A Matter of Waste: Making experiences and perceptions of household food waste visible

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DEDICATION

Alison Stoddart (1980 – 2012) was awarded this MA posthumously in 2013. Her research was supervised by Lesley Proctor and Hugh Campbell, and discussions were supported by friends in the Department of Sociology, Gender and Social Work.

Alison's thesis brings to light the issue of food waste at a time when the topic has grown significantly in cultural consciousness and is now recognised as part of the lexicon of public discourse. What Alison has added to the academic debate is a level of personal engagement drawn from her own practices of food use and consumption. In this regard she eloquently demonstrates the value of interpreting domestic habits in the context of perceptions of waste as expressed in the historical and broader cultural realm. In addition to this, her deep commitment to the political in the personal, and her passionate advocacy for social change are reflected in the project's conception and process. Her ability to blend both commitment and passion into a soundly theoretical analysis illuminates every page of this thesis.

Her acute insights into the issue will no doubt offer future researchers a starting point to begin a new chapter in understanding the complexity of the subject as being embedded in the dynamics of cultural expectation, economics, and the interplay of human relationships.

The Department of Gender, Sociology and Social Work is immensely proud of Alison's work. Her imaginative approach, and her conviction in the need for new perspectives on household food waste, are appreciated by all who worked with her or participated in this project. We will value her contribution to the life of the Department and to this academic field for many years to come.
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INTRODUCTION

Waste is…
“[T]he things you ardently wanted and then did not”.  


“That which we desire/no longer”.

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“What is wasted by society is the direct and opposite expression of what is valued”.


At times waste has been viewed as a ‘natural’ and ‘normal’ consequence of human existence (Rodgers, 2005). While this view is true, inasmuch as we create bodily and other wastes from the most unavoidable activities, such as eating, it also obscures the political, technological, cultural and social influences on how, what, and why we ‘waste’ what we do (Rodgers, 2005). At the other end of the spectrum concerning how waste is conceptualised, a range of popular environmental discourses swell with discussions of a growing ‘waste crisis’ (O’Brien, 2007; de Coverly, et al., 2008; Stuart, 2009) where waste is both threatening and omnipresent, portrayed as “a slumbering, festering beast, soon to wake and ravage the earth” (de Coverly, et al., 2008).

Despite, and perhaps because of, the very mundane and everyday nature of the waste we all produce, our direct experiences of it are often limited. The moment after food has been designated as waste, technological and design innovations – from the flush toilet and Insinkerator; to swing-topped rubbish bins; enclosed, compartmentalized compost bins; and household refuse collection – remove matter from our sight (and hopefully sense of smell) the minute it crosses the threshold from food to waste (de Coverly, et al., 2008; Hawkins, 2006; Rodgers, 2005). In the field of sociological discourse, waste has long been similarly hidden within discussions of production or consumption. It has even been described as a “lost continent” (Fagan, 2003 p.67) and, until recently, a systematic theorisation of waste or accompanying explorations of its social context have been comparatively rare (O’Brien, 2007).

When waste has been examined theoretically, it has typically been within discussions on consumerism. Veblen linked waste to the idea of ‘conspicuous consumption’ and suggested “wastefulness
has become the very infrastructure of the social and economic order” (cited in O’Brien, 2007 p.157). Later, Packard (1960) examined techniques used by marketing teams and industry in the United States, such as planned obsolesce to encourage consumption. Baudrillard (1970) questioned the idea of waste as dysfunctional, asserting that “wasteful consumption allows us to feel alive” (cited in de Coverly, et al., 2008 p.291). More recently, Bauman (2007) has declared:

History is a factory of waste. It is neither creation nor destruction; neither learning nor genuine forgetting; just living evidence of the futility of such distinctions. Nothing is born here to live long and nothing dies. (p.119)

Despite these insights, and especially when compared to the breadth of research in areas of consumption and production, processes of dispossession, or waste itself, can be seen as conspicuously absent from both sociological theory and research. As O’Brien has noted:

It is as if, for the discipline of sociology in general, and for social theory in particular, nobody ever throws anything away or ever carries out the bin-bags for a ‘waste management authority’ to deal with. It is as if when you go to a shop, restaurant, club or place of work, you work, consume or take your leisure without ever producing rubbish or detritus of any kind. Sociology treats ‘waste’ as if it were literally immaterial, as if it existed in a world apart from the one we inhabit in our daily, routine lives. (O’Brien, 1999b p.262)

While O’Brien’s observation remains largely true, in the last decade there have been a variety of attempts (including, notably, his own) outside of the waste management sector to both gather empirical data on waste and to build a theoretical frame through which to examine its material, social and political realities.

In this thesis I will focus on the topic of household food wastage in New Zealand. Interest in the ecological and political, as well as economic, impacts of food wastage, has drawn increasing attention to the importance of this area. The recognition of this importance, especially to those outside of the waste management field, can be seen against the backdrop of a wider ‘turn’ towards recognising the political importance of consumption practices. While this turn has produced rich data on consumption practices surrounding food, research into food waste and disposal is limited and tends towards (often problematic) attempts to quantify food waste within single sectors of the supply chain. I will move away from this, focusing instead on how food ‘wastage’ is understood and dealt with on an everyday level, and, if it is, why food is ‘wasted’. I will review existing literature on historical and cultural developments relating to household waste more generally and attempt to identify how food waste fits into this picture. This will
include examining changes in the availability and form of municipal waste collection, as well as the introduction of regulations relating to food labelling such as ‘use-by’ dating and storage recommendations. It will also entail looking at changes to individual’s and households’ wider relationships to both their waste and their food. I will then review contemporary literature relating to household food wastage. Further, I will detail, and draw on qualitative data generated by mixed methods research focusing on the perceptions and experiences of the household food waste of residents from the Dunedin area. A questionnaire was used to gather preliminary quantitative data and source participants for the subsequent stages of the process that consisted of two focus group discussions centred on participant-generated photographs. This project moved away from research designed simply to quantify household food waste as seen in much of the existing literature on domestic food waste. Instead, it focused on how food ‘wastage’ is understood and dealt with on an everyday level, and on participants’ perceptions as to why food is ‘wasted’.

The project aimed to explore some of the ways in which people think and act in relation to household food waste, and to connect attitudes and practices in an attempt to build a greater understanding of behaviours around food disposal and ‘wastage’ in a domestic, New Zealand, context. This broad objective was further refined in a series of guiding research questions.

- What types of food do people believe they most commonly waste?
- Why do people believe food is wasted in their homes?
- How do people feel about food waste in the context of their homes?
- Where do people get information to help them make choices about what food they keep and eat, and what food they dispose of?

I will examine the ways in which themes emerging from this data relate to those presented in existing literature. A particular area of interest will be how the biophysical nature of food, as well as different understandings of edibility, interact with how individuals think and act when it comes to food waste. The concluding discussion of this thesis is that the empirical research suggested a body of evidence that revolves around an imprecisely defined relationship between a generalized aversion to food waste, and small-scale strategies or social practices associated with it. Three different, yet interlinked, frameworks, suggested to some extent in the existing literature, are proposed as potentially fruitful in understanding the lack of coherent social practices responding to food waste.
LITERATURE REVIEW

In this chapter I review existing literature on waste, with a particular focus on food waste. The chapter consists of three main sections. First, I will outline literature that specifically addresses food waste. I will look at how food waste has been researched in the context of the household, through case studies outside the domestic context, and in terms of wider provisioning systems. I note that the focus in these areas is primarily a quantitative one where methods of measuring and categorising different types of food waste are a central concern. I will then turn to an area where there has been more qualitative and theoretical emphasis: ethnographic explorations of subcultural reactions to a globalized food system, which is seen by participants as inherently wasteful. Specifically, this section will examine literature exploring the practice known as dumpster diving, where discarded food is reclaimed. In the second section of this chapter, I will examine some of the ways in which waste more generally has been theorized and look at how diverse literatures, including fiction, waste management, social history and anthropology, have contributed to these theorisations. I will conclude by identifying a substantive gap in the literature concerning qualitative assessments of household food waste, particularly how food residuals are constituted as waste, how the biophysical nature of food interacts with this process, and how ‘wasteful’ food disposition practices are felt to be.

The Garbage Project

Outside of waste management, one of the earliest and most sustained attempts to collect detailed data on household waste was that of the Garbage Project. This project began in 1973 in Tucson “as a game of archaeological interpretation for undergraduates at the University of Arizona” (Rathje, 1984 p.15). When the project began, recording food waste was not a priority, however it quickly became apparent that it constituted a significant portion of household waste and soon became the main focus of the project (Rathje, 1984). Thus, the Garbage Project’s primary task became “to physically document the quantities of food wasted” (Rathje, 1984 p.15). By 1984 around 700 students and 60 different organizations had been involved in the project and sorted through 8,000 refuse samples from households in Tucson, Milwaukee, Marin County and Mexico City.

When the Garbage Project began, there was little data on food waste in the United States. As Rathje (1984) notes this was due in part to the amount of time and resources required to conduct waste analysis, along with the relatively unpleasant nature of the task. A number of “USDA-inspired studies” in which participants recorded the quantities and types of food they disposed of (Rathje, 1984 p.15), conducted during the 1940’s and 1950’s, also struggled with variations in participants’ definitions of waste and the
“moral implications of admitting to ‘waste’” (ibid). These issues led to significant under-reporting of food waste and contributed to interest in the Garbage Project’s waste analysis methods.

The Garbage Project focused its recording of food waste (which it referred to as ‘food losses’ from 1975 (Rathje, 1984)) on weighing and recording the amounts and types of food found in household refuse which, within the cultural context from which they came, would have been considered “either edible or once-edible” (Rathje, 1984 p.16). Along with their large-scale waste analysis, the Garbage Project also undertook more detailed samples from some households. This involved sorting refuse from the same houses over a five-week period alongside collecting survey and interview data. Specific ‘five week sorts’ also looked at the effect of different factors, such as pet ownership and garbage disposal usage, on food waste levels as identified through refuse analysis (Rathje and McCarthy, 1977).

When corrected for variables such as these, the Garbage Project’s findings put the quantity of “edible or once-edible” (Rathje, 1984 p.16) food discarded by households in the 1970’s in the United States as between 10 and 15 percent of all food purchased. While Rathje (1984) notes this is a conservative estimate, he also notes that it is considerably lower than the only other comparable statistics that were collected by the United States government during the First World War. These put food waste levels at between 25 and 30 percent of food purchased and, for Rathje (1984), point to the influence of “an interlinked chain of technological solutions for processing, packaging, and transporting foods and storing foods at home” (p.20).

Drawing from the extensive data the project generated, attempts were made to “build a practical theory of household food management” (Rathje, 1984 p.17) to look at the ways in which different attitudes and behaviours are linked to varying levels of food waste. This theory centred on what has been labelled “the First Principle of Edible Food Loss” and “the Pre-prepared/fresh Pattern” (Rathje, 1984 p.17). The ‘First Principle’ was originally arrived at during the beef shortages that occurred in 1973. During this period, waste analysis showed significantly higher than usual levels of beef being discarded, something that appeared counterintuitive when prices were comparatively high. Further research showed this anomaly was linked to a number of factors including:

(1) buying cheaper cuts of meat (and perhaps not knowing how to prepare them).
(2) buying larger than normal quantities (perhaps as a hedge against further price increases and not knowing how to store them properly). (Rathje, 1984 p.17)
This pattern was seen again during sugar shortages two years later and was expanded into a proposition that rapid changes in purchasing patterns, ‘crisis buying’ or increases in consumer experimentation, led to greater levels of food waste (Rathje, 1984).

The second aspect of the Garbage Project’s practical theory of household food management centred on another initially counterintuitive, yet logical, pattern. The garbage project found that the largest single type of food waste was fresh fruit and vegetables, while pre-prepared, packaged foods that tend to last longer were wasted at much lower rates. However, they also found that households that purchase “the most pre-prepared foods waste the highest percentage of fresh produce” (Rathje, 1984 p.19) and that “the more fresh foods purchased, the lower the percentage of fresh foods lost” (ibid). This, along with the ‘First Principle’, is linked by Rathje (1984) to the amount of time for, interest in and, most importantly, knowledge of food preparation and storage techniques held by those within households.

**Food Waste in Contemporary Literature**

In the decades following the Garbage Project (Rathje and Murphy, 1992; Rathje, 1984) food waste has continued to be identified as a specific area of concern (Stuart, 2009; Steel, 2008; Hall, et al., 2009; Griffin, et al., 2009; Evans, 2011; 2012). As Sobal and Nelson (2003) suggest, this interest can be seen alongside an increased public and academic recognition of the potential social and environmental impacts of consumer choice generally, and dietary choice in particular. Despite the difficulties involved, there have been numerous further efforts to measure food waste and quantify its negative impacts. Some of these, like the Garbage Project, focus specifically on household food waste (Langley, et al., 2010; Smith and Jasim, 2009; Van Garde and Woodburn, 1987; Wenlock, et al., 1980), while others simply touch on food waste as a component of household waste more generally (Pickin, 2008; Hoornweg, et al., 1991; Barr, et al., 2001; 2005; Barr 2007; 2004; Martin, et al., 2006; Bulkeley and Gregson, 2009; Emery, et al., 2003; Drackner, 2005). Some draw from case studies from within single sectors of the food system, such as the retail and service sectors (Engstrom and Carlsson-Kanyamaa, 2004; Lieb, 1993; Griffin, et al., 2009; Newell, et al., 1993; Smil, 2003; Luboff and May, 1995). While yet others have taken a wider view, attempting to estimate levels of food waste across entire food systems. (Kantor, et al., 1997; Griffin, et al., 2009; Blair and Sobal, 2006).

**Quantifying Household Food Waste**

Generating empirical data on household food waste is often a highly fraught process and the practicalities of collecting reliable and significant data have deterred many researchers (Rathje, 1984). Recent examples in the literature with a focus on household food waste include Langley et al. (2010) who report on a pilot study for the collection and analysis of data on the composition of household food waste.
Here, many of the practical and methodological difficulties central to collecting empirical data of food waste are the central focus of the paper (Langley, et al., 2010). They note that while there is a wide range of data available on the composition of municipal waste in general, there is still little which focuses specifically on food. This is combined with a similar lack of methodology for the analysis of food waste; they propose their study as a solution to this situation.

The methodology proposed by Langley et al. (2010) is based around consumer self-reporting through a waste diary. This was chosen as it was felt by the authors that “setting aside human issues of objectivity, this was the most accurate real measurement of food waste actually entering the waste stream” (Langley, et al., 2010 p.221). This is partly due to the way in which many types of food waste decay rapidly once disposed of, changing their mass and making them difficult for those without prior knowledge to identify. It was also felt by the authors that self-reporting was the only way to ascertain the make-up of much of the food waste resulting from plate scrapings or other leftovers (Langley, et al., 2010).

Participants in the pilot study (Langley, et al., 2010) kept a diary of their household’s food waste for seven consecutive days. During this time the type, quantity and ‘lifecycle stage’ of any food waste was recorded, as was the activity or meal that led to its disposal. The results of this pilot study indicated an average of 0.199kg of food waste per person, per day, entered the waste stream with 0.136kg of this being seen as potentially avoidable. This assessment of avoidability was based on the waste resulting from a ‘lifecycle stage’ other than ‘Preparation By-product’ (Langley, et al., 2010). The largest contributors to food waste that were considered avoidable were fruit (30 percent), vegetables (23 percent) and breads and cereals (16 percent) with the unavoidable preparation by-product (37 percent) consisting predominately of fruit and vegetable peelings with some meat trimmings (Langley, et al., 2010).

The authors (Langley, et al., 2010) note that while they considered the scheme to be a success, providing valuable data on the expansion of the methodology to a wider study, there were limitations. At the conclusion of the project, participants were interviewed to ascertain how the study had worked for them. “The overriding response…was that the task of filling in the food waste diary was considerable” (Langley, et al., 2010 p.224). This, combined with the negative connotations surrounding the topic of food waste, led to a lack of enthusiasm for the project among participants, which in turn contributed to uneven reporting of food disposal habits. Another significant theme in the feedback was related to under-reporting of waste and changes in food waste habits “in order to reflect more positively in the data...some subjects admitted to leaving some waste until the day after the study finished” (Langley, et al., 2010 p.225).
A report published by the Australia Institute examining patterns of food waste and disposal across Australia and New Zealand also used consumer self-reporting (Baker, et al., 2009). This report built on earlier research (Hamilton, et al., 2005) suggesting that food waste was a significant component of the overall waste stream in Australia and was linked to various demographic factors including age, income and household size. Respondents were asked to assign a monetary value to different categories of food that went unconsumed in their households using an online poll (Baker, et al., 2009). The report detailed these estimates alongside their relationship to specific factors such as household income and composition, and briefly examined levels of concern about food waste and attitudes to different waste reduction strategies and motivations.

According to this report (Baker, et al., 2009) the average household in Australia throws away around $600 worth of food over the course of a year; this equates to a total loss of $5.2 billion or $239 per person. As the report points out, these figures are significant and represent substantial economic and environmental losses. The report goes on to note that fresh fruit and vegetables are the most commonly discarded food type followed by take-away foods. The report also notes a clear connection between the amount of food thrown away and household income with waste levels increasing alongside income. It also noted a connection between food wastage and household size and composition, with single occupancy households, households comprised of young, unrelated adults and households with young children throwing away the largest quantities of food (Baker, et al., 2009).

Perhaps because of the quantities of food reportedly being discarded, the majority of participants (83 percent) claimed to be either “somewhat” or “very” concerned with food waste (Baker, et al., 2009 p.10). Levels of concern were also related to total household income and respondents indicated that financial concerns were the most pressing when it came to factors motivating them to reduce the quantity of food they discarded (Baker, et al., 2009). Respondents also noted they felt that taking care of what food came into the house by shopping with a list, and planning meals were, the most effective ways of avoiding food waste. However, they also admitted to not always employing these strategies despite a concern over levels of waste.

This apparent disjuncture between attitudes and behaviours was also seen in a United Kingdom wide study of domestic waste habits conducted by the Waste Resources Action Program (WRAP). This government funded, multi-method, investigation used a combination of surveys, kitchen diaries and waste analysis to investigate the food waste practices of over 2,000 British households (Georgeson, 2008). The

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1 Editor’s note: [http://www.wrap.org.uk/](http://www.wrap.org.uk/) document citation missing
scale of this study, along with the “staggering” (Georgeson, 2008 p.2) levels of food waste it revealed being generated by households in the United Kingdom, can be seen to have prompted an increase in both public and academic interest in this area (e.g. Stuart, 2009). While studies of waste are relatively common on a local or municipal level, especially from a waste management or reduction perspective, they rarely found their way into either the public or academic domains in the way the WRAP study did (de Coverly, et al., 2008 p.290).

Some of the key findings of the WRAP study included detailed statistics on how much food is thrown away by British households and how it is disposed of:

UK households waste 6.7 million tonnes of food every year, around one third of the 21.7 million tonnes we purchase. Most of this food is currently collected by local authorities (5.9 million tonnes or 88 percent). Some of this will be recycled but most is still going to landfill where it is liable to create methane…The remaining 800,000 tonnes is composted by people at home, fed to animals or tipped down the drain. (Ventour, 2008 p.4)

The study also looked at precisely what types of food people throw away, at what stage in the item’s ‘lifecycle’ it was disposed of and why. This included looking at the way people shop for, prepare and store different types of food and how they relate to and gather knowledge about what is ‘good’ to eat (Ventour, 2008). Discarded food was divided into different categories according to how ‘avoidable’ it was and found that:

Most of the food we throw away (4.1 million tonnes or 61 percent) is avoidable and could have been eaten if it had been better managed. Truly unavoidable food waste like vegetable peelings, meat carcasses and teabags, accounts for 1.3 million tonnes a year or 19 percent of the total, with the remainder being ‘possibly avoidable’ food waste – items such as bread crusts that some people choose not to eat and potato skins which can be eaten when food is prepared in certain ways but not in others (Ventour, 2008 p.4).

The WRAP [Editor’s note: see previous footnote] study found that of what was deemed ‘avoidable’ food waste, fresh produce, breads and leftovers were the most commonly discarded types of food.

Data on various costs of the wastage identified was also generated. This included financial and environmental costs and estimated that the United Kingdom “as a whole pays for but does not eat £10.2 billion of good food each year”; this equates to “£420 of avoidable food for the average household each
year” (Ventour, 2008 p.5). In terms of environmental costs it was proposed that preventing this avoidable food waste would avoid 18 million tonnes of carbon dioxide being emitted each year, the equivalent of taking one-fifth of the cars in the United Kingdom off the road (Executive Summary, WRAP). [Editor’s note: see previous footnote]

The WRAP [Editor’s note: see previous footnote] study also looked at household waste more widely and at how different municipal schemes impacted on waste levels in general and also on levels of waste diverted from landfill. This is also the focus of Smith and Jasim (2009) as they outline results from a three-year research programme in West London which quantified biodegradable waste, including food waste, diverted from landfills by home composting schemes. Households were supplied with a subsidized, 290L compost bin and equipment for recording and measuring compost inputs. They were also divided into groups relating to garden size and additional compost treatments (mixing, use of a compost accelerator, and earthworm inoculation). Smith and Jasim (2009) found that significant quantities of both kitchen and garden waste were diverted from landfill by home composting with average monthly inputs of 9 and 21.5kgs respectively.

**Beyond the Numbers, Evans (2011)**

Notable exceptions to the tendency towards quantifying food waste found in the literature are two papers by Evans (2011; 2012). Drawing from ethnographic fieldwork conducted over an eight month period (November 2009 – July 2010) and involving 19 households in South Manchester, Evans’ work (2011; 2012) represents the only sociological analysis specifically focused on household food waste to have emerged thus far.

**Non-domestic Food Waste**

Post-consumer food waste outside of the home is another area that has been the focus of an investigation. This is seen particularly with assessments of plate waste from food service institutions such as schools and rest homes, often motivated by economic or nutritional concerns (Engstrom and Carlsson-Kanyamaa, 2004). Like the WRAP study [Editor’s note: see previous footnote, Engstrom and Carlsson-Kanyamaa (2004) also introduce issues of food security and the potentially negative environmental consequences of food waste to their investigation of food losses in a range of food service institutions in Sweden. They found that an average of “20 percent of the food delivered to the food service institutions was lost” (Engstrom and Carlsson-Kanyamaa, 2004 p.206). The majority of the losses were from plate waste and the authors note that their “results indicate that the economic and environmental consequences of current levels of food losses may be substantial” (Engstrom and Carlsson-Kanyamaa, 2004 p.203). They also note that if the results are representative of food service institutions across Sweden, this would
indicate that the equivalent of 287 million servings each year were discarded. This they note supports the idea that minimizing food waste is a potential way to “overcome hunger” (Engstrom and Carlsson-Kanyamaa, 2004 p. 206).

The potential for food that would otherwise be wasted to prevent hunger, either on a local or global scale, is central to much work on food waste (eg. Stuart, 2009; Kantor, et al., 1997). Using data gathered by the USDA’s Economic Research Unit on production and availability levels of different foods, Kantor et al. (1997) generated a quantitative estimate of food losses across the entire provisioning system in the United States. Drawing from these estimates they highlight the potential for wasteful provisioning practices to negatively impact on the health of populations and the possibility of food recovery and redistribution as a means of alleviating hunger. Kantor et al. (1997) recommended that a high proportion of food lost at farm distribution and retail levels could be recovered and used to alleviate hunger. They note that identifying “where and how much food is lost is an important step in reducing waste and increasing the efficiency of food recovery efforts” (Kantor, et al., 1997 p.3).

These concerns regarding food waste are echoed by Griffin et al. (2008) in their analysis of food waste across a community food stream. Guided by a Systems Theory conceptual framework and utilising inferential methods “derived from diary, plate analysis and material culture research to calculate food waste” (Griffin, et al., 2009 p.69), food waste in one United States county was quantified during 1998-99. Where Kantor et al. (1997) focused on the potential to reduce losses at farm, distribution and retail levels, Griffin et al. (2009) note the importance of losses that occur in later stages of the food system. They found that 60 percent of the waste identified within the community food stream examined was being generated in the consumer sector (Griffin, et al., 2009). It was found that during a year-long study period, the food waste generated by the county was equivalent to enough kilocalories “to feed the county’s 96,659 residents for 45 days” (Griffin, et al., 2009 p.77).

Blair and Sobal (2006) are also interested in the potential for food waste, particularly at a consumer level, to impact on a population’s health and wellbeing. Here however, ‘wasted’ food is more widely framed than in many other assessments; it is seen as not only the food that is thrown away, but also that which is consumed beyond the nutritional needs of a population (Blair and Sobal, 2006). Blair and Sobal (2006) use the concept of ‘luxus consumption’ to describe wasteful over-consumption and provide “theoretical and empirical leverage” (p.70) linking food systems, issues around obesity and the environment. Using existing data on rising levels of obesity in the United States, and increasing supply levels of overall kilocalories and key food items – specifically High Fructose Corn Syrup (HFCS) – they model changing levels of ‘luxus consumption’ between 1983 and 2000. Through this analysis Blair and
Sobal (2006) “estimate luxus consumption in the contemporary US food system at about 18 percent of available food” (p.71). This in turn represents a significant ‘ecological footprint’ and draws to attention the links between the nutritional, social, economic and environmental consequences of food waste and over-supply within the wider provisioning system.

Highlighting the potential for positive health, economic and environmental improvements to be made if food waste and over-consumption is reduced is also central to Hall et al.’s (2009) discussion. Like Blair and Sobal (2006), they include food consumed beyond levels associated with nutritional need in quantifications of food waste (Hall, et al., 2009) which they develop using a mathematical model to “estimate the energy content of food waste by comparing the US food supply data with the calculated food consumed by the US population” (Hall, et al., 2009 p.2).

While providing valuable data on the scope and contents of food waste, particularly in the United States and the United Kingdom, and with the recent exception of Evans (2011; 2012), the majority of the research in the area focuses on measuring or estimating levels of food waste. As a body of literature, it does little to offer a theoretical framework within which to conceptualise food waste, build understanding of the social practices around food disposal and ‘wastage’ or examine how and why food that is disposed of is understood as ‘waste’. Furthermore, while pointing to potential areas of interest, the research does not explore in any depth the ways in which attitudes and actions regarding food waste differ from those regarding waste more generally; or how at a household level the surplus of food the findings suggest is determined; or what discourses or material routines are employed to transform this surplus from ‘food’ to ‘waste’. Two areas of research which do begin to point in these directions relate to subcultural reactions to food waste, such as dumpster diving, Freeganism and other forms of gleaning (Stuart, 2009; Steel, 2008; Gross, 2009; Edwards and Mercer, 2007; Clark, 2004; Black, 2007) and to qualitative investigations of household waste more generally (Pickin, 2008; Hoornweg, et al., 1991; Barr, et al., 2001; 2005, Barr, 2004; 2007; Martin, et al., 2006; Bulkeley and Gregson, 2009; Emery, et al., 2003; Drackner, 2005).

Consumption Politics and the Reclamation of ‘Wasted’ Food

As we have seen, much of the literature on food waste is comprised of predominantly quantitative work uncovering what is wasted at different points in the food system. One area where qualitative methods have been more dominant and questions about how ‘food’ becomes ‘waste’ have been raised, is in subcultural responses to what some sectors of society view as overly wasteful, and morally reprehensible, attitudes to food (Stuart, 2009; Steel, 2008; Gross, 2009; Edwards and Mercer, 2007; Clark, 2004; Black, 2007). These responses represent a tangible enactment of the idea that ‘wasted’ food could
provide sustenance for others and include various forms of predominantly-urban gleaning, including Freeganism, dumpster diving and the Food Not Bombs movement. They also point to the importance of food as a cultural entity rather than simply a source of essential nutrients and to the closely entwined nature of food to ideas of status, identity and health, and the associated contemporary obsessions with hygiene, freshness and purity.

Through practices of food reclamation, participants often make overt links between consumer capitalism and wasteful provisioning practices. In order to express their objection to consumerist imperatives and demonstrate the potential for alternative provisioning practices and attitudes to food, participants in these activities reclaim, either for personal use or for wider redistribution, food that has or will soon be, discarded (Gross, 2009; Edwards and Mercer, 2007). This can encompass a range of activities including ‘plate-diving’ where unfinished meals on restaurant tables are consumed, taking food from ‘skips’ or ‘dumpsters’ that has been disposed of by large-scale retailers, and making both formal and informal arrangements to collect unsold food stuffs before or after they are disposed of (Black, 2007; Edwards and Mercer, 2007; Gross, 2009). These often highly politicized activities challenge the boundaries of food/waste along with conceptions of what is ‘good’ to eat. Particularly in the case of Food Not Bombs, where free meals are distributed in public spaces, these activists also make the extent of food waste more visible. The literature in this area can be seen to provide rich, if biased, data on the way that food is constituted as waste and how individuals partake in these processes.

Dumpster diving, particularly those forms motivated by a moral and political objection to consumer society, have gained an increased public profile in recent years. This can be linked to a proliferation of websites and blogs on the subject as well as Agnes Varda’s documentary The Gleaners and I, released in 2000, and the publication in 2001 of Evasion, chronicling the exploits, including dumpster diving, of an anonymous punk (Clark, 2004; Edwards and Mercer, 2007). The legal status of dumpster diving is often a somewhat grey area and varies from country to country. In some places, including parts of the United States, it is illegal to handle anything that has been placed on the street for collection (Plocek, 2004). Some dumpster divers report harassment from private security guards or shop owners even when they are not acting outside the law (Rush, 2006; Clark, 2004; Food Not Bombs, 2009). They also have to contend with guard dogs, razor wire, locked skips and bleach tipped through bins.

While several academic authors mention dumpster diving as a strategy employed by homeless or low-income individuals to get by, few investigate further (Ferrell, 2006). Fewer still focus specifically on the practice as it relates to the procurement of food. One of the earliest authors to do so was Lars Eighner (1991), who offers a brief auto-ethnographic account of what he refers to as his “scavenging”. In this
account, Eighner tells of scavenging for a variety of daily necessities, from food, clothes and toilet paper to books and bedding. He notes that while in many social circles there is a certain amount of pride attached to getting a ‘deal’ on something or even finding this or that in the rubbish, “eating from dumpsters is what separates the dilettanti from the professionals” (Eighner, 1991 p.6). He recounts his strategies for deciding what is and is not good to eat, alongside observations on “the practical art of Dumpster diving” (Eighner, 1991 p.6). While the author is careful not to romanticize his scavenging, he also expresses the potential for independence, creativity and enjoyment it provided him with.

Perhaps the most comprehensive account of dumpster diving for food as a response to economic hardship is found in Eikenberry and Smith’s (2005) article on food insecurity and hunger in low-income neighbourhoods in Minneapolis. While investigating food insecurity and the resources available to low-income urban dwellers to obtain a balanced diet, Eikenberry and Smith (2005) found that dumpster diving regularly came up in discussions. They note that “despite general knowledge that this form of eating behaviour does occur in the US, there is little literature on the subject” (Eikenberry and Smith, 2005 p.188). The purpose of Eikenberry and Smith’s (2005) article is to cast light on what they describe as a “previously ignored, American reality” and investigate the prevalence of dumpster diving as a response to food insecurity as well as “the perceptions, attitudes and beliefs of people who dumpster dive about the behaviour” (ibid, p.189).

Using a mixture of qualitative and quantitative methods, Eikenberry and Smith (2005) gathered data from low-income neighbourhoods with high numbers of homeless people and where residents had limited access to affordable, nutritious food. In response to an anonymous survey “nearly one-fifth (74 of 396)...said they had eaten food they had got from a dumpster” (ibid, p.191). In focus groups participants cited lack of access to other sources of affordable food as their main reason for eating dumpstered food (Eikenberry and Smith, 2005). Most noted that they would rather not eat dumpstered food and used it only as a last resort when they suffered from extreme hunger.

Black (2007) also focuses specifically on the reclamation of food from urban waste and uses case studies of two food markets, one in France and one in northern Italy, to examine what she refers to as ‘urban foraging’. For Black (2007) the two markets demonstrate how the same practice can be undertaken by individuals with different social realities – either as a response to economic hardship or as a conscious critique of consumerism and wasteful social practices (Black 2007). The market held at the Porta Palazzo in Turin draws more foragers than other markets in the city for a number of reasons including its size and location in a neighbourhood with a high number of residents who are pensioners on low incomes. It is these pensioners who commonly forage among the detritus of the market, reclaiming the edible from the
ruins of the day’s business (Black 2007). Unlike the dumpster divers in Eikenberry and Smith’s (2005) focus groups, these foragers “did not speak of hunger per se but complained of economic hardship” (Black, 2007 p.146). Many of the elderly foragers at the Porta Palazzo market reported enjoying the activity both in itself “as a form of entertainment (divertimento)” (Black, 2007 p.146) and for the independence and self-sufficiency it granted them, including being able to continue to cook for themselves and others. Black (2007) also notes that many of the foragers with whom she spoke “expressed their dismay and shock at the amount of waste that is produced these days” (pp.146-147). One 68-year-old forager noted, “they throw away things that we never even dreamt of eating at Christmas when I was a child. You can find a feast amongst the scarti (scraps) here at Porta Palazzo” (quoted in Black, 2007 p.147).

At the other market Black observed (2007), the Croix-Rousse market in Lyon, foraging for edible, yet discarded, food at the end of the day is known as the récupe. Here the participants are generally “young people, such as students, low-income individuals and artists” (Black, 2007 p.143). Like the pensioners at the Porta Palazzo market, those who participated in the récupe expressed concern about the wasteful nature of contemporary consumer life. However, while at Porta Palazzo economic hardship was the primary reason for the foragers’ activities, supported by a feeling that what was discarded was unnecessary and wasteful, at the Croix-Rousse these two motivations were reversed in importance for participants (Black, 2007).

For those who participated in the récupe, their foraging was one of a range of conscious, political choices directed towards minimising their participation in what they saw as a mainstream consumer society, which was both wasteful and exploitative (Black, 2007). This group of foragers was driven less by economic necessity than by moral and political objections to a social system in which so much edible food is discarded by some while others go hungry. As Black (2007) points out, the actions of these foragers represent a rejection of the economic structures and consumer practices that reproduce this situation. Those enacting the récupe at the Croix-Rousse and other urban foragers, also present a challenge to the line that separates food and waste. By repositioning as food that has been discarded, they can be seen to perform a rejection “of supermarket culture, a bastion of hygiene and order” (Black, 2007 p.144). In this way the influence of capital in delineating ‘waste’ is exposed along with the socially constructed and contingent nature of hygiene standards.

Neither the pensioners at the Porta Palazzo nor the participants in the récupe at the Croix-Rousse expressed a great deal of concern at the possibilities of becoming sick from eating foraged food (Black, 2007). Like the dumpster divers in Eikenberry and Smith’s (2005) article and Eighner (1991) they had
learned to trust their ability to tell the edible from the inedible according to their own standards. Unlike their counterparts in other studies however, the foragers at both these markets also had access to cooking facilities, increasing the range of foraged food they could make use of (Black, 2007; Eikenberry and Smith, 2005; Eighner, 1991). Black (2007) notes that part of the foragers’ disregard for the potential dangers associated with eating ‘rubbish’ was regarding the cooking process as a safety valve. For Black (2007) this “fits in well with Levi-Strauss’ conception of raw and cooked and the transformation of food from nature to culture through cooking” (p.148).

Levi-Strauss (1997, p.29) saw cooking, along with language, as “a truly universal form of human activity”; a way in which humans both demonstrate and create culture. He proposed a ‘culinary triangle’ based on methodological principles found in the study of linguistics (Levi-Strauss, 1997). This tri-polar system proposed that the raw, the cooked, and the rotten, could be seen to constitute three categories common to all human cuisines (Levi-Strauss, 1997). Beneath these three points there also lies the double binaries of culture/nature and elaborated/unelaborated. For Levi-Strauss (1997) the semantic field delineated by the triangle allows an investigation of the ways in which humans seek to classify, control and transform ‘nature’ into culture in their interactions with food. He notes, “the cooked is a cultural transformation of the raw, whereas the rotten is a natural transformation” (Levi-Strauss, 1997 p.30).

As Black (2007) notes, those taking part in the récupe at the Croix-Rousse market are by no means the only urban foragers driven by a desire to reject and condemn wasteful and exploitative social practices. Dumpster diving, especially for food, is noted by Clark (2004) as an important aspect of punk culture and cuisine. Clark (ibid) uses the Black Cat Café, a focal punk meeting place in Seattle, as the context for his discussions on punk cuisine, which he describes as “the theory and practice of punk culture as expressed in food” (Clark, 2004 p.19). Like Black (2007), Clark (2004) also draws on Levi-Strauss’ (1997) tri-polar gastronomic system to frame his discussion. However, unlike Black (2007), he finds that, far from being viewed as a practical means of redeeming foraged food from the realm of the rotten, cooking is often seen to symbolize ‘mainstream’ ‘capitalist’ culture, and as such is rejected as a symbolic concept if not as a practice (Clark, 2004).

Clark (2004) argues that, using Levi-Strauss’ distinctions between the raw, the cooked and the rotten as a basis, in punk cuisine both the ‘raw’ and the ‘rotten’ are viewed in a positive light being as they are, closer to nature than to culture. ‘Mainstream’, industrial food can, in this way, be seen to have become “extraordinarily cooked” (Clark, 2004 p.20); that is, processed, transported, packaged and presented in ways that obscure or destroy its fundamental connections with nature as well as with the labour required to produce it. For Clark (2004) punk cuisine can be seen as an attempt to liberate food
from its position as a processed, fetishized commodity. Thus “punk food is ideally raw – purchased in brandless bulk or directly from farmers, self-made or home-grown, and otherwise less fetishized; or it is rotten, which is to say stolen, or reclaimed from a dumpster” (Clark, 2004 p.21).

Clark (2004) goes on to examine other discourses that are important within punk cuisine. He looks at the way in which ideas of ‘Whiteness’ are central to an understanding of punk diets and what he refers to as a reversal of signs at the Black Cat. This is particularly evident in regard to attitudes regarding hygiene and cleanliness where punk discourses emphasize the totalitarian implications of an obsession with an understanding of ‘cleanliness’, which is tied to ideas of ‘purity’ and ‘Whiteness’ and the resulting radical implications of dirt. As Clark (2004, p.22) notes, at the Black Cat, and in punk culture more widely:

Hygiene operated as a code for sterility, automation, and alienation. Hygiene was associated with bleached teeth, cacingenetic chemicals, and freshly waxed cars. Hygiene was Leave it to Beaver and suburban fears of Colored bodies and minds... hygiene meant Whiteness; hygiene, as such, along with the project of Whiteness was rejected.

Punks at the Black Cat, like many of those involved in politically motivated forms of dumpster diving, are often from white middle-class families (Clark, 2004; Edwards and Mercer, 2007) and see eating food which is positioned “beyond the pale” (Clark, 2004 p.29) of ‘Whiteness’ as a way of demonstrating solidarity with other marginalized groups and critiquing the very power structures that have enabled them to voluntarily marginalize themselves (Clark, 2004; Shantz, 2005). This attitude is reminiscent of aspects of counterculture cuisine of the 1960’s and 1970’s where the valuing of ‘brown’ foods was linked to issues of race and a rejection of the mainstream “bleached-out mentality of white supremacy” (Belasco, 1989 p.48).

One of the many groups associated with the Black Cat, whose food politics can be seen to exemplify a ‘punk’ approach is Food Not Bombs, a radical (dis-) organization that overtly links food waste to war, poverty and injustice (Clark, 2004; Food Not Bombs, 2009). Food Not Bombs was established almost thirty years ago by a group of friends protesting the establishment of a nuclear facility at Seabrook, Massachusetts in the United States. Since then it has grown into a global grass-roots movement, with over 400 affiliated chapters operating all over the world with volunteers dedicated to reclaiming and distributing free food (Food Not Bombs, 2009). Around half of these are in the United States with others in over 50 countries including India, Australia, the United Kingdom, Greece, Holland, Mexico and New Zealand (Food Not Bombs, 2009). Food Not Bombs has no formal leadership or charter
and individual groups are free to make their own decisions about their specific activities, how they are structured and choosing which other groups to work with. Groups collect food which would otherwise be discarded (and in some cases already has been) and cook and serve vegetarian or vegan meals to share with whoever wants them in a public place (Edwards and Mercer, 2007; Food Not Bombs, 2009).

Edwards and Mercer (2007) look specifically at the politically motivated acts of urban foraging associated with the Food Not Bombs movement and dumpster diving in Australia. They focus on the ethical considerations to be found in the eating habits of, specifically, young people, who choose to source food from retailer’s refuse and open-market debris primarily for political, rather than economic, reasons. The majority of Edwards and Mercer’s (2007) data was gathered from semi-structured interviews with 30 individuals from two Australian capitals who were, or had previously been, involved with Food Not Bombs, or other politically motivated dumpster diving groups. Additional data came from ethnographic investigations of “associated freegan activities such as FNB food collection, serving and fundraising, ‘dumpster dinners’, warehouse parties, gleaning co-operatives, and activist events” (Edwards and Mercer, 2007 p.282). Edwards and Mercer (2007) frame their respondents as part of the interconnected youth subcultures of Food Not Bombs, Freeganism and dumpster diving. All of which can be seen to have emerged in response to the worst of the exploitative excesses and wastefulness of a globalized industrial food system.

The practical application of ideological beliefs was the main motivating factor for the dumpster diving of participants in this study (Edwards and Mercer, 2007). Like the Seattle punks at the Black Cat (Clark, 2004) and the foragers at the Croix-Rousse market in Lyon (Black, 2007), these young Australians viewed their practice as a form of protest against consumer society. They not only objected to the waste itself, but to the foundational tenets of the society that produced it (Rush, 2006). Other significant motivational factors noted were the social interactions and networks involved, and the pleasure participants gained from these activities (Edwards and Mercer, 2007).

For Edwards and Mercer (2007), the sociality of foraged food is noticeable in the way that many of the participants in their study became aware of issues around food wastage, as well as practical, politicized responses to these issues. They note that, for many, their first encounter with dumpster diving or Food Not Bombs came through friends, or a social event such as a Food Not Bombs serving (Edwards and Mercer, 2007). The ‘freegan’ philosophy, as well as forms of socialism and anarchism, is also an important factor in this sense of community. A common set of values combined with a recognisable ‘style’ allows those within the wider ‘scene’ of ‘DIY punk’ to counter the impracticalities and alienation of economic resistance by creating a community within which goods and skills can be traded (Edwards and Mercer,
Much of this community is again based around creative activities such as DIY music, ‘zine making, clothing reconstruction, or participation in independent media projects (ibid). Like dumpster diving, these creative pursuits demonstrate that it is possible to enjoy making a serious point and that enjoyment, and therefore happiness, is by no means predicated on participation in consumer society.

The term ‘freegan’ combines the words ‘free’ and ‘vegan’ and is often used in regard to those who limit their diets to what they can obtain for free, thus contributing as little as possible to the exploitation of not only animals, but the wider environment and humans, a practice which is seen to be central to a modern industrial diet (Edwards and Mercer, 2007). While diet is central to Freeganism, the philosophy also includes a wider vision of living not only “off the grid, but off of the excess that the grid produces” (Essig, 2002). This can be seen not only in dumpster diving and other forms of urban foraging, but also in the associated practice of squatting, where the house or building being inhabited is seen in the same light as food or other goods retrieved from their designation as rubbish. As one dumpster diver interviewed by Edwards and Mercer, (2007) put it, there is “definitely a correlation between dumpster diving and squatting – they’ve basically let the house become a bin... Thrown it away” (quoted in Edwards and Mercer, 2007 p.284).

Other issues explored by Edwards and Mercer (2007) include those connected on a more practical level with eating “garbage” (p.286). Participants in the study were not concerned by the possible health risks of eating food that had been discarded. Only one reported ever having been sick because of eating dumpstered food, and all had a range of strategies to avoid becoming unwell (Edwards and Mercer, 2007). These often included avoiding ‘high risk’ foods such as meat, eggs and dairy products, a strategy that also correlates with the predominance of vegan and vegetarian diets chosen by participants for ethical reasons (ibid). A constant awareness of the potential for contamination, along with an embedded attitude of self-reliance, were identified as leading to dumpster divers being adept in the art of identifying potentially harmful foods:

Rather than relying on use-by dates to tell them what food is edible and safe, freegans use their innate senses of touch, taste and smell. This attitude marks a conscious shift away from corporate control enabling the diver to reclaim a connection with their senses and to the natural world. (Edwards and Mercer, 2007, p.290)

Alongside this awareness were discourses that positively identified the health benefits of eating dumpstered food. Health concerns were often a contributing factor for the diets chosen by those interviewed, many of whom saw ‘mainstream’ food as being not only ethically questionable, but of low
nutritional value (Edwards and Mercer, 2007). One participant expressed this attitude saying that the food she ate was “at its point where it’s at its height in ripeness and it’s the most nutritionally good when the shops would throw it away” (quoted in Edwards and Mercer, 2007 p.286). The benefits of both a chemically patrolled understanding of hygiene and a ‘germ-free’ diet were also questioned.

Dumpster diving is generally seen as an urban activity, however there is also a long history of reclaiming discarded or forgotten food in rural situations. Today there are parts of the dumpster diving or freegan communities who maintain strong links with rural areas. They have been referred to as forming a ‘primitivist fringe’ (Gross, 2009) and in an Australian context are known as ‘forest ferrels’ (Edwards and Mercer, 2007). Many of these individuals live a largely itinerant lifestyle following seasonal and social pulls as they move between rural and urban areas (Edwards and Mercer, 2007; Gross, 2009). The desire to ‘opt-out’ of a society viewed as essentially exploitative along with the need to gain a degree of autonomy motivate many of those involved in dumpster diving (Rush, 2006; Renton, 2007; Clark, 2004; Edwards and Mercer, 2007; Gross, 2009; Black, 2006; Steel, 2008). A generation earlier, the ‘back-to-the-land’ movement saw young people, motivated by similar critiques of a consumer society, turning to a pastoral lifestyle. Gross (2009) examines the similarities between the foodways of these two ‘alternative agri-food movements’ as they exist in rural Oregon.

While conducting a qualitative research project on food insecurity in a low-income area in rural Oregon during 2004, Gross (2009) identified back-to-the-landers and freegans as two groups within the wider community who had “openly anti-capitalist… and non-mainstream food habits” (p.59). Those termed ‘back-to-the-landers’ were mostly in their fifties at the time of the study, many had moved to the area and purchased land during the 1970s. They were now established, active members of the community, though still seen by some as newcomers (Gross, 2009). Most lived on several acres of land with some livestock and large gardens and, had in the past, aimed at a level of self-sufficiency from their land (Gross, 2009). The freegans, on the other hand, were still in their twenties and were not permanent residents of the area (Gross, 2009). They lived transient lives and many other residents of the area were largely unaware of their presence. Subsisting on a range of foraged wild food (including butchered roadkill) supplemented by supplies gathered on dumpster diving expeditions to nearby towns, these freegans also valued self-sufficiency (Gross, 2009). Like back-to-the-landers they did however participate in the conventional food system from time to time, often drawing from government subsidies and preferring to consume the least commodified food options available including minimally processed and packaged ‘natural’ or organic food (Gross, 2009).
Social Histories of Waste

There are a number of authors who have constructed detailed and vivid social histories of waste. Some of these focus specifically on waste in its own right (Rodgers, 2005; Strasser, 1999) while others, such as Steel (2008), address its involvement as part of a wider project. Perhaps the most comprehensive and often quoted of these is Susan Strasser’s *Waste and Want: A Social History of Trash* (1999). In this work she traces American attitudes towards, and experiences of, trash over the last two hundred years.

Following a theme raised by Strasser, Rodgers’ focus is on the interrelation between waste and the rise of consumerism in the United States. Rodgers (2005) highlights the importance of discourses linking specific understandings of hygiene, disposability and ‘newness’ with ideas of moral responsibility and citizenship\(^2\). The intimate relationships between waste and multiple facets of modern life are highlighted when she describes garbage as:

…the text in which abundance is overwritten by decay and filth; natural substances rot next to art images on discarded plastic packaging; objects of superb design – the spent lightbulb or battery – lie among sanitary napkins and rancid meat scraps… Through waste we can read the logic of industrial society’s relationship to nature and human labour. Here it is, all at once, all mixed together: work, nature, land, production, consumption, the past and the future. (Rodgers, 2005 p.3)

The social history of waste, this time with an emphasis on Britain, is also an area fruitfully drawn on by O’Brien (2007) in his attempts to construct a sociology of waste. O’Brien (2007) begins his examination of waste in the United Kingdom at a much earlier stage than either Strasser (1999) or Rodgers (2005) do across the Atlantic. British streets between the reign of King John (1199-1216) and the Reformation in 1660, are described as literally awash with human and animal excrement combined with other household and commercial debris to form a stinking soup of refuse (O’Brien, 2007). Here the disposal of waste was immediate, chaotic and very public. The contents of chamber pots, along with any household food scraps, ashes and other debris that could not be traded, mended or reused, were flung from the windows of houses to mix with the droppings of the various animals that frequented them. In London, O’Brien (2007, p.13) notes, “The remaining entrails of the slaughter trade, mixed up with excrement, blood and bits of carcass, gathered along the bank of the Thames to be washed over the side at the next moderate rain”.

\(^2\) These also provide a link to Lucas (2002) and his discussion of moral economies of hygiene/thrift.
This method of approaching waste was not however, considered quite as anti-social as it seems today. However the popularity among the wealthy of strong perfumes to mask the general malodour of city life demonstrates that it was not always appreciated (O’Brien, 2007). The acceptance of this attitude to waste disposal can be seen to be partly due to the way in which the vast majority of this pre-industrial waste was ‘organic’ and, despite its general unpleasantness, much of it was seen as a precious resource (Steel, 2008). As Steel (2008) has noted in her discussion of the ways waste has helped to shape both the physical and social realities of city life, “the more a city stank, the richer it was deemed to be” (p.250).

Much of what was edible was consumed by roving swine and many cities employed ‘muck-rakers’ to collect the remaining debris from the streets (Steel, 2008; O’Brien 2007). In many large cities this was transported to what were known as ‘lay-stalls’ on the edges of the city to be matured into valuable compost, or delivered directly to market gardens, such as Neat House Gardens in Chelsea, where much of London’s fresh produce was grown. A similarly symbiotic situation existed in Paris and other major European cities (Steel, 2008).

As urban populations grew however, so did the quantities of waste produced. The supply of compostable waste and nightsoil in many places quickly began to outstrip demand, while the logistics of its collection and transport also became more complex. These factors combined to result in waste being viewed as a serious social concern and its perceived value being outweighed by growing negative connotations, particularly in terms of health (Steel, 2008). In many British cities, increasing quantities of waste was simply dumped into rivers; the Thames and the Fleet Rivers in London were particularly notorious (Steel, 2008; O’Brien, 2007). London was however by no means alone in terms of its ‘waste management strategies’. Observing the city of Manchester from a bridge over the River Irk, in the 1840’s, Engels noted:

Everywhere heaps of debris, refuse, and offal; standing pools for gutters, and a stench which alone would make it impossible for a human being in any degree civilized to live. (Engels, 1974, cited in O’Brien, 2007 p.19)

In stressing the often polluting, wasteful and ‘throwaway’ actions of previous generations O’Brien (2007) uses his historical examination of waste to problematize the ‘consumerism=waste’ (p.88) equation suggested by others, including Strasser (1999) and Rodgers (2005). For O’Brien (2007), many examinations of waste that draw from the idea of the contemporary ‘throwaway-society’, risk moralising rather than theorising in their haste to critique this approach and its analogous consumerism. He notes that:

To get hung up about a contemporary ‘crisis’ of post-consumption waste, rather than the injurious, degrading and so often fatal means by which consumer objects
are produced in the first place is to put a relatively small cart before a very large horse. (O’Brien, 2007 p.170)

Though it is not an overt focus, as it is for Strasser (1999), O’Brien’s sweeping social history of waste in the United Kingdom draws attention to the changing levels of public and private responsibility for different types of waste and the spheres in which forms of disposal, reuse or recycling have taken place. These changes are also a key theme in Chappells and Shove’s (1999) social history of the domestic dustbin in the United Kingdom. From the development of the ash pit privy to modern ‘wheelie’ and recycling bins, they use “dustbin technology as a conceptual framing device” to unpick the ways in which “the structure and form of the bin ‘dictates’ household waste practices” and the extent to which bins mediate between public and private worlds of responsibility (Chappells and Shove, 1999 p.268).

Culturally and Socially Categorising Waste

Whether waste is being discussed from a sociological (Packard, 1960; O’Brien, 2007; O’Brien, 1999), anthropological or archaeological (Drackner, 2005; Rathje and Murphy, 1992; Rathje, 1984), historical (Strasser, 1999) or journalistic (Stuart 2009) perspective, a source of commonality is its being viewed as both a dynamic and socially contingent category and as intimately connected to changing forms of consumerism. As Strasser notes, and as is aptly demonstrated by those who have looked at subcultural responses to food waste such as dumpster diving, “what counts as trash depends on who’s counting” (1999, p.3). Some of the most influential ideas in terms of theorising waste, and intimately connected to the idea of it as a subjective category, draw from the work of anthropologist Mary Douglas (1966).

Douglas famously investigated the ways in which objects become ‘dirty’ and argued that there is “no such thing as absolute dirt” (Douglas, 1966 p.2). Rather, she posited that it is the cultural habit of separating and categorising matter in an attempt to impose a comforting order that creates it. Thus dirt can be seen as “simply matter out of place: something which threatens to undermine our human sense of order” (Steel, 2008 p.263). For many, dirt and waste have been conceived of in similar ways and the ideas expounded by Douglas (1966) have been used as a starting point within contemporary discussions of waste where it can be seen as a dynamic and subjective (Reno, 2009; Thompson, 1979; Strasser, 1999; Drackner, 2005).

The idea of waste as a potentially valuable resource is one that is also raised by O’Brien in his discussion of waste in the cultural imagination. O’Brien (2007) draws from a number of literary texts to explore what he sees as “four important dimensions of the cultural imagination of waste” (O’Brien, 2007 p.36) and that demonstrates its socially contingent nature. Using four well-known English-language works
of literature and poetry where waste is a central theme to illustrate his point, O’Brien suggests “this imagination has undergone important historical changes” (O’Brien, 2007 p.36). For O’Brien these works are crucial in understanding not only the ways in which waste has changed in the popular imagination, but also how it is enmeshed in broader networks of both moral and sociological judgements.

O’Brien (2007) begins his exploration of the ‘cultural imagination of waste’ by looking at the way in which waste is represented in Charles Dickens’s novel, Our Mutual Friend, first published in 1865. In this epic tale, set among the ‘dust’ heaps of Victorian London waste, or ‘dust’ is a recurrent theme. For Dickens, through his portrayal of an array of virtuous and villainous characters and a series of actual and near deaths and rebirths, waste provides an evocative anchor for a grand cyclical narrative exposing the façade of Victorian social convention (O’Brien, 2007). In this tale, waste is portrayed as both the foundation of material life, and its unavoidable conclusion. Neither wholly positive nor negative, waste is “construed as valuable in financial, social and moral senses” (O’Brien, 2007 p.42), as well as potentially dangerous and corrupting. When viewed in either of these ways, waste is seen as possessing some form of value and, as O’Brien notes, Our Mutual Friend can be seen as “a moral fable about the essential ‘dustiness’ of life and the thin veneer that separates virtue from villainy, respectability from notoriety (O’Brien, 2007 p.43).

For O’Brien (2007), T.S. Elliot’s poem The Waste Land can be read as representing a distinctly modernist perspective on waste, one in which the value of waste viewed from Dickens’ Victorian perspective no longer exists and is replaced by a profound lack of value, a negative, an empty space. As O’Brien (2007) puts it, “Elliott understands the ‘waste’ in The Waste Land not as substance but as nothingness, as empty of value and merit, as the other side of certainty and solidity” (O’Brien, 2007 p.47). However, in spite of this difference, there are perhaps similarities in how the theme of waste is linked with characters that can be read as ‘hybrid’ or ‘in-between’, for example in Tiresius there is reference to the ‘Old man with wrinkled female breasts’ (Eliot, 1922) [Editor’s note: Section III, line 219, no page reference].

The next literary text O’Brien (2007) examines as representative of another sensibility towards waste is Philip K. Dick’s Do Androids Dream of Electric Sheep? (1968). This post-apocalyptic tale is set in San Francisco in 2021 where conditions have become so intolerable that most of Earth’s population has left to take refuge in space colonies. Those who, for a variety of reasons, must remain, conduct a constant and un-winnable battle against the ever-expanding waste of their decaying planet. Here, waste, known as ‘kipple’ and its ally ‘dust’, is not perceived as either a potentially valuable resource or as a negation or lack, but rather as an ever-present threat, “both naturally inevitable and, at the same time, human-induced”
(O’Brien, 2007 p.49). In this story dust, ‘kipple’ or waste are not imbued with a sense of redemptive moral value as they were for Dickens, nor a lack as for Elliot; rather in Dick’s novel ‘kipple’ and dust are “are far too potent and invasive to be nothingness” (O’Brien, 2007 p.51).

While O’Brien looks at the different ways that waste has been portrayed in English language literature in a chronological manner, he also notes that they are not necessarily discrete; elements of each of these visions of waste continue to be influential today in the cultural imagination.

**Waste and Consumerism**

As we have seen a perceived ‘crisis’ of waste linked to a rise in consumerism has provided the impetus for much of the literature on waste that has emerged in recent years. Murray’s work (1999) can be seen as another example of this with his focus on the political economy of waste and on “redesigning the ‘waste economy’ to encourage zero waste” (cited in O’Brien, 2007 p.84). Tammamagi (1999) concentrates on the ways in which changes in waste patterns necessitate new technologies and the development of infrastructure to meet the changing demands of waste management. He identifies consumerism and the existence of a ‘chemical age’ as the two major developments affecting waste that have taken place in the decades following the second World War. These he notes have led to a significant increase in the amount of post-consumer waste generated, as well as to problems associated with its disposal and management. For Tammamagi (1999) it is these dual “problems of quantity and hazard” that “have combined to make post-consumer waste a critical problem for all industrialized societies” (O’Brien, 2007 p.85).

Tammamagi’s (1999) position, particularly in its emphasis on the increased quantity of post-consumer waste being produced in recent decades, echoes Gandy (1993). This evaluation of the social and cultural pressures that have contributed to the growth of a waste crisis concentrate on post-consumer waste at the expense of industrial, or production-based waste, while stressing its historically specific nature and links to the rise of consumerism.

The post-war period has seen a dramatic increase in the production of waste, reflecting unprecedented global levels of economic activity. The increase in the waste stream can be attributed to a number of factors: rising levels of affluence; cheaper consumer products; the advent of built in obsolescence and shorter product life-cycles; the proliferation of packaging; changing patterns of taste and consumption and the demand for convenience products. (Gandy, 1993 p.31 cited in O’Brien, 2007 p.85-86)
Actor-Network Theory and Waste

Like Tammamagi (1999) and Gandy (1993), Fagan (2002; 2003), Murray and Fagan (2005) links the growth of consumerism to a growing waste crisis (2003). Focusing on the role of different modes of governance and infrastructure for addressing problems associated with managing this situation, she also advances a network perspective for understanding ‘flows’ of waste and situating it as a “result of a complex global, national, local and individual set of processes” (Fagan, 2003 p.67). Drawing from a government-led empirical study in Ireland in the late 1990’s, instances of local resistance to national waste management programs and the international trade in toxic waste, she examines the importance of networks of governance and attitudes to waste and waste management (Fagan, 2002; 2005).

For Fagan (2002), a ‘network approach’, drawn from Actor-network theory provides one possible framework within which to build a sociology of waste. Actor-network theory sees the social as a circulating entity (Latour, 1997), a process of interactive effects consisting of not only human but also material forms (Fagan, 2002). Actor-network theory is based on the work of Latour, Callon and Law (Thompson and Cupples, 2008). As a theoretical approach it seeks new ways of explaining the multiple and heterogeneous relationships that exist between humans, non-human life, forms, concepts, texts and objects. Previously oppositional poles such as nature/culture, micro/macro or local/global are bypassed and ‘the social’ becomes a process viewed as a constantly circulating entity (Latour, 1997). Importantly, for discussions on waste in general and food waste in particular, the interrelationship between microbial life and human life can thus be understood as part of this process. This is due to the way in which Actor-network theory posits that nature and culture cannot be understood separately or analysed in isolation from each other. Rather, it argues that they must be assessed ‘symmetrically’, using the same criteria (Enticott, 2007).

An important aspect of this approach is extending the potential for agency from resting solely with human actors to include nonhuman, material and conceptual ‘actants’. This approach allows a theoretical space for hybridity, something dualistic interpretations tend to suppress (Thompson and Cupples, 2008) and enables an analysis that has the potential to account for important, and previously invisible ‘actants’ within the multiple and heterogeneous networks involved with food waste and offering one possible model with which to approach the topic.

This perspective is utilized by Fagan (2002) as a way incorporating a relational materialism into an analysis of the global waste economy and forms of waste governance in Ireland. Fagan argues that drawing from the insights of actor-network theory allows both waste itself and the process of ‘wasting’ to be viewed as “a material outcome of social relations” (Fagan, 2002 p.6).
Gille (2010) draws from Actor-network theory in her construction of the concept of ‘waste regimes’. This is described as “a macrotheoretical framework of the waste-society relationship” utilising both “the Marxist conception of the mode of production and… Actor-network theory’s concept of actor networks, collectives, or sociomaterial assemblages” (Gille 2010, p.1051). For Gille (2010) a network approach allows a focus on the “material concreteness” (p.1051) of waste and the processes of its “becoming”, along with its “socially generative capacities” (p.1050). These are important to Gille (2010) who sees that Marxist-inspired and other ‘macro’ approaches to waste have “appended waste to existing macro concepts with the result of reifying it” [Editor’s note: possible misquote] (p1053). However, she also notes that alone, a network approach’s insistence on the ‘flatness’ of the social field risks ignoring macro level issues of power, something she argues can be constructively avoided by retaining the macro-micro distinction found in Marxist analysis.

To illustrate her concept of ‘waste regimes’, Gille (2010) uses empirical research on the history of waste in Hungary between 1945 and the present. Gille identifies three waste regimes that have been dominant in Hungary during this time period and categorizes these as “the metallic regime (1948 – 74); the efficiency regime (1975 – 84); and the chemical regime (1985 – present)” (Gille, 2010 p.1056). During each of these regimes, waste is seen by Gille (2010) as being understood in different ways. First, as a valuable resource, then as a cost of production, and finally, as a source of potential harm. These changes can be seen as intricately tied to a range of broader social and economic factors but also to have happened without significant change in the dominant form of ownership.

Conclusion

How then does the diverse body of literature surrounding the topic suggest how we might begin to consider this area from a sociological perspective? Quantitative discourses seem to leave little doubt that significant quantities of food are currently being discarded both in domestic settings and across food systems. It also seems highly likely that the economic and environmental consequences of this will become increasingly important as concerns about climate change and food security continue to occupy popular and academic imaginations. Aside from tantalising insights offered by the qualitative enquiries of Gregson et al. (2007) and more recently Evans (2011; 2012), little is suggested by the diverse literatures examining the ways in which social practices respond to food becoming waste, or food as waste, in an everyday context. The only well-defined cultural responses recorded, that of dumpster diving and associated forms of urban foraging, are marginalized practices undertaken by a tiny minority.
As I have noted above, one perspective offered in the literature on the way in which this unresolved area of food waste theorising could be fruitfully approached emphasizes the liminal nature of both waste and food. The Actor-network theory model highlights the way in which the politics surrounding food waste is hard to stabilize due to the multiple boundaries it operates across, both as ‘food’ and as ‘waste’. It is found in a variety of different aspects of the literature from Douglas’ early insights to O’Brien’s analysis of waste as portrayed in the world of fiction and notable works by authors including Black and Clark, which examine Freeganism and dumpster diving. Authors such as Gille and Fagan also contribute to this perspective with the influence of Actor-network theory in their analysis.

Gille’s work is another possible model offered by the diverse literatures surrounding the topic. His perspective is one that emphasizes the links between different understandings of value and how these interact with processes of consumption and power dynamics, which in turn keep these links largely hidden and frustrate attempts to construct coherent responses to the situation. This can be found in the Australia Institute’s report, a work which talks about how structural features both hide and encourage a profligate attitude to food.3

Popular discourse around food waste, like Stuart (2009) and Bloom [Editor’s note: Bloom not in References ] and the ‘throwaway society’ thesis, also Strasser (1999) and social histories, offer another possible framework to theorize waste. Aspects of the literature that focus on the multiple ways in which waste has been understood in different historical periods, suggests that social practices associated with waste are contingent on these understandings.

3 See popular discourses as well as theorisations like Bauman, which are critiqued by O’Brien (2007) and Evans (2011; 2012) as exponents of a ‘throwaway society’ thesis.
METHODS

As previously noted in this thesis, in addition to outlining existing literature broadly related to the topic of household food waste, I will draw on data generated in a mixed methods research project focusing on the perceptions and experiences of the household food waste of residents from the Dunedin area. A questionnaire was used to gather preliminary quantitative data and source participants for the following stages of the project that consisted of two focus group discussions centred on participant-generated photographs. This project moved away from attempts to measure household food waste as seen in much of the existing literature on domestic food waste. Instead, it focused on how food ‘wastage’ is understood and dealt with on an everyday level, and on peoples’ perceptions as to why food is ‘wasted’.

In this chapter I will outline the steps taken to obtain and analyse the data gathered in this project, alongside epistemological and methodological support for the strategies employed. I will begin with a brief discussion of the epistemological assumptions that underpin mixed methods research, and are broadly associated with it. I will then note how ethical considerations were embedded in the research design. I will continue by detailing the processes undertaken to collect and analyse both questionnaire and focus group data, explain the choices made, and note how issues of credibility or ‘legitimacy’ were approached. The chapter will conclude by outlining strengths and limitations of the research.

Purpose of the research

The project aimed to explore some of the ways in which people think and act in relation to household food waste, and connect attitudes and practices in an attempt to build a greater understanding of behaviours around food disposal and ‘wastage’ in a domestic, New Zealand, context. This broad objective was further refined in a series of guiding research questions.

• What types of food do people believe they most commonly waste?
• Why do people believe food is wasted in their homes?
• How do people feel about food waste in the context of their homes?
• Where do people get information to help them make choices about what food they keep and eat, and what food they dispose of?

An interest in individual views and the context in which they are generated, expressed and acted upon, was central to the project and can be seen as broadly consistent with the stance of Constructionism (Creswell, 2008; Crotty, 1998).
Epistemology

Underpinning any social research are certain epistemological assumptions. Although largely ‘hidden’ in much social science research (Slife and Williams, 1995), they are nonetheless highly influential in the design and practice of any research project and need to be identified and addressed. These often unspoken assumptions lie at the heart of what the research process seeks to gain, and inform decisions about exactly how it progresses. They inform its theoretical foundations, the methodological traditions from which it draws, and therefore, the practical methods chosen to both generate and understand data. Crotty (1998) identifies three broad epistemological stances found behind social science research – Objectivism, Constructionism and Subjectivism. He also notes, however, that each of these also has its own variants, and that the ways in which the terms, particularly Constructionism and Subjectivism, are used are not always consistent or clear-cut (Crotty, 1998).

A Constructionist approach emphasizes understandings of participants’ perceptions, feelings and values in relation to the area of investigation. As Crotty (1998) notes, Constructionism claims that “meanings are constructed by human beings as they engage with the world they are interpreting,” (p.43) and can be defined as a viewpoint from which:

all knowledge, and therefore all meaningful reality as such, is contingent upon human practices, being constructed in and out of interaction between human beings and their world, and developed and transmitted within an essentially social context. (p.42)

Constructionism thus shuns the positivist or objectivist stance that see knowledge and meaning as existing in an eternally a priori process, but also denies a radically subjectivist stance, which sees meaning as created purely in the mind of a human subject.

At their most extreme, quantitative and qualitative approaches to social science research can be broadly associated with a Positivist or Objectivist standpoint on the one hand, and a Subjective or Constructionist one on the other. As Crotty (1998) has noted, however, “the distinction between qualitative and quantitative research occurs at the level of methods” (p.14) not at that of epistemology. Thus, it is possible to approach qualitative data from a positivist point of view and quantitative data from a highly subjectivist position. Taken further, this can be seen to suggest that “both qualitative and quantitative methods may be used appropriately with any research paradigm” (Guba and Lincoln, 1994 p.105).
In the research process that formed the basis of this thesis the broad epistemological position taken was that of Constructionism. This is reflected in the use of focus groups due to their ability to highlight the importance of interaction to meaning making and the context in which social practices are enacted. The questionnaire, which formed the initial stage of the project, can, however, be seen as more consistent with a post-positivist stance. This apparent contradiction is in agreement with Creswell and Plano Clark (2011) when they noted that, within a mixed methods project, a single epistemological stance, or ‘worldview’, is not always maintained throughout all stages of a project.

This inconsistent stance is a typical, if contested, aspect of mixed methods research and has led to an association of Pragmatism, which also shares ties to Constructionism (Crotty, 1998) as the epistemological stance most appropriate to mixed methods research (see Tashakkori and Teddlie, 2003; Johnson, et al., 2007; Maxcy, 2003). For example, Maxcy (2003) presents a discussion on the compatibility of mixed methods research and Pragmatism and the links between the two. He traces the philosophical roots of Pragmatism back to the work of John Dewy, among others, and notes, “there was a sympathetic challenging by these pragmatists of the singular notion that social science inquiry was able to access the ‘real world’ solely by virtue of a single ‘scientific method’ ” (p.52). Tashakkori and Teddlie (2003) note that Pragmatism offers a “very practical and applied research philosophy” (p.21), one that largely avoids the use of metaphysical concepts and rejects the need to choose between oppositional epistemological positions. They go on to explain that this is possible due to accepting a “dictatorship of the research question” (ibid) where the researcher is guided not by an underlying paradigm but by the best possible way to investigate the research problem as it stands at any given point of the research process.

**Mixed Methods Research**

Throughout the history of social science research researchers have employed a wide range of methods to collect different types of data. As has been noted, these differing methods have often been associated with different types of knowledge claims and distilled into qualitative and quantitative research traditions. Since the late 1980’s a variety of approaches to combining methods and approaches from both these traditions have gained increasing recognition and opened up a ‘third place’, bridging these often oppositional positions (Johnson, et al., 2007). This approach has been described as having come of age (Creswell, 2011) over the last two decades and being an approach whose time has come (Johnson and Onwuegbuzie, 2004). This ‘third’ position has been referred to using a number of different terms including: integrative research (Johnson and Onwuegbuzie, 2004), mixed research, multi-method research and blended research, though it is most commonly referred to as mixed methods or mixed methodology research (Johnson, 2006) [Editor’s note: citation missing].
According to Johnson et al. (2007) this type of research occurs when a researcher or research team combines elements traditionally associated with both qualitative and quantitative approaches in a single investigation. This is done in order to enhance both breadth and depth of understanding, explore trends for further investigation, gain corroboration of findings or to triangulate findings from one research strand with those in another (Creswell, 2008; Angell and Townsend, 2011). The desire to use methods from both qualitative and quantitative traditions can be seen to have stemmed from a recognition that all methods have certain limitations and biases. Accompanying this recognition was the possibility that by combining methods from previously opposing traditions, the weaknesses of each might be mitigated by the strengths of the other, leading to a more robust assessment of the research problem at hand (Johnson, et al., 2007).

Mixed methods research can take a number of different forms with the ‘mixing’ occurring at different stages of the research process and different types of data being given more or less prominence in the generation of an overall meta-inference (Creswell and Tashakkori, 2007; Angell and Townsend, 2011). Creswell and Tashakkori (2007) have noted that researchers have come to mixed methods research from a number of different perspectives, which in turn emphasize different aspects of the research process. Thus, mixed methods research designs can vary greatly with differences occurring in a number of aspects. These include: the epistemological and theoretical position taken, the number of methodological approaches used, the number and type of instruments employed, the number of research strands and phases, the level of interaction between data strands, the relative levels of priority given to these different strands, the timing of collection and analysis of each strand, and the point or points in the process at which strands are merged (Creswell and Tashakkori, 2007; Teddlie and Tashakkori, 2006).

Taking into account this diversity, several authors have constructed typologies of the ways in which mixed methods designs are most commonly used. Following Creswell and Plano Clark (2011), Angell and Townsend (2011) propose that there are four main forms of mixed-methods design: convergent parallel, explanatory sequential, exploratory sequential, and embedded. Using what they refer to as the ‘Methods-Strands Matrix’, Teddlie and Tashakkori (2006) also identify four ‘families’ of mixed methods research design: sequential, concurrent, conversion, and fully integrated. They also caution however that no typology of mixed methods research design can be expected to be exhaustive, an opinion echoed by Maxwell and Loomis (2003) in their comment that “the actual diversity in mixed methods studies is far greater than any typology can adequately encompass” (p.244).

The design of the project on which this thesis is based used triangulation as a key component and is broadly consistent with a sequential mixed methods design. Integration of data strands occurred during two main phases of the project. Initial results from the quantitative data strand helped refine the research
questions addressed in the qualitative phase that followed. Results from the qualitative strand helped inform further analysis of the quantitative data and the results from both strands were linked to generate overall meta-inferences by employing a recursive process of analysis, the details of which are outlined in relation to each data strand. This design was chosen as it was felt that it gave the best opportunities for utilisation of the data collected and also for triangulation of inferences to enhance rigour.

**Questionnaire**

The first data strand in this project was generated using a self-administered questionnaire. Collecting data using some form of survey is a long established technique primarily associated with a Positivist, Objectivist, stance at an epistemological level and, at the level of methods, positioned within a quantitative research paradigm (Crotty, 1998). Survey data can be collected using a number of different instruments, but questionnaires are one of the most commonly used (De Vaus, 1986). Responses fit into categories determined in advance by the researches and are frequently analysed in order to find frequencies and correlations between variables (Babbie, 2010). The data generated are usually numeric in character and aim to demonstrate trends that are generalizable to the population from which the sample was drawn (De Vaus, 1986). In the area of food waste research, both the WRAP study in the United Kingdom [Editor's note: see previous footnote] and the Australia Institute study (2010) [Editor's note: citation missing] are examples where data has been collected using various forms of survey, including questionnaires.

The content of the questionnaire used in this project was generated using the core research questions of the project and also drew from surveys used by other researchers working in the area, particularly that which formed the basis of the WRAP [Editor's note: see previous footnote] study in the United Kingdom. The questionnaire was constructed according to recommendations put forward by Babbie (2010) and Fink (1995). These included:

- Choose appropriate question forms
- Make items clear and unambiguous
- Avoid double-barrelled questions
- Avoid negative and over complex items
- Avoid loaded or biased terms

The questionnaire began with questions relating to demographics and living situation. It then asked about the respondents' food shopping habits using a Likert scale format where respondents were asked to rate statements on a scale of one to five according to how typical they were for them. Food use habits were the next theme addressed in the questionnaire. In this section respondents were asked about adherence to use-by and best-before dates, as well as household meal habits and attitudes to leftovers. This was done using
a combination of Likert scales, open-ended and multiple-choice questions. Using the same combination of question forms, respondents were then asked about the ways in which they disposed of unwanted food or kitchen waste, the most common types of waste in their households, and how they felt about throwing food away.

Again, following the recommendations of Babbie (2010), the questionnaires were pilot-tested before being used. Three individuals with minimal knowledge of the research project, but who were all involved in food shopping and preparation for their households, completed the draft forms of the surveys and gave feedback to the researcher. As a result, several questions were reworded for clarity and an assessment was made of how long it would take for respondents to fill in the survey; the time was found to be around seven minutes.

Four supermarkets in the Dunedin area were chosen as sites from which to distribute the questionnaires. These outlets were selected on the basis of being representative of the four major supermarket chains operating in the South Island and their locations across the city. This was seen as a way to gain access to shoppers from a variety of suburbs with substantially different socio-economic and political characteristics. It was decided that while not representative of the population as a whole, targeting shoppers would be the best way to gain access to people who were at least partially responsible for household food management. This technique is referred to as purposive or non-probability sampling, one that Maxwell (1997 p.87, cited in Teddlie and Yu, 2007 p.77) has defined as a form of sampling where “particular settings, persons, or events are deliberately selected for the important information they can provide”. As this quote infers, it is regarded as particularly useful in situations where knowledge of a relatively specific topic or set of behaviours is desired (Babbie, 2010; Gomm, 2004; Teddlie and Yu, 2007), as was the case in this project.

Supermarket managers were initially contacted by telephone and then spoken to in person by the researcher in order to gain permission to recruit participants from among their customers. Managers were shown copies of the questionnaires and informed of the objective of the research. Three of the four supermarkets contacted were extremely positive about the research and gave unlimited permission for the project to go ahead on their premises. The fourth had some reservations about how their customers would respond and specified times when it would and would not allow the researcher to recruit respondents.

Shoppers completed questionnaires as they left the selected supermarkets. At each supermarket, surveys were collected at the same two times of day, one morning and one afternoon, on the same two days of the week over a four-week period. The different time periods and days of the week were again
selected as a way of gaining access to a wide range of participants and, in the interests of consistency, were chosen to comply with the fourth supermarket’s requirements on timing. In total, 153 questionnaires were completed, one of which was discarded, as it was illegible, leaving 152 completed questionnaires that were analysed (n=152).

Responses to open questions were manually coded into representative categories before the data gained from questionnaire responses were inputted into SPSS 19.0. Frequencies and descriptive statistics were then generated. A combination of T-tests, Chi-square tests and One-way ANOVA were used with correlations performed with significance set at .05 (Tabachnick and Fidell, 2001). Correlations were performed in order to explore the potential nature of any relationships that might point towards fruitful areas for investigation in further aspects of the project. Due to the relatively small sample size (n=152) and the predominance of older, female respondents from lower-income households, some correlations which were not statistically significant, but which approached significance, are still noted in the results section of this thesis and contributed to overall inferences and themes addressed in the focus group discussions.

Questionnaires were chosen as a component of the research project for three main reasons. Firstly, as the topic area is one on which relatively little literature exists, especially in a New Zealand context, it enabled a broad range of data to be collected from a larger sample than would have been practical using qualitative inquiry alone. Secondly, they provided the researcher with a degree of insight into broad trends in the research area that could be built on in the qualitative strand of the project. They also allowed access to a sample from which to draw participants for the subsequent aspects of the research project.

At the conclusion of the questionnaire provision was made for participants to leave contact details if they were interested in taking part in further aspects of the research project. A total of 12 respondents left their details. Of these 12, the researcher was unable to make contact with four within the required time period, one had left the region, one was unwell and two felt that they did not have the time to take part in the project. The remaining four took part in the final stages of the research (n=4).

As well as providing preliminary data in the form of questionnaire responses and the sample from which to draw participants for subsequent stages of the research, the unexpected advantages of distributing the questionnaires were the conversations the researcher was able to have with shoppers. In these conversations the most common themes were the many definitions of what would constitute food ‘waste’, the taken-for-granted nature of food disposal and ‘wastage’, the often-conflicting feelings of guilt and
unavoidability associated with the topic. These conversations further informed the themes that were addressed in the focus group discussions.

**Focus groups**

The second data strand in this project consisted of qualitative data generated in focus group discussions. Focus groups were traditionally the domain of market researchers and, more recently, political strategists. Over the last two decades however, they have become increasingly popular in social science research (Barbour and Kitzinger, 1999; Parker and Titter, 2006). As a means of data collection, focus groups are valued for their ability to help researchers to explore the ways in which a range of perspectives, practices or behaviours are built and lived through with an emphasis on social interaction and dynamics (McLafferty, 2004) [Editor’s note: title missing from Reference list]. Focus groups have been noted as being “particularly suited to the study of attitudes and experiences around specific topics” (Barbour and Kitzinger, 1999 p.5). This view is echoed by Punch (2005), who proposes that focus groups create an opportunity for participants to express their views, perceptions and motives in relation to the research area. Stewart et al. (2007) also note that focus groups can be particularly useful when investigating topics where there is little existing research and, indeed, that one of the most common purposes of the focus group “is to provide an in-depth exploration of a topic about which little is known” (p.109). These focus group characteristics offered an attractive instrument for use in this project.

Barbour and Kitzinger (1999, p.4) have defined focus groups as being distinguished by the importance of interaction and their ‘focus’.

Crucially, focus groups are distinguished from the broader category of group interviews by the explicit use of group interaction to generate data. Instead of asking questions of each person in turn, focus group researchers encourage participants to talk to one another: asking questions, exchanging anecdotes, and commenting on each other’s experiences and points of view. (p.4)

This was very much the case in the discussions that formed the basis of this project. Participants were eager to learn how their habits in relation to food waste and disposal were similar to, and different from, other people, in order to share the tips on strategies they employed to avoid waste and stories about the habits of family members and friends. Participants were not asked questions in turn; rather the discussion was ‘focused’ around the following broad questions and sets of photographs that the participants had taken over the week preceding the discussion:

- What types of food waste are common in your household?
- Why do you think food wastage happens?
• How do you feel if food is wasted in your household?
• Where do you get your ideas that help you make choices about what you throw away and what you keep or use?

This approach encouraged participants to share their thoughts and to have thought about their opinions on the topic in their own time; this meant they came to the discussion with a clear idea of what was going to be discussed. It also fits with Barbour and Kitzinger’s (1999) definition of a focus group as requiring a ‘focus’.

Focus groups are group discussions exploring a specific set of issues. The group is ‘focused’ in that it involves some kind of collective activity – such as viewing a video, examining a single health promotion message, or simply debating a set of questions. (p.4)

As well as being used as a stand-alone method, focus groups have been used extensively in combination with other methods, including surveys and a variety of visual methods (Wang and Redwood-Jones, 2001; McLafferty, 2004). The four participants in the final stages of the project were each given a small disposable camera by the researcher and asked to take photographs of anything in their lives that they felt related to the topic of ‘household food waste’. A week later, the researcher collected the cameras, processed the film and returned the photographs to the participants, who then chose up to five photographs to bring to the focus group discussion.

This approach has similarities to the community-based research technique known as photovoice (Wang and Burris, 1997; Wang, et al., 2004; Castleden, et al., 2008). Photovoice exemplifies a collaborative approach between researcher and participants where the process of image creation is used to dissolve and confuse these boundaries. It was first developed by Wang et al. (2000) and used in a large-scale needs assessment with village women in rural Yunnan Province in China as part of a Women’s Reproductive Health and Development Program. It provides participants with cameras to create a visual record of their realities, which then act as a catalyst to group discussion. The process aims to enable participants to determine both the subject and meaning of their photographs and draws from Paulo Freire’s critical pedagogy (Shor, 1993; Wang and Burris, 1997).

This lineage is understood particularly through the notion that visual images hold a special place in identifying thematic concerns and stimulating discussion (Carlson, et al., 2006; Wang and Redwood-Jones, 2001). Thus images act as a focal point to enable group discussion and introspection and open a space where otherwise unseen or unheard narratives might take shape (Wang and Redwood-Jones, 2001).
A technique similar to that labelled photovoice was also used in a study of homeless people's use of public space (Johnsen, et al., 2007) where the authors argue that participant photography provided the opportunity for "additional and more nuanced insights" (p.195) than would have been available through the use of a more 'traditional' method of enquiry, such as focus groups, alone (ibid). It can also be seen to be particularly valuable in that it encourages participants to direct discussion and pursue their own priorities. The suitability of focus groups to being paired with visual aids in this manner was another reason they were chosen as an instrument in this project.

Initially, one or two focus groups with between six and twelve participants each had been planned; this was in accordance with recommendations in the literature (Barbour and Kitzinger 1999; Stewart, et al., 2007). Due to the relatively low response rate after the survey it was decided that a single focus group with four participants would be suitable considering the scope of the study. On the day of the planned focus group, due to unforeseen circumstances, only two of the four participants were able to attend. Thus, in the end, this project consisted of two groups with two participants, the researcher (acting as moderator), and a note taker who ensured the recording equipment was operating and took written notes on aspects of the discussion, such as body language and facial expressions that would not be captured in the recording.

While the group size was smaller than would have been ideal, the discussions still fitted with Kitzinger and Barbour's (1999) definition of a focus group in terms of both 'focus' and 'interaction'. The use of key questions and the participant’s photographs acted as a focus to discussions and, in spite of the small number of participants, interaction between them was vital to the data generated. Participants asked each other numerous questions and exchanged anecdotes and ideas. The small number of individuals involved had the advantage that each participant was able to express their ideas and establish significant rapport within the encounter, despite the limited time available.

The recordings of the focus group discussions were transcribed and merged with the written notes that had been taken pertaining to body language and facial expressions. At this stage no alterations were made to account for grammar or incomplete statements in order to preserve the flow of discussions (Stewart, et al., 2007). The transcripts were then manually coded into themes by reading and re-reading in order to identify recurring patterns and topics of discussion as well as their relationships to the research questions. Quotes and phrases representing these topics and patterns were then recorded and sorted to further refine the categories (Bogdan and Biklen, 2003). At this point in the analysis the data from the initial quantitative strand were compared to that from the focus groups and the themes emerging were further refined through a process of triangulation.
Triangulation and Legitimacy

Issues of validity or authenticity are important to any research and are closely tied to the ways in which the quality of research is judged. The way in which quality has been assessed and ensured has, however, differed greatly between quantitative and qualitative research traditions (Onwuegbuzie and Johnson, 2006; Babbie, 2010). In quantitative research concepts such as validity, generalizability, reliability and objectivity are common and reflect the links of this tradition to an Objectivist epistemology. In qualitative research, these are replaced by ideas around authenticity, credibility, transferability and dependability (Onwuegbuzie and Johnson, 2006; Lincoln and Guba, 1985), in turn reflecting more plural understandings of reality in line with a constructionist standpoint. Reflecting the potential conflict between these terms, Onwuegbuzie and Johnson (2006) propose than when addressing issues of validity or credibility in relation to mixed methods research, the term legitimation must be used “in order to use a bilingual nomenclature” (p.48).

Triangulation, with its use of multiple data strands to give legitimacy to findings, has become central to much mixed methods research (Johnson, et al., 2007). It would seem intuitive to assume triangulation involving three data strands; however, triangulation occurs when only two methods are used to inform a third position or inference (Denzin 1978). The concept has its origins in Campbell and Fiske’s 1959 article (cited in Johnson, et al., 2007) where they described ‘multiple operationalism’ as one way to enhance validity. This was expanded upon, and the term ‘triangulation’ first employed by Webb et al. (1966) [Editor’s note: citation missing] while Denzin (1978) is credited as the first to outline how to triangulate methods (Johnson, et al., 2007). According to Denzin (1978), triangulation could enhance the legitimacy of a study because “the bias inherent in any particular data source, investigators, and, particularly, method, will be cancelled out when used in conjunction with other data sources, investigators, and methods” (p.14).

In this research project, triangulation was central to the integration of qualitative and quantitative data strands. The detailed descriptions and stories which arose in the focus group discussions, alongside the manner in which participants positioned themselves in relation to the topic and each other, helped give context to the trends which had emerged in the earlier quantitative data. Analysis developed through an iterative process of comparison between the two data strands that were continued until no new themes emerged. It was also through this process that the researcher hoped to ensure rigour and legitimacy (Onwuegbuzie and Johnson, 2006).
Ethical Considerations

Regardless of the approach taken, any research involving human participants involves a variety of ethical considerations. There were several practical steps embedded in this research design to satisfy best ethical practice. Before research began, a proposal outlining the intended rationale and methods for the project was submitted to the University of Otago Ethics Committee for consideration and was subsequently accepted.

The surveys which formed the preliminary stage of the project were anonymous, thus consent forms were not signed and participation was taken as consent. Respondents were also offered the opportunity to ask questions or view a more detailed information sheet. Participants in the remainder of the project were given an information sheet and each signed a consent form. The information sheet outlined their ability to withdraw from the project at any point and gave them guidelines for their responsibilities in relation to taking photographs and participating in a focus group. For ethical reasons, they were asked not to take photographs of people, or to include any identifying features (such as written names or addresses) in their photographs. These responsibilities were also informally discussed with each participant when they were given their camera and at the beginning of the focus groups. Participants were also provided with contact details for both the researcher and her supervisor so they could ask questions or raise concerns separately.

In writing up the results of this project every care has been taken not to identify individual participants and to represent their ideas honestly. To this end it was important to the researcher to present the actual voices of the participants in the form of direct quotes. Although some quotes have been edited or condensed to a minimal degree for clarity and to maintain participant confidentiality; and while the researcher has retained ultimate control over how these quotes have been framed and interpreted by incorporating them into the final thesis, it is hoped that, to some degree, the participants are able to maintain their presence. It has been noted that an awareness of ethical issues associated with social science research involving human participants is vital, and that complying with external ethical review and embracing the concept of reflexivity can help to mitigate potential ethical dilemmas and enable researchers to avoid ethical pitfalls (Gillies and Alldred, 2002). This can, so far be regarded as the case in relation to this project.

Strengths and limitations of the research

Employing a mixed methods design allowed the research to generate statistical data, while also allowing for a richer understanding of the social practices involved in the generation of food waste to be gained through qualitative analysis of the focus group discussions. A mixed methods design also allowed for thematic concerns arising from analysis of the survey data to be triangulated through the focus group
data to provide a better understanding of the research questions and enhance rigor (Sandelowski, 2000).

While the mixed methods nature of the research provided beneficial breadth and depth to the data generated, it can also be seen to have contributed to some of the limitations of the research. As has been noted by several researchers employing mixed methods approaches (see for example Anaf and Sheppard, 2007; Creswell and Plano Clark, 2011; Collins and O’Cathain, 2009; Onwuegbuzie, et al., 2009) there are a number of both theoretical and practical challenges associated, particularly for the novice researcher.

In terms of theoretical considerations, a challenge arises when attempting to synthesize “the seemingly disparate features of qualitative and quantitative paradigms into a robust research design” (Anaf and Sheppard, 2007 p.186). In this project, rather than literally ‘mixing’ a strictly qualitative with a quantitative approach, the two strands of data acted in a collaborative manner to address the research questions. This helped to mitigate this challenge.

Practical challenges of employing a mixed methods research design arise in relation to the amount of time and variety of skills required to conduct a research project with more than one form of data collection and analysis, alongside the need to link these data strands in a meaningful way (Anaf and Sheppard, 2007; Collins and O’Cathain, 2009; Onwuegbuzie, et al., 2009). In this project these practical considerations came to the fore in relation to the time and budgetary constraints associated with conducting a research project for a Masters thesis. It was also the first time the researcher had had practical experience of mixed methods research or of employing the individual instruments used to collect the qualitative or quantitative data strands. The results of this inexperience included some weaknesses in the questionnaire design and in follow up questioning during the focus groups, both of which would have had an impact on the data generated.

The sample used for both strands of the research limits the extent to which the inferences drawn in this thesis can be generalized to the broader population due to a number of factors. As has been noted, participants were recruited using purposive sampling in order to gain access to those with knowledge of their households’ food management practices. Participants were also self-selected which can lead to a predominance of those with a special interest in the topic (Babbie, 2010). Due to the exploratory and mixed methods nature of the project, and as has been previously noted, some correlations which were not statistically significant but which approached significance, have contributed to overall inferences. The sample used in the qualitative strand of the project was also smaller than would have been ideal (n=4) in relation to the size of the initial quantitative strand (n=152) (Onwuegbuzie, et al., 2009).
There is an increasingly recognized need for more research on domestic food waste patterns in New Zealand. With the exception of limited research conducted by the Australia Institute, there has been no significant academic research carried out in New Zealand relating this topic. Thus, despite its substantial limitations, this study greatly expanded on the current New Zealand research. It is intended as a preliminary foray into the field drawing from a limited, non-representative sample. As such, its results are not intended as generalizable to the population at large.

Conclusion

This section has outlined the epistemological and methodological frameworks on which the research informing this thesis was based. It has also outlined the specific methods employed in the collection and analysis of the data and why these methods were chosen in relation to the field of study and the specific research questions underpinning the thesis. Further, it has outlined the advantages in this approach as well as some of the significant limitations of the research.

A mixed methods approach was adopted, building on information from questionnaires (n = 152), with focus group discussions involving four participants, which were centered on participant generated photographs, to meet the research objectives. The information gathered through these processes was analyzed and coded, guided by the initial research questions with each process building upon insights developed in earlier stages. Great care was taken in designing the research project and choosing methods that would bring insight to the research area and provide the opportunity for data triangulation. Time and budgetary constraints leading to a small sample size, along with the inexperience of the researcher, meant that there were considerable limitations in the scope of the project. As the following chapter outlines, it did however generate a range of data that has strong links to the existing literature and that the researcher believes is a useful preliminary foray into a rich and exciting area for future research.
RESULTS

In this chapter I will describe the results obtained from the survey and focus groups that formed the basis of this thesis. I begin by giving a broad outline of the results of the survey and then move on to discuss the key themes that emerged from the focus group discussions.

Survey Results

Demographics – Who Responded to the Survey?

One hundred and fifty-two people responded to the survey. Of these, 69.1 percent were female and, with an average age of 50.33 years, they ranged from 18 to 91. Respondents came from a variety of living situations with 31 percent living with related adults and 27 percent in family situations including children. Of the remaining respondents, 25 percent lived in single occupancy homes and 16 percent in accommodation they shared with unrelated adults. The average size of households lived in by those who responded to the survey was 2.7 people, which is the same as the national average and just above the average for the city at 2.5 people per household (Statistics New Zealand).

Those surveyed sat below the national and local averages for income with an average combined household income of $48,000 per year and per capita income of just under $18,000. Over half of those who responded to the survey, 63.8 percent, lived in their own homes with a further 23.7 percent living in private rentals. These high levels of homeownership, combined with the relatively low-income levels, could be seen to be a consequence of the older average age of respondents.

Food Shopping Habits of Respondents

The survey was designed specifically to target shoppers and those responsible for food management within their households. It appeared to succeed in reaching this audience, with 72.4 percent of respondents claiming primary responsibility for food shopping for their household and a further 21.7 percent noting that it was a shared responsibility. Once food was in the home, its preparation and care were still predominantly the responsibility of those who had purchased it, with 65.8 percent claiming sole responsibility in this area. Only 5.9 percent and 6.6 percent of respondents to the survey claimed that food shopping and preparation, respectively, were not normally their responsibility.

4 Editor’s note: www.stats.govt.nz, no document details provided.
In relation to shopping habits, at 51.7 percent, around half of respondents claimed that it was very typical or typical of them to use a shopping list. When choosing fruit and vegetables, loose produce items of a similar price were decisively favoured by those surveyed with only 10.6 percent preferring to purchase pre-packed items when the choice existed. When choosing packaged grocery items, 59.6 percent of respondents claimed to regularly check the use-by or best-before dates before purchase.

**Reasons For and Types of Food Waste**

This adherence to dating systems was also seen in other sections of the survey with the majority of respondents reluctant to consume any type of food item more than three days after its use-by or best-before date, regardless of its appearance, smell or taste. Food being past its date was also one of the most common reasons for food being thrown away as cited by those surveyed: 54.6 percent of respondents noted this was one of the most common reasons for food waste in their households.

The most common reason given for food being thrown away, and the only more frequent reason than food being past its best-before date was the food in question having "been around too long". 62.5 percent of respondents gave this as a common reason. Plate waste, food looking bad and food tasting or smelling bad were also noted as common reasons for food wastage, with 50.7 percent, 48 percent and 44.1 percent respectively of those surveyed giving these as common reasons for food which could have been eaten being thrown away by members of their households. Only one quarter of respondents (25 percent) noted that food not being liked or having cooked too much food were common reasons for food waste. Somewhat surprisingly, less than 10 percent (8.6 percent) of respondents claimed that purchasing too much was a common cause of food wastage.

The most common type of food waste identified by survey respondents was, overwhelmingly, prepared leftovers, with 68.4 percent noting this as one of the most common forms in their households. This was followed by vegetables, noted as one of the most common types of food waste by 31.6 percent of respondents; fruit and bread, both noted by 27 percent of respondents; and various dairy products, noted by 25 percent of those who responded to the survey, were the food groups commonly wasted in their households. The least common foods types to contribute to food waste in the households of those who took part in the survey were meat and fish, which were noted by just 9.2 percent of respondents as commonly wasted. 6.6 percent of those surveyed noted that other types of food were among the most common types of food waste in their households. These other foods described by respondents included cereal, pet food, beverages such as soft drinks, and 'treat' foods such as bought biscuits and cakes.
Overall however, those who responded to the survey tended to believe that their households wasted very little food. Only 2.6 percent of those surveyed thought that their household wasted “quite a lot” of food, while 67.8 percent of respondents felt that “not much” or no food at all was wasted in their houses.

Attitudes to Food Waste

When asked about how they felt about occasions when food, which could have been eaten if treated differently, was thrown away, the majority of those surveyed claimed to be bothered about this waste to a significant degree. Only 11.2 percent of respondents claimed not to be at all bothered by instances of food wastage. Respondents were then asked to list, in order of importance to them and, again, taking their household into consideration, the reasons that food wastage bothered them. Despite the potentially open nature of the responses, those given could be clearly divided into four groups, the two most common of which concerned the financial loss represented by wasted food and a disdain for the moral implications of a generalized ‘wastefulness’. Other reasons noted by a smaller number of respondents related to issues of hunger, both local and global, and issues broadly linked to environmental concerns about energy and land.

Of those who thought that substantial quantities of food were wasted in their households, 75 percent were bothered considerably by this wastage. However, those who thought that minimal amounts of food were unnecessarily discarded were also bothered by food wastage. These seeming contradictions suggest that while concern at food waste is widespread, this in itself is not always enough to translate directly into behaviour change.

Strategies to Avoid Waste

In line with these high levels of discomfort at the unnecessary wastage of food, those who responded to the survey generally felt that, in their households, significant effort was put into minimizing food waste. Overall, 70.4 percent of respondents felt that they, or others in their household, put “a fair amount” or “a lot” of effort into minimizing food wastage, while only 2 percent said that no effort to this end was made. If efforts were made in their household to avoid food wastage, respondents were then asked to briefly note some of the ways in which this regularly happened. Again, these responses could be grouped into four distinct themes representing often-interlinking approaches to minimizing food waste.

The first of these themes related to planning and included careful shopping, planned meals and measured portion sizes. This was the most common approach with 61.8 percent of those surveyed claiming to regularly employ aspects of this approach to minimize the food they threw away. The second theme noted the use of leftover food and choosing what to eat based on what needed to be consumed rather than what was necessarily desired. This was also a common method of food waste minimization
with 43.7 percent of respondents regularly employing it. The third theme noted freezing food as a specific form of food waste avoidance and encompassed both bulk buying and freezing of perishable goods such as milk, meat and seasonal produce, as well as the freezing of leftover prepared food. This was noted as a regular activity by 16.4 percent of those who responded to the survey. The last theme of responses, which 19.9 percent of respondents gave, related to the actual disposal of food. Responses in this group emphasized the contingent nature of understandings of ‘waste’ in giving composting and feeding to animals as productive rather than wasteful means of disposal for uneaten food.

**Disposal of Food Waste**

When asked about the most common ways in which their household disposed of food waste 70.4 percent of those surveyed noted that they frequently disposed of food waste by putting it out for collection along with their other household rubbish. However, many households in the sample did regularly sort some types of food waste for separate disposal with 54.6 percent composting regularly at home and 30.9 percent regularly feeding some types of food waste to animals. Another 9.9 percent of respondents noted that a sink disposal unit was one of the most common ways in which they disposed of food waste and 9.8 percent gave other forms of disposal, including taking it to a waste disposal site, burning it and flushing it down the toilet.

**Trends Emerging from the Survey Responses**

**Gender Differences**

The gender imbalance seen in respondents can be seen to reflect the gendered division of household labour, which sees women frequently taking responsibility for tasks pertaining to household food provisioning. Despite the small number of male participants, it is interesting to note that there were some differences in responses according to gender in several areas of the survey. Though the number of male respondents was relatively small, women were significantly more likely than their male counterparts to use a shopping list on a regular basis. While the results were not as conclusive, but simply approaching statistical significance, women also appeared more likely than men to check the use-by or best-before dates on food items before purchase. Overall, 59.6 percent of respondents said that they would typically check the dates of perishable food prior to purchase. When distinguishing responses by gender 67.6 percent of female respondents verses 41.3 percent of male respondents answered in this manner.

This potentially differing level of attention to use-by and best-before dates while shopping was again seen once food was returned home, as men were almost twice as likely as women to consume red
meat, fish or poultry three or more days past the recommended date. Women were also slightly more likely than men to cite food being past its use-by date as a common reason for disposing of food.

As well as those differences mentioned above, gendered attitudes to issues around food waste included women tending to be more concerned by food wastage than men (60.9 percent vs. 40.4 percent) and also being slightly more likely to claim that their household put a greater degree of effort into reducing food waste (74.3 percent vs. 61.7 percent). The ways in which women claimed this happened also differed slightly with a greater emphasis on planning, freezing and cooking with leftovers, while men were more likely to favour disposing of food in non-'wasteful' ways such as composting and feeding to animals. While these last differences simply approached statistical significance, when combined with the other data from the survey they do point to the possibility of gendered understandings of areas connected to food wastage, such as health, domestic labour and care of others being possible points of interest, something which was further indicated by themes raised later in the focus group discussions.

**Potential Influence of Income**

There were also some indications that the income of households could have an impact on attitudes and behaviours around food discarding practices. In particular, the correlation between household income and perceived levels of food waste within the household and level of effort expended in reducing food waste approached significance. Those from households with lower incomes were more likely to claim low levels of food wastage while those from higher earning households admitted to greater wastage. Lower-income households were also more likely to claim to put more effort into reducing the amount of food wasted in their households than their higher earning counterparts. Considering the significant financial losses represented by unnecessarily discarded food and the importance to survey respondents of cost as an incentive against food wastage, it seems likely that income could be a factor in peoples' behaviours regarding food waste.

**Age and Generational Differences**

The older the person responding to the survey was, the more likely they were to admit to being bothered by food waste. Those over 50 were also more likely to think that little food was wasted in their household. However there were no significant differences in relation to age in the level of effort respondents reported they or other household members put into reducing the amount of food wasted. Older survey respondents were also more likely to shop with a list, and less likely than their younger counterparts to regularly try new foods, both factors which have been linked to lower levels of food waste in the home (Evans, 2012). There were some indications from the survey that older respondents,
especially those over the age of 70, were more likely to pay attention to use-by and best-before dates, however these results were not significant except in the case of baked goods.

Aside from providing responses to the questions in the written survey, collecting this data also provided the researcher with an opportunity to talk about the topic with a wide range of people in an informal manner. Older respondents were often eager to discuss their experiences and these conversations also contributed to the way in which the researcher approached the next phase of the project. Age or generational differences were a common theme in these conversations with people stressing the influence of restricted food supplies during their youth, due to the depression, war, rationing or isolated living, on the way they valued food and had learnt to use it.

Several key trends can be seen to have emerged from the results of the survey conducted as a preliminary part of this research project. These include the idea that food wastage is not something that people feel good about; that it is something that many people actively try to avoid using a range of specific strategies; that what constitutes food waste is not a fixed category but contingent on individual understandings; that traditionally recognized structures including gender, age and income all interact with the ways that social practices around food waste and disposal are lived and understood.

**Focus Group Results**

As related in the Methods section of this thesis, the two focus groups conducted for this project provided more in-depth data with which to supplement that gained from the initial surveys. In particular the social practices around food waste were explored. As previously noted, the focus group discussions were based around a selection of photographs taken by the participants in the week leading up to the discussion. The process of taking these photographs was designed to encourage participants to think about their habits and attitudes when it came to the disposal of unwanted food and to give structure to the group discussions by providing material specific to the examples and potential points of comparison. The photographs are numbered and referred to throughout the following section.

As noted in the methods section of this thesis, alongside their photographs participants were also asked to think about a series of questions relating to the topic:

- What types of food waste are common in your household?
- Why do you think food wastage happens?
- How do you feel if food is wasted? Where do you get your ideas that help you make choices about what you throw away and what you keep or use?

I will now discuss the responses that emerged in relation to each of these areas of inquiry.
What types of food did participants report throwing away?

The participants in the focus group discussions took photographs of a wide range of different types of food they had discarded over the week prior to the meeting, this included half-eaten plates of spaghetti and leftover toast, uncooked chicken, stale bread, flat fizzy drink and rotting fruit and vegetables. Among those taking part in the focus groups the most common types of food to be thrown away were largely consistent with what was seen in the preceding survey data.

As well as detailing specific types of food waste, participants also discussed varied understandings of what constituted ‘waste’. Here participants engaged with the ways in which ‘waste’ and ideas of wastefulness are linked and bound by culturally and personally understood norms of behaviour. This can be seen in two participants’ differing understandings of how vegetable peelings are situated in relation to the category of waste. For one participant, vegetable trimmings or any peelings (as opposed to scrapings) seemed wasteful and were avoided in the preparation process; or, if they were produced, were repurposed to make stock or, at the very least, compost to produce more vegetables. Interviewee: I even went through the compost bin to see if there was any food in there that wasn’t just scrapings, not even peelings. But when you’ve already used the outer leaves of the cabbage and things to make vegetable stock to put into the freezer for something else, you know.

However, for another participant, peelings and other trimmings produced in the cooking process were not considered waste. Interviewee: You see I guess I wouldn’t think of them [potato peelings] as waste because I wouldn’t have intended to eat them... I guess that’s part of it, intention.

While specific understandings differed, all participants recognized similar types of food as more likely than others to become waste. The main types of food participants reported as becoming waste in their households were plate waste, leftover prepared foods, and perishable foods perceived as ‘staples’ that had to be available in the house at all times, such as bread, fruit and vegetables; food items purchased for a special occasion; and foods not normally part of the household’s diet.

The two participants with young children were particularly conscious of plate waste being a common form of waste. This participant specifically noted that between-meal snacks were regularly thrown away uneaten in her home.
Interviewee: Snacks and stuff for the kids, like this, they’re like ‘can we have some whatever’, noodles this was, and then you make it for them and they hardly touch it... All of you that have kids you’ll know that they are the masters of wasteful food habits.

While the participants generally agreed that children were common culprits when it came to plate waste, as the following quote makes clear, they were not alone. Referring to her husband, this participant noted that he was not bothered if he did not finish all the food he served himself and thus was responsible for considerable quantities of plate waste.

Interviewee: He’d happily serve himself up a really huge portion, and I’m thinking, ‘You’re not going to eat all that’. And then he’d eat half of it and just happily throw it down the waste disposal and not think twice about it, while I’m thinking ‘Why don’t you just take a little bit first and then see how you go? You can always come back for more’. But for him it’s no big deal.

One participant noted that plate waste could be avoided (photograph 1) by always serving main meals from bowls on the table and encouraging the family to only take what they knew they would eat at any one time. For her this was a significant strategy in minimizing the family’s food wastage.

![Photograph 1](image)

Interviewee: And so we talked about it with the kids and thought about why we didn’t have waste, and they said, ‘Well take a picture of—’ We always put things in a serving bowl, we never put things onto plates for people. So what we tend to do, we had to think about this all week because you just do it without really thinking. What we tend to do is make more than a meals’ worth, and we serve it in bowls so people just take what they want, and then we’ve always got some left over, that either goes for lunch the next day or into the freezer for meals for one, if one of us is on their own.

Another food participants noted commonly went to waste was bread. It was the subject of photograph 2.
Interviewee: That next one is a whole lot of bread in the rubbish bin cause that’s one of my big things that I tend to always put in the bin and go, ‘Oh wow that’s a lot.’

Other participants also expressed similar sentiments about bread being a commonly discarded type of food and explained the way that demands of time, organization and catering to diverse family tastes led to this being the case. Interviewee: Bread’s a big one for us, and cereal too, when you’ve got three different kids who all want three different kinds, and on different days, and you end up running late in the morning and you know, there’s been some argument about breakfast and it just ends up getting chucked.

In the following quote one participant also connects wastage to the perception that certain types of perishable food, such as bread, need to be available in a household at all times. Interviewee: And I mean, I don’t really eat that much bread, but you have to have it around and if someone wants a sandwich instead of toast then a new bag gets opened, and then the stuff left in the other one isn’t that appealing anymore, is it? And you just get left with it.

In the above quote, bread is clearly identified as something that the participant feels ‘should’ be available, even though the family regularly does not consume one bag before it starts to go stale.

Alongside staples like bread, fresh fruit and vegetables were also noted as being foods that were commonly at risk of making their way to the rubbish bin rather than being consumed. With these foods, participants noted feeling certain pressures and desires to provide a varied, healthy diet for their families, which included plenty of fresh foods. The fruit and vegetables the focus group participants noted regularly went to waste in their households fell into two main groups: foods that were ‘always’ purchased as part of
the weekly shop and ‘special’ foods which were purchased due to being on special, or intended for a particular dish.

In the first category, bananas, oranges and carrots were all singled out. This participant noted that bananas were also a commonly wasted food among her peers. Interviewee: Talking about bananas – we had a discussion at my book club potluck at our place – and I was talking about taking the photos and what you were doing, and the general consensus with the people there was that bananas are the most likely thing that you throw out. And then people had all these tricks like, actually, you can freeze a brown banana.

She also notes that the same people who suggested they often threw out excess bananas had a range of strategies for ‘recycling’ them. In the focus groups, this desire to share favourite ways to ‘use up’ fresh foods was played out with participants detailing their own preferred techniques and sharing tips. Despite an obvious awareness of the possibilities for coping with these items when they were ‘on the way out’, participants also agreed that they did not follow up with these possibilities as often as they felt they perhaps ‘should’.

Interviewee: I’d always put them in the freezer to make smoothies, and then I might throw them away a month or two later if I’ve not done anything with them, but it makes me feel better that I tried! (laughter)

As this quote demonstrates, while participants were aware of a variety of ways to avoid disposing of these foodstuffs once they were in the home, this did not always mean that they acted on this knowledge.

Awareness among participants that they often threw out certain types of food was also not enough to prevent over-purchase of the same items on a regular basis. Participants linked this with the way in which they shopped from week to week and the way that certain items were purchased somewhat automatically. As this participant notes, fruit is one of these items.

Interviewee: This one here, well obviously it’s an orange and it’s been in the bowl for ages so, it’s starting to get a bit yuck, it was going to go. And I took a photo of it because fruit is another one of those things that I guess I do sometimes throw out. You just buy it but you end up not eating it.

As the same participant went on to explain, the over-purchase of certain types of food, including the orange mentioned above, was also sometimes linked to an optimistic view of her eating habits.

This same participant also took a photograph of an eggplant, which she had bought intending to make a dish she would not usually cook, like the orange it had gone ‘past its best’ before she had used it.
Interviewee: This one’s an eggplant, I got it but then I didn’t get round to doing anything with it. I don’t use them much so, I guess they’re a bit of kind of optimism like with the oranges (laughter). Like this week we’ll eat real healthy, more veggies and stuff and maybe try something new, but it doesn’t always work out.

While bread, bananas and oranges were commonly purchased items, the eggplant was not, however the ‘mundane’ and ‘exotic’ both made their way to the bin. The optimism described in the above quote can be viewed as being linked to a desire to provide a healthy and varied diet for themselves and their family. In this case that meant not only providing basic, safe and healthy food, but also expanding tastes and trying new things. This optimism encouraged the purchase of a range of ‘special’ or out of the ordinary foods. However, these foods did not always make it to the point of being prepared and consumed because they were not part of household routines and were therefore easily overlooked, or were only required in limited quantities.

The idea of ‘special’ healthy treats going to waste was also raised by this photograph (photograph 3) of a pineapple. Like the eggplant, this had seemed a good idea in the supermarket, but after a few slices being eaten straight after purchase, it had been overlooked in favour of more familiar items.

![Photograph 3](image)

Interviewee: Yeah, some rotten pineapple on its way to the compost, forgot about that till it was too late.

Unusual fruit and vegetables purchased for their healthy and exotic qualities were not the only foods not normally part of the household routine seen as likely to make their way to the bin. In the following quote, this participant noted she felt that there was more wastage in her house at times when the family ate more pre-made and takeaway meals.

Interviewee: There was a lot more processed food sort of coming into the house, takeaways and things that wouldn’t sort of be there in a standard week. And there was probably a lot more wastage…
In the case of takeaway foods, not only did they displace perishable foods that had already been purchased but they were seen as ‘easier’ to dispose of as seemingly less effort went into them than a homemade meal. Participants also noted other foods seen to have a low monetary, nutritional, or cultural value as items that commonly went to waste.

Interviewee: I mean, even thinking about, you know, the things I’d be inclined to throw out there, half a supermarket cake, half a bottle of fizzy that’s gone flat, it’s rubbish sort of stuff I guess...cheaply produced stuff, you know? ‘Ughh, it’s only a three dollar cake,’ or, you know?

Here, the participant explains how she rationalizes the disposal of certain types of food by referring to their apparent lack of value, thus making their disposal seem less wasteful.

**Why did they see this wastage happening?**

The idea raised above regarding the perceived value of food was also a central theme when it came to reasons why participants felt food wastage happened in their households. They felt that the value of food was not always easily visible, especially to members of the family who were not regularly involved in tasks such as cooking and shopping. After admitting that she was at times less careful to avoid food waste than she would ideally like, this participant went on to explain why she felt her partner was even more likely to act in wasteful ways when it came to food.

Interviewee: My partner is probably worse in some respects. He just doesn’t have any connection with the food we eat; he doesn’t do any of the preparation, or the shopping or anything, or even, he doesn’t hand over the money for it physically either. So it’s like he has no connection whatsoever with it, and he’ll seldom go near the vegetable garden or anything. So for him, if he only half eats his dinner it’s no big deal.

Here, a lack of ‘connection’ to food is seen as a contributing factor when it comes to the creation of food waste. The same participant also went on to discuss the way she thought she was more likely to be careful with food which she had grown herself in the garden.

Interviewee: It’s a different kind of investment in it as well: it’s not just something you’ve paid money for, you’ve got an actual personal connection to it. I suppose it’s the same as kids baking: they’re not going to not eat the baking they’ve done, they’re not going to throw that away, they’ve got a personal investment if they made it.

For the fourth participant, avoiding wastage of any kind including food, was linked to a broader ethic of care and social responsibility. Several of the photographs she took in the week preceding the focus
group were of parts of her vegetable garden where much of the household’s vegetables were grown and into which any food waste was recycled (photograph 4). She felt that the effort she put into procuring the food she had in her household made her more aware of its value and thus more likely to treat it carefully and minimize its wastage.

![Photograph 4](image.jpg)

Interviewee: And this next one: we’ve got big veggie gardens so we grow a lot of our own food, and I think when you’ve gone to that much trouble you’re not going to be chucking it out because you’ve nurtured it from little tiny seeds into food. I also tend not to shop at the supermarket much. I tend to either shop at the farmer’s market or at the organic shop and when you’ve had to make a trip and shovel it into brown paper bags and things like that; and you’ve paid a bit more for it; and I’m careful with money because I’ve always been careful with money. And, as you said about the war – and I was brought up with rationing and we never had any money in our house – it’s that whole philosophy of not throwing anything away, not just food, and so um I s’pose we’re just careful. I didn’t really realize till I thought about it this last week that we were so careful, just naturally, it’s just what we do. And I s’pose that goes along with being careful about not wanting plastic bags and, you know, we use shopping bags and things like that – that whole caring for the world, it’s a bit boring I’m afraid.

In the next quote, the same participant expresses the way in which certain foods – in this case turkey broth, which relies on the use of otherwise ‘unusable’ ingredients – holds a kind of emotional value for her and actively gives pleasure rather than simply being a means of avoiding waste.

Interviewee: We watched that chef I don’t like that swears –
Interviewer: Gordon Ramsey (laughter)
Interviewee: We watched his Christmas program the other night, which was really good actually. We’re going to do one or two of the things, and he was going, ‘Just take these bits off the turkey, you know, the bits that you throw away.’ And David went, ‘What!? Don’t they have turkey broth the next day?’
(laughter) which is actually my favourite meal of the year, turkey broth made with the bones and bits – I love it to bits, just the smell wafting through the house reminds me of my childhood.

She noted that her habits, relating to ensuring low levels of food waste produced in her house, were so ingrained – and, as is expressed in the anecdote about turkey broth, linked to fond memories and enjoyable activities – that performing them did not feel like a lot of effort. For this participant, her personal approach to food and her ability to recognize its value ensured low levels of waste without feelings of sacrifice.

Interviewee: It doesn’t seem like it’s a hardship, it seems like it’s normal and fun and not a problem.

Alongside issues relating to the way the participants and members of their families recognized the value of foods, they also aired a number of more practical reasons why they felt food made its way to the bin. The first of these related to concerns about hygiene and the potential for food to act as a vector for disease. When food was seen to have a high likelihood of acting in this way, removing the ‘food’ and constituting it as ‘waste’ mitigated the potential risk. This was seen in the case of plate waste, considered to be contaminated; leftovers, with concerns about storage and reheating; and with foods that participants considered to be ‘high risk’, particularly meats.

In the case of plate waste, concerns about hygiene were linked to it being potentially ‘contaminated’ in some way through the process of being served and eaten from. Though not explicitly discussed, the participants felt that once food had been served to another member of the household, it became their possession and responsibility.

Interviewee: I’m certainly not going to cover individual half eaten plates and write names on them for reheating tomorrow...

In the above quote, the implication is that it would be undesirable or inappropriate for other members of the family to eat food that had been previously served to another, even if this would make storing or reusing the leftovers easier.

For other types of leftovers, concerns about storage and ‘freshness’ were often reasons food was discarded. One participant worked in health care and had a keen interest in diseases and how their spread. She felt that much of the food wastage in her household was linked to the ways in which her professional knowledge guided her decision making and encouraged a cautious attitude to the potential risks of foodborne illness.
Interviewee: I think having the knowledge in bacteria and nursing people who are unwell and having – it’s a real area of interest: disease and its spread and things like that, so it probably makes me quite sensitive with things like that. I’ve been around too many people with vomiting and diarrhoea (laughter). Pretty keen to avoid it myself or with the children.

One of her photographs (photograph 5) showed a pizza, which had been left out overnight on the kitchen bench and then thrown out the next day. She had made it for her children’s lunches but had thrown it away as she felt it was unsafe to give to them.

![Photograph 5](image)

Interviewee: It’s a pizza I’d made for the kids’ lunches. And I’d cooked it and then left it on the bench, and went to bed and got up in the morning and went, ‘Shit’ and, um... it went in the bin, so yeah–

Interviewer: Did you put it in the bin because you’d assumed flies had sat on it or...

Interviewee: Oh, and just the fact it had been warm out of the oven, sat on the bench in a sort of relatively warm, you know, it had been warm overnight. I wouldn’t eat it, wouldn’t want the kids to eat it.

In this exchange the participant implicitly links the refrigeration of food with avoiding potential infection and protecting her children from illness.

Having been ‘left out’ was also the reason that leftovers made the transition from food to waste. While participants also noted that even when leftovers were put away quickly they were not always ‘used up’. When this happened it was often due to being unsure about how long it was safe to keep different types of food and also due to a desire to have a well-organized and clean kitchen. It was important to participants that there were no ‘off’ food items ‘hanging around’ which could potentially contaminate other foods or be inadvertently consumed.
Interviewee: I’ll try and do it [clean out the fridge] before I go shopping, start fresh – You don’t want stuff that’s left over making everything else nasty and I guess just – Mark doesn’t really know how long things have been around for.

In the above quote, the participant draws attention to the way that potentially ‘off’ foods are sometimes seen as having the ability to contaminate surrounding ‘fresh’ foods due to their proximity. In her comment about Mark (her husband) she also hints at a fear that other people with a less complete knowledge of the food in the house might inadvertently consume food that is past its best, making themselves or others unwell. Her comment also betrays a distrust in her family’s sensory ability to recognize the suitability of food for consumption.

All of the participants in the focus groups had primary responsibility for food shopping, preparation and kitchen management, but also shared some of these tasks with other household members at times. Another aspect of concern about the safety of food, which came up in the discussions, implicitly links order with hygiene and disorder and disorganization with waste. In the following quote, and in photograph 6 this participant noted the ‘daily’ routine nature of food disposal, alongside the ‘disorganized’ nature of food that was becoming waste.

[Image of a kitchen sink with food waste]

Photograph 6

Interviewee: This next one is just a photo of, sort of, a daily clear out of the fridge with, oh I don’t know, a pizza bun; that might be some roast zucchini and something odd; that might be a bit of mince or something. It’s just a pretty standard clear out of the fridge each day, um, going down the waste disposal. It’s just in the sink there all together, ready to go down the waste disposal.

For most of the participants in the focus group discussions, food waste was seen as disorder in itself and as often resulting from a somewhat disorganized and chaotic lifestyle. For the participant who had very little wastage in her home, finding ‘tidy’ ways of dealing with waste and being consistent in her
habits and routines around food were seen as important. In photograph 7 she showed how she likes to have a small compost bucket.

![Photograph 7](image)

Interviewee: So it gets emptied quite quickly so it never gets nasty.

And then wraps her compost to keep it ‘tidy’.

Interviewee: And this one is the best trick somebody taught me, was to wrap – to empty your compost bin into newspaper and then it’s already got, um – You know how your compost has to be so much carbon to so much nitrogen? It’s already all wrapped up and apart from keeping the compost looking really tidy, it’s helping it in the process already.

‘Safe’ hygienic food, free from disease and infection, and prepared in a clean and well-organized home, was just one aspect of providing what the focus group participants saw as an appropriate diet for the household. They also noted food needed to be plentiful, varied and nutritionally adequate. However, the demands of providing such meals to families with diverse and changing tastes, on a limited budget and with limited time, often led to the creation of food waste.

Two of the participants in particular expressed concerns about other household members having enough to eat, particularly as it could sometimes be hard to find things they would eat willingly. This led to a desire to provide adequate quantities of a variety of foods ‘just in case’. This participant noted that in spite of thinking carefully about portion sizes, she felt she was frequently left with uneaten food, due to not wanting to be ‘caught out’ with not enough of something which was unexpectedly popular.

Interviewee: That would be typical, wouldn’t it? I mean it’s all very well [measuring portions]. How can you tell how much they’re going to end up actually eating?

For the following participant the concern lay particularly with her children whom she worried had a somewhat limited diet due to their fussiness.
Interviewee: You want your kids to be healthy, have enough to eat, so if they ask for something you get it for them ‘cause you don’t want them to be hungry, but then half the time they don’t want it. What can you do?

For this participant then, the desire to make sure her children have access to foods they want and may therefore eat, runs contrary to previously expressed desires to minimize the quantity of food that makes its way to the rubbish bin as waste.

Worries about a plentiful diet were not, however, the only way in which participants raised the subject of fussy eating and changing tastes in relation to the creation of food waste. In the following quote, a participant explains that her children’s tastes are not always consistent and that it sometimes took time to recognize these changes and adjust what types of food she provided them with.

Interviewee: I’ll get the message after a week or so of putting something in the bin, ummmmm – ‘Yeah, that’s done its dash’, ‘cause they’ll tend to love it love it love it and then, ‘Uh nah’ – move on to the next one.

Here, the gap between food purchasing and preparation habits, and changes in the family’s tastes leads to wastage.

While the tastes of various family members limited what foods would be happily consumed, this was not seen by the participants as a reason to have a less varied diet. Rather, as the following quote points out it could lead to greater efforts to provide a range of different, palatable foods.

Interviewee: Yeah, I’ve got one that just won’t eat sandwiches, so I try and mix it up a little bit: drumsticks, pizza, just little bits and pieces so that he will eat lunch.

As the participant goes on to explain, and has already been suggested in relation to the types of foods participants commonly disposed of, this perceived need for a quality, varied diet, along with the importance placed on fresh produce, led to a situation where perishable foods were likely to become waste.

Interviewee: I often think about getting them to make their own, but then it’s sort of a quality thing and I’d still have to make the chicken or the pizza, you know? It’s probably just me thinking, ‘You can’t eat peanut butter sandwiches five days in a row’ (laughter). And you need a lot of different things in the fridge to keep everyone happy. Sometimes things end up going out.
The participants in the focus groups expressed an interest in, and knowledge of, ways to reduce the amount of waste in their homes and all agreed that lowering levels of wastage was a positive and desirable aim. However, they also felt that many of their attempts to achieve this were stifled by the sometimes contradictory and unpredictable demands of daily life. They connected the previously explored reasons they saw food waste being created to living lifestyles where they felt they often lacked time and energy to do what they thought they ‘should’, and that consequently some things, including best-practice to avoid food waste, had to be compromised.

Interviewee: It's just the time thing really, things going past their use-by date, or not quite getting round to cooking something or – It's just like another compromise – there’s just not enough hours in the day to do it all, so it's sort of a trade-off.

In the following quote, this participant also notes that levels of food waste are not consistent in her house and that she feels there is more waste when she has less time to devote to home life.

Interviewee: This week was probably a particularly bad week as well, just because of the week it was: I was really busy. So there are certainly weeks where we’re a lot better than others.

In the following exchange one participant, a mother who was also employed full-time, often working different shifts, expresses the way she felt levels of food waste in her household were linked to her busy lifestyle and the demands of working outside the home.

Interviewee: My sister-in-law does it all, and they have no waste and what there is all goes to the compost or the chickens or whatever, and it’s all very well for her ‘cause she doesn’t work.

Interviewer: She’s Mother Earth –?

Interviewee: Yeah, that’s it. She has that opportunity to be at home and to do that.

Interviewer: It's just another thing to add to the list, isn’t it? Makes it a full-time occupation.

Interviewee: It is. You know, when I’m on holiday that will totally happen but when life gets out of control and it’s kind of like, ‘OK, I’m just going to buy everything again,’ and try and make it back on track. I’d love to be a full-time; I’d love to be at home full-time and doing it all.

Interviewer: And the expectation is to be able to feel as though you should be doing that when, like, your sister-in-law is at home and she’s got the time to be doing all that.

Interviewee: And they live in the middle of a rural community so it’s life. There’s not the lure of meeting somebody for lunch or whatever; she’s at home, a lot.

Interviewer: But we all think we should be able to do all those things as well as having a full-time job, and being a full-time mum, and wife and everything else, and having a good social life – so it all just squeezes out the cracks sometimes, doesn’t it? (laughter and general agreement)
Here, these participants explicitly link high levels of wastage in their homes with not having the time and energy to follow up on some of the ways they know they could minimize their food waste. They also connect this with the demands of urban living and working outside the home while also taking responsibility for the majority of domestic tasks. In this situation, while time to prevent waste is scarce, money to purchase more food is available. At times, this type of lifestyle also obscured the 'value' of food; participants admitted this made it easier for them to dispose of food in wasteful ways.

Focus group participants had clear ideas on some of the reasons different types of food went to waste. These centred around the demands of feeding a family, with diverse and changing tastes, what they considered to be safe, healthy, varied and appropriate meals. In order to achieve this goal a vide variety of fresh, thus perishable foods were felt to be needed 'on hand' throughout the week. Food also had to be made available when it was required and in quantities that would not leave anyone hungry, even if that meant overestimating the quantities needed. All of this had to be achieved within the constraints of a busy and often unpredictable lifestyle where the preparation and management of food, and the food itself, were not always seen as valuable.

**How participants feel about occasions when food did go to waste?**

As can be seen so far, focus group participants were acutely aware of their habits when it came to food disposal. Three of the four participants in the focus groups felt that there were significant levels of potentially avoidable food waste in their households. While they knew there were practical steps they could, and at times did, take to reduce these levels, doing this consistently seemed unachievable. Thus wastage was seen to be an unfortunate but ultimately unavoidable consequence of the complex demands of everyday life.

Interviewee: I mean, even though I would say we throw out a lot of stuff, I’m still very aware of what I’m doing. It’s not just like I hiff it in the bin; it’d be great if I didn’t. There is a consciousness there and I guess I’ve been more conscious over this year to try and change.

Here, this participant demonstrates not only an awareness of food that goes to waste, but also a desire to waste less. In general the focus group participants did not like to throw away food and when they did they often tried to put it out of their minds and at times, as in the quote that follows, to put the food in question physically out of sight.

Interviewee: Often it’s sort of toss half a something in the bin and a bit of that, and a pot of yoghurt three days past its use-by date, and you don’t, you know – You might just cover it up and think ‘Oh, I shouldn’t be doing that.’
The hiding of food that had made its way to the rubbish bin was also raised in the following quote. Interviewee: I actually hide things (laughter) when I throw things out. I’ll actually put it under other rubbish, you know?

From the above quotes, the participants can be understood to have felt a degree of discomfort at the disposal of food that could have been eaten if it had been managed differently. They also demonstrate an understanding that acting in a wasteful way with food is not normally culturally sanctioned and thus something potentially shameful. A similar sentiment is expressed in the following quote where food waste is likened to a hidden crime discovered while cleaning out the fridge. Interviewee: Sometimes when it’s all got away a bit, and it’s like you discover something; a crime of food waste.

As can be expected with a habit viewed in this light, the focus group participants described feelings of guilt associated with occasions when food was wasted and noted that it was at times a source of conflict within the household. This can be seen in the following quote where a participant relates her guilt at instances of food wastage, and the conflict it creates with her mother. Interviewee: Oh you know, it’s just the constant guilt (laughter): (imitating mother’s voice) ‘Why’s that going in the bin? Just put it in the freezer, what are you doing?’ I mean, it’s a great source of tension probably, in the house, when I go through cupboards and the fridge.

Another participant also noted feeling guilty in relation to discarding food when discussing the dilemma of having hosted a social gathering and being left with a variety of food, not all of which had been prepared by her and which she felt the family could not eat before it was past its best. Interviewee: …and you have the guilt of throwing it all out as, often, you can’t eat it and, often, you don’t know when it was made and you can’t put it in the freezer.

In the following quote, while talking about a family member whom she felt was particularly resourceful when avoiding food waste, this participant also hints at negative feelings associated with times when food is wasted; she explains that avoiding such situations makes her feel good. Interviewee: Like she’ll say, ‘Just stick it in some muffins or something’ and that makes me think, ‘Oh, I ‘spose I could do that’; and it’s so good, it feels so good when you actually do, when you do come up with something like that.

While participants felt good avoiding waste, and associated wastage with feelings of guilt, they were less clear about exactly what it was about disposing of food that made them feel guilty. However, in
the following quote, one participant hints at a possible link back to the importance of recognising the value food and the luxury of having it in quantities that are more than sufficient.

Interviewee: During the week of taking photos I couldn’t help but think of all the money we donated to the landfill... and the way we don’t give that much to the food bank.

What types of knowledge and sources of information did participants draw on when making decisions related to food wastage and disposal?

When asked about the different types of knowledge and sources of information they called on to make decisions about what foods they disposed of participants noted both official and more personal sources. Official sources included food safety advertisements, professional scientific knowledge and official advisories on food packaging, like use-by dates and storage instructions. More personal sources included ideas gained from family habits, personal experience and reliance on the senses, such as sight, smell and taste.

Several participants noted an awareness of food safety advertisements on television.

Interviewee: I suppose I get a little bit put off by those food safety adverts, they make me think, ‘Ohhh, we perhaps aren’t as good at that as we should be.

The most commonly discussed 'official' sources that the focus group respondents drew from when making decisions about keeping or disposing of food items were use-by and best-before dates. All participants were aware of the presence and purpose of dating systems but relied on them to very different degrees in different circumstances. The following participant felt that there were generational contributors in determining how strictly use-by dates were adhered to, with younger people being more likely to give them close attention.

Interviewee: I was gonna say about the use-by date thing: my sister’s children just come into her house and go through everything in her house, to check the use-by dates, like it’s helpful. I think it can be a generational thing because me and my sister don’t give a toss about use-by dates.

The inference in the above quote is that the participant’s nieces and nephews felt they were doing their mother a favour by discarding food that had the potential to make her sick, while she would have been happy to rely on her own knowledge of the foods in question in deciding whether or not to consume them.

Personal and official sources by no means operated in isolation from each other, with information from one source potentially influencing how information from another was interpreted. While describing
photograph 8, this participant, who had previously noted the way she largely adhered to use-by dates on food, recalled an instance when her instincts prevailed.

Photograph 8

Interviewee: Ummm, and this is another photo of stuff going out in the bin, sponge cake that had been from someone’s birthday that had brought it round and it just sat in the fridge, so it went out and there are a few mankey strawberries there; they don’t look that mankey in the photo but they were (laughter); and some chicken that had um, I think it was just right on its expiry date and I’d opened it up to cook it up for the kids’ lunches and thought (sniffing noise) ‘Ummm, nn, I don’t care if it’s not past its use-by date, I just wouldn’t trust… If it doesn’t smell right then it goes.

Interviewer: So was it more the fact that it didn’t smell right, or that it was close to its use-by date?

Interviewee: Oh yup yup. If it had smelt fine I would have still cooked it. I think it was like maybe the night before and it was due to expire the next day and I just smelt it and thought it smelt strong and a bit weird. I mean maybe all chicken smells like that but because it was close to its use-by date I thought I better just see. I mean if it was four days before I might not have even – I would have just assumed it was fresh, so yeah, who knows? Maybe chicken always smells like that (laughter).

In the above quote one can see how different ways of making decisions about food were given different levels of relevance in different circumstances, and at times these variants combined to influence the way that each was interpreted.

Before considering these issues, however, it is useful to identify the areas in which the findings in this thesis have confirmed wider observations in the emerging food waste literature. These were: the types of food waste, the reasons people give for wasting food and how people feel about food waste.
1. Types of food waste

The types of food that were reported in both the surveys and focus groups as commonly going to waste were broadly consistent with findings reported in the literature, for example, leftovers, fruit and vegetables and bread were all noted as common types of food waste by participants in this research, and existing investigations (Rathje, 1984; WRAP, [Editor’s note: see previous footnote]; Baker, et al., 2009; Langley, et al., 2010). ‘Everyday’ staples such as these were perceived by participants in the focus groups as needing to be available in order for the household to have a healthy diet and as such were often purchased in overabundance in preference to ‘running-out’. This desire to provide a healthy and appropriate diet was at times felt to be in conflict with a desire to reduce or eliminate food waste. This is broadly similar to Evans’ (2011) findings linking a perceived need to provide ‘proper’ meals using fresh ingredients, with increases in food waste.

A further link to Evans’ work can be seen in the difficulties participants felt were related to using up leftovers, providing sufficient food for often fussy eaters, particularly children, and trying new types of food or purchasing for specific recipes.

Other types of food waste mentioned by participants in the focus groups included ‘special’ or ‘treat’ foods that were not part of the household’s usual pattern of provisioning. This can again be seen to be similar to the patterns of food wastage noted by both Evans (2011) and Rathje (1984) where unfamiliar foods are commonly wasted. Rathje’s (1984) ‘first principle’ of household food management noted that rapid changes in purchasing patterns, ‘crisis buying’ and consumer experimentation were key contributors to increased levels of food waste.

2. Why did people think that this waste happens?

Another way that the results of this research can be seen to concur with some aspects of existing literature in the area of household food waste is in the reasons participants saw for waste occurring. As can be inferred from the most common types of food waste, and as was noted in the results section, one reason was linked to experimentation with unfamiliar foods - something that was discussed by both Rathje (1984) and in the recent work of Evans (2011; 2012) in their analysis of waste practices. Also, similar to the ideas promoted by Douglas (1966) and Evans (2011; 2012), people considered that waste was happening as an inevitable consequence of time and organization constraints in their lives. The work of Douglas (1966), as
well as Clark (2004) and Levi Strauss (1997) also provide insight into how people understand waste in terms of biophysical and/or cultural safety.

3. How did people feel about it?

As previously noted there is little existing research into attitudes surrounding food waste habits, however, some broad trends have been identified in both the WRAP [Editor’s note: see previous footnote] and Australia Institute studies (cited in Baker, et al., 2009). Both these projects pointed towards people being concerned by food waste and experiencing feelings of guilt when food is thrown away (see also Evans 2011; 2012). This is partly linked to the mobilisation of political practice around dumpster diving (Edwards and Mercer, 2007; Stoddart, 2009).
DISCUSSION: THE INCONGRUOUS ABSENCE OF SOCIAL PRACTICES AROUND FOOD WASTE

In this chapter emergent themes will be analyzed in relation to both empirical and theoretical insights drawn from the literature reviewed previously and structured around the guiding research questions on which this thesis is based. It is posited that across the diversity of these themes, there exists a central body of evidence that revolves around an imprecisely defined relationship between a generalized aversion to food waste, and small-scale strategies or social practices associated with it. Three different, yet interlinked, frameworks, suggested to some extent in the existing literature, are proposed as potentially fruitful in understanding the lack of coherent social practices responding to food waste.

These lead to a number of questions that are useful for orienting future research into the reasons why we haven’t stabilized much in the way of coherent social practices responding to food waste. First, we still have considerable difficulty settling on the complexities of defining waste and its social, cultural and biophysical contexts. There is at present no cohesive definition of the term; there is still debate around the word being too loaded with moral judgement to be useful; and the question of how to measure, define and name waste remains. None of these questions has been fully discussed let alone agreed upon. ANT approaches to investigating food waste transcend these normal categories and reveal the multiple and unstable ways in which food is situated and given value. ANT therefore can take us towards a clearer understanding of the cultural significance and implications of defining food and its purpose and role in society.

While it is accepted that firm conclusions cannot be drawn from such a small sample, and providing concrete principles or generalisations is far from the intention of this thesis; it is possible to surmise that if some of the themes seen in the existing literature combined with the data generated in this research project were pointing to wider patterns of behaviour, an interesting question is raised that forms the main findings of this thesis. This question relates to the apparent lack of a convincing body of social practice (or shared practices) that respond to this everyday activity. Despite a general personal aversion to wasting food and the accompanying and entrenched attitude that profligate practices in relation to food are not something to be proud of, responses to food waste and efforts to reduce it within the home can be regarded as scattered and often token. Apart from dumpster diving, there seems to be little in the way of coherent social or political practice around something that is nevertheless an area of social and cultural concern, that also generates personal guilt for the participants in this study.
This seems to represent an important contradiction in the social practices around food waste. Such practices are often poorly defined and unnamed, and undertaken in a variety of haphazard ways. The cultural conventions and language available to confront the 'problem' of food waste are often tied to earlier historical periods and carry with them connotations and assumptions which clash with contemporary ways of living. This can be seen in relation to Freeganism. While this is undertaken by a small minority of often, (self-) marginalized people, it is also arguably the only example of a well-defined body of active political practice relating to food waste.

In order to try to explain this incongruous absence, I will explore three possible models that might explain why no coherent body of social practice is taking shape around food waste.

1) The Cultural Historical explanation: One way of explaining this absence is that we are in historical transition from one cultural understanding of waste to another. In the post-WWII food culture that privileged attitudes of abundance, nutritional value, cleanliness and sanitary qualities, waste was virtually invisible. Now we are moving into a time where food is having new (old) values reattributed to it and we haven't yet (re) formed a strong body of social practice to respond to these (old) new meanings and values. This disjuncture between old and new practices could represent a time delay between the emerging of an issue of cultural significance and concern on the one hand, and the actual mobilisation of social practices in response to it. A parallel example can be seen in the differences between eating whales and responding to climate change. In the case of whale meat consumption, strong cultural positioning is in place with strong cultural aversion and sanction in place (in most cultures). With climate change, however, more variability and uncertainty is evident regarding how to respond, the implication being that given enough time, political and cultural concern will translate into actual bodies of social practice in response to these concerns.

2) The Cultural Biophysical Instability explanation: An alternative way to understand the contradictory absence of social practices responding to concern about food waste is provided by examining food as an inherently culturally unstable item. The politics of food is hard to 'stabilize' because food operates across numerous, ill-defined boundaries. It is biophysical (an actant in the ANT framework) and has perishable qualities, but they are not entirely precise. It has risks, but they are often hard to quantify, or invisible, or imagined. It involves household practices that are time-consuming and thus operate in the unclear space between personal time and industrial time. Food operates across two realms of activity, wrongly conceived of as unrelated, namely retail purchasing in the supermarket, and food preparation and consumption in the home. Furthermore, it is extremely difficult to categorize waste in the home because of the culturally defined ways people draw distinctions between different acts of waste disposal, contrasting
bin disposal, feeding wasted food to dogs and chickens, or composting it. Because of this inherently culturally unstable quality to food, and the boundary-crossing nature of food relationships, it is arguable that a coherent and stable body of social practice is therefore more difficult to establish.

3) The Political Economy explanation: Another explanation might be that there are economic forces at work that seek to blunt people's concern about food waste because waste (and the cultural invisibility of true economic value) is good for business because it pumps up consumption; hence advertising that promotes excess purchasing, BOGOFs, strange labels that have imprecise implications for food safety and the significant absence of narratives about food waste in the 'sustainability' claims by large food corporates. As a result, we – the consumer – don't know quite how negative the implications are culturally, because there are many people with vested interests generating the PR that insures we don't become too culturally knowledgeable about such ambiguously presented information.

These three differing explanations about why we haven't yet developed coherent bodies of social practice around food waste raise some interesting questions about how we might orient future research into social practices around food waste. The following observations suggest some of the ways in which these explanations might be mobilized to create new insights into food waste practices.

Firstly, there is clearly some kind of cultural dynamic operating that makes waste difficult to stabilize in social practice. Seen in this light, it is important to try to understand waste as process. Is it, as Mary Douglas (1966) would suggest, being the result of mental or social ordering, in other words a by-product of creating cultural order? As such, it emerges primarily as a differentiating activity of the mind. A similar question can be raised from Bauman (2007) in which waste might be understood as intricately linked to consumerism and is, while also a by-product, a social rather than mental one.

Secondly, an ANT approach might enable us to see these two alternatives – processes of mental and/or social ordering – as complementary rather than contradictory, and introduce the space to examine the importance of multiple human and nonhuman actants: waste itself, smell, taste, microbial life, storage technologies, food safety regulation and dating systems, waste disposal systems, discourses around frugality, sustainability, and health. This leads to interesting questions about how waste becomes active/destructive in an ANT framework. Is it possible that 'waste' operates as an actant that is beginning to be enrolled in the food system's efficiency assessment – but can this really happen without destroying the integrity of the network itself? Is this perhaps a reason for the lack of social practice around food waste at a household level as well? The actual presence of waste acts to disrupt and unravel the network into which it has been enrolled. This poses an interesting question of boundaries and borders around agri-food
systems which, it appears, the existing agri-food literatures struggles to deal with. A more overt ANT approach could play a part, by providing a framework through which to think about their dissolving or ambivalence?

The relevance of ANT approaches would also be useful in indicating the importance of various technologies (Chappells and Shove, 1999) and organizational schemes (Fagan, 2003). Alongside the role of freshness/decay and the (microbial and otherwise) ‘life’ associated with these states, the liminal nature of waste, particularly food waste, points to the potential fruitfulness of an actor-network approach.

Thirdly, we need to ask key questions about issues of value, political economy, and the importance of consumerism? Can we simply deploy a more Marxist-derived perspective to address these issues in the specific context of food waste? The above analysis suggests this might be difficult. Gille (2010) does to an extent, and also possibly in a more synthetic way, Castles [Editor’s note: citation missing], as her use of networks is not so ‘flat’. In her account not all ‘nodes’ are created equal.

Paxon’s [Editor’s note: citation missing] micro-bio politics, and prior research into dumpster diving – both of which address the fluid cultural designation of food as waste or waste as food – go beyond the tendency to equate food value with its original state. Rather, with certain foods, value increases due to their ‘living’ nature and varying degrees of decomposition, eg, compost, aged cheese, and wine. Following this line of reasoning could be fruitful in bridging the gap between the ways of understanding value from the critical political-economic perspective, by drawing on ANT approaches on the path to fully comprehending the value of food waste.

Perhaps this is a field where there are emerging social practices such as the way that food and other associated resources are re-ascribed cultural value as well. In this regard do we need to look for new ways to describe a type of ‘frugality’ or ‘thrift’ that escapes the negative ‘mean’ and ‘ungenerous’ connotations that are attached to a mode of household provisioning that privileges the reduction, reuse and responsible disposal of food residuals. Seen in this light, the term ‘waste’ is perhaps useful as a moral or cultural term rather than as one for quantification or measurement. Perhaps this is linked to the role food is given and, through the lens of ANT, the role food assumes in our lives. This can be seen in relation to feeding children in particular: has food already done its job by being offered or just by being bought?

Perhaps this is also part of the reason there is no solid body of social practice around domestic food waste; the issue revolves around the problem that has reoccurred throughout this thesis – that of definition. How we define food waste relies not only on definitions of waste with all the slippery and loaded moral
and aesthetic connotations but also on what we see the role or purpose of food to be – and there is uncertainty about this; uncertainty perhaps made more difficult (to acknowledge and discuss) because of our separation from food, by its position in the lives of so many people as simply another commodified, fetishized product that is consumed at the moment of purchase. However much we may not like to admit it, placing food in this position problematizes the idea of food waste in that food fulfils its purpose as we leave the supermarket; what happens next is almost an afterthought and whether the next stage in the consumption process takes place in the belly of a human or the belly of a bin becomes largely irrelevant.
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