacy identified by Australian food experts
1. **Access**

1.1. Being able to find food anywhere, that you can eat.
1.2. Being able to access food through some source on a regular basis with very limited resources.
1.3. Knowing that some places are cheaper than others.
1.4. Knowing how to access the shop, how to access the funds to purchase what you require and the knowledge in regards to if it’s not coming from a shop e.g. bush foods, aid agencies.
1.5. Getting out in the garden and growing food, even if its herbs in a pot.
1.6. Being critical of the food supply system and being able to advocate for improvements.

2. **Planning and management**

2.1. Looking forward about what you are going to be eating and how to access that.
2.2. Planning ahead to make sure you meet your nutrition requirements.
2.3. Knowing quantities of food to buy so that nothing’s wasted.
2.4. The ability to handle and manage money.
2.5. Knowing which foods fill your belly so that everyone has got something to eat. What food goes the furtherest and costs the least.
2.6. Being able to plan in terms of how long something’s going to take to prepare.
2.7. Being able to choose foods that are within your skill set and available time.
2.8. Consuming food in the context of the total responsibilities placed on individuals and also within families.
2.9. Parenting skills; some sort of ability to talk to their family and say “no” and be able to moderate their intake.

3. **Selection**

3.1. Understanding how the foods that are grown influence the environment and how our food choices influence the environment and also the other way around. How climate change is going to influence what we eat.
3.2. Knowing the environmental, social and ethical consequences of the ways in which foods are produced, packaged and distributed.
3.3. Knowing how to choose culturally and socially acceptable food. So I’m not going to be stigmatised because I’ve chosen a particular food and not others.
3.4. Being able to critically judge advertisements, promotions, marketing and everything that’s coming your way.
3.5. Having the critical skills so that when a new food comes onto the market you’re able to make an informed decision about it.
3.6. Being able to judge the quality of raw and processed food which might include freshness and how does the price compare to other times in the year.
3.7. Choosing native and seasonal foods in keeping with where you live

**Being able to read food labels**

3.8. Knowing how to read the labels but also being able to read what’s not on the label
3.9. Being able to read the nutrition information panel and how to use the per 100g versus the per serve column and compare.
3.10. Being able to understand what the ingredient list means.
3.11. Having enough English language literacy skills to understand what the food is.
3.12. Being able to understand what’s in the product and how to store and use it.
3.13. Being able to read the label and understand that information in context.
4. **Knowing where food comes from**
   4.1. Getting down and dirty, experience food, plant it, grow it, harvest it, prepare it, eat it.
   4.2. Just being able to look at a processed food and know what’s in it so you might be able to categorise what it is. Being able to recognise what would have been the primary form of that food.
   4.3. Some knowledge of where the food came from and what resources were required for its production. Was this healthy, sustainable or ethical.
   4.4. Trusting your food supply.
   4.5. Knowing where your food was farmed.
   4.6. Being aware of the broader political, ecological and social contexts in which the food is grown.
   4.7. Having enough food preparation experience to know what might have gone into a food or dish.

5. **Preparation**
   5.1. Knowing how to prepare foods in a way that’s attractive and edible.
   5.2. Knowing what tastes and flavours go together.
   5.3. Knowing how to follow a recipe.
   5.4. Being able to make four to six meals by yourself that you can repeat week in week out.
   5.5. Knowledge of some basic commodities and how to prepare them.
   5.6. Knowing how to prepare some foods from all of the food groups, e.g. how to prepare meat, how to cook pasta, how to prepare vegetables and then there are spin offs from there.
   5.7. Knowing how to prepare the same foods that you have access to in different ways so that they’re interesting.
   5.8. Having a whole repertoire of skills so you can try more adventurous recipes, make up your own recipe or cooking style, adapt things to suit your preferences and equipment.
   5.9. Being able to pull a meal together that might consist of four or five different parts e.g. a baked dinner.
   5.10. Being able to prepare foods in the most efficient manner.
   5.11. Being able to prepare a meal for two to six people without any difficulty.
   5.12. Knowing how to stretch food if more people come over or are staying at your house.
   5.13. Being able to conceptualise what you want to put together.
   5.14. Having knife skills.
   5.15. Being able to confidently use common pieces of kitchen equipment such as a stove top, oven, microwave, can opener and saucepans.
   5.16. Knowing a few little short cuts so you can prepare food without it taking much time.
   5.17. Being able to substitute with alternatives if what you want is unavailable.
   5.18. Enough food hygiene and food safety so that you don’t poison anyone.
   5.19. Knowing how to store food to optimise its value and quality.
   5.20. How to dispose of waste in an environmentally considerate manner.

6. **Eating**
   6.1. Being able to join in, sit down and eat in a social way.
   6.2. Interacting with food and being able to eat in a way that doesn’t restrict you being able to be part of a group
   6.3. Knowing what food transports well and how to pack it so it still looks appetising when you’re going to eat it.
   6.4. Being willing to try an unfamiliar food
   6.5. Knowing principles for everyday eating: only eat when you’re hungry, try and get some routine, slow down, eat consciously and reflectively, and be more contemplative about what you’re doing and how you’re relating to the world.
7. **Nutrition**

7.2. Understand the overall message of a food selection guide such as the dietary pyramid or plate.
7.3. Knowing that all foods are good. It’s just the amounts you eat them in. So you need to know about portions and frequency.
7.4. Knowing how to categorise foods into the Food Groups, that you need generally some of each every day and what sort of proportions to eat them in.
7.5. Knowing the composition of Food Groups, e.g. meats give you iron and protein.
7.6. I don’t want to be locked into saying Food Groups, but knowing what are the components for a healthy basic diet.
7.7. Understanding the Australian Dietary Guidelines.
7.8. Understanding of what a diverse diet looks like and why it is important from a health and ecological perspective. It doesn’t make sense to get our foods from a limited number of agricultural sources or limited number of corporate actors.
7.9. Understanding how to translate the Australian Dietary Guidelines into food and food habits
7.10. Being aware of the role of fats, proteins, carbohydrates and so on.
7.11. Knowing what your food is made up of in terms of nutrients and how they all interact.
7.12. Knowing that you need vitamins and minerals in certain quantities and what foods they are in.
7.13. Knowing about different requirements for different stages of life.
7.14. Knowing the specifics of nutrition recommendations e.g. how much fat is too much fat, what does low salt mean on a label.
7.15. Understanding the interaction between food and physical activity, and monitoring that by looking at their body composition.
7.16. Being aware that you have unique individual requirements and understanding how food affects your body when you look at your blood results etc.
7.17. Understanding how your body functions so you can understand how to fuel it or feed it. Not just nutrition but satiety, sensory factors, things like that.
7.18. Understanding how a particular food might interact with your physiology and what the implications might be if you have a diet-related disease.

8. **Language**

8.1. Being able to communicate around food, be able to articulate and explain things about it.
8.2. Knowledge of terminology, so that they can e.g. follow recipes, read labels, make consumer choices. Read stuff in popular magazines and know that you can follow the terminology.
Appendix G

The Young People Study Recruitment Sheet
The following research activity has been reviewed via QUT arrangements for the conduct of research involving human participation. If you choose to participate, you will be provided with more detailed participant information, including who you can contact if you have any concerns.

Feeding yourself study

Research Team Contacts

Principal Researcher: Helen Vidgen, PhD Student, QUT
Associate Researcher(s): Dr Danielle Gallegos, Senior Lecturer QUT

Please contact the researcher team members to have any questions answered or if you would like more information about the project.

What is the purpose of the research?

The purpose of this research is to find out what young people know and understand about food and how to use it to meet their needs and how this knowledge and skills is useful when they are responsible for feeding themselves.

Some people think that one of the reasons there are so many nutrition problems is because people don’t know much about food anymore and don’t know how to prepare it. Lots of money is being spent on teaching this knowledge and skills but what’s taught doesn’t necessarily include what young people want to know and doesn’t appreciate that there are a lot of things young people already know.

This study will interview young people from all different backgrounds and parts of Queensland to ask them about how they handle feeding themselves. It will use this information to work out the most important and useful skills and knowledge.

Are you looking for people like me?

The research team is looking for:

- people between 16 and 25 who are responsible for feeding themselves.
- This includes people living with their parents but responsible for feeding themselves
- This does not include people living in a boarding house or with a relative that make meals for you

What will you ask me to do?

Your participation will involve being interviewed by Helen Vidgen from QUT.

The interview will go for around 30 minutes and will be tape recorded. The interview will ask questions about:

- what you eat,
- where you get your food from,
- how you learnt about food and
What (if anything) you would like to be able to do or know about food.

**Are there any risks for me in taking part?**

The research team has identified the following possible risks in relation to participating in this study:

- It may be upsetting to talk about food and eating.

Strategies are in place to manage these risks and full details will be provided should you choose to participate.

And

It should be noted that if you do agree to participate, you can withdraw from participation at any time during the project without comment or penalty.

**Are there any benefits for me in taking part?**

It is expected that this project will not benefit you directly. However, it may benefit other young people because support that’s given to them about feeding yourself when you’re leaving home will better suit their needs. At the end of the interview you will be given a food voucher to thank you for your participation.

**Who is funding this research?**

The project is funded by Queensland Health. They will not have access to personally identifying information about you that may be obtained during the project.

**I am interested – what should I do next?**

If you would like to participate in this study, please contact the research team for details of the next step.

Helen Vidgen, student and senior research assistant  
School of Public Health  
Faculty of Health  
h.vidgen@qut.edu.au  
07 31385805

You will be provided with further information to ensure that your decision and consent to participate is fully informed.

**Thank You!**

QUT Ethics Approval Number: 1100000361
Appendix H

The Young People Study Consent Form
PARTICIPANT INFORMATION FOR QUT RESEARCH PROJECT

Feeding Yourself
QUT Ethics Approval Number 1100000361

RESEARCH TEAM
Principal Researcher: Helen Vidgen, PhD student, QUT
Associate Researchers: Dr Danielle Gallegos, Senior Lecturer, QUT

DESCRIPTION
This project is being undertaken as part of my PhD for QUT. The project is also funded by Queensland Health.

The purpose of this research is to find out what young people know and understand about food and how to use it to meet their needs and how this knowledge and skills is useful when feeding themselves.

Some people think that one of the reasons there are so many nutrition problems is because people don’t know much about food anymore and don’t know how to prepare it. Lot of money is being spent on teaching this knowledge and skills but what’s taught doesn’t necessarily include what young people want to know and doesn’t appreciate that there are a lot of things young people already know.

This study will interview young people from all different backgrounds and parts of Queensland to ask them about how they handled feeding themselves when they left home for the first time. It will use this information to work out the most important and useful skills and knowledge.

The research team requests your assistance because we want our study to include the points of view of young people from lots of different backgrounds and places.

Queensland Health will not have access to the data obtained during the project with your name on it. They will only have access to data without names on it.

PARTICIPATION
Your participation in this project is entirely voluntary. Your participation will involve an audio recorded interview at ________________________, that will take approximately 30 minutes of your time. Questions will include questions about what you eat, where you get your food from, how you learnt about food and what (if anything) you would like to be able to do or know about food. At the end of the interview we can check if you’re happy with your answers.

The people at this service will not see or hear any of what you say in this interview and I am not allowed to talk to them about it unless you ask me to. The taped interview will be written out word for word but your name will be taken off so that you can’t be identified and so no one knows you said it. If you think you would like a written copy of your interview, let me know and I’ll give you one when it’s ready. If at any stage you don’t want to continue with the interview, just let me know and we can stop without comment or penalty.

Any identifiable information already obtained from you will be destroyed. Your decision to participate, or not participate, will in no way impact upon your current or future relationship with QUT or the organisation who told you about the study.
EXPECTED BENEFITS
It is expected that this project will not benefit you directly. However, it may benefit other young people because support that’s given to them about feeding themselves that will better suit their needs.

To thank you for your time, at the end of the interview, you will be given a supermarket voucher.

RISKS
There are minimal risks associated with your participation in this project. These include becoming distressed by talking about food and eating. If this happens we can stop the interview and there is counselling available so that you can talk to a qualified person about how you are feeling.

QUT provides for limited free counseling for research participants of QUT projects who may experience discomfort or distress as a result of their participation in the research. Should you wish to access this service please contact:

- the Clinic Receptionist of the QUT Psychology Clinic on 07 3138 0999. Please indicate to the receptionist that you are a research participant.

Other counseling services are:

- Lifeline (tel: 131114) and
- Kids Help Line (tel: 1800 55 1800)

For counseling on eating disorders:

- Zig zag (tel 07 3843 1823) and
- the Royal Brisbane Hospital Eating Disorder Outreach Service (tel 07 3114 0809).

PRIVACY AND CONFIDENTIALITY
All comments and responses will be treated confidentially. Your name will not appear on any of the recorded information from this study. Only the interviewer and her supervisor will have access to information with your name on it. None of the reports will have your name on it or information that make it easy to identify you.

Your interview will be audio-recorded and then sent to a transcriber. We will let you know when the interview has been transcribed so that you can have a look at it and make sure it is accurate. At the end of the project (February 2012), the audio-recording will be destroyed. The audio recording will not be used for any other purpose. Only the interviewer, her supervisor and the transcriber will have access to the audio recording. They have all signed confidentiality agreements.

Please note that non-identifiable data collected in this project may be used as comparative data in future projects.

CONSENT TO PARTICIPATE
We would like to ask you to sign a written consent form (enclosed) to confirm your agreement to participate.

QUESTIONS / FURTHER INFORMATION ABOUT THE PROJECT
If you have any questions or require any further information about the project please contact one of the research team members below.

Helen Vidgen, student and senior research assistant
School of Public Health, Faculty of Health
07 3138 5805
h.vidgen@qut.edu.au

Dr Danielle Gallegos, Senior Lecturer
School of Public Health, Faculty of Health
07 3138 5799
Danielle.gallegos@qut.edu.au

CONCERNS / COMPLAINTS REGARDING THE CONDUCT OF THE PROJECT
QUT is committed to research integrity and the ethical conduct of research projects. However, if you do have any concerns or complaints about the ethical conduct of the project you may contact the QUT Research Ethics Unit on 07 3138 5123 or email ethicscontact@qut.edu.au. The QUT Research Ethics Unit is not connected with the research project and can facilitate a resolution to your concern in an impartial manner.

Thank you for helping with this research project. Please keep this sheet for your information.
CONSENT FORM FOR QUT RESEARCH PROJECT

Feeding Yourself
QUT Ethics Approval Number 1100000361

RESEARCH TEAM CONTACTS

| Helen Vidgen, student and senior research assistant | Dr Danielle Gallegos, Senior Lecturer |
| School of Public Health, Faculty of Health | School of Public Health, Faculty of Health |
| 07 3138 5805 | 07 3138 5799 |
| h.vidgen@qut.edu.au | danielle.gallegos@qut.edu.au |

STATEMENT OF CONSENT

By signing below, you are indicating that you:

- have read and understood the information document regarding this project
- have had any questions answered to your satisfaction
- understand that if you have any additional questions you can contact the research team
- understand that you are free to withdraw at any time, without comment or penalty
- understand that you can contact the Research Ethics Unit on 07 3138 5123 or email ethicscontact@qut.edu.au if you have concerns about the ethical conduct of the project
- understand that the project will include audio recording
- understand that non-identifiable data collected in this project may be used as comparative data in future projects
- agree to participate in the project

Name: ____________________________________________________________

Signature: _______________________________________________________

Date: ________________

MEDIA RELEASE PROMOTIONS

From time to time, we may like to promote our research to the general public through, for example, newspaper articles. Would you be willing to be contacted by QUT Media and Communications for possible inclusion in such stories? By ticking this box, it only means you are choosing to be contacted – you can still decide at the time not to be involved in any promotions.

☐ Yes, you may contact me about inclusion in promotions
☐ No, I do not wish to be contacted about inclusion in promotions

Please return this sheet to the investigator (Helen Vidgen).

Receipt of food voucher following interview:

<table>
<thead>
<tr>
<th>Voucher number:</th>
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<th>Signature:</th>
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Appendix I

The Young People Study Interview Guide
Young people study interview guide

FEEDING YOURSELF STUDY

Introductory blurb:

Hi, my name is Helen Vidgen. I am from the Queensland University of Technology. I am doing a study looking at young people and what they eat.

For this study we want to talk to young people who are responsible for feeding themselves. Ask you how you do it, what makes it easier or harder, how you know to do what you do and what you think is important. The point of the research is to give government, youth and other services a list of recommendations about the sort of work they should do to support young people in this area, especially those that are disadvantaged.

I will be interviewing young people from around Brisbane. This interview will go for about 30 min and, if you agree, will be tape recorded. At the end of the interview we can check if you’re happy with your answers. The people at this service will not see or hear any of what you say in this interview and I am not allowed to talk to them about it unless you ask me to. The taped interview will be written out word for word but your name will be taken off so that you can’t be identified and so no one knows you said it. If you think you would like a written copy of your interview, let me know and I’ll give you one when it’s ready. If at any stage you don’t want to continue with the interview, just let me know and we can stop.

Before we start the interview, is there anything else you would like to know about this research or the interview?

Note to services:

This is a semi-structured interview so these questions are prompts rather than to be used in their entirety, in this order or using these exact words. They are a sort of a checklist of topics and possible approaches for the interviewer, depending upon the interviewee.

The aim is for the interviewer to develop a good rapport with the young person so they are able to talk about their experience with food. The analysis of the interview will use grounded theory which means looking at themes and relationships between them that come up in the conversation rather than necessarily predicting what they might be.

This research is using an assets based framework so it’s looking at what people can and do, do rather than what they should do. It’s also particularly interested in young people who do really well with food and how and why this happens so interviews with these young people may take longer. This might include using a life-course style of questioning which looks for chains of resilience. Life course questioning is also good for examining key transition times that are relevant for the development of knowledge and skills. These are useful for planning when and where service provider support could happen.

The themes of role legitimacy, role adequacy and role support will also be examined eg to you think this is important, can you do it, do those around you think it’s important and support you to do it.
QUESTIONS:

SAMPLE

1. I was hoping to find out a little bit more about you first, just to make sure we are getting a mix of people in this study. So you come to ____ (service)_________. Do you go to school/when did you finish school?

2. Where do you live? Is that with other people? Have you been living there long? When did you start living there?

3. Is that the first time you were responsible for feeding yourself or did it happen earlier? (PROMPT: if appropriate use lifecourse style of interviewing here)

FOOD INTAKE AND FOOD HABITS

1. Can you tell me what you ate in the last 24 hours? – as for 24 hr dietary recall/diet history

PROMPTS: was this a typical day for you? Did anything unusual happen? What was different? Did you eat at all? Prev 7 days?

Include all the following questions in the diet history if appropriate?)

2. How did you get those foods (prompts: did you prepare them, did you buy them, aid agencies, transport, storage, selection.…)

3. Where do you get your money from? (prompts: centrelink, parents, job, no money)

4. Do you eat differently when you’ve got no money? What do you do then? How did you work out to do that?

5. Do you tend to plan ahead what you are going to eat or decide just before? Are there foods that you would like to eat but can’t? why not?

6. You said you lived with …. Do you tend to eat together? Do you all decide what you’re eating together or does everyone just look after themselves? ...

7. Double check Delphi domains for prompts if not prev raised:

   a. Access;
   b. Selection
   c. planning
   d. Knowing where your food comes from
   e. Preparation
   f. Nutrition
   g. Eating
8. Do you eat differently now that you are responsible for your own food? How? Why?

9. What do you think you would do if you lived somewhere where there weren’t any takeaways?

FOOD LITERACY

1. Do you think you’re good with food? Do you think you’re better than other people you know? (PROMPTS: Why and how come? How do you think you learnt about food? Where do you think you learnt about food? Who did you learn about from? What did you learn?)

2. Do you think there is anything in your cultural background that makes you good with food? Do you have a particular cultural background that you associate with?

3. What do you think we should be able to know and do with food to be able to use it well? (PROMPTS: What would you like to be able to know and do but you can’t?, do you have food tips that you think are good? what can someone who’s “good with food” do? what do they know? Delphi study components as prompt sheet).

FOOD LITERACY AND NUTRITION

1. You know how there are some cheffy people who know just about everything there is to know about food but they’re really not healthy, and then other people who are really into nutrition but they just never just enjoy eating. What do you think is going on there? Do you think to be healthy you need to know about food or do you think they’ve got nothing to do with each other? (PROMPTS: Is it a larger/ broader set or a subset? Do you think if you’re good with food it means you’ll eat a healthy diet?)

2. Do you need to know how to cook to meet your nutrition needs? Does cooking have to be a part of this set of knowledge and skills? Why? (PROMPTS: is cooking an essential food skill? Can you meet your food needs without knowing how to cook?)

3. Do you think much about nutrition when you’re deciding what to eat? Do you think there’s a time in your life when nutrition will be important? (why) – eg when you have a baby? If you found out you had diabetes or something?
INTERVENTIONS

1. As a later part of this study we will be looking at programs, books and other things that are around to teach people about food. Are there any that you would recommend we particularly look at? Is there anything you have been involved in that you thought was good? Did you do anything at school?

OTHER

Anything else you would like to add to this study that I haven’t asked about?
Appendix J

Life-course Pathways of Young People Study Participants
Ann

<table>
<thead>
<tr>
<th>Age</th>
<th>“transition points”</th>
<th>Food literacy moments</th>
</tr>
</thead>
</table>
| 0   | Born Auckland, New Zealand  
Lived with grandmother in Wellington  
Lived with mother and father in Auckland | Ann has never been responsible for feeding herself or others. She has not been involved in any food preparation, purchase or selection for herself, her dependants or others in her household. She has always been fed by her mother, father, grandmother or sister. |
| 15  | Disengaged from schooling |  |
| 16  | Gave birth to first child  
Boyfriend (father) left and migrated to Australia | She could not identify anyone in particular that she thought was good with food. |
| 16  | Migrated to Australia where mother now was, for help with baby. |  |
|     | Returned to New Zealand lived with grandmother |  |
| 19  | Moved to Australia to live with her father.  
Gave birth to second child  
First child is cared for by Ann’s mother, second child is cared for by Ann’s father |  |
| 19  | Kicked out of home by father until studying or earning an income.  
Sleeping rough with boyfriend (father of both children) | Ann does not prepare any food. She steals it or sources it from food agencies. |

**Typical dietary pattern** (weekdays; on weekends youth services do not function so steals food or goes to family)

<table>
<thead>
<tr>
<th>Meal</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breakfast</td>
<td>Stolen pies</td>
</tr>
<tr>
<td>Lunch</td>
<td>Youth Outreach Service kitchen</td>
</tr>
<tr>
<td>Dinner</td>
<td>Brisbane Youth Service kitchen</td>
</tr>
</tbody>
</table>
Clare

<table>
<thead>
<tr>
<th>Age</th>
<th>“transition points”</th>
<th>Food literacy moments</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Born in New Zealand</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lived with grandmother</td>
<td><strong>Grandmother</strong> “mean as” (good) cook. Prepared a broad range of foods from different cultures</td>
</tr>
<tr>
<td>12</td>
<td>Moved to Australia with mother</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Moved back to New Zealand to live with grandmother</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Returned to Australia to live with mother and step-father</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Disengaged from schooling.</td>
<td>Responsible for preparing own food.</td>
</tr>
</tbody>
</table>

**Typical dietary pattern**

<table>
<thead>
<tr>
<th></th>
<th>Breakfast</th>
<th>Lunch</th>
<th>Dinner</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Nil; sleeps in</td>
<td>If at home, snacks on lollies throughout the day. If on streets goes to Youth Outreach Service kitchen or Brisbane Youth Service kitchen</td>
<td>If at home, eats on her own to distance herself from other family members so prepares “easy stuff like toast, baked beans” or comes to the night cafe.</td>
</tr>
</tbody>
</table>
**Jewel**

<table>
<thead>
<tr>
<th>Age</th>
<th>“transition points”</th>
<th>Food literacy moments</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Born in New Zealand. Lived with mum, stepdad and 2 brothers Born with physical disability</td>
<td>Reports eating a minimum of 3 meals a day</td>
</tr>
<tr>
<td>16</td>
<td>Moved to Australia Lived with father Re-engaged with school</td>
<td>Father prepared food often Number of people catered for in the household ranged from 2 -12, typically 8. Father very good at adapting to this at short notice.</td>
</tr>
<tr>
<td>17</td>
<td>Left home Sleeping rough</td>
<td>Ate less to save money and now used to only eating every 2-3 days</td>
</tr>
<tr>
<td>19</td>
<td>Sleeping rough</td>
<td>Never prepares food. His disability would impact on his ability to prepare food. He relies on peers for some food preparation. Has not attended any food literacy programs. Busks for food, steals food and attends night cafe and soup kitchens</td>
</tr>
</tbody>
</table>

**Typical dietary pattern**

Eats only every 2-3 days. On those days he will usually only eat once a day. If he has been successful busking this would probably be McDonalds, KFC or Hungry Jacks. Otherwise he would come to the Night Cafe or steal a chicken, mayonnaise and bread.
Jimmy

<table>
<thead>
<tr>
<th>Age</th>
<th>“transition points”</th>
<th>Food literacy moments</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Born Samoa</td>
<td>Grew up with a community of family members. Ate food they grew. <strong>Grandmother</strong> grew and prepared much of the food.</td>
</tr>
<tr>
<td>14</td>
<td>Parents left Samoa for US. Jimmy sent to aunt’s in Australia. Lived with 12 other children in her house in Ipswich.</td>
<td>Weekly responsibility for food preparation for household.</td>
</tr>
<tr>
<td>14</td>
<td>Got kicked out of aunt’s house to live on the street. Disengaged from school.</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Continues to live on the street.</td>
<td>Has participated in various food literacy programs through youth agencies. Helps in the kitchen at Brisbane Youth Service and Youth Outreach Service for extra money. Girlfriend, Julia, helps to organise their food intake. Typically eats from all food groups each day.</td>
</tr>
</tbody>
</table>

**Typical dietary pattern** (on weekends when youth services are not open Jimmy and his girlfriend go to food vans, save up their food vouchers or use “take-aways” from the youth services and store it under the bridge where they live.)

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Breakfast</td>
<td>nil</td>
</tr>
<tr>
<td>Lunch</td>
<td>Pumpkin soup and garlic bread (from Youth Outreach Service)</td>
</tr>
<tr>
<td>Dinner</td>
<td>Butter chicken, apple and banana (Brisbane Outreach Service) or Red Cross Night Cafe</td>
</tr>
<tr>
<td>Age</td>
<td>“transition points”</td>
</tr>
<tr>
<td>-----</td>
<td>----------------------</td>
</tr>
<tr>
<td>0</td>
<td>Born in New Zealand</td>
</tr>
<tr>
<td>0-7</td>
<td>During this time Julia lived with two different aunts, an uncle, her father and her mother</td>
</tr>
<tr>
<td>13</td>
<td>Migrated to Australia to live with mother</td>
</tr>
<tr>
<td>14</td>
<td>Mother “went through a rough patch”. Julia homeless for 12 months</td>
</tr>
<tr>
<td>15</td>
<td>Returned to mother</td>
</tr>
<tr>
<td>16</td>
<td>Mother “going through a rough patch” so Julia has been sleeping rough for 4 months. Disengaged from school.</td>
</tr>
</tbody>
</table>

**Typical dietary pattern** (on weekends when youth services are not open Julia and her boyfriend save up their food vouchers or use relief food and prepare it under the bridge where they live.)

<table>
<thead>
<tr>
<th>Breakfast</th>
<th>Mid morning went to Youth Outreach Service and had potato bake and zucchini</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lunch</td>
<td>Went to Brisbane Youth Service and ate chicken and salad rolls</td>
</tr>
<tr>
<td>Dinner</td>
<td>Nil or Red Cross night cafe</td>
</tr>
</tbody>
</table>
Meg

<table>
<thead>
<tr>
<th>Age</th>
<th>“transition points”</th>
<th>Food literacy moments</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Born in the Blue Mountains NSW. Mother had “substance abuse issues”.</td>
<td>Mother would cook sometimes.</td>
</tr>
<tr>
<td></td>
<td>Living with mother and older brother and sister.</td>
<td>Responsible for feeding herself. “mum would go for 4 months at a time and just stock up the freezer”. Children stayed on their own and independently fed themselves from that supply. Meg has no recollection of any shared meals.</td>
</tr>
<tr>
<td>12</td>
<td>Began sleeping rough and couch surfing</td>
<td>Responsible for feeding herself.</td>
</tr>
<tr>
<td>14</td>
<td>“moved out of home for good” into shared youth housing.</td>
<td>Participated in food literacy programs</td>
</tr>
<tr>
<td></td>
<td>Re-engaged in alternative schooling</td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>Sleeping rough on and off, couch surfing, youth shelters.</td>
<td>Ate from food vans, stolen food, food vouchers and begging for food. Participated in food literacy programs</td>
</tr>
<tr>
<td></td>
<td>Period of heavy drug use.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Completed year 12.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Completed a TAFE course.</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>Couch surfing First paid job</td>
<td>Identified her girlfriend as someone she considers good with food because she can identify different foods and how to prepare them and her family eats together.</td>
</tr>
</tbody>
</table>

**Typical dietary pattern**

Currently eats 1 dozen eggs and a bottle of soft drink each day. She cooks 4 at a time with some milk in the microwave and adds BBQ sauce. She has been doing this every day for 3 months. She is couch surfing so she has limited access to equipment or facilities for storing food. She does not like to eat with other people so prefers to prepare something that will not be noticed by the household.
Susan

<table>
<thead>
<tr>
<th>Age</th>
<th>“transition points”</th>
<th>Food literacy moments</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Born with an intellectual disability. Lived with mother, mother’s boyfriend and brother in disadvantaged areas. Finished school in year 10.</td>
<td>Mother prepared meals every night. “Meat and veggies”</td>
</tr>
<tr>
<td>17</td>
<td>“kicked out of home” for stealing from mother and found by police on the streets.</td>
<td>Roster system of being responsible for preparing food for all residents. Youth workers helped residents prepare a shopping list and shop for food together.</td>
</tr>
<tr>
<td></td>
<td>Lived in a youth shelter for 3 months</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lived in transitional housing for 6-12 months</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Moved to Sydney and lived in a youth shelter</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Returned to Brisbane to live in emergency accommodation. Re-connected with mother.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lived in a boarding house Diagnosed with depression.</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>Currently living in independent youth housing.</td>
<td>Comes to the night cafe to eat with other people. Buys food as she needs it. No stock of food in the house. Prepares simple meals eg nachos, get’s chinese takeaway. Steals food. Does not eat every day.</td>
</tr>
</tbody>
</table>

**Typical dietary pattern**

<table>
<thead>
<tr>
<th>Breakfast</th>
<th>Lunch</th>
<th>Dinner</th>
</tr>
</thead>
<tbody>
<tr>
<td>Slept in</td>
<td>Bacon and eggs</td>
<td>Night Cafe or other food aid. Plus a can of soft drink</td>
</tr>
</tbody>
</table>
Connor

<table>
<thead>
<tr>
<th>Age</th>
<th>“transition points”</th>
<th>Food literacy moments</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Lives with mother and 3 older brothers 18, 19 and 20 years</td>
<td>Mother responsible for all meals</td>
</tr>
<tr>
<td>14</td>
<td>Began attending Kingston FLC</td>
<td>Began to be responsible all own meals other than dinner. Since this time Connor will either miss these meals or buy them, usually from a service station or fast food outlet. Responsible for dinner for the household occasionally.</td>
</tr>
<tr>
<td>15</td>
<td>Brothers moved out</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Living with mother at Marsden</td>
<td>School supplied home with cooking equipment because there was none although Connor says they prepare food every night. Girlfriend makes some meals. Connor could not think of anyone that he considered “good with food”</td>
</tr>
</tbody>
</table>

**Typical dietary pattern**

<table>
<thead>
<tr>
<th>Meal</th>
<th>Food</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breakfast</td>
<td>Eggs and toast</td>
</tr>
<tr>
<td>Lunch</td>
<td>Crisps and a soft drink from the service station</td>
</tr>
<tr>
<td>Dinner</td>
<td>Meat eg chicken drumsticks and vegetables</td>
</tr>
</tbody>
</table>
**Joanna**

<table>
<thead>
<tr>
<th><strong>Age</strong></th>
<th><strong>“transition points”</strong></th>
<th><strong>Food literacy moments</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Born in New Zealand</td>
<td><em>Grandmother</em> taught her to prepare food at around 5 years</td>
</tr>
<tr>
<td></td>
<td>Lived with grandparents</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Lived with mother</td>
<td>First responsible for feeding herself. This included preparing food for other family members particularly the evening meal.</td>
</tr>
<tr>
<td>12</td>
<td>Moved to Australia with mother and family. Began at Kingston FLC</td>
<td>Mother never cooks. Sister doesn’t cook.</td>
</tr>
<tr>
<td>15</td>
<td>Moved home twice within geographic area of high disadvantage</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Lives with mother, sister (aged 21), brother in law, 6 year old, 1 year old and 7 month old nephews</td>
<td>Mother never cooks. Sister doesn’t cook. Brother in law sometimes cooks. Joanna only eats once a day. She prepares the evening meal for her household. She does the food shopping which includes sourcing traditional Maori food. Joanna had done some cooking classes at school.</td>
</tr>
</tbody>
</table>

**Typical dietary pattern**

<table>
<thead>
<tr>
<th><strong>Meals</strong></th>
<th><strong>Food</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Breakfast</td>
<td>nil</td>
</tr>
<tr>
<td>Lunch (3-4pm)</td>
<td>Snack foods eg chips or biscuits</td>
</tr>
<tr>
<td>Dinner</td>
<td>Maori boil up or other form of vegetables and meat</td>
</tr>
<tr>
<td>Age</td>
<td>“transition points”</td>
</tr>
<tr>
<td>-----</td>
<td>---------------------</td>
</tr>
<tr>
<td>0</td>
<td>Lived with grandmother, older sister and younger brother who is autistic in a small rural town in south east Queensland.</td>
</tr>
<tr>
<td>11</td>
<td>Silke, her sister and brother moved Brisbane fringe suburb in a geographical area of high disadvantage with her mother. She estimates they have moved 40 times between then and now.</td>
</tr>
<tr>
<td>13</td>
<td>Studied home economics at school</td>
</tr>
<tr>
<td>17</td>
<td>Moved in with father and her sister. Began at Kingston FLC.</td>
</tr>
</tbody>
</table>

**Typical dietary pattern**

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Breakfast</td>
<td>Nil</td>
<td></td>
</tr>
<tr>
<td>Lunch</td>
<td>Nil</td>
<td></td>
</tr>
<tr>
<td>Dinner</td>
<td>Meat and vegetables (usually from pre-made sources eg bought crumbed meat, packet noodles and frozen vegetables)</td>
<td></td>
</tr>
</tbody>
</table>
Teagan

<table>
<thead>
<tr>
<th>Age</th>
<th>“transition points”</th>
<th>Food literacy moments</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Lived with mother, father and two siblings</td>
<td><strong>Mother</strong> prepared food every day. “She always made me eat healthy”. No soft drink allowed. Milk and water the only drinks. Fruit and vegetables eaten every day. Planned and budgeted food intake and expenditure.</td>
</tr>
<tr>
<td>16</td>
<td>Moved out with partner and his friends. Household of “gaming freaks”</td>
<td>Lots of junk food. Only ate once a day at dinner, some days did not eat at all because of gaming. “got sick all the time”</td>
</tr>
<tr>
<td></td>
<td>Returned to parental home</td>
<td><strong>Housemates</strong> “into healthy food”. Always ate together. Males worked and the females shopped and prepared the food.</td>
</tr>
<tr>
<td>17</td>
<td>Moved back home with mum, dad, 24 year old sister and her 15 month old daughter, 16 year old sister with a disability, and her partner (22).</td>
<td>Buys food for herself and partner Eats at least 3 meals per day. Not interested in learning from her mother. Would like to learn on her own.</td>
</tr>
</tbody>
</table>

**Typical dietary pattern**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Breakfast</strong></td>
<td>Toast or cereal</td>
</tr>
<tr>
<td><strong>Lunch</strong></td>
<td>Sandwiches</td>
</tr>
<tr>
<td><strong>Dinner</strong></td>
<td>Meat and vegetables eg a Roast</td>
</tr>
<tr>
<td>Age</td>
<td>“transition points”</td>
</tr>
<tr>
<td>-----</td>
<td>---------------------</td>
</tr>
<tr>
<td>0</td>
<td>Lived with mother, two older brothers and sister.</td>
</tr>
<tr>
<td>11</td>
<td>First responsible for feeding self. Everyone in the family responsible for cooking once a week. Learnt to cook from older brother.</td>
</tr>
<tr>
<td>13</td>
<td>Moved in with father, his wife and her son</td>
</tr>
<tr>
<td>14</td>
<td>Returned to mother. Household included 2 older brother, sister, her daughter, cousin and her three children. Began to attend Kingston FLC.</td>
</tr>
<tr>
<td>16</td>
<td>Moved in with best friend, his mother and his girlfriend. Tyler pays board which includes food.</td>
</tr>
</tbody>
</table>

**Typical dietary pattern**

<table>
<thead>
<tr>
<th>Meal</th>
<th>Food</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breakfast</td>
<td>Two pieces of fruit</td>
</tr>
<tr>
<td>Lunch</td>
<td>Sandwich</td>
</tr>
<tr>
<td>Dinner</td>
<td>Meat and vegetables</td>
</tr>
</tbody>
</table>
Amy

<table>
<thead>
<tr>
<th>Age</th>
<th>“transition points”</th>
<th>Food literacy moments</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Lived with <a href="#">mother</a> then step father moved in and they have daughter</td>
<td>Step father prepares all the meals and Amy had other household responsibilities such as cleaning the house.</td>
</tr>
<tr>
<td>7</td>
<td>Mother diagnosed with a mental illness</td>
<td>Step father prepares all the meals and Amy had other household responsibilities such as cleaning the house.</td>
</tr>
<tr>
<td>14</td>
<td>Disengaged from mainstream schooling</td>
<td>Step father prepares all the meals and Amy had other household responsibilities such as cleaning the house.</td>
</tr>
<tr>
<td>15</td>
<td>Began to attend APFLC</td>
<td>Step father prepares all the meals and Amy had other household responsibilities such as cleaning the house.</td>
</tr>
<tr>
<td>16</td>
<td>Moved out of home with boyfriend, his cousin and his friend. Heavy drug use.</td>
<td>Boyfriend happy to go a week or more without food. Amy ended the relationship over this and moved out.</td>
</tr>
<tr>
<td>17</td>
<td>Moved back home</td>
<td>Gives mother money for food. Starting to buy own food and prepare own meals. Conceptualises her mother as someone who is good with food because she “packs the cupboards... there is always something”</td>
</tr>
</tbody>
</table>

**Typical dietary pattern**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Breakfast</td>
<td>2 pieces raisin toast and tea as part of APFLC “tea and toast” daily check in</td>
</tr>
<tr>
<td>Lunch</td>
<td>Sandwiches made in the APFLC kitchen</td>
</tr>
<tr>
<td>Dinner</td>
<td>Spaghetti bolognaise, fish burger etc</td>
</tr>
</tbody>
</table>
## Angelica

<table>
<thead>
<tr>
<th>Age</th>
<th>“transition points”</th>
<th>Food literacy moments</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Born in Greece</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Migrated to father’s home in Tanzania</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Moved to Australia with mother and brothers (current ages 18 years and 6 years). Mother now has new husband</td>
<td>Mother and “amazing cook”. Purchased and prepared all the food. Would cook a meal every night. Strong Greek heritage of sharing meals.</td>
</tr>
<tr>
<td>13</td>
<td>Began secondary school</td>
<td>Did Home Ec but can’t remember it.</td>
</tr>
<tr>
<td>16</td>
<td>Became pregnant. Disengaged from schooling. Moved out of home to live with boyfriend</td>
<td>First responsible for feeding herself. Very limited income to feed her household, including her daughter. Sometimes ran out of money for food and called on her mother or food vouchers.</td>
</tr>
<tr>
<td>17</td>
<td>Started to attend APFLC</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>Moved to private rental with daughter, <strong>boyfriend and housemate</strong></td>
<td>Angelica considers her boyfriend and housemate as being “good with food” because they’re into fitness and they always make her eat.</td>
</tr>
<tr>
<td>20</td>
<td>Boyfriend moved away for work. Moved to a private rental a Moorooka with just her daughter but recently got a housemate.</td>
<td>Continues to be well connected with family. Has continued to develop the planning and management components of food literacy. After rent she has $80/week ($150 on alternate weeks) remaining to pay all other expenses including food and bills for herself and her 3 year old.</td>
</tr>
</tbody>
</table>

### Typical dietary pattern

<table>
<thead>
<tr>
<th>Meal</th>
<th>Diet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breakfast</td>
<td>Muesli style breakfast cereal</td>
</tr>
<tr>
<td>Lunch</td>
<td>Snack foods or take-away eg chips</td>
</tr>
<tr>
<td>Dinner</td>
<td>Meat, vegetable and carbohydrate combination eg stir fry, chicken tonight and rice, steak and veg.</td>
</tr>
<tr>
<td>Age</td>
<td>“transition points”</td>
</tr>
<tr>
<td>-----</td>
<td>---------------------</td>
</tr>
<tr>
<td>0</td>
<td>Lived with mother, sister and brother</td>
</tr>
<tr>
<td>16</td>
<td>Moved out of mother’s home Disengaged from mainstream school Lived with father and sister</td>
</tr>
<tr>
<td>17</td>
<td>Became pregnant with first child</td>
</tr>
<tr>
<td>18</td>
<td>Became pregnant with second child</td>
</tr>
<tr>
<td>20</td>
<td>Moved in with her brother and her two children</td>
</tr>
<tr>
<td>20</td>
<td>Began attending APFLC</td>
</tr>
</tbody>
</table>

**Typical dietary pattern**

<table>
<thead>
<tr>
<th>Time</th>
<th>Breakfast</th>
<th>Lunch</th>
<th>Snacks</th>
<th>Dinner</th>
</tr>
</thead>
<tbody>
<tr>
<td>nil</td>
<td>Ham, cheese and tomato sandwich</td>
<td>chips</td>
<td>Meat, vegetable and carbohydrate combination eg stir fry</td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>“transition points”</td>
<td>Food literacy moments</td>
<td></td>
<td></td>
</tr>
<tr>
<td>------</td>
<td>-------------------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0</td>
<td>Born in Brisbane</td>
<td>Cooked for family because “my father’s a slack bastard”</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Began secondary school</td>
<td>Took Home Ec at school because he enjoyed spending his time cooking</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Disengaged from school and left home. Moved to 5 times around different areas of disadvantage in urban fringes of Brisbane.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Moved to into inner city area.</td>
<td>First responsible for total food intake</td>
<td></td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>Began at APFLC</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Moved 3 times in diverse areas of Brisbane</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>Lives in a share house in geographical area of high disadvantage.</td>
<td>Sometimes runs out of money for food and will borrow from parents. Household members are separately responsible for their own food.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Typical dietary pattern**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Breakfast</td>
<td>Nil</td>
</tr>
<tr>
<td>Lunch</td>
<td>Nil</td>
</tr>
<tr>
<td>Dinner</td>
<td>Noodles or spaghetti Bolognese depending on when next centrelink payment is due.</td>
</tr>
<tr>
<td>Age</td>
<td>“transition points”</td>
</tr>
<tr>
<td>-----</td>
<td>---------------------</td>
</tr>
<tr>
<td>0</td>
<td>Lived at home with both parents, no siblings</td>
</tr>
<tr>
<td>13</td>
<td>Began secondary school</td>
</tr>
<tr>
<td>17</td>
<td>Moved to boyfriend’s parents house</td>
</tr>
<tr>
<td></td>
<td>Got kicked out and lived in a tent in a friends back yard for 7 months</td>
</tr>
<tr>
<td>18</td>
<td>Began attending APFLC referred by youth worker Got sober</td>
</tr>
<tr>
<td></td>
<td>Moved into a share house with friends (7 people in total)</td>
</tr>
<tr>
<td>20</td>
<td>Lives on a Bay island within Brisbane area with her partner</td>
</tr>
</tbody>
</table>

**Typical dietary pattern**

<table>
<thead>
<tr>
<th>Meal</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breakfast</td>
<td>Oats, berries and honey</td>
</tr>
<tr>
<td>Lunch</td>
<td>Sandwiches and fruit</td>
</tr>
<tr>
<td>Dinner</td>
<td>Vegetable bake. Eats meat twice a week for budgeting purposes.</td>
</tr>
</tbody>
</table>
### Lucy

<table>
<thead>
<tr>
<th>Age</th>
<th>“transition points”</th>
<th>Food literacy moments</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Lived with father and step mother (for last 8 years)</td>
<td><strong>Step mother</strong> prepared all meals. Cooked regularly including baking for school lunches, planning and managing food intake. Regularly ate together.</td>
</tr>
</tbody>
</table>
| 15  | Disengaged from school  
Moved in with a friend, his girlfriend and his mum | First responsible for feeding self.  
Ate only once a day  
Budgeting became important and finding where to source food that was less expensive.  
Never ate together. Lucy discovered she didn’t like this. |
| 16  | Moved in with sister | Learnt more about planning and management and its relationship to saving money. |
| 16  | Began at APLFC  
Living with mother, step dad and his friend  
Looking after mother while she has surgery | Mother and step father purchase food, Lucy prepares it for the household. Sometimes this role is shared.  
Uses cookbooks for inspiration and the kitchen staff at APLFC including their use of the school garden. |

### Typical dietary pattern

<table>
<thead>
<tr>
<th>Time</th>
<th>Meal</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breakfast</td>
<td>Toasted sandwich</td>
<td></td>
</tr>
<tr>
<td>Lunch</td>
<td>Sandwich or cup of noodles</td>
<td></td>
</tr>
<tr>
<td>Snacks</td>
<td>Lucy often makes a cake for the household for the week.</td>
<td></td>
</tr>
<tr>
<td>Dinner</td>
<td>A combination of meat, vegetables and carbohydrate eg casserole, stir fry</td>
<td></td>
</tr>
</tbody>
</table>
Mait

<table>
<thead>
<tr>
<th>Age</th>
<th>“transition points”</th>
<th>Food literacy moments</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Born in Sudan</td>
<td>Mother prepared food, used markets. “typically African dishes”</td>
</tr>
<tr>
<td>11</td>
<td>Left Sudan via Ethiopia with step-mother and came to live in Australia with father and 4 step brothers. Mother not brought to Australia. She remains in Sudan.</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Left home due to domestic violence and lives in a resident share house with 2 other boys and a youth worker.</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Began attending APFLC</td>
<td></td>
</tr>
</tbody>
</table>

**Typical dietary pattern**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Breakfast</td>
<td>nil</td>
</tr>
<tr>
<td>Lunch</td>
<td>Nil or noodles</td>
</tr>
<tr>
<td>Dinner</td>
<td>Nil or Spaghetti bolognaise</td>
</tr>
<tr>
<td>Age</td>
<td>“transition points”</td>
</tr>
<tr>
<td>-----</td>
<td>---------------------</td>
</tr>
<tr>
<td>0</td>
<td>Brisbane. Lived with mother, two brothers and mum’s boyfriend</td>
</tr>
<tr>
<td></td>
<td>Mackay</td>
</tr>
<tr>
<td></td>
<td>Gympie</td>
</tr>
<tr>
<td></td>
<td>Charleville</td>
</tr>
<tr>
<td>16</td>
<td>Bundaberg still with mother and brothers.</td>
</tr>
<tr>
<td>16</td>
<td>Bundaberg couch surfing (for 6 months)</td>
</tr>
<tr>
<td>17</td>
<td>Living with grandmother and cousin in Brisbane Began attending APFLC</td>
</tr>
</tbody>
</table>

**Typical dietary pattern**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Breakfast</td>
<td>Porridge</td>
</tr>
<tr>
<td>Lunch</td>
<td>Sandwich</td>
</tr>
<tr>
<td>Dinner</td>
<td>Meat and veg eg BBQ or takeaway if out with friends</td>
</tr>
<tr>
<td>Age</td>
<td>“transition points”</td>
</tr>
<tr>
<td>-----</td>
<td>---------------------</td>
</tr>
<tr>
<td>0</td>
<td>Born in rural town with five siblings</td>
</tr>
<tr>
<td>5</td>
<td>Mother left, siblings sent to their fathers. Sharni chose to live with step father, grandmother and step brother</td>
</tr>
<tr>
<td>12</td>
<td>Began secondary school</td>
</tr>
<tr>
<td>13</td>
<td>Moved to Brisbane to live with cousin. Met her boyfriend (father of her son)</td>
</tr>
<tr>
<td>16</td>
<td>Accused of stealing so left cousin’s house, was homeless and youth service found shared youth accommodation</td>
</tr>
<tr>
<td>17</td>
<td>Became pregnant</td>
</tr>
<tr>
<td>18</td>
<td>Lives in Brisbane with son (10 months) in private rental</td>
</tr>
</tbody>
</table>

**Typical dietary pattern**

<table>
<thead>
<tr>
<th>Meal</th>
<th>Food</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breakfast</td>
<td>Muesli, yoghurt and berries</td>
</tr>
<tr>
<td>Morning Tea</td>
<td>Muesli bar and fruit</td>
</tr>
<tr>
<td>Lunch</td>
<td>Salad eg Greek salad or tuna salad</td>
</tr>
<tr>
<td>Afternoon tea</td>
<td>Muesli bar and fruit</td>
</tr>
<tr>
<td>Dinner</td>
<td>A range of evening meals eg lamb salad, home-made soup, lasagne</td>
</tr>
<tr>
<td>Age</td>
<td>“transition points”</td>
</tr>
<tr>
<td>-----</td>
<td>---------------------</td>
</tr>
<tr>
<td>0</td>
<td>Born in Ipswich and lived with mother, father, and two sisters.</td>
</tr>
<tr>
<td>14</td>
<td>Disengaged from mainstream schooling</td>
</tr>
<tr>
<td>16</td>
<td>Left home and moved to Cairns Heavy drug use Had a child</td>
</tr>
<tr>
<td></td>
<td>Prison for 3 years</td>
</tr>
<tr>
<td></td>
<td>Had back surgery Couch surfing</td>
</tr>
<tr>
<td>22</td>
<td>Couch surfing with girlfriend and her son</td>
</tr>
</tbody>
</table>

**Typical dietary pattern**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Breakfast</td>
<td>Nil</td>
</tr>
<tr>
<td>Lunch</td>
<td>Sandwich or nil</td>
</tr>
<tr>
<td>Dinner</td>
<td>“something decent” eg steak and vegetables or takeaway</td>
</tr>
<tr>
<td>Age</td>
<td>“transition points”</td>
</tr>
<tr>
<td>-----</td>
<td>-----------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>0</td>
<td>Born in Ipswich and lived with mother, father, and two sisters.</td>
</tr>
<tr>
<td>13</td>
<td>Secondary school</td>
</tr>
<tr>
<td>17</td>
<td>Completed year 12 Moved out of parental home with friends</td>
</tr>
</tbody>
</table>

**Typical dietary pattern**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Breakfast</td>
<td>nil</td>
</tr>
<tr>
<td>Lunch</td>
<td>Snacks on celery and carrots during the day</td>
</tr>
<tr>
<td>Dinner</td>
<td>Meat and vegetables; or pasta; or takeaway</td>
</tr>
</tbody>
</table>
Margot

<table>
<thead>
<tr>
<th>Age</th>
<th>“transition points”</th>
<th>Food literacy moments</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Born in Tamworth</td>
<td>Meals prepared by mother who had a strong focus on health and food preparation.</td>
</tr>
<tr>
<td></td>
<td>Moved to Boonah on a farm</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Began boarding school in Ipswich</td>
<td>Completed a certificate of hospitality at school</td>
</tr>
<tr>
<td>17</td>
<td>Completed year 12 and returned home</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Got first job, moved out of home with a friend</td>
<td>First responsible for feeding self</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Gets food hints from other people at work.</td>
</tr>
</tbody>
</table>

Typical dietary pattern

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Breakfast</td>
<td>Toast or cereal</td>
</tr>
<tr>
<td>Morning tea</td>
<td>Fruit</td>
</tr>
<tr>
<td>Lunch</td>
<td>Sandwich</td>
</tr>
<tr>
<td>Dinner</td>
<td>Steak and vegetables sometimes takeaway on the weekend.</td>
</tr>
</tbody>
</table>
Nic

<table>
<thead>
<tr>
<th>Age</th>
<th>“transition points”</th>
<th>Food literacy moments</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Born Ipswich lived with mother, father, sister</td>
<td>Father owned restaurant and constantly prepared food for the family. Nic shopped for food with his father and helped with preparation. Mealtimes were routinely shared</td>
</tr>
<tr>
<td>13</td>
<td>Commenced secondary school</td>
<td>Began being responsible for breakfast and lunch</td>
</tr>
<tr>
<td>17</td>
<td>Completed year 12</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Dropped out of university, got a part-time job, moved out with girlfriend and her friends</td>
<td>First time responsible for own food. Nic is trying to focus on planning and management of food purchases more.</td>
</tr>
</tbody>
</table>

**Typical dietary pattern**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Breakfast</td>
<td>Nil</td>
</tr>
<tr>
<td>Lunch</td>
<td>Toasted sandwich</td>
</tr>
<tr>
<td>Dinner</td>
<td>Frozen meal or takeaway</td>
</tr>
</tbody>
</table>
Riahannon

<table>
<thead>
<tr>
<th>Age</th>
<th>“transition points”</th>
<th>Food literacy moments</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Born in Brisbane</td>
<td>Mother did most of the food work. Riahannon helped in the kitchen eg peeling vegetables.</td>
</tr>
<tr>
<td>13</td>
<td>Moved to Coominya with mother and brother</td>
<td>Studied hospitality from years 8-12. (identifies this as important for learning what’s in food). Supported mother with food preparation. Increased repertoire.</td>
</tr>
<tr>
<td>17</td>
<td>Completed year 12, got first full-time job, moved to Ipswich with boyfriend and friends</td>
<td>First time responsible for feeding self. Does the food shopping and preparation.</td>
</tr>
</tbody>
</table>

Typical dietary pattern

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Breakfast</td>
<td>Potato scallops from the take-away on the way to work</td>
</tr>
<tr>
<td>Lunch</td>
<td>Salad or sandwich</td>
</tr>
<tr>
<td>Dinner</td>
<td>Meat and vegetables; or pasta; or takeaway</td>
</tr>
</tbody>
</table>
Tina

<table>
<thead>
<tr>
<th>Age</th>
<th>“transition points”</th>
<th>Food literacy moments</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Lived with mother step-father and two brothers</td>
<td><strong>Step-father</strong> did all the cooking. “mum can’t cook” Studied home economics at school. Not allowed take-away. Dutch heritage which she described as having heavy food often. Tina thinks was linked to body image issues in her teens.</td>
</tr>
<tr>
<td>16</td>
<td>“kicked out of home” moved in with a friend and her family</td>
<td>Ate more take-away. First responsible for feeding herself. Moved in with her grandmother’s boyfriend. Moved in with grandparents Moved in with friend</td>
</tr>
<tr>
<td>16</td>
<td>Moved in with boyfriend and his mother</td>
<td>Boyfriend and his mother bought the food and then Tina prepared it for them. “I was an 18 year old playing house”</td>
</tr>
<tr>
<td>18</td>
<td>Became pregnant.</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>Moved out with son</td>
<td></td>
</tr>
</tbody>
</table>

**Typical dietary pattern**

<table>
<thead>
<tr>
<th>Meal</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breakfast</td>
<td>Bacon and egg muffin and coffee from the takeaway near work</td>
</tr>
<tr>
<td>Lunch</td>
<td>Nil</td>
</tr>
<tr>
<td>Snacks</td>
<td>Coffee and biscuits</td>
</tr>
<tr>
<td>Dinner</td>
<td>Only eats dinner 3-4 times/ week. Sometimes a vegemite sandwich or toast, other times spaghetti Bolognese, other times takeaway.</td>
</tr>
</tbody>
</table>
Aiden

<table>
<thead>
<tr>
<th>Age</th>
<th>“transition points”</th>
<th>Food literacy moments</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Born in Canberra. Lived at home with parents and sister</td>
<td><strong>Mother</strong> main meal preparer.</td>
</tr>
<tr>
<td>12</td>
<td>Family moved to Brisbane.</td>
<td>During school years, father retired, mother became primary income earned and then father began being main meal preparer. Father was less health focused.</td>
</tr>
<tr>
<td>17</td>
<td>Finished year 12</td>
<td>Responsible for breakfasts and lunches while in high school.</td>
</tr>
<tr>
<td>18</td>
<td>Commenced double degree at uni, started going to gym</td>
<td>Gained a greater interest in food and nutrition because of gym and started buying extra foods and occasionally preparing evening meals for the household.</td>
</tr>
<tr>
<td></td>
<td>Moved into a share house with two other men who were working (for 6 months)</td>
<td>Aiden had an arrangement where he paid less rent but was then responsible for preparing all the meals and purchasing the food. He began to use recipe books and experiment with food more.</td>
</tr>
<tr>
<td></td>
<td>Moved back home</td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>Finished uni and got first full time job. Moved into a sharehouse with 3 others</td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>Moved to a share house with 4 others</td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>Time of interview</td>
<td>Eats six meals per day. Prepares food to take to work. Buys from a range of food outlets. Plans meals. Socialises with food. Household typically eats together.</td>
</tr>
</tbody>
</table>

**Typical dietary pattern**

<table>
<thead>
<tr>
<th>Meal</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breakfast</td>
<td>Muesli, yoghurt, berries, coffee. Cooked breakfast on the weekend.</td>
</tr>
<tr>
<td>Morning tea</td>
<td>Muesli bar and coffee</td>
</tr>
<tr>
<td>Lunch</td>
<td>Sandwiches or “subway” take-away or leftovers from dinner</td>
</tr>
<tr>
<td>Afternoon tea</td>
<td>Rice crackers with spread</td>
</tr>
<tr>
<td>Dinner</td>
<td>Combination of meat, vegetables and carbohydrate eg stir fry, Indian, fish and vegetables</td>
</tr>
<tr>
<td>Age</td>
<td>“transition points”</td>
</tr>
<tr>
<td>-----</td>
<td>----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>0</td>
<td>Born in Brisbane. Lived with mother, father and sister</td>
</tr>
<tr>
<td>17</td>
<td>Completed year 12.</td>
</tr>
<tr>
<td>18</td>
<td>Started uni</td>
</tr>
<tr>
<td>19</td>
<td>Student exchange to London. In share house with 5 others.</td>
</tr>
<tr>
<td>22</td>
<td>Lives with parents, father usually away for work, sister has moved out so usually mother and Ben. Studying at university.</td>
</tr>
</tbody>
</table>

**Typical dietary pattern**

<table>
<thead>
<tr>
<th>Meal</th>
<th>Breakfast</th>
<th>Lunch</th>
<th>Snacks</th>
<th>Dinner</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fruit salad with yoghurt and seeds</td>
<td>Sandwiches or sushi</td>
<td>Coffee</td>
<td>Wide variation of prepared foods or restaurant foods eg tagine, chinese dumplings, chickpea patties and salad.</td>
</tr>
</tbody>
</table>
### Hamish

<table>
<thead>
<tr>
<th>Age</th>
<th>“transition points”</th>
<th>Food literacy moments</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Born in Brisbane. Lives with mother, father and sister.</td>
<td><strong>Mother</strong> prepared meals. Shared meal times. Rules and routines regarding nutrition “the whole can’t leave the table until you finish your veggies type thing”</td>
</tr>
<tr>
<td>13</td>
<td>Commenced secondary school.</td>
<td>Did rowing at secondary school. Coach was very focused on body weight and diet. Attended cooking classes on school holidays.</td>
</tr>
<tr>
<td></td>
<td>Started dating girlfriend (for 6 years)</td>
<td>Girlfriend weight and fitness focussed, calorie counting etc. Goes to fitness magazines and websites for information and ideas.</td>
</tr>
<tr>
<td></td>
<td>Completed Diploma at TAFE</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Enrolled in degree at university</td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>In final semester of uni</td>
<td>Decided to become responsible for all own meals</td>
</tr>
<tr>
<td>24</td>
<td>Still lives with mother, father and sister. Sister is vegan, has caused more experimentation with food. Family will share meals depending on schedules. Prepares meals if at home, otherwise eats out. Shares meal preparation with other family members. Parents do most of the food shopping. Plans food intake more if going to the gym or training.</td>
<td></td>
</tr>
</tbody>
</table>

### Typical dietary pattern

<table>
<thead>
<tr>
<th>Time of day</th>
<th>Meal</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Breakfast</td>
<td>Porridge. Occasionally a cooked breakfast.</td>
<td></td>
</tr>
<tr>
<td>Lunch</td>
<td>Sandwich if at home. Subway if out.</td>
<td></td>
</tr>
<tr>
<td>Snacks</td>
<td>Savoury biscuits</td>
<td></td>
</tr>
<tr>
<td>Dinner</td>
<td>Variety of prepared foods eg asian noodle soup, sausages and mashed potato, salad.</td>
<td></td>
</tr>
</tbody>
</table>
James

<table>
<thead>
<tr>
<th>Age</th>
<th>“transition points”</th>
<th>Food literacy moments</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Lived with mother, father and sister (3 years older)</td>
<td>Father cooked on weekends. Mother did the grocery shopping</td>
</tr>
<tr>
<td>14</td>
<td>Parents separated. Shared custody.</td>
<td>James and his sister became responsible for all meals for the household because his mother worked full time and hated cooking and his father worked night shift.</td>
</tr>
<tr>
<td>17</td>
<td>Completed year 12 and took a year off. Has been financially independent since this time. Always worked a minimum of one job. Moved into a sharehouse with friends</td>
<td>One his friends was an apprentice chef, he would prepare a shared meal once a week. At other times he ate “very basic stuff” eg toasted sandwiches and takeaway.</td>
</tr>
<tr>
<td>18</td>
<td>Began university. Moved in with girlfriend and her family</td>
<td>Girlfriend’s mother did most of the food preparation. Food included in his board.</td>
</tr>
<tr>
<td>20</td>
<td>Dropped out of uni and started landscaping business. Moved into granny flat at grandparents</td>
<td>James identifies this as when he first became responsible for feeding himself. Focused on foods that would sustain him during physical work.</td>
</tr>
<tr>
<td>21</td>
<td>Enrolled in different uni course</td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>Grandfather passed away. Stayed living in their flat</td>
<td>Ate out most nights because didn’t like eating by himself.</td>
</tr>
<tr>
<td>23</td>
<td>Grandmother went to nursing home. Girlfriend moved in.</td>
<td></td>
</tr>
<tr>
<td>25</td>
<td>Completed university. First professional job</td>
<td>Share meal times and food shopping together. Enjoy socialising and experimenting with food. Prepare food each day.</td>
</tr>
</tbody>
</table>

**Typical dietary pattern**

<table>
<thead>
<tr>
<th>Time</th>
<th>Meal Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breakfast</td>
<td>Toast, fruit and yoghurt</td>
</tr>
<tr>
<td>Morning tea</td>
<td>Coke and a sausage roll</td>
</tr>
<tr>
<td>Lunch</td>
<td>Leftovers from dinner or sandwiches</td>
</tr>
<tr>
<td>Snacks</td>
<td>Muesli bar and fruit</td>
</tr>
<tr>
<td>Dinner</td>
<td>Combination of meat, vegetables and carbohydrate eg stir fry, pasta, meat, potatoes and vegetables.</td>
</tr>
<tr>
<td>Age</td>
<td>“transition points”</td>
</tr>
<tr>
<td>-----</td>
<td>---------------------</td>
</tr>
<tr>
<td>0</td>
<td>Born in Brisbane. Lived with mother father and sister</td>
</tr>
<tr>
<td></td>
<td>Lived in Saudi Arabia for father’s work</td>
</tr>
</tbody>
</table>
|     | Commenced secondary school  
|     | Returned to live in Brisbane | Mother did all the food work. Kate and her sister helped occasionally.  
|     |                          | Rowed at school which influenced food intake, in particular body weight for boats. Food portions became more important |
| 17  | Completed year 12 | First responsible for feeding self  
|     |                  | Share meal times and food shopping together. Enjoy socialising and experimenting with food. Gets ideas from TV shows and magazines. Prepare food each day. Prepares food more often eg brings lunch from home to work more often than previously. Plans food, selects foods from a range of outlets. More aware of the cost of food |
| 23  | Finished university | First professional job |
| 24  | Moved in with boyfriend | |

**Typical dietary pattern**

<table>
<thead>
<tr>
<th>Meal</th>
<th>Diet</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breakfast</td>
<td>Cereal with milk</td>
</tr>
<tr>
<td>Lunch</td>
<td>Leftovers from dinner or sandwiches</td>
</tr>
<tr>
<td>Snacks</td>
<td>Yoghurt or hot chocolate or savoury biscuits or chocolate</td>
</tr>
<tr>
<td>Dinner</td>
<td>Combination of meat, vegetables and carbohydrate eg stir fry, pasta, meat, potatoes and vegetables.</td>
</tr>
</tbody>
</table>
### Age | “transition points” | Food literacy moments
--- | --- | ---
0 | Born in Brisbane. Lived with mother, father, brother and two sisters | Mother prepared all the food. When Kelli was around 9/10 she started to be responsible for making her school lunches. All family members overweight or obese. Parents separated. Father moved out
17 | Completed secondary school. Commenced university | First responsible for feeding self. Shopped, prepared and ate food together. Also ate a lot of takeaway.
19 | Moved out with a girlfriend | Got a personal trainer. Started using Lite n’ Easy and lost 85 kg over 2 years. Learnt about nutrient profile of foods, especially when eating out. Became a calorie counter. Moved in with father and step-mother
20 | Lived with friend | Started dieting so bought and made own food
22 | Graduated from university. First professional job. Lived with boyfriend | Prepared food more. Shopped together, prepared food together, ate together.
24 | Lived in various share-houses | Everyone responsible for their own food. Regularly goes on de-toxes (eg weight loss protein shakes). Studying to be a personal trainer. Identifies some of her previous flatmates as being “good with food” because they can just pull stuff out of a cupboard and do something with it. Has maintained weight loss.

### Typical dietary pattern
Since losing 85kg Kelli is on a strict crash diet which involves eating every two hours, six times a day. She alternates a protein shake with “200-300 g of protein and green veggies”. The protein source is typically eggs, chicken or steak. She then also drinks 4-5 litres of water. Kelli maintains this diet for as long as she can. Her dietary intake over time has varied depending upon who she is living with and if they eat together.
<table>
<thead>
<tr>
<th>Age</th>
<th>“transition points”</th>
<th>Food literacy moments</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Born Thailand. US parents. Mother, father, sister. Migrated to Australia with mother and sister</td>
<td>Mother home-cooked most foods. Mother is a health professional with a strong focus on nutrition.</td>
</tr>
<tr>
<td>7</td>
<td>Lived on Torres Strait</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Moved to Cairns Commenced secondary school</td>
<td>Periodically bought own food at high school but usually ate home prepared meals. Bought packed lunches every day from tuckshop once it adopted “Smart Choices”. Studied health.</td>
</tr>
<tr>
<td>17</td>
<td>Completed secondary school</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Commenced university Moved to Brisbane</td>
<td>First responsible for feeding self. Mother gives an allowance for the purchase of food.</td>
</tr>
<tr>
<td>19</td>
<td>Lives in a sharehouse with two other friends</td>
<td>Todd shops for prepared meals, typically things that don’t require any washing up. Meals are not shared with other household members but meal times are. He buys “just lots of junk food”. He regularly “smokes a fair bit of pot” which impacts on his food intake.</td>
</tr>
</tbody>
</table>

**Typical dietary pattern**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Breakfast</td>
<td>nil</td>
</tr>
<tr>
<td>Lunch</td>
<td>subway</td>
</tr>
<tr>
<td>Snacks</td>
<td>Lollies, energy drinks, chips, chocolate</td>
</tr>
<tr>
<td>Dinner</td>
<td>Takeaway eg pizza, McDonalds or single serve instant pastas or noodles</td>
</tr>
</tbody>
</table>
Michael

<table>
<thead>
<tr>
<th>Age</th>
<th>“transition points”</th>
<th>Food literacy moments</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Born Brisbane, lived with mother and father</td>
<td>Mother did all the food work. Father worked and travelled a lot. Dutch <em>mother and grandmother</em>. Grandmother prepared traditional Dutch foods, grew own foods.</td>
</tr>
<tr>
<td>17</td>
<td>Completed year 12. Commenced Dip at TAFE</td>
<td>Learnt about content of foods in science classes</td>
</tr>
<tr>
<td>19</td>
<td>Mother died. Completed diploma</td>
<td>Father continued working and travelling. Michael responsible for purchasing and preparing his own food. Meals are simple eg tuna on crackers. At home he typically eats alone so he eats out several times each week to be with others.</td>
</tr>
<tr>
<td>19</td>
<td>Took gap year and worked as a postman</td>
<td>Travelled to Vietnam. Exposed to new foods. Began experimenting with food more. Experimenting with balancing flavours.</td>
</tr>
<tr>
<td>21</td>
<td>Commenced uni degree</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Commenced masters</td>
<td></td>
</tr>
<tr>
<td>24</td>
<td>Time of interview. About to complete masters</td>
<td>Modifies food intake according to energy expenditure and reviewing other food intake over the previous few days.</td>
</tr>
</tbody>
</table>

**Typical dietary pattern**

<table>
<thead>
<tr>
<th>Time</th>
<th>Food</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breakfast</td>
<td>Muesli and milk</td>
</tr>
<tr>
<td>Lunch</td>
<td>Sandwich</td>
</tr>
<tr>
<td>Dinner</td>
<td>Crackers and tuna or restaurant meal eg Asian restaurant</td>
</tr>
</tbody>
</table>
Bella

<table>
<thead>
<tr>
<th>Age</th>
<th>“transition points”</th>
<th>Food literacy moments</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Born in Brisbane lived with mother, father and brother. Parents separated. Continued living with mother and brother.</td>
<td>Mother a health professional with strong background in nutrition. Father a chef. Grandparents Dutch so some influence on food culture and celebrating with food.</td>
</tr>
<tr>
<td>13</td>
<td>Commenced secondary school</td>
<td>Studied Health at school</td>
</tr>
<tr>
<td>17</td>
<td>Completed year 12</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Started university</td>
<td>Ate dinner together every night at home. Cooked family meal once a week. Packed more lunches when living at home “because all the ingredients were there”. Started to have food sensitivities to salicylates and amines, particularly when stressed so food choices became restricted at times. Needed to become more aware of her body’s individual response to foods.</td>
</tr>
<tr>
<td>21</td>
<td>Completed university</td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>Started working full time.</td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>Moved into a in a share house with 4 other people.</td>
<td>First responsible for feed self. Some meal times shared, most times eats alone if home. Goes out for dinner with friends several times a week. On Sundays all household members go to their parents for dinner. Shops once a week for food. Often at markets. Uses friends and recipe books for inspiration on what to cook. Gets support from brother re: food preparation.</td>
</tr>
</tbody>
</table>

Typical dietary pattern

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Breakfast</td>
<td>Breakfast cereal and fruit</td>
</tr>
<tr>
<td>Morning tea</td>
<td>Piece of fruit</td>
</tr>
<tr>
<td>Lunch</td>
<td>salad</td>
</tr>
<tr>
<td>Afternoon tea</td>
<td>Piece of fruit and 2 biscuits</td>
</tr>
<tr>
<td>Dinner</td>
<td>Range of foods if at home prepares a meal eg meat and vegetables, tagine. Eats out several times a week eg Asian food, cafe food</td>
</tr>
</tbody>
</table>
Jenna

<table>
<thead>
<tr>
<th>Age</th>
<th>“transition points”</th>
<th>Food literacy moments</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Born Brisbane. Lived with mother, father, sister (3 years younger)</td>
<td>From secondary school age, Jenna and her sister were on a roster to prepare meals. Household was quite health and diet focused (eg Weight Watchers). Studied hospitality, home economics and health at school.</td>
</tr>
<tr>
<td>17</td>
<td>Completed secondary school</td>
<td>Parents went overseas during final year of school. Jenna lived alone and was responsible for feeding herself.</td>
</tr>
<tr>
<td></td>
<td>Commenced university</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Began work</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>Moved into a share house with friends. Boyfriend with body image demands. Began suffering from depression and anorexia.</td>
<td>In the share house everyone responsible for their own food. Budgeted and planned more. Food intake varied depending on how much she was working.</td>
</tr>
<tr>
<td></td>
<td>Returned home</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Moved out and lived on own</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Self harmed. Began to suffer from bulimia.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Returned home</td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>Share house with one other</td>
<td>Took some health subjects at uni. Other students were personal trainers. They trained together and ate together and Jenna balanced her food intake more. Needed food to fuel her work outs.</td>
</tr>
<tr>
<td>21</td>
<td>Completed university</td>
<td>Eating differently because she now earns more money. Eats out more and more gourmet foods.</td>
</tr>
<tr>
<td></td>
<td>Working fulltime</td>
<td></td>
</tr>
<tr>
<td>23</td>
<td>Living in a share house with one other person</td>
<td>Menu plans with housemate before shopping for food. Take turns cooking. Socialises with food.</td>
</tr>
</tbody>
</table>

Typical dietary pattern

<table>
<thead>
<tr>
<th>Time</th>
<th>Meal</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Breakfast</td>
<td>Cereal, bran and milk</td>
</tr>
<tr>
<td></td>
<td>Morning tea</td>
<td>Fruit and yoghurt</td>
</tr>
<tr>
<td></td>
<td>Lunch</td>
<td>Salad</td>
</tr>
<tr>
<td></td>
<td>Dinner</td>
<td>Range of meals, many vegetarian eg pasta with tomato based sauce, wholemeal vegetarian pizza</td>
</tr>
</tbody>
</table>