Abstract

This empirical study attempts to apply the social practice theory into food waste management, in order to have a new perspective investigating into students' practices and its implications in food waste management strategy. A case study of students of the UEA is conducted to see how their food waste practices are being affected by different elements (images, materials, skills, other practices and other practitioners). A mixed research method (qualitative and quantitative) has been implemented in this empirical study, with 78 valid questionnaires for quantitative analysis and 7 in-depth interviews for qualitative analysis. Regarding the results, relations between food waste generation and household’s demographic background, or individual’s environmental awareness, are insignificant in this empirical study. On the other hand, relationship between students’ food related practices and food waste generation have been concluded and discussed in details. In brief, food waste is a contingent agent of specific elements within practices, and associated implications for food waste policy have been discussed regarding the complexity of food related practices.

key words: food waste, social practices, case study, university students, mixed research method

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references: 90 (1971 - 2013)
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List of Abbreviations

chi-sq. ($X^2$)  Chi-square test
Defra  Department of Environmental, Food and Rural Affairs
EPA  Environmental Protection Agency
EU  European union
GHGs  Greenhouse Gas
LFHW  Love Food Hate Waste programme
NEP  New Environmental Paradigm
UEA  University of East Anglia
WRAP  Waste and Resource Action Programme
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Chapter 1  Introduction

The food system as a whole contributes around 19% of the UK’s greenhouse gas (GHGs) emissions (Garnett, 2008) and food waste is an important issue in solid waste management that brings us many problems regarding resource use, environment and economic efficiency etc. Approximately one third of the global food production (1.3 billion tonnes) is lost or wasted annually (Gustavsson et al., 2011; Lipinski et al., 2013). Unsurprisingly, in the UK there are 7.2 million tonnes of food and drink wasted from households every year, which is equivalent to £12 billion, costing the average household £480 a year (LFHW, 2013). Moreover, according to a WRAP trail project (WRAP, 2009: p. 3), the average weekly food waste yields per household ranged from 0.32 kg to 2.1 kg which is equivalent to 0.11 kg and 0.94 kg of carbon dioxide (CO$_2$) emissions. On the other hand, Parker-Pope (2010) states that food scraps constitute around 19% of the waste dumped in landfills, where it ends up rotting and producing methane (CH$_4$) - a greenhouse gas contributing to climate change which is 20 times more damaging to the environment than CO$_2$ (EPA, 2013a). Also, organic waste costs more money to dispose of as it is typically the heaviest component of a waste stream (Diaz et al., 1993). As a result, food waste brings us many problems in resource, environment, waste treatment and monetary issues.

Nowadays, very few researchers look into the food waste problem by applying the social practice theory (e.g. Delormier et al., 2009; Evans, 2011; 2012; Warde & Hetherington, 1994), especially in universities where students are at the stage of forming habits that could persist through adulthood. Thus, it is a relatively new approach to investigate students’ food related practices, and it assumes the underlying factors of food related practices e.g. consumption, eating, storage, and disposal of, can be understood theoretically. Therefore, it provides evidences about the relationship between food related practice and food waste
generation. Simultaneously, policy implications for food waste management strategies can be derived from the case study.

1.1 Objectives

Social practice theory is a relatively new perspective. This empirical study aims to use this theory to learn more about the relationship between social practices and food waste in a specific case study. The theory will also be utilised to investigate whether any implications for food waste policy can be concluded. Moreover, this case study is conducted in a university, so that it can fill an evident gap regarding institution based research in terms of the food waste issue.

By reviewing previous literatures and administering questionnaires to students of the UEA in this case study, it is expected that more information and knowledge about people’s food related practices can be gathered. However, this survey only provides basic information on student perceptions. Therefore, in depth interviews to selected respondents will be conducted to investigate more into their food related practices and see if this data can supplement and reconfirm the findings from the questionnaires and previous studies. Furthermore, the implications of the case study towards food waste management policy is summarised by concluding various factors that may influence food related practices of university students.

As a result, the expected outcomes will be but not limited to:

- In depth understanding about students’ food related practices;
- Relations between students food related practices and the food waste generated;
- Implications for food waste policy making.
1.2 Research questions

To start with, several research questions are established to guide the investigations:

a) Are there any statistically significant correlations between demographic background of the household and the amount of food waste generated?

b) Has the level of environmental awareness of people affected the quantity of food waste generated?

c) Are the food related practices of household affect the amount of food waste generated?

d) Can implications to food waste management be derived from in depth understanding of food related practices from the perspective of social practice theory?

1.3 Outline of the dissertation

This dissertation report consists of 6 chapters. In this chapter, background information on the research topic, research objectives and research questions are presented. In Chapter 2, a literature review of relevant papers will be described and summarised. Chapter 3 explains the details of research methodologies conducted in this empirical research as well as the limitations. Chapter 4 presents the results and analysis of both quantitative and qualitative methods. Chapter 5 discusses the results and implications for food waste policy from the study. The concluding chapter summarises the findings and discusses learning points to explore further.
**Chapter 2   Literature review**

**Table 2.1   Avoidability of food waste**

“Avoidable – food and drink thrown away that was, at some point prior to disposal, edible (e.g. slice of bread, apples, meat).
Possibly avoidable – food and drink that some people eat and others do not (e.g. bread crusts), or that can be eaten when a food is prepared in one way but not in another (e.g. potato skins).
Unavoidable – waste arising from food or drink preparation that is not, and has not been, edible under normal circumstances (e.g. meat bones, egg shells, pineapple skin, tea bags).” (WRAP, 2011a: p.8)

2.1   Food waste studies

Food plays a very essential part in our lives, not only providing energy for us to survive and contributing to social interactions, but also embedded in our identity and lifestyle with complexity of the home as a site of food consumption (Defra, 2009; Valentine, 1999). However, food waste is always associated with the consumption of foods. Generally, ‘food waste’ includes food and drink waste, which is home compostable or non-home compostable, avoidable, possibly avoidable or unavoidable (WRAP, 2011a) (refer to Table 2.1). When we are binning food, it is assumed that we are thinking food as ‘rubbish’.

But what makes food waste ‘rubbish’? According to Thompson’s (1979) Rubbish Theory, when an object is regarded as rubbish, it is not referring to its intrinsic physical properties but to social values ascribed to it. In other words, no object exists to be rubbish,
so if people think it is not rubbish, an object can move from transient to durable value (Gregson et al., 2010). Thus, if we can change our values about food waste, it can be no longer ‘rubbish’ but a viable ‘resource’. However, some literatures suggest that increases in environmental awareness do not necessarily lead to pro-environmental behaviours (Barr, 2002; Defra, 2009), so the above assumption may not be applied well. Therefore, the relationship between environmental awareness and food waste generation needs to be investigated in this empirical study.

On the other hand, O’Brien (2008) thinks that we are not much more wasteful than our older generations. He provided many examples from Medieval England, Tudor period, 19th century etc. in his book to suggest older generations’ disposal practices are basically similar in terms of wastefulness to nowadays people’s (O’Brien, 2008: p. 13 – 20). He states that “wastefulness is a product of the peculiar characteristics of post war social development” (O’Brien, 2008: p.38) and it should therefore be dealt with by “changing waste management practices rather than changing household wastefulness” (O’Brien, 2008: p.99). Therefore, food waste can also be a cultural and historical issue, but not only an environmental or psychological issue.

In addition, Barr (2002) concludes some findings on household waste regarding people’s environmental values and social demographics, which provide several propositions. For instance, that young people do not always do better in managing waste and that education level enhances people’s behaviours. Also, some have suggested that today’s food system is built upon refrigeration – a sort of system of provision (Garnett, 2007; Hand & Shove, 2007). Furthermore, Evans (2012: p. 41) argues that “food waste is a sort of mundane consequence of domestic practices that are socially and materially organized”. As a result, there are lots of previous studies from different perspectives that investigate into the food waste issue, for examples, socio-technological, socio-psychological, philosophical and economic etc. (e.g. Beede & Bloom, 1995; Defra, 2009; Garnett, 2007; O’Brien, 2008; Jackson, 2009; Quested, 2011; WRAP, 2011a etc.). Nevertheless, food waste case studies usually involve the study of everyday practices (e.g. Warde & Hetherington, 1994) and family
relations (e.g. Jackson, 2009). However, there are only a few previous case studies focusing on relations between household food waste and social practices (e.g. Delormier et al., 2009; Evans, 2011; 2012; Warde & Hetherington, 1994) and only a small number exist in the academic institutional sector (e.g. Clear et al., 2013; Smyth et al., 2010). So, it would be a new perspective to look into the students’ food related practices and its relationship to food waste generation. In other words, this empirical study fills the gap of food waste study in academic institutional sector with a relatively new perspective – the social practice theory.

2.2 Social Practice Theory

Research in this empirical study is going to investigate the relationship between food waste and social practices. To start with, we have to know what social practice theory is. While there is “no authoritative or synthetic version” available for social practices (Warde, 2005: p. 132), nor any “unified practice approach” (Schatzki et al., 2001: p. 2), “practice theory can be articulated as a loose but nevertheless definable movement of thought” (Schatzki et al., 2001: p. 13). According to Hargreaves (2011: p. 83):

“some theorists focus on the various components or elements that make up a practice (e.g. Reckwitz, 2002; Shove & Pantzar, 2005), others on the connections between these elements (e.g. Schatzki, 2002; Warde, 2005), and still others on the position of practices as a bridge between individuals’ lifestyles and broader socio-technical systems of provision (e.g. Spaargaren and Van Vliet, 2000)".
In brief, the social practice theory can be traced back to Giddens’ (1984) theory of structuration, which suggests that “individual actions are shaped by a framework of social structures, but this framework is itself created and modified by those actions. This process is mediated through meso-level structures called practices” (Hards, 2011). As Giddens (1984: p. 2) states:

“The basic domain of study of the social sciences, according to the theory of structuration, is neither the experience of the individual actor, nor the existence of any form of societal totality, but social practices ordered across space and time”

Thus, in a particular space and time, what make social practices? Most of the scholars in the social practice theory suggest that people themselves do not play a central role in influencing social practices, but act as a ‘carriers’ of developed practices (e.g. Hargreaves, 2011; Røpke, 2009; Shove, 2005). In other words, the study of social structure, which is formerly treated as external variables, becomes the centre of analysis by adding a focus on systems of provision (Spaargaren, 2003). So, what we are really concerned about in social practice theory are the underlying elements that make practices (e.g. Schatzki et al., 2001; Warde, 2005; Hargreaves, 2011). For example, tradition of practices (images and meanings), artefacts needed (stuff and materials artefacts), people’s skills for practicing (skills and competences)? In addition, more advanced investigations into relations between practices (Hargreaves, 2011; Schatzki, 2002; Warde, 2005), for instance, food shopping and food cooking and eating. In terms of a research approach, “theories of practice perform better than, or at least as well as, other approaches claiming similar merits, for example, theories of culture and sub-culture or the theory of social worlds. Also the account of theories of practice is a schematic composite ignoring the very substantial differences among them” (Warde, 2005: p. 146). In contrast, “culture is an on-going complex of ideas, attitudes and beliefs that is absorbed by individuals (‘cultural person’ not ‘rational economic person’) in a
habitual manner through institutional arrangements” (Pearce & Turner, 1990: p. 15 - 16). Thus, by applying the social practice theory into food related practices, it allows investigations into the complexity of food consumption, food management and other daily routine practices that influence the whole system of food related behaviours, probably trace back to short and long term history of food culture, instead of simply looking at the reasons for food waste generation.

2.3 Case study in university

According to Schramm (1971: p. 6), “the essence of a case study, the central tendency among all types of case study, is that it tries to illuminate a decision or set of decisions; why they were taken, how they were implemented, and with what result.” In short, “the case study method allows investigators to retain the holistic and meaningful characteristics of real-life events – such as individual life cycles, small group behaviour…” (Yin, 2009: p. 4) and understand a real-life phenomenon in depth (Yin & Davis, 2007). As a result, a case study on food related activities can contribute knowledge on food waste issues.

Incidentally, Armijo de Vega et al. (2008: p. S22) suggest that “universities have the moral and ethical obligation to act responsibly towards the environment, and they would be expected to be leaders in the movement for environmental protection.” Moreover, the university is a special case study as not much has been done on the food waste issue. Furthermore, university students develop waste management habits that they bring through into adulthood. So, different groups of students can be trained in good food related practices, and a campus can accommodate innovative food waste management approaches that it can share with other communities later. On the other hand, some of UEA’s students, especially local students, do not live on the campus but at a household which represents “a small social collectivity where all members share common identity, generally sustained in kinship and
certain sense of solidarity derived from a common dwelling and economy” (Ojeda-Benítez et al., 2008: p.993), in which their practices should to some extent different from who living in the campus as “family typology is a category that shows a trend to explain relationships between waste generation and lifestyle” (Ojeda-Benítez et al., 2008: p.998). As a consequence, it can potentially an interesting study area about the difference among students’ food related practices. Furthermore, case study of university students is meaningful in contribution to implications for policy making.

Nonetheless, comprehensive solid waste management programs are always challenging to authorities (Smyth et al., 2010), and the effects of environmental policies have so far been disappointing (Burgess et al., 2003). Moreover, “food waste is an important issue implicated in policy concerns about food security and environmental sustainability” (Evans, 2012; p. 42). Integrated waste management programs within educational institutions are an important reference to community to alleviate the problems, simply with constant and organised practices (Acurio et al., 1997). As a result, there is a need to understand the students’ food related practices to implement better food waste policy (Ojeda-Benitez et al., 2008). However, Evans (2012: p. 42) states that “empirical explorations of the relationships between everyday life and waste remain thin on the ground”. But, “existing researches have highlighted how ‘knowledge-attitude-behaviour’ interventions fail to recognize the complexity and dynamics of everyday life” (Evans, 2011: p. 430). However, it is not popular to make policy with the perspective of social practice theory currently, so more works will be needed to prove the ability of social practice theory in identifying implications for policy making, and this empirical study could potentially be one of those.

2.4 Implications for policy making
Directive 2008/98/EC (EU, 2008) sets the basic concepts and definitions for waste management. Moreover, waste legislation and policy of the EU Member States should adhere to the priority order suggested by the following waste management hierarchy:

Figure 2.1 Waste Management Hierarchy (EU, 2008)

With reference to the hierarchy in setting up food waste policy, food waste reduction should be put in the highest priority, rather than recycling (composting), recovery (digestion) or direct disposal (landfills). This aims to minimise the amount of waste generation and maximise the possibility to recover value from the waste. Although different organisations might have slightly different terminologies for approaches in the waste management hierarchy, the underpinning concepts are the same (e.g. EPA, 2013b; EU, 2008). Waste prevention is defined as strict avoidance, reduction at source and reuse (e.g. recook), and recycling is excluded (Cox et al., 2010). The largest environmental benefits can be earned from preventing food from being wasted in the first place, namely, reducing the resources used to grow, harvest, transport, process and supply the food, also, emissions associated with consumption of food. Literally, to reduce GHGs emissions, food waste prevention is about 8 times more efficient than shifting food waste from landfills to anaerobic digestion (Quested et al., 2011).

Regarding food waste management, the European Commission introduced the Waste Landfill Directive (1999) to prevent much food waste being dumped into landfills and the associated environmental problems. As a result, the UK government implemented a landfill tax in 2006 in response to the Directive, and the Love Food Hate Waste program
In Norwich, the local authority has some policies and programs in place, for examples, Norfolk’s food waste recycling scheme (Norwich City Council, 2013) and Food Swap (Norfolk County Council, 2013). In addition, some programs are operated by third sectors, for example, FoodCycle Norwich (2013). However, most of the policies and programs might not be designed with the perspective of a systemic paradigm (e.g. social practices) in the first place, but relies on individual effort. Despite the policies and projects in place, the food wasted by the UK households has undergone a gradual increasing trend, and the UK households generate over 6 kg of food waste per week (WRAP, 2011a). According to the WRAP’s (2011a) report, only about 20% of the food waste are unavoidable, so there are large proportions of food waste that can be reduced theoretically. Policy makers in Europe resort with the assumptions and strategies belonging to the systemic paradigm that to a certain extent can be seen as a reaction to the failures of the individualist strategies (Spaargaren, 2011). The reason for this may be that there are value action gaps in individual’s choices, selection of foods consists of non-rational factors including liking and habit, and people are living in a ‘lock in’ system etc. (Blake, 1999; Defra, 2009; Seyfang, 2011).

Spaargaren (2003: p. 697-698) suggests that social practices can be seen as an attempt to combine some of the essential building blocks into integrated strategy, for examples, establishing sets of relevant elements needed for policy making, investigating the production-consumption chains, understanding different people’s practices, and knowing the role of governmental and non-governmental actors in environmental policy making. As a result, by investigating food related practises with social practice theory (systemic paradigm), some implications should able evident for food waste policy making, especially in the aspect of food waste prevention. Thus, policy definitions should be reformulated and specified from a ‘life-world’ perspective, in order to be practised by citizens – ‘carriers’ of social practises (Hargreaves, 2011; Spaargaren, 2003). On the other hand, it helps to shift the focus of policy making from the bottom part (composting) to the top of the waste management hierarchy (food waste prevention).
As mentioned above, by applying social practice theory to food related practices, this empirical study investigates the complexity among food consumption, food management and other daily routine practices that influence the whole web of food related behaviours, instead of simply looking at the reasons for food waste generation. As a result, the whole food cycle should be understood and kept in mind during the policy making process (Defra, 2009). Literally, a complete food cycle starts from agriculture and its associated inputs e.g. fertilizer, farmlands etc. Then foods are processed and manufactured with packaging, transportation, and then distributed and sold in catering or retailing stores (Garnett, 2008) - please refer to Figure 2.2 for a simplified diagram of a complete food cycle. In this case study, we will focus on how’re the consumption, storage and disposal of foods with the perspective of social practices.

![Simplified diagram of complete food cycle](image)

**Figure 2.2** Simplified diagram of complete food cycle

Therefore, all the elements mentioned above are essential building blocks of the system of food related practices, and how to look into the food related practices by a case study will be discussed in the following chapter.
Chapter 3 Methodology

This chapter will introduce the research methodologies of this empirical study, the reasons why these methods were chosen and how they were used in the research project. This is a single case study research in which food related practices of students will be described and discussed. Also, it serves as an experimental test of social practice theory in a relatively rare circumstance – the university (Yin, 2009: p. 57). Hawkins (2006) suggests that an empirical study focusing only on disposal would be problematic, and there may be difficulties in recruiting and retaining respondents as they may not be willing to share the information. As a result, in Evans’s (2011; 2012) recent research papers about household food waste, he suggests a relatively special method in exploring the dynamics and relations of the ways households “plan for and shop for food; how they prepare foods, consume and eat it; how they store foods; and the ways they dispose of the food they do not eat”. His focal point is shifting from merely food waste to exploring a food’s passage into waste. Therefore, he conducted his research with different means, namely diary records, cupboard rummages and fridge inventories, observations, and in-depth interview (Evans, 2012: p. 43). The findings from Evan’s researches provide useful information to build upon.

In this case study about university students, a mixed research method (combined quantitative and qualitative method) (Robson, 2011: p. 492 - 494) that builds upon some of Evans’s findings (2011; 2012) is conducted. It is regarded as a new, or experimental, approach for qualitative analysis oriented research about the social practice theory (please refer to following Figure 3.1 for the framework of the research methodologies) and the details of the quantitative and qualitative methods will be explained separately afterward.
3.1 Study area

As an experimental study of applying social practice theory to food waste management, the study area of this dissertation is limited to students who are studying at the University of East Anglia (UEA). The UEA is located in Southwest of the city of Norwich (see Figure 3.2), which is regarded as “an internationally renowned university based on a distinctive and attractive campus, with over 15,000 students and more than 2,500 international students from over 100 countries worldwide” (UEA, 2013). On the other hand, there are more than 3,500 campus accommodation spaces provided for students. Literally,
many of the students are not living on campus but renting and sharing houses with other people near Norwich or living at home.

Figure 3.2 Location of the UEA (Google, 2013)

3.2 Quantitative method

In order to invite participants for later observation and in-depth interview, simultaneously, getting students’ basic information e.g. demographic data and food related practices, the hyperlink of an online questionnaire on ‘surveymonkey.com’ with consent enquiry was sent to UEA students once a week during the data collection period via the school’s e-mail system and online social networks e.g. Facebook. Please refer to Appendix 1 for the template of invitation e-mail sent and Appendix 2 for the consent form and questionnaire.

Self completion questionnaires on the web can be particularly advantageous if the topic is felt to be socially embarrassing, for example, food waste generation (Seale, 2012: p. 182). However, e-mail addresses of potential participants have to be gathered in advance. Furthermore, people can easily quit, it is hard to control who and the frequency they reply (Robson, 2011: p. 190), and it presents the risk of low response rates (Robson, 2011: p. 256). Nonetheless, inviting people to conduct a web based survey via an e-mail system
benefit from its user friendly nature, high efficiency and technically low cost, so it was chosen as a means of data collection in this empirical study.

In order to test if the environmental awareness of people affects the quantity of food waste generated, the scale of the New Environmental Paradigm (NEP) (Dunlap et al., 2000) is embedded in the questionnaire. This scale measures if people are aware of the environment, with higher scores indicating more pro-environmental attitudes. On the other hand, to test if people’s food related practices affect the quantity of food waste generated, the questionnaire builds upon findings of Evans’ (2011; 2012) recent literatures about social practices and food waste, also other literatures about social practices or food waste (e.g. Barr, 2002; Hand & Shove, 2007; Thompson, 1979 etc.).

Trials on questionnaires and interviews were conducted in advance to ensure the efficiency and effectiveness of data collection processes. In addition, a checklist to help avoid problems in question wording (Robson, 2011: p. 255-256) and a checklist for securing a good response rate to a postal questionnaire (Robson, 2011: p. 259-260) were referred to improve the design of the questionnaire and data collection process. All data are stored properly in computers and will be kept for a year for reference.

Descriptive analysis is drawn with returned completed questionnaires. Other quantitative analysis for correlations between variables such as crosstab analysis and chi-square analysis are conducted (Greenwood & Nikulin, 1996: ch. 1) with an adequate number of valid questionnaires (Ruane, 2005: ch. 3). The data mostly come in groups and ordinal form (non-parametric), so crosstab analysis and chi-square analysis which is appropriate for this type of data are selected as a means of data analysis for correlations. Nonetheless, the information gathered from the returned questionnaires, e.g. demographic data about the interviewee, were very useful in providing basic information for in-depth interviews in later stage.

3.3 Qualitative method
In total, 8 students who had returned valid questionnaires and accepted consent were selected and invited for more in-depth interviews, which provided more qualitative information for analysis (Ruane, 2005: p. 19 - 22). Potential interviewees were categorised into 4 groups according to their level of food waste generated per head and diversity of food cooking (see Table 3.1). Literally, the quantity of food waste generated per head is divided into 2 categories, namely, ‘High’ (more than 1.5 kg/head/week) and ‘Low’ (less than or equal to 1.5 kg/head/week), and 1.5 kg is the mean of weekly food waste per person. On the other hand, the diversity of food cooking is also divided into 2 categories according to statistical analysis of number of cuisines the students cooked weekly (‘High’ and ‘Low’). Thus, 2 representatives were selected from each group for in-depth interviews, so in total 8 interviewees were selected.

Table 3.1 The four groups of sampling categories

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<tr>
<th>Low diversity of food cooking</th>
<th>More food waste per head</th>
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<tr>
<td>Group 1 (n=2)</td>
<td>Group 2 (n=2)</td>
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<tr>
<td>High diversity of food cooking</td>
<td>Group 3 (n=2)</td>
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(n = sample populations)

The purpose of interviews conducted as part of elaborated case studies is to find out what happened, why, and what it means more broadly (Rubin & Rubin, 2005: p. 6). Interviewers often focus the discussion on a narrow range of topics and then try to learn about these in detail, with main questions, probes and follow ups (Rubin & Rubin, 2005: p. 13). All the interviews were recorded and transcribed into written documents for qualitative analysis (Silverman, 2013: ch. 12-13) and will be kept for a year for reference. Also,
qualitative analysis methods of transcript such as coding, sorting and summarising were implemented (Rubin & Rubin, 2005: ch. 11; Robson, 2011: ch. 17; Schreier, 2012: ch. 4 - 10). Literally, transcriptions were sorted by different categories first e.g. food shopping, food cooking, food consumption etc., then codings were assigned to categorised excerpts for pattern summarising.

Within a face to face interview, complex questions can be explained directly, and it is suitable to find out more useful data from asking open questions provided with visual aids e.g. food waste diaries and photos. Although it could be very broad in the size and geographical coverage by face to face interview, the limitations are manageable in this university based study. More investigations like cupboard rummages, fridge inventories and observations could also be conducted if the interview has taken place in the student accommodation. Nonetheless, photos of food related stuff were provided.

A protocol for an in depth interview was created (see Appendix 3), so that a procedure could be followed to find out more about how the images, skills, stuff and food related practises are involved, and how they intersect and interact with other everyday practices. It starts with questions about general background e.g. household composition, and general practice about food consumption in a normal day or week; and then starts to retrace the short-term history of a week (e.g. shopping, cooking, eating, and disposal); and then traces back the longer term history (e.g. where did they learn to cook, have things ever been different, and why and how? etc.); and finally asks more specifically about food waste and other normal practices that may affect interviewee’s food management.

In addition, a food waste dairy has also been created and sent to interviewees before the interview. So, with the visual aid of the diary, a normal day food practises and more accurate estimation of food waste generated could be figured out more easily during the interview. For the template of food waste dairy, please refer to Appendix 4.

As a result, summarisations and conclusions could draw together from both quantitative analysis and qualitative analysis. Thus, a process could be conducted to reconcile, confirm and seek convergence of the findings gathered from both qualitative and
quantitative methods (Greene et al., 1989), in order to learn more about food related practices in further depth and explore patterns and relations among practices. Nonetheless, it is not only limited to comparing results of quantitative and qualitative methods, but also works as an iterative learning process from the quantitative results to qualitative method’s building, and potentially vice versa in further study.

3.4 Limitations

There may be relatively low response rates to questionnaires and interviews. Since the invitation is sent via schools’ e-mail system and social networks, the response rate of the questionnaire is expected to be low as a sort of passive way of communication. On the other hand, it is highly constrained by the willingness to help of people who can forward the invitation e-mail. In addition, the data collection period of the in depth interview is not ideal, as some of the students may leave the UEA for holidays.

On the other hand, it may be regarded as biased sampling as the scale of the project is limited by time and resources. The project invitation is not able to be sent by a generic e-mail system, as a result, not all the students, but only part of the UEA students can see the invitation and take part in the research project. Moreover, it is a campus based case study research, samples with similar demographic characteristics e.g. age, level of education etc. are expected while project design stage.

Finally, the time needed for the data collection period of a mixed method research will be approximately double if compared to solely a quantitative method or qualitative method. As a result, good time management had to be assured with limited time available for the dissertation project.
Chapter 4  Results

This chapter will present the findings of both the quantitative and qualitative analyses respectively with the aid of tables, figures and charts. Key points to be further explored will be summarised at the end of this chapter as well.

4.1 Quantitative analysis

The questionnaire was entitled 'How everyday food related practices generate domestic food waste – case study: UEA’s students’ and was accessible on the surveymonkey.com for entire 2 weeks time starting from 25th April 2013. By the end of the data collection period, there were 197 responses received in total. After incomplete questionnaires and extreme outliers were excluded, 78 valid samples were appropriate and selected for further quantitative analysis. Thus, roughly 40% of the returned questionnaires were valid for further analysis. The reason for the relatively low validity in returned questionnaires is because participants can withdraw from the questionnaire at will at any time according to the research ethics. Put differently, it was not compulsory for participants to complete the questionnaire when they have started, so many of the returned questionnaires were not completed. On the other hand, the threshold was set to be strict – only questionnaires with no missing items were regarded as valid for further analysis. As a consequence, the summaries described below are only limited to the 78 valid samples.

4.1.1 Descriptive statistics
During the designing stage of the sampling, it was anticipated that there would be biased sampling in a case study about university’s students. Finally, the estimated obligations in demographic data are not significantly shown according to descriptive statistics. Regarding the results of the quantitative analysis, over 60% of the sample populations are 19 to 25 years old; over 60% are female; almost 60% are under-graduate students; over 50% of them have less than £15,000 per year in average household income; and most of the students are living with 1 to 3 housemates. However, there is a biased tendency regarding the subjects they are studying, with over 87% of them are studying an environmentally related field. Moreover, nearly 65% are local students, 14% from other countries in Europe, 12% from Asian countries, and 9% are from the rest of the populace. Last but not least, only less than 10% of the sample populations are living on campus. As a result, apart from the fact that all of the samples must be current students, the subjects they study and the venue they are living in, it is not extremely biased sample in this case study regarding to the complexity of demographic aspects.

On the other hand, the average quantity of household food waste generated by the sample population in a week is found to be 5.9 kg, which is slightly less than the number of average UK’s household – more than 6 kg (WRAP, 2011a). In fact, people may underestimate the food they made easily (Quested et al., 2011). As a result, this has to be figured out by in depth interview in the next stage, and it is also the reason why a record diary was created for more accurate estimation of food waste that was not planned at the very outset of this empirical study. Nevertheless, regarding food leftover disposal/ handling practice, over 96% of students said that they often or always ‘store leftover food in the fridge and reuse later’. Nevertheless, nearly 95% said they never home compost leftover food in the garden. In addition, 52% never put leftover food in council-provided compost bins, and over 55% throw leftover food away into general waste bins. According to the figures, almost all students will try to reuse the leftover foods, however, almost all of them will not do home composting as well, implying that students would like to ‘reuse’ rather than ‘recycle’ leftover food.
foods. This observation conforms to the preference suggested by the waste management pyramid (EU, 2008). In addition, leftover foods are most likely being thrown into either council food caddies or general waste bins eventually if they are not reused.

Regarding the main reason that causes food waste, it is resolved in the following bar chart about students' food waste disposal practices that referred to Evan's (2011 & 2012) previous studies (see Figure 4.1). According to the figures, it indicates that there is no strong dominant reason for the food waste generation in students' homes. More precisely, one-third of students said the food waste generated is because of the ‘food storage – food goes off too quickly’. The second largest figure is 18%, which they think ‘My busy lifestyle makes it hard for me to plan properly’; and 10% said ‘I buy too much’ and 19% said ‘I cook too much’; lastly, 19% have other reasons which include:

- Management of foods – e.g. ‘turns out to be packaged wrong or contaminated’;
- Unavoidability of food waste – e.g. ‘peelings/off-cuts’; ‘left overs on cooking utensils’;
- Provision of foods – e.g. ‘the packaged food at supermarkets is sold in too large quantities. For example 500g of spinach is too much if I only cook for myself. Also oranges for example sold in 600g package which is too much’; ‘I cook for myself and most packs on meat contain enough for at least four people’;
- Availability of food waste related facilities – e.g. ‘UEA residences do not have a food waste bin’ etc.

![Figure 4.1 Main reason that causes food waste (n = no. of people)](image)
In brief, the figures show that there are no statistically significant findings from chi-sq. analysis for the correlations between quantity of food waste generated and the ways in which the leftover foods are handled or the main underpinning reason about food waste generation suggested. Thus, reason of food waste generated can be various among individuals. On the other hand, there is also not much significant correlation found among demographic data (e.g. nationality, subject of study, income level, gender, living on campus) and quantity of food waste generated neither per household nor per person. Therefore, the results of the first round data analysis conform to the findings about household waste in social prospective (e.g. Barr, 2000), which suggests ‘demographic background does not necessarily a critical factor to determine how much food waste is generated’.

4.1.2 Environmental awareness and food waste generation

It is believed that if we can change the values about food waste, it can be perceived as no longer “rubbish” but a viable “resource” (Gregson et al., 2010) So, by raising people’s environmental awareness, it should assist people in reducing food waste. As a result, New Environmental Paradigm is used as a scale to evaluate a student’s level of environmental awareness (Dunlap et al., 2000) for testing its correlation with quantities of food waste generated. According to the result of chi-sq. test, the correlation between individual’s environmental awareness and the food waste generated is not statistically significant or lacking correlation. It indicates that environmental awareness does not impose a significant impact on the amount of household garbage generated. Therefore, the statistics of this empirical study suggest that people with high awareness of the environment or tendency in pro-environmental attitude per se do not imply that they are necessarily generating lesser food waste. Moreover, this is also being suggested in a previous Defra’s (2009) report.
4.1.3 *Other significantly correlated factors*

From the above, we can conclude briefly that the quantity of food waste generated by students does not have a strong correlation with neither the demographic background of their households or the level of their environmental awareness. So, we can conclude that the first two presumed research questions have negative results in this empirical study. Therefore, it is necessary to figure out what are the factors causing more food waste instead of the two presumed factors.

A chi-sq. test of independence was performed to examine the relation between ‘number of people in household’ and ‘the quantity of food waste generated in household’. The relation between these variables was highly significant, $X^2 (2, N = 78) = 243.08, p<.01$. So, the sample population who lives alone or household with fewer members tend to generate more food waste than household with more people.

In addition, a very significant correlation has been found between ‘the number of takeaways food people having’ and ‘the quantity of food waste generated in household’ by chi-sq. test of independence, $X^2 (2, N = 78) = 84.82, p<.01$. As an issue, it means that the more takeaways food people having at home in a week, the lesser food waste they generate.

Lastly, a marginal correlation between ‘the diversity of foods people cook’ and ‘the quantity of food waste generated in household’ has been found, $X^2 (2, N = 78) = 201.64, p<.1$. It is normally not being regarded as a significant finding and presented in empirical study as the level of significance is just above 90%. Even so, it might still be meaningful to present this marginally significant finding as it may mean there are somehow relations between cooking practices and the amount of food waste generated that one of the research questions presumed. However, it still needs in depth interviews to investigate into this assumption.
In short, there are not much statistically significant findings extracted from the quantitative analysis. Those results are summarised in the following Table 4.1, it shows the demographic background and the level of environmental awareness of sample population do not have a statistically significant correlation with the amount of food waste they generated. On the other hand, cooking practice is found to have a marginally significant correlation to the amount of food waste. Thus, regarding to three of the research questions of this empirical study mentioned above, two of those has been suggested negative results (demographic background and environmental awareness), and one of those has been marginally accepted (cooking practice). In addition, there are two new strongly significant findings extracted from the quantitative analysis, namely number of people in the household (negative correlation) and number of takeaway food they have (negative correlation).

Table 4.1 Correlation between quantity of food waste generated and various factors

<table>
<thead>
<tr>
<th>Various factors correlated with quantity of food waste generated</th>
<th>Hypothesis</th>
<th>Significance</th>
<th>Hypothesis accepted?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demographic background</td>
<td>No correlation</td>
<td>Not statistically significant correlation</td>
<td>Yes</td>
</tr>
<tr>
<td>Environmental awareness</td>
<td>Positive correlation</td>
<td>Not statistically significant correlation</td>
<td>Null</td>
</tr>
<tr>
<td>Number of people in household</td>
<td>N/A</td>
<td>Strong significance (-ve), $X^2 (2, N = 78) = 243.08, p &lt; .01$</td>
<td>Yes</td>
</tr>
<tr>
<td>Number of takeaway food</td>
<td>N/A</td>
<td>Strong significance (--ve), $X^2 (2, N = 78) = 84.82, p &lt; .01$</td>
<td>Yes</td>
</tr>
<tr>
<td>The diversity of foods</td>
<td>Positive correlation</td>
<td>Weak significance, $X^2 (2, N = 78) = 201.64, p &lt; .1$</td>
<td>Marginal</td>
</tr>
</tbody>
</table>
4.1.4 Food waste record diary

Incidentally, a comparison of ‘the quantity of weekly food waste generated’ in questionnaires and ‘the quantity of weekly food waste generated’ according to the food waste record diary of the same person was made among interviewees. It indicates that the estimations from both questionnaires and record diary are very similar, with at most 0.5 kg per week deviation in actual quantity. As a result, it can be concluded that the food waste estimations are confirmed to be accurate, and the sample population in this empirical study tends to generate slightly lesser food waste than average UK households.

4.2 Qualitative analysis

In depth interviews were conducted from 11th June to 22nd June. There were in total 7 interviewees who completed the interviews instead of the planned number of 8. The reason is that all of the potential interviewees in a categorised group had been invited, but only one of them was willing to be interviewed instead of two as designed. Nonetheless, the recordings of all in depth interviews conducted have been properly stored in a computer and transcribed into text for qualitative analysis. As a result, the following determinations are based on the soundtracks and the transcriptions, as well as the food waste diary and photographs provided. Qualitative analysis methods for the transcriptions, e.g. sorting, coding and summarisation, have been done and findings are concluded in the following aspects:

4.2.1 Diversity of practices amongst people
To start with, the food related practices of interviewees are varied and there are no two people who have exactly the same food related practices observed, please refer to Figure 4.2 for a conceptual web of food related practices. The food related practices of individual interviewees are summarised in the sorted transcriptions (Appendix 5), and coding analysis have been summarised as a table (Appendix 6).

Figure 4.2 Conceptualised web of food related practices

According to the transcriptions and the coding analysis, individual interviewees have diversified food related practices. For examples, food sharing practices, routine cooking
habits, cooking with recipes, development of cooking skills, weekly shopping practices, estimation of quantity of foods buying, food storage or management, leftovers handling, images about food’s past by day, food composting practices, mood affecting food related practices, concern of personal health, cultural difference, and past experience etc. Thus, the web of food related practices is constructed with a huge amount of different elements of practices and different coordinated practices and practitioners, each element potentially shapes the rest in the web, and there is no common food related practices for individuals. Literally, there is no replicated web of food related practices found among the 7 interviewees and this can be the reason why there are not much statistically significant results found in the quantitative analysis. In other words, it can be concluded that there is a high diversity in everyone’s food related practices and no single conclusion for food waste generated in social practices. It may not be possible to summarise all the diversified elements in food related practices of individuals in this report, but you may refer to Appendix 6 for more details of the coding analysis.

From the above, we can see an example of how other practices and practitioners affect interviewee’s current food related practices. If only one of the above mentioned elements changed, it can build another different web of food related practices. Incidentally, there are far more elements in a web of food related practices than mentioned. As a consequence, it is impossible to fully understand everyone’s food related practices in an elementary conclusion. Nonetheless, I am going to sort the findings of this empirical study with examples according to the elements construct social practices in the following, namely, a) Images and meanings; b) Skills and competences; c) Stuff and material artefacts; and d) Coordination across practices and with other practitioners.

4.2.2 Images and meanings
Different elements will have various effects on the images and meanings of food related practices. For example, people living alone may not be as coordinated and organised as people who share foods, as they want something convenient and then they get more food waste at the end. Moreover, the level of engagement is another image in food related practices which causes food waste as observed. For an instance, if people love cooking, they tend to spend more time on food, and will probably develop better cooking skill. Thus, a high level of engagement contributes to food waste reduction. However, if people have the image to store a lot of foods at home, it will usually be unused and goes off. Also, environmental awareness is not necessarily an image in food waste reduction. In addition, health issues can be another factor that affects food consumption and the following quotes give us some of the hints:

‘I wouldn’t left the fridge totally empty… there is a psychology there, you got to have something [in the fridge]’ (#3)

‘Although it is old food, but we can also eat it… I think I am not worrying about the consequences that it will brings’ (#1)

‘The [food past] sell by day… That’s a certain thing we don’t take risk with.’ (#3)

4.2.3 Skills and competences

Besides the images and meanings, skills and competences are other elements which shaping food related practices. The most related skills in food practices observed in this empirical study are cooking skills, estimation and organisation, as those skills are essential for the usage of leftover foods and prevent food goes off:

‘I quite good at mix things and fry it… And I quite like using the leftovers, so with the roasted lamb, I will make it in Greek style with mint.’ (#7)

‘And I am quite good at cooking the right amount of quantity, just like know how much meat and pasta I need.’ (#7)
‘I can use the leftovers to cook new dishes. But you know, we are quite well organised at the moment, it rarely happens. But in the past, I did that.’ (#4)

4.2.4 Stuff and material artefacts

Finally, it needs to have the appropriate stuffs to facilitate the actions for implementing those images and skills mentioned above. As a result, stuff and material artefacts is one of the three basic elements to construct a food related practice. For examples, the size of fridge can be a determining factor on how much food people are going to buy, and a freezer helps to keep the unused meat for later use, or people avoid composting as the food waste bin smells:

‘We have different shelves in the fridge… I normally use fresh foods, so I can’t buy a lot of things at the same time because they would go off. Secondly, as I have only one shelve, so I can’t physically put in lots of thing.’ (#5)

‘I usually use them [foods in the fridge] up before it goes off the use by day. I will plan, for example, cut the chicken a half, I will use half and then put it in the freezer.’ (#7)

‘I do not really do composting… it need to get the right mix up, if you put too much food waste to the brown, it will go squishy.’ (#3)

4.2.5 Interactions between elements

Furthermore, interactions between the elements that shape each other are observed in this empirical study. Interaction between image and skill with typical example as when people love cooking, they can develop a good cooking skill. With good cooking skills, they can have better usage of food ingredients including leftover foods:
'I like cooking, so will pick things up.' (#4)

'I bought some recipe books, with all the different favours come together, I learn the recipes from that. So, I quite like inventing recipes… Yea, I quite good at mix things and fry it… And I quite like using the leftovers.' (#7)

Apart from that, there are interactions found in different images too, for example, between food, health and mood:

'Sometimes I cook slightly too much for myself, and I ate it up, then I got stomach-ache… My stomach cannot handle too much food…I think food can affect my mood. If I eat too much, I can get a quite low mood, so I have to be careful about how much I eat at once.' (#7)

'I have time to cook, but I don’t have the mood to cook… I am under pressure, worry and depressed, and a lot of negative things you can think about.' (#6)

In fact, there are medical researchers who have proven the correlations between food, mood and health in previous studies (e.g. DeLongis et al., 1988; Prasad, 1998; Salovey & Birnbaum, 1989). It is indicated that a variety of nutrients in combination may indeed affect mood and health, although on the other hand, dietary influences brain chemistry, mood influences health, and vice versa.

4.2.6 Coordination across practices and with other practitioners

Eventually, practices are shaped by the three basic underpinning elements mentioned above, however, the coordination both across practices and with other practitioners do determine the structure of the web of practices as well. In this empirical study, it is not difficult to find examples regarding those interactions:
• Coordination with other practitioners

Housemates and family’s practices will bear upon one’s good relationship a lot, as it leads to different images and skills development.

‘One of the housemate is not very often in the house, he has his dinner at about 11 o’clock in the evening, so I couldn’t eat with him. The other one is not socialable, he just eat ready foods, so you cannot eat with him. And I am a vegetarian, so we cannot buy foods together.’ (#5)

‘They [the friends I am living with] are just fine, they like the idea of sharing foods, cooking together, and I think you gonna to do that, we need to be a bit of organised… as long as everyone agrees and conforms to the plan, then it all works’ (#4)

‘I think my mom affects me for doing that [about food management]… You know, it’s not necessarily the case for everybody… But I know the people I lived with wouldn’t do that… And I think it’s a sort of family culture thing.’ (#4)

‘She [my mom] is French, food is quite a big part of quality of life, so have a big variety of food, yeah, good life.’ (#7)

‘For some people, Food waste is quite a big issue, like my grandparents, especially my grandfather, because he lives through the war. He will make sure nothing go into bin… Because World War II has such an influence on them.’ (#7)

As a consequence, food management practices within a household is highly dependent upon the wills on other practitioners. If other practitioners are not cooperative, lacking skills to share, or having totally different images about food, it can build a totally different web of food related practices.

• Coordination with other practices
On the other hand, time spent on food management is an essential issue in reducing food waste. If people’s time is occupied by other practices and they have a sense of busyness or are in a bad mood, they will generate more food waste:

‘I found myself too pressurized by time… I think this encourages a lot of waste… I think is the course, I still catching up on lots of things… So it put you to convenient foods. When you are really hungry, you want something quick. Maybe it is a form of laziness. But sometime we are really busy, so a bit of contradiction there.’ (#3)

‘I have time to cook, but I don’t have the mood to cook… I am under pressure, worry and depressed, and a lot of negative things you can think about.’ (#6)

In brief, food related practices of students in this empirical study form a very complicated web of practices. Regarding food related practices, different people have diversified combinations. Therefore, it cannot be concluded simply by a single formula. On the other hand, images and meanings, skills and competences, and stuff and material artefacts are the three basic elements in forming and shaping practice. Together with interactions between elements, and coordination both across practices and with other practitioners, the web of food related practices for individuals can be tremendously diversified.

4.3 Questions to be explored further

First of all, there are not many important findings that can be concluded in the quantitative analysis of this empirical study and comparison of quantitative and qualitative data have already been done through the whole process of mixed analysis. Thus, it is not going to investigate further regarding to the difference in quantitative and qualitative results.
Incidentally, as concluded in both quantitative and qualitative data, people living alone tend to generate more food waste than the others. From the interview, it is intimated that it may because of a lack of coordination and governance. In addition, people ordering takeaway foods more often tend to generate lesser food waste. These topics will be discussed in the next chapter.

On the other hand, comparisons to other literatures can be conducted involving several other aspects related to key findings in this empirical study, for examples, what are the factors affecting people’s food management? and what are the factors causing food waste in households? Thus, the relationship between students food related practices and the food waste generated is going to be explored further in the next chapter.
Chapter 5  
Discussion

This chapter aims to further discuss and explore the relations between students’ food related practices and food waste generation. As a result, previous literature related to food waste generation will be compared and discussed with results of this case study, and relations between students’ practices and the generated food waste will be explored further in reaction to research questions stated in Chapter 1.4:

a) Are there any statistically significant correlations between demographic background of the household and the amount of food waste generated?

b) Has the level of environmental awareness of people affected the quantity of food waste generated?

c) Are the food related practices of household affect the amount of food waste generated?

d) Can implications to food waste management be derived from in depth understanding of food related practices from the perspective of social practice theory?

5.1 Demographic background and environmental awareness

According to Schneider and Obersteiner’s (2007) study about food waste in households, they concluded that demographic data e.g. age or income does not have a significant correlation with the quantity of food waste they generated. Whilst, similar results have been found in this empirical study that there is also no significant correlation calculated between demographic data (e.g. nationality, subject of study, income level, gender, living on campus) and quantity of weekly food waste the students generated. On the other hand, pro-
environmental attitudes do not necessarily contribute to pro-environmental behaviours, as human behaviour is not directly a cause and consequence of rationality (Finger, 1994; Defra, 2009; Seyfang, 2011) and there are ‘value action gaps’ in human’s decision making process and action (Blake, 1999). Regarding the effect of this study, there is no evidence to confirm the premise that people having higher environmental awareness generate less food waste. In contrast, according to interviewees, a reverse conclusion is obtained. One of the interviewees (#1) stated that she is not very worried about the effects of food waste, but her household generates not much food waste in a week, contrarily, another interviewee (#3) mentioned a lot of environmental issues about food waste, but he gets a relatively high amount of food waste in a week. As a result, it suggests that environmental awareness does not necessarily lead to pro-environmental behaviour directly and producing lesser food waste in this case. In addition, it means that the amount of food waste generated is neither associated with demographic background of household nor with people’s environmental awareness per se, but other reasons. Similar findings have been proposed in previous studies (e.g. Barr, 2000; Defra, 2009). For examples, Schneider and Obersteiner (2007) suggest that the time spent at home is one of the primary factors affecting household’s food waste generation. This assumption is to some extent similar to the result of this study, as time is limited, other practices are competing time with food related practices that commonly lead to poorer food management and more foods wasted. Another factor to explain food waste generation is the industrial commodification, which contributed to food being more affordable than it used to be in the past (Farr-Wharton et al., 2012). According to Farr-Wharton et al.’s (2012) findings, 85% people spend less than £36 per week on buying food. If foods are more affordable, people may tend to buy more, and this may also cause more food waste without proper storage and utilisation. Regarding practices, the price of foods can be one of the most important images and meanings in shaping food shopping behaviour. Therefore, availability of more affordable foods in the market can be regarded as changing one of the elements in food related practice which potentially causes more food waste.
5.2  *Food related practices*

Given that both demographic background of household and environmental awareness of people do not have direct links to quantity of food waste generated, food related practices of students, but not individualistic characteristics, may be a suitable explanation for the food waste they generated routinely. According to the results from this study, it identifies there is high diversity in people’s food related practices and no single conclusion for food waste generated in social practices can be applied to every person. Likewise, it may not be possible to summarise all the different elements in food related practices of individuals. No two people having exactly the same food related practices as there is high diversity in different people’s food related practices, hence the amount of food waste generated record in this case study can be so varied among students (0.1 to 10 kg/ head). Although peoples’ food related practices are complicated and cannot be resolved in a simple formula, there are several key points can be deduced using excerpts from interviewees:

- **Family history**

  It is found that family history can be a very important factor affecting images of food practices, for instances, by family education, the concept of treasuring foods or organised personality can be developed, and it regulates the food related practices of household:

  ‘*I think I am not worrying about the consequences that it will brings, but for my uncle…in the old day, how difficult it (food) is made, and people treasure it more than just bin it … I think it is a Chinese culture.*’ (#1)
‘I think my mom affects me for doing that [about food management]… You know, it’s not necessarily the case for everybody… But I know the people I lived with wouldn’t do that… And I think it’s a sort of family culture thing.’ (#4)

Although the interviewee presents an image of food waste prevention, the actual food related practices of the household are still highly dependent on other elements constructing the web, e.g. other practices (time constraint) and cooperation with housemates etc. On the other hand, family practices are affected by the elements of its own web and it can produce a much complicated web of food practices together. Besides, this is to some extent related to demographic background. Family history is a complex and long developed habits and tradition plays an impotant part rather than solely demographic background.

- Time spent on foods

Moreover, food related practices can be affected by the time spent on it or associated mood, just like academic works in this empirical study:

‘I found myself too pressurized by time… I think this encourages a lot of waste… I think is the course, I still catching up on lots of things… So it put you to convenient foods. When you are really hungry, you want something quick. Maybe it is a form of laziness. But sometime we are really busy, so a bit of contradiction there.’ (#3)

‘I have time to cook, but I don’t have the mood to cook… I am under pressure, worry and depressed, and a lot of negative things you can think about.’ (#6)

As every practice takes time and space to conduct, there can be keen competition in time if other practices are occupying much time in a day e.g. working and studying. Moreover, it conforms to Schneider and Obersteiner’s (2007) suggestion about the time spent at home
is one of the primary factors affecting household’s food waste generated that mentioned above.

- Coordination with housemates

In addition, the food related practices can be influenced by other related practitioner – housemates. For examples, you may have to compromise on what food to buy and cook:

‘We go food shopping together... One of the girls is very choosy about what she likes, so we normally have the foods she like owning to friendly reason. When she is not here, me and my housemate will have something different’ (#2)

‘One of the housemate is not very often in the house, he has his dinner at about 11 o'clock in the evening, so I couldn’t eat with him. The other one is not socialable, he just eat ready foods, so you can not eat with him. And I am a vegetarian, so we cannot buy foods together.’ (#5)

Moreover, it requires a good relationship with housemates in sharing of foods:

‘We all share food… you cook a big dish, and everyone can finish the leftover very quickly...As we are family, we don't have the money problem.’ (#1)

And it requires organisation and cooperation to put a plan into practice:

‘They [the friends I am living with] are just fine, they like the idea of sharing foods, cooking together, and I think you gonna to do that, we need to be a bit
of organised… as long as everyone agrees and conforms to the plan, then it all works’ (#4)

‘I would cook for them, but they didn’t offer cooks for me. And one of them is vegetarian, I don’t know many vegetarian dishes. Or sometimes I worry I will mess up cooking for others, it requires a lot of planning.’ (#7)

In brief, food related practices of individuals are so diversified and cannot be resolved by simple linear cognitive framework, but a web-like structure built up by different related practices with evolving elements – images and meanings, skills and competences, and staff and material artefacts (see Figure 4.2). However, some of the elements in the web should have larger influences in shaping the practices, for examples, family history, time spent on foods, and coordination with other practitioners observed in this empirical study, this to a certain extent contributes a better understanding of food waste generated by investigating food related practices of students. Thus, food waste is regarded as a contingent agent of specific elements within practices.

5.3 Other findings

From the above, we can conclude that relations between food waste generation and demographic background of household or environmental awareness of individuals are very limited in this empirical study. On the other hand, while understanding students’ food related practices, some of the hints about food waste generation can be figured out. Apart from the key findings concluded in the previous paragraph, there are several interesting findings (or elements within practices) to be discussed in the following:
• People living alone tend to generate more food waste

As mentioned in the previous chapter, people living alone tend to generate more food waste in this empirical study. Similar finding is stated in previous studies, and the reasons suggested are, recipes usually cater for groups of people rather than individuals so they cook too much, the food is often only available (or cheaper) in large quantities and variability in consumption has a greater impact in smaller families so they buy too much (WRAP, 2013). The above discussion is based on the decision making process in food consumption, but have not touched the issue in perspective of the practices. In the view point of practices, people living alone generate more food waste should be more related to the existence of other practitioners. Since people live on his/her own, there is no need or no way to share foods with other people in the household, and even missing the planning process before food shopping. This should be the reason why people living alone do not deliver good food management habits, and buy and cook too much as intimated above, then they generate much food waste than other groups do. By the way, as students are found mostly living with 2 to 3 housemates and more organised and cooperative, this can be a reason why students in this case study generate slightly lesser food waste than the average UK households.

• People ordering takeaway foods more often tend to generate lesser food waste

Then again, people ordering takeaway foods more often tend to generate lesser food waste are another significantly correlated finding about student’s food waste in this empirical study. There is lacking formal publications about the relationship between takeaways foods and food waste generation. However, according to interviewees’ opinion (see Appendix 5), there are several reasonable clues about the relationship. Interviewees suggest that they can accurately estimate how much they want when ordering takeaway, and takeaway foods usually come in small portions, this means they order on a needed basis as it costs and
usually do not have too much leftovers. However, food waste could still be potentially generated a lot occasionally, it depends on how organised an event likes a dinner party. In the perspective of the practices, ordering takeaways ignores most of the elements and interactions between practices e.g. food cooking, and even other practitioners. As ordering takeaways can be regarded as a personal single incident which involves only short period decision right before ordering, people can manage it easily. As a result, if people order takeaway foods, they know what and how much they are going to have every time, and do not likely to order so much as they can do calculation easily while ordering takeaways. However, this ignores the packaging problems of food in the discussion.

- Condition of storage space and the associated planning is an important issue in determining food shopping and food management

According to the report of ‘The food we waste’ (WRAP, 2007), the main reasons for food wastes in UK households include: buying too much, buying more perishable food, poor storage and management, and sensitivity to food. In the perspective of practices, it is mostly related to interaction between food shopping and food management. Many households develop their 'own principally tacit system of organisation whether it is ordered or chaotic' (Farr-Wharton et al., 2012: p. 120), but as discussed before, it can be highly depended on household's family history, coordination with other practitioners, and interaction with other practices. According to the interviewees, fridge and freezer (storage space) are a major issue in deciding food shopping and management, e.g. How much they could buy? How long can the foods stay? etc. On the other hand, strong positive correlations between planning behaviours are suggested in previous literatures - planning meals in advance, checking food levels prior to shopping; and making a shopping list (Garnett, 2007; Hand & Shove, 2007; Quested et al., In press), which are highly associated with the condition of fridge and freezer – one of the key stuff and materials artefacts in constructing food related practices.
In conclusion, in response to the research questions, household’s demographic background or individual’s environmental awareness per se do not have significant influence on a household’s food waste generation, but people’s food related practices. Although peoples’ food related practices are so complicated and cannot be concluded in a simple formula, there are several key points in determining food waste generation can be summarised and presented as examples with citations from students in this empirical study: family history, time spent on foods, and coordination with other practitioners. Also, several other findings are also discussed, this provides a more thorough understanding about the relationship between the students’ food related practices and food waste generation. After possessing a thorough understanding about how people’s practices generate food waste, in the next part, implications for food waste policy with the perspective of social practices will be discussed.

5.4 Implications for food waste policy

Barr et al. (2011: p. 712) suggested that ‘address the role of context and recognise the importance of consumption spaces and the conflicts that may arise between these’ is an appropriate way of looking into the waste problem. There are 2 central questions to be addressed in achieving more sustainable food waste policy: “1. How are social and materials ‘connections’, or interdependencies between utilities and users changing? 2. What do these developments mean for the construction of more sustainable systems of provision?” (Van Vliet et al., 2005: p. 2). In the following, we are going to explore more on the two questions.

By summarising the above chapters, the relations between food waste generation and students’ food related practices are found a dramatic complexity. On the other hand,
environmental awareness of individuals or households’ demographic background is found not necessarily correlated to food waste generation. As a result, it implies food waste policy should not merely focus on educating people about environmental consequences of food waste or attempts in changing individual’s behaviour, or targeting a particular group of people to deal with food waste. In contrast, social practices about food should be the appropriate perspective in formulating food waste policy. However, when governments formulate active policies to promote more sustainable consumption behaviours, the individualistic paradigm would most likely be embraced as the framework for organising concrete policies as politically acceptable and economically rational tools for changing consumption pattern, e.g. cleaning up production processes and marketing green products (e.g. Ekins, 2003; Defra, 2008). In the perspective of social practices, it may help in changing people’s images and meanings about food consumption. However, social practices are far more than images and meanings, but consist of other elements such as skills and competences, and stuff and material artefacts. Also, the coordinations both between elements and among practitioners are highly influencing practices. Thus, considering the complexity of food related practices, there would be no universally applicable solution to minimise food waste to fit in every household or individuals. Spaargaren & Mol (1992) suggest sustainable of transformation practices needs a combination in ‘bottom-up’ consumer activism and a ‘top-down’ greening of system of provision. As food waste generation is found a contingent agent resulted in coordination of elements of different practices and people may act differently among policy, this implies different outcomes among people in reaction to the same food waste policy. In other words, there should be a ‘buffet’ of food related policies regarding different stakeholders and various elements of the food cycle, instead of just focusing on the food waste generation (Cox et al., 2010; Lamb & Fountain, 2010). With reference to the analysis of this empirical study, other practitioners include mainly household members, family, producers and retailers, and local authority. In more details, coordination with household members e.g. cooking together, sharing of foods, the need for planning etc. plays a pillar role in shaping images and meanings of food related
practices. On the other hand, family culture contributes mostly on images and meanings such as preserving foods, and skills and competences e.g. food management and cooking skills. Manufacturers and retailers mainly shape the food shopping practice of people by pre-setting system of food provision. Lastly, the local authority should be a ‘top-down’ force in shaping the situation of practices by providing utilities. In other words, the web of food related practices helps to combine those essential building blocks into integrated strategy, for examples, establishing sets of relevant elements needed for policy making, investigating the production-consumption chains, understanding different people’s practices, and recognizing the role of governmental and non-governmental actors in environmental policy making (Spaargaren, 2003: p. 697-698). As a result, it is not investigating how a particular policy change peoples' behaviours to reduce food waste, but to understand and design series of elements in social practices for people to generate less food waste.

Likewise, in the perspective of social practices, the elements forming the web of practices should be the main focal point instead of the people – ‘carrier’ of practices (Hargreaves, 2011). As a result, to implement food waste policy with the perspective of social practices, we can categorise the ‘buffet’ of food related policies into various elements forming practices, namely, images and meanings, skills and competencies, stuff and material artefacts, and coordination both among other practices and practitioners. For examples, regarding images and meanings, hints and recipes (e.g. LFHW, 2013) and ethical tax (Vinnari & Tapio, 2012) can be provided to people, cookery training (Schneider, 2008) and fridge colour coding system (Farr-Wharton, 2012) can be inserted to enhance people’s skills, shopping with a shopping list and home composts facilities (e.g. Harder & Woodard, 2009; Iacovidou et al, 2012) can be promoted to facilitate people’s actions. Also, more time is needed to be spent on food, so that people can have a better coordination about practices. In short, the key questions are how to help people coordinate the time spend on food better? and how to help people coordinate with other practitioners better? Literally, by implementing various measures in food related practices, food waste and associated energy use reduction
is indicated in an institution based case study (Clear et al., 2013). However, there are spatial and temporal-cultural differences (Menzel & D’Aluisio, 2007) suggested by interviewees in this empirical study e.g. different lifestyle in the UK and France (#7) and different food shopping habits in 60’s and modern UK (#3). As a consequence, food waste policies should be planned locally and learned and adjusted iteratively over time.

Ultimately and ideally, a sustainable food cycle has to meet several criteria to assure the policies’ effectiveness. Seyfang (2011: p. 61 - 62) suggests 5 indicators in determining sustainability of the food system: 1. Reduce ecological footprints, 2. Localisation, 3. Community building, 4. Collective action, and 5. New system of provision. Literally, there are quiet a lot relevant researches have been done regarding to waste management, however, it needs to consider how to decide and implement appropriate policy recommendations under current socio-technological circumstance with the perspective of social practices and sustainability. For examples, local supply of foods (Seyfang, 2006), community garden and community tutoring program such as partnership working and cookery training (WRAP, 2011b), Food cycle and Food swap (Food cycle, 2013; Norfolk County Council, 2013), and local farms and flexibility in food products’ pre-set quantity etc. Incidentally, the results of policy can be adversely influenced by political circumstance (Morse, 2006). Nevertheless, it is not in the discipline area of this empirical study as it needs far much accessibility for data collection (Von Maravic, 2012).
Chapter 6 Conclusion

The aim of this empirical study is to learn more about the relationship between social practices and food waste by a case study of students’ food related practices. In order to conduct the mentioned study, a mixed research method which builds upon previous relevant studies is implemented. Regarding the objectives of this empirical study, there are 4 research questions presumed to be explored at the outset, these are set to investigate into different factors influencing food waste generation, namely, demographic background of household, environmental awareness of individuals, food related practices, and the implications of food practices to policy making. In the first part of this empirical study – quantitative analysis, the first two presumed research questions have been concluded fail to explain the food waste students generated in this case study. It implies that the amount of food waste generated is neither directly correlated to the demographic background of household nor the environmental awareness of individual per se, but some other reasons. These findings follow the results of previous studies. As a result, the second part of this empirical study – qualitative analysis built upon the findings of quantitative analysis and focus on the relationship between the students’ food related practices and the generation of food waste.

With reference to key findings of this empirical study, it shows food related practices of students form a very complicated web of practices. Regarding the food related practices, different people have diversified combinations of elements. Therefore, it cannot be concluded simply by a single formula, but a web like structure. On the other hand, images and meanings, skills and competences, and stuff and material artefacts are the three basic elements in forming and shaping practices. Together with interactions between elements and coordination both across practices and with other practitioners, the web of food related
practices for every person can be tremendously diversified. Literally, food waste is concluded as a contigent agent resulted in the coordination of elements of different practices. Although peoples’ food related practices are so complicated and cannot be resolved in a simple formula, there are several key points can be summarised and presented as examples with citations from interviewees in this study, namely, family history, time spent on goods, and coordination with housemates. Regarding fulfilment of the required outcomes at the outset of this empirical study, all of these have been provided a sound solution and discussion: 1) In depth understanding about students’ food related practices; 2) Relations between students’ food related practices and the food waste generated; 3) Implications for food waste policy making. However, there are several areas about food waste and social practices need to be further explored.

First of all, this empirical study focuses on the later stage of the food cycle (please refer back to figure 2.2). Thus, the food waste induced in the early stage of the food cycle is omitted in this empirical study. In order to have a better understanding about the food waste generation of the whole food cycle, further studies have to be consulted or conducted. Nevertheless, this is not the main study interest of this case study, but regarded as a element of the infrastructures of food provision (Van Vliet et al., 2005). In the perspective of social practices, the centre of analysis will be the study of social structure adding a focus on systems of provision. As a result, regarding student’s food related practices, the coordination of food shopping, food consumption and food disposal are the main focus within the food cycle.

On the other hand, this is an individual case study conducted in a university. It to a certain extent provides understanding about people’s food related practices. However, if a larger scale of research which includes much diversified people’s food related practices and food waste generation can be deported, it might provide much information and knowledge in this subject. However, the difficulty in conducting the research will therefore increase correspondingly. Incidentally, the findings concluded in this empirical study mostly apply
locally as social practices are highly influenced by spatial and temporal-cultural differences. Thus, food practices summarised and the associated policy implications in this empirical study may not apply to another country or area. However, while investigating into local food waste problems in other places, the perspective of social practices and the mixed research method suggested in this empirical study still applies.

Lastly, regarding the implications to food waste policy making, this empirical study suggests appropriate policies in reaction to the perspective of social practices to reduce food waste. However, for the effectiveness and application of the suggested policies, further studies will be needed.
References


WRAP (2007). *The food we waste.* WRAP.

WRAP (2011a). *New estimates for household food and drink waste in the UK*. WRAP.


Appendices

Appendix 1 – Template of invitation e-mail

Hi,

I am a Masters student in the School of Environmental Sciences at UEA. For my dissertation I am investigating the issues that influence how much food waste generated by UEA students.

If you’re a UEA student I’d be really grateful if you could spare roughly 5 minutes of your time to complete an online questionnaire.

Please click here to go to the questionnaire – http://www.surveymonkey.com/s/ueafoodwaste

This should take approximately 5 minutes.

Please also pass this email onto any other UEA students you think might be interested in taking this survey.

THANK YOU!

Joe Law
Appendix 2 – Template of consent form and questionnaire

How everyday food related practices generate domestic food waste – case study: UEA’s students

Background information:
This research project is investigating in students’ food waste related practices. A case study involving local and international students studying at the UEA will be conducted to try and understand what causes food waste and how this might be reduced. Implications for how to improve food waste management strategies on the campus and more broadly may be concluded.

Statement of consent:
I understand that my participation in this research project will involve taking part in an online questionnaire and, potentially, an in-depth interview.

I understand that my participation in this research project is entirely voluntary and I can withdraw from the study at any time at will.

I understand that I am free to ask any questions at any time. I am free to withdraw or discuss my concerns with Mr. Joe Law (kai.law@uea.ac.uk) or Dr. Tom Hargreaves (tom.hargreaves@uea.ac.uk). I agree that data obtained in the project may be utilized in discussion with other researchers, in any ensuing presentations, reports, publications, websites, broadcasts, and in teaching.

I understand that the information provided by me will be held confidentially until 2014 for research purposes only. I understand that I can ask for the information I provide to be deleted/destroyed at any time and, in accordance with the Data Protection Act, I can have access to the information I provide at any time. I understand that in all publications and discussion of the research all information I give will be made anonymous with only pseudonyms and generic identifying features utilised for identification.

I agree to take part in the questionnaire.

I consent to participate in this research project conducted by School of Environmental Sciences, University of East Anglia.

☐ Yes

☐ No
Estimation of your food waste

1. Please estimate how much food waste do you generate in a week?

The following information may help you estimate your weekly household food waste:

- In this study, ‘food waste’ includes food and drink waste: home compostable and non-home compostable; avoidable, possibly avoidable and unavoidable, and packaging materials are excluded.
- In 2010, an average UK household generated **over 6 kg of food waste per week** (WRAP, 2011).
- A 2-litre ice-cream container filled with solid food waste weighs about 1kg.

My household generates approximately ______kg of food waste per week;

Within my household’s food waste, the ratio of cooked and uncooked food waste is approximately ___ : ___

Please add any further comments here: (optional)

Food related practices

Shopping

1. How often do you normally go food shopping?
   I. Less than 1 day a week
   II. 1 – 2 days a week
   III. 3 – 6 days a week
   IV. Everyday
2. Approximately how much do you spend on household food per person per week?
   I. Less than £20
   II. £21 – £35
   III. £36 – £50
   IV. More than £50

3. Where do you mostly go shopping for food and how often?

<table>
<thead>
<tr>
<th>Always</th>
<th>Often</th>
<th>Sometimes</th>
<th>Never</th>
</tr>
</thead>
</table>
   I. Farmers markets
   II. Local shops /Convenience stores
   III. Supermarkets
   IV. Online
   V. Other places, please specify

4. What are the 3 main criteria you use when buying food? (please rank 1 – 3)
   I. Freshness (seasonal)
   II. Taste
   III. Price
   IV. Amount of packaging
   V. Aesthetics
   VI. Healthiness
   VII. Novelty
   VIII. Religion
   IX. Customs
   X. Local foods
   XI. Other criteria, please specify

5. When you buy food, who do you normally buy it for?
   I. Just Myself
   II. My family
   III. My housemates
   IV. Others, please specify

Cooking and eating

6. In a normal week, how many times do you eat at home?
   I. Less than 1 day a week
   II. 1 – 2 days a week
   III. 3 – 6 days a week
   IV. Everyday

7. What type of food do you mostly eat at home and how often?
<table>
<thead>
<tr>
<th></th>
<th>Always</th>
<th>Often</th>
<th>Sometimes</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. Takeaways</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>II. Self-cooked foods</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>III. Ready meals</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>IV. Canned foods</td>
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<tr>
<td>V. Other foods, please specify</td>
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</tbody>
</table>

8. How often do you cook different the different types cuisine listed below?

<table>
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<tr>
<th></th>
<th>Always</th>
<th>Often</th>
<th>Sometimes</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. British</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>II. Chinese</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>III. French</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IV. Italian</td>
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</tr>
<tr>
<td>V. Indian</td>
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<tr>
<td>VI. Japanese</td>
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<tr>
<td>VII. Thai</td>
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<tr>
<td>VIII. Other cuisine, please specify</td>
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</tbody>
</table>

9. How often do you watch food programmes on television?

<table>
<thead>
<tr>
<th></th>
<th>Less than 1 day a week</th>
<th>1 – 2 days a week</th>
<th>3 – 6 days a week</th>
<th>Everyday</th>
</tr>
</thead>
<tbody>
<tr>
<td>I.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>II.</td>
<td></td>
<td></td>
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<tr>
<td>III.</td>
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<tr>
<td>IV.</td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

10. How often do you cook recipes that you’ve seen on food programmes?

<table>
<thead>
<tr>
<th></th>
<th>Less than 1 day a week</th>
<th>1 – 2 days a week</th>
<th>3 – 6 days a week</th>
<th>Everyday</th>
</tr>
</thead>
<tbody>
<tr>
<td>I.</td>
<td></td>
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<tr>
<td>II.</td>
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<td>III.</td>
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<td>IV.</td>
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</tbody>
</table>

General waste disposal

11. How do you handle your leftover food?

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<thead>
<tr>
<th></th>
<th>Always</th>
<th>Often</th>
<th>Sometimes</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>
I. Store it in fridge and reuse later
II. Home compost in garden
III. Put it in council-provided compost bin
IV. Throw it away into general waste bin
V. Other, please specify

12. What are the main reason that cause you to waste food
   I. My busy lifestyle makes it hard for me to plan properly
   II. Food storage – food goes off too quickly
   III. I buy too much
   IV. I cook too much
   V. Other reasons, please specify

Please add any further comments here: (optional)

Do you agree with the following statements about the environment? (1-12)

Please put a tick (✓) in the appropriate box.

<table>
<thead>
<tr>
<th>Agree</th>
<th>Not sure</th>
<th>Disagree</th>
<th>Statements</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>1. Mankind was created to rule over the rest of nature.</td>
</tr>
<tr>
<td></td>
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<td></td>
<td>2. Humans have the right to modify the natural environment to suit their needs.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3. Plants and animals exist primarily to be used by humans.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>4. Humans need not adapt to the natural environment because they can remake it to suit their needs.</td>
</tr>
</tbody>
</table>
5. We are approaching the limit of the number of people the earth can support.

6. To maintain a healthy economy we will have to develop a "steady-state" economy where industrial growth is controlled.

7. The balance of nature is very delicate and easily upset.

8. When humans interfere with nature it often produces disastrous consequences.

9. Humans must live in harmony with nature in order to survive.

10. The earth is like a spaceship with only limited room and resources.

11. There are limits to growth beyond which our industrial society cannot expand.

12. Mankind is severely abusing the environment.

**Demographic**

1. How old are you?
   I. Under 19
   II. 19-25
   III. 26-30
   IV. 31-50
   V. Over 50
   VI. Prefer not to specify

2. What is your gender?
   I. Female
   II. Male
   III. Prefer not to specify

3. What kind of degree are you studying for at UEA?
   I. Undergraduate
   II. Postgraduate
   III. Other qualifications, please specify
   IV. Prefer not to specify

4. What is your approximate average household income?
   I. Less than £15,000
   II. £15,000-£30,000

66
III. £30,001-£45,000
IV. More than £45,000
V. Prefer not to specify

5. What is your current household composition?

I. No. of children (Under 10) 
II. No. of juveniles (10-19) 
III. No. of adults (20-60) 
IV. No. of elderly (Over 60) 
V. Prefer not to specify

6. Are you studying an environment-related subject at UEA?

I. Yes 
II. No

7. What is your nationality?

I. UK 
II. EU 
III. Asian country 
IV. Other nation

8. Do you live on campus?

I. Yes 
II. No

Please share any further comments here: (optional)
Thank you very much

This study is looking for some interviewees to take part in a more in-depth interview about your food related practices.

If you are interested, please provide your name and e-mail address for contact purpose, thank you.

-End of questionnaire-
Appendix 3 – Protocol for in depth interview

1) Starting to talk through an average day or week and food consumption during it;

2) Retracing the short-term history/future of that week (e.g. shopping, cooking, eating, and disposal);

3) Tracing the long-term history/future (e.g. where did they learn to cook, have things ever been different - why/how? …etc.);

4) Asking more specifically about food waste.

→ Find out more about how the images, skills, and stuff of food related practises are involved, and how does it intersects with other everyday practices.

1. Main aspects about food to be asked
   • Example questions/ purpose

1. Household composition
   • Do you think it causes more food waste living alone? And why?
   • Do you share foods with your housemates? How?

2. Record dairy of food waste
   • Discuss and learn more about interviewees' daily practice

3. General idea about food
   • Where do you learn most of the knowledge about food?

4. Food shopping
   • Can you tell me the 3 main criteria that affect you most in food shopping? And why?
   • Do you usually go shopping with a shopping list? How and why?

5. Food preparation
   • How do you decide what to cook? And why?

6. Dining habits
   • What kind of food do you usually eat at home? How do you decide it?
   • Do you usually eat takeaway foods? And why?

7. Food storage
   • Will you store a lot of foods in fridge? And why?

8. Food disposal
   • How to define food waste? e.g. cooked and uncooked
   • Do you think food waste concerns you? Can you tell me more about food waste?
   • What will you throw away? And why?
   • How would you avoid food waste?

9. Other practices that might affect food management
   • In your normal day, what do you think that will hamper you managing your foods?
Appendix 4 – Template of food waste diary

About your daily food waste practices – please record how you generate food waste in a normal day, thank you.

Food waste is an important issue in solid waste management that brings us many problems in resource, environment and monetary issues…etc. to the society.

To better learn about food waste in this research and suggest measures to the food waste problems, an accurate estimation of your daily food waste generated is really important!

Record dairy

<table>
<thead>
<tr>
<th>Time</th>
<th>Activity</th>
<th>Food waste generated (if any)</th>
<th>Food waste’s quantity</th>
<th>Other comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>07:30 – 08:00</td>
<td>Preparing breakfast</td>
<td>Bread</td>
<td>3 pieces</td>
<td>Those are rotten, as I haven't finished it on time</td>
</tr>
<tr>
<td>08:00 – 09:00</td>
<td>Breakfast</td>
<td>Egg shells</td>
<td>2</td>
<td>I will only have eggs for breakfast twice a week</td>
</tr>
</tbody>
</table>

The above are examples for you.
Appendix 5 – Sorted transcriptions by case

Coding #1

General food habit:

We go food shopping every week, mostly on Sundays. We usually shop for the whole week…feeding about 6 to 7 people. We may buy during the week as well if we fancy something suddenly, we go and get some more.

We all share food… you cook a big dish, and everyone can finish the leftover very quickly…As we are family, we don’t have the money problem.

Food shopping habit:

You need to plan 2 days ahead, for examples chicken and lamb, you have to defrost them… and put some favours onto it, it will take about 2 days… if anything we haven’t got, we will go to Tesco express to buy the extras.

Food diversity:

For Chinese food, it’s normally a dish of meat… normally 1 each per night, we have a veg. of Chinese leaf or Chinese cabbage…cucumber and pepper, those are most comment types of veg. And meats will be normally lamb, chicken or beef… We also cook pasta…cook sauce with them… and also baking… We normally do it on Sunday, sometime we will be lazy, we order takeaway or pizzas.

Leftovers:

We usually put tem into tin… cover it by cling film, and put it in the fridge… We normally save it for 2 to 3 days, if we don’t finish it, it will be binned, but we normally finish it.

Interviewer: So do you usually have some leftover every meal?

Yes, just like if anyone didn’t eat much that night, it normally like 1 person [portion] leftover per day, but obviously we gonna to eat it the next day, so it wouldn’t be that much.

How to avoid food waste:

I think the first point is to know how much each person eat… so you able to estimate how much food you need in a week… when there is something extra, just like the bread, we will feed it to the duck, it is not becoming food waste I guess. When there is leftover, we can also combine it with new dishes… although it is old food, but we can also eat it. So I think you have to know how much you can eat and you buy at the first place, and teaching it to your family is also very important.

We can use it to cook noodles for lunch… so turn it into other dishes, that’s eatable and consider to be yummy I think.
Sunday and takeaway foods:

Because you need to pay for the portion, and the portion is normally… I think we normally ordering less.

Criteria to select food:

I think it is the price, and the freshness as well… frozen veg, we rarely buy it… And snack, I’s not the main meal, but we will buy it as well.

I think is price, when the product in special offer, we will get quite a few.

Food shopping:

Usually supermarkets… sometimes we buy in wholesale as well, as we need to feed quite a few people, so the food goes quite quickly… something that we buy in bulk, we will make sure that it goes quickly… or cut off and put some favours in, you know, that the meat will not go so quickly… and store them well… and the you can eat it in a week… And the out of day is not tat short either, anything we buy in bulk, we will check the out of day as well, so that we can finish it on time.

Best before day:

If the food past the best before day, will you still eat it, or throw it into bin? (Interviewer) No, we still eat it… looking to see if it’s still fresh…

Learn to cook:

Family I think, mom, auntie…they teach me how to prepare the food and cook…. We normally avoid cutting too much of it [foods’ cut off parts], because if can save a lot over a year, its family culture as well. If your family told you that way, the kid will grow up that way…

Food waste:

Anything that eatable you bin it, or something eatable gone wrong and you bin it. So do you think food waste concerns you? (interviewer) No… to me, my uncle’s a kind to preserve every foods that’s eatable, I don’t know the other household obviously, but they might have more food waste than we do, this might cause a problem, but I don’t really know… I think I am not worrying about the consequences that it will brings, but for my uncle…in the old day, how difficult it (food) is made, and people treasure it more than just bin it … I think it is a Chinese culture.

Fruits… because that go bad quite quickly, say if you buy strawberry, it goes wrong within a week. If you don’t finish it quickly, you left them there… I think that’s the one mostly become food waste. Unlike the bread, you can feed it to the birds… So just like fruits and cut offs something like that? (Interviewer) Yes.

Disposal of food waste:

We have a food waste [bin], but belongs to the shop that my uncle and auntie run, normally we put it in there.

Other practises:
My family members they cook for me, so if I am on my own, it would be like that. I will probably eat out… when I eat out, I probably cannot finish the whole portion… When I eat at home, obviously I can save it for next meal, and share the food between us… The fact that I don’t need to cook myself, I found it easier [to manage the foods]…

We will have hot pot [sometimes]. It’s a Chinese style of meal, you have a bowl of soup in the middle, raw foods surrounding the pot, we put it in and cook it, and then eat it straight away. I think that way is even less food waste, because anything stays raw, anything being uncooked… it will still be fresh and just the bowl of soup leftover.

**Coding #2**

**General food habit:**

I and my housemates will cook together… I cook breakfast myself, I do cereal or toast…Lunch, it depends what we got in our house, normally like pasta… And dinner we will cook together, 3 of us… we are sharing foods together.

**Food shopping:**

Normally we do a weekly shop, plan what main meals we gonna have each night, and what ingredients we need, what we already got, we do it in that way… We have got a shopping list, sometimes we do it with the internet so we make a list of what we need… it’s just the Tesco website, to see the thing we want to buy… If we are going to have a chicken meal, we figure out how much chicken to feed 3 of us, and get some pasta as well… We use a recipe to cook and it tell us how much quantity is needed , so when we plan, we’ve already got an idea about how much do we need.

We go food shopping together… One of the girl is very choosy about what she likes, so we normally have the foods she like owning to friendly reason. When she is not here, me and my housemate will have something different… We do a lot of chicken because one of the housemate really likes chicken… We sort it out with the meal we all like it.

**Eating habit:**

We will have the dinner all together and have breakfast and lunch separately… I will prepare the lunch and then bring it to campus.

**Cooking habit:**

We [in charge of] cook in turns… we write down what we are going to have tonight, and what to be get out of the freezer… We sort it out at the beginning of the week we sit down altogether [to plan].

**Food planning:**

On the weekend when we got more time, we sit down together and sort out what sort of food we gonna have during the week. Normally we got an ingredient list to know what should be used if we have already had it for a while… and figure out a certain type of meal that will use
that… We just plan it that way, because we find it easier to buy ingredients to feed 3 people instead of buying separately… I think it save time and space if we do it together.

When we first move in the house, we cook separately but it didn’t work well … When all of us want to cook together, everyone is in the kitchen doing different things at once. We found it easier if we cook together and eat together anyway… I think we work quite well.

Knowledge about food:

My mom is a vegetarian, so I know a lot of vegetarian issue. Because we will not have a lot of meat at home, so when I prepare food myself, I will cook some meat…. In holidays, may be trying different things… refer to recipes and I try it out… not everyday, but wen I see something new, I will get the quantity and ingredient right… but it may be sometimes hard to get the ingredient you don’t really have…

[cook everything, like smash potatoes, fish and chips… Couscous…]

Reason of food waste:

Especially the pasta and rice, you can’t really get the exact portion… And refer to the guideline you have to use it in a time period after you open the package, just a bit worry about the meat… it’s a issue of healthiness.

Food waste:

Foods no longer suitable for eating… So do you think food waste concerns you? (Interviewer) Yes, especially after I’ve finished the diary, so I am more aware of it… I think you don’t normally think about it in a daily life about wasting food… it is not being promoted as much. In Norwich, you do have a lot of food waste bins, but back home we don’t have such a thing like that council provided for food, so it [food waste] probably being thrown into general bin and go to landfill.

Other practises:

Wen you are cooking, you can’t do it in a busy day… perhaps you go for something in the freezer or ready food, it can be more than you normally cook, just making a big portion… like the jar of curry sauce, it is normally quite big…

Cooking skill:

We are all good at cooking… we all enjoy cooking, especially during weekends when we have more time…

Difference from home:

I, my mom and my sister might have the same thing, but my dad doesn’t really like vegetarian food, he might have something different… My sister got a little girl, we cooking for her separately, so will probably have more [food waste] when I got home, as there will be many different meals going on.

At home, we will not sit down and think what’s gonna eat every night. They will cook by whatever they got and buy… we have a big fridge… it’s big actually, but it’s really full.
We normally have vegetables, peeling… we give it to the horses… And I never know what [food] we got in the fridge, I will have a look when I get home.

**Takeaway foods:**

I think it is more [food waste], as the portion is quite big… You may put the pizza in the fridge and finish it the next day… but it will normally generate more food waste.

**Coding_#3**

**General food habit:**

I am a vegetarian, so I don’t have meat as much…Usually with my partner, we have fish and chips takeaway on Saturdays… I rely too much on ready meal… I have got a big freezer, and a table top freezer, they are jam packed with food, you can conclude it a lot of prepared food.

**High awareness of food waste:**

I will put some of the [food] waste into the green waste bin as they are vegetables… but it is very embarrassed to throw it away, as they are composted when it past the sell by day on the ground of safety, I have to get rid of them. So, I have too much food in the house, mush is wasted. As I am not living with my partner, when I go to her, the food will easy past the sell by day.

I will think about how much it [food waste] costs me... [According to a report] The amount of food being wasted is shrinking according to the food price starts to rise.

Food security is a very important issue, and we do need to look into how can save the amount of waste, the whole cycle, right down to the retailer, right down to the consumer, and particularly to the industrialized countries, coz we used to be rely on cheap food [from less developed countries], and I think this encourage you to waste food.

I am changing practices, e.g. for the milk, I normally buy a 4 pints container, and now I but a 2 pints container. It is less pressure with cost of pint bin… so I trying to change my practices, when I go around the supermarkets… I will think about will I really use it [food]?… You will feel really embarrassing when you see the world starving… But there will be a lot of works, you know, how you can cope with the special offers in the supermarkets, the buy 1 get 1 free… I think they have the responsibility there as well… But I will try to buy a small package to avoid waste… So I am changing my practice, but sometime it could be very difficult.

Interviewer: Where do you found that information?

The waste resource is actually a good starting point, and you get updated from naturecycle.com… and a number of twists around the world as well. And I am also quite interested in the packaging industry, what role they will play in the supermarket?

**Evolving food provisioning:**
I think in this country, most people will buy from the supermarket, the fruit and veg shop has almost disappeared in the high street… In the early 1960’s, people had plenty of garden, they grow a lot of own food. In my case, my mother didn’t go out to work… so she go out shopping in every few days and bring back what she can carrying with her carry bag… There wouldn’t be so much food in the house, and it would be used up quickly… Pattern of shopping has changed, people go supermarket, they will do a big shop in a week, they will be intended by the special offers.

And the technology affects people’s shopping habit as well... People will buy according to the weather forecast, so if it is going to be warm and sunny, they have to buy in barbeque type of food.

But shopping has changed… we didn’t waste so much back to the 60’s, behaviours as well. We have to reserve the bottle and bags, not to throw it away, and they daily delivery of milk, which is rare now, you order in need… People now are concerned about the way how the food produced. Are they local food? And they concerned about GM food, pesticide food...

**Eating habit:**

Fridge is jam packed, you think OK, I will put a jacket potato into microwave, cheese salad. And I am thinking, the next day I will have something different, and perhaps you will forget about it.

**Bread-maker’s story and reason of wastage:**

I have a bread maker at home, probably 2 years, maybe 3 years, but I haven’t use it, it is embarrassing… I got the ingredients, I haven’t used the ingredients neither, they will go past the use by day, ad it happens once or twice, I hate to say that…

Interviewer: So, what makes you doesn’t use the bread maker?

It’s time, I think when I am during the course, you know, I just didn’t have the time or I am being lazy… especially when my partner is back to Devon… it is all the time factor, I think if I have more time, it won’t be have such a problem… But while it is so convenient on the shelve, I think that also encourage a lot of wastage. And also you can’t avoid potatoes peeling, carrot peeling… Again, if I am in a hurry, I will just cut off a lot of potatoes peeling.

**Neighbour’s behaviour:**

We are paying the same council tax [for food waste compost]… when you see your neighbour is making little effort or just buy very badly, and this also worry you... I will think am I subsidizing my neighbours? And it will make you feel really annoying.

**Food shopping:**

I am trying to change thing, to reduce thing… Usually [go food shopping] once a week… I wouldn’t left the fridge totally empty… there is a psychology there, you got to have something [in the fridge]...

You buy more than you intended to [in the supermarket], but then you know you forgot something and you have to go back again… I forgot to buy some liquid soup, it got an
excuse to go back to the supermarket again… and you think that’s new, that looks nice, I will try that… I need to be more aware, but it is what I ought to be [buying too much].

Do you usually go food shopping with a shopping list?

I should have done, sometime I did, but not always.

**Intention to change:**

There is a lot of thing I still need to change to be a better consumer. Save me money, and I know about the environmental consequences…

I need a method, I need to write it down… I am too forgetful.

**Interviewer:** How do you decide what to cook?

If I am hungry, I will cook ready meal. If I have more time that I feel less pressure, I will prepare something… I have never been to a cookery course, so what I am doing is self taught, usually just 1 course, no starter, no second course… But what I am going to cook is really depends on how hungry I am.

**Interviewer:** So, what you decided to cook is just depends on what you have got in the fridge?

Yes… so I will store a lot of food in the fridge, but they will be composted after the sell by day, that makes me feel embarrassing. And I will think, god, how much this costs me? How much that costs me?… you know just got a lot of best food, there’s no nice recipe to work through.

May be I have to improve my cooking skill, so I can have better use of the ingredients… use some more of the cook book, and need more imagination.

**Reason for food waste:**

I found myself too pressurized by time… I think this encourages a lot of waste… I think is the course, I still catching up on lots of things… So it put you to convenient foods. When you are really hungry, you want something quick. Maybe it is a form of laziness. But sometime we are really busy, so a bit of contradiction there.

**Cooking habit:**

**Interviewer:** Do you usually try to cook different dishes?

I try to, I am a bit ambitious. I have got a lot of cook books, but the sad thing is I haven’t used it, they are always on the book shelve… I have read them all, but rarely practice it.

**Interviewer:** So do you usually cook similar foods every week?

It often feels like it. Sometime I will do something like pasta or egg salad just for a change.

**Food waste:**

The food you don’t use too much and I think there is a quite poor management within your home, and an issue of personal favour… And I think the real reflection of consumer society…
Interviewer: So, what is the technique to reduce food waste?

I think is better planning, and storage, what I have? What do I need? … What’s in the freezer? What’s in the tin?

Interviewer: What can you usually find in your food waste bin?

Salad, eggs… there is not too much after I prepared it, you know, I will eat up what in front of me… mostly just the cut offs, and the [food past] sell by day.. That’s a certain thing we don’t take risk with… I don’t have much leftover… but sometime I may prepare too much, e.g. too much potatoes.

I do not really do composting… it need to get the right mix up, if you put too much food waste to the brown, it will go squishy.

Coding #4

General food habit:

My daily life… just cereal and milk for breakfast, some snacks in between meals. For lunch, just sandwiches, and a piece of fruit like apple, banana … And dinner, what we are doing in the house is we all [3 people] cook together, it’s a bit of rotate, a bit of system going, somebody in charge of cooking each day… And we generally quite like cooking, so got quite a lot recipe books… We cook Italian, German, American style, Mexican, Curry, Thai curry as well, a bit Chinese foods sometimes… cover most of the world… And we normally make a cake once a week.

As a house, we have a share account, we will pay into each month and buy all the food. So normally a big shop some point during the week, you know, to get most of it [the foods]… but we normally end up going to local Tesco maybe a couple of time that week to get some milk or bread, something like that.

Food shopping:

Normally we all in the house in evening, eating together, so we talk about what to eat the next week… If we plan to cook, say 2 meals, then pretty much a week done. And then, you know, what do you need to cook that? Do we have it? Make a shopping list… It general works quite well.

If it is something that I need for a recipe, say it needs 400g of dark chocolate or whatever, on the shopping list I will write down how much I need. So it ends up will not buying too much or too less I guess.

Interviewer: But normally, you don’t refer to recipes when you go food shopping?

Well, it depends. It depends on how well I know about the recipe. So, you know, if something I know really know how to cook, I don’t… you know, it’s [the ingredients needed] already in my head, so just normally look to see what we already got and then go and buy.
Interviewer: So when foods are in special offer and come in a big bundle, will you still buy it no matter you can use it all?

I think it depends on what it is. If it’s something like a jar of sauce, it’s not going to go outdated, so it’s gonna get used... But if it is something perishable, like vegetables or meat or something, I will probably think about it a bit more, probably less likely to buy it. Because we do go buy food together as a group, it’s... for example, bread, we get lots of bread, but bread never goes off, you know, we got 3 people making sandwiches everyday... so it disappears.

[With planning ahead] you only buy what you need.

We used to buy some fresh herbs, and put those into different dishes, and those are quite nice. But it usually ends up a quarter of package left. So, we now try to stop buying those herds, but use dry herbs.

**Leftover:**

Sometimes, in terms of like leftover milks, leftovers like just general foods. General if it is cooked to meal, it will all be eaten...

It’s not normally cooked food leftover, but occasionally if you buy some fresh products, or something like you need a couple of these for cooking, then the rest make just get left in the fridge slowly. Yeah, so bit of pizza like that, but not a huge amount end up... I don’t think we waste too much.

I can use the leftovers to cook new dishes. But you know, we are quite well organised at the moment, it rarely happen. But in the past, I did that.

**Relationships with housemates:**

We all are good friends, one guy I have known for few years... I mean we get on very well.

**Personal favours:**

I think we generally like most foods from different places of the world.

Interviewer: So you guys are not choosy?

No, not really. Obviously, you would put in some favours you want to eat... for example I don’t really cook a lot of Italian food, but still will eat it, but not choose to cook it. But you know, if someone cooks me, I am not going to say no... We are not allergic to anything, so don’t have to worry about that. Not a sort of vegetarian, you don’t need to cook vegetarian like that...

**Cooking skills:**

I guess it’s like my mom taught me, but you know, not the sense how you make it, just pick things up... And yeah, just following recipes basically. She gave me recipes that she though I like that... And then sometimes watching TV cookery, don’t watch many, you know, just a couple a week. I like cooking, so will pick things up.

**Decide what to cook:**
Sometimes when you gone food shopping, there was 3 for 2 you know, we used one of them and still got 2 jars of sauce left or something. I will go to cook the sort of sauce pasta thing. But normally, we plan to cook, or we think we haven’t have this for a while. Or sometimes you see something in the magazine, something good either.

**Key point for good food management:**

My mom does all the cooking and all the food shopping as well… She is really well organised, she did the similar thing [as me]. She will make a shopping list and do all the shopping, they probably waste less food than we do, because she is in control of it all.

I think my mom affects me for doing that [about food management]… You know, it's not necessarily the case for everybody. For my experience, I have been moving to different houses with different people. We may not always cook together, so I will just cook for myself and do my own food shopping. I will do a shopping list and that sort of thing. But I know the people I lived with wouldn’t do that… And I think it’s a sort of family culture thing… They [the friends I am living with] are just fine, they like the idea of sharing foods, cooking together, and I think you gonna to do that, we need to be a bit of organised.

Interviewer: So when you are busy, you friends will take you your role?

Yeah, I think it is quite organised… If I am really busy, I am still doing my share… I wouldn’t say it is really affects me [about food management], it’s not a stress… You do need a sort of rest time… It's just like a habit, it's quite a creative thing, you know, but at the same time you get the enjoyment of being creative I guess. Or even if you just follow the recipes, it's a kind of achievement…like it works, it looks like it does in the picture, and you are gonna to eat it as well, so it's great. And if you are cooking for people, it's quite nice a communal thing I think.

[About the food management] as long as everyone agrees and conforms to the plan, then it all works… It also within that kind of planning ahead, for example, one of us know he’s gonna be out for dinner or somebody’s house or whatever, we will let the other two know.

**Criteria in selecting foods:**

I think it is on the shopping list… Price is very important, you know, is it on offer?… Reduced items, we will see if there is anything we can sort out. And I think the quality as well, you know, we avoid to buy the super cheap stuff, and at the same time, you’re gonna to get the quality with the price.

**Food storage:**

Whatever should be in the fridge, we will just put it there. We haven’t go food shopping for a week, so it looks a bit bare now, but generally it can be quite full. I mean, we are quite organised.

**Food waste:**

It’s foods that gone off. We got a council that provide you a caddy of food waste bin, we will put… but I mean generally, it’s foods that gone off. Sometimes it’s like fruits or vegetables that we use half of it, but got lost in the fridge somewhere.
I don't think the food waste we produce in this house concerns me… but I mean, talking about food waste, there’s some statistics showing that 2/3 of all food waste come from restaurants and stuff… or supermarkets as well, they got lots of bread throwing out. I am not really making any different for me to do that.

Memory:

You recall you used half of the cabbage this week, what you are going to use the other half.

Coding_#5

General food habit:

I will eat different stuff everyday. For breakfast, sometimes I will have cereal and milk, sometimes will just have fruit, may be weekends I will have eggs and mushrooms or just toasts. For lunch, I guess normally I will make fish or veggie burger, if I am on campus, I will just eat whatever they have. For dinner, normally I will just have soup or salad… I don’t like to have the same thing all over again… I don’t like to eat the same thing. May be because I don’t eat meat, if you eat the same vegetable every single day, it wouldn’t be so nice, so I just want to prepare them in different ways.

Shopping habit:

I usually don’t really plan, I just normally go to the shop and then think, ok I don’t have this and this in the fridge, so buy vegetables that will last 3 or 4 days. I don’t know, like buy breads, mushrooms, frozen fishes, because I don’t know when I am going to eat them, so make more sense… Basically a kind of random basis, sometimes I go once a week, sometimes if I miss thing in the house I just go and buy.

I think it is kind of go to convenient stores, I don’t have a plan when I go food shopping. So I may randomly go once in a week or when I see the fridge is getting empty… I have 1 convenient store is 10mins walk from when I live, and the other 2 bigger stores, like Tesco is about 15 mins on foot… I may go there 4 or 5 days a week. And I try to buy in small quantity, so the foods wouldn’t go off…. It depends on what they [the stores] have and the mood, I mean if I am having Italian foods for the last few days, I will try to get some fried vegetables, so just to change, it is very random. Or, I read a magazine I see a recipe about something I want to try this, I will buy ingredients for that. I don’t have a fixed list about everything I am going to buy every week.

Interviewer: So you will just buy foods for yourself only?

Yup. There are 3 people in the house, but we are not exactly friends, so we wouldn’t cook together, and we have very different lifestyles. One of the housemate is not very often in the house, he has his dinner at about 11 o’clock in the evening, so I couldn’t eat with him. The other one is not socialable, he just eat ready foods, so you can not eat with him. And I am a vegetarian, so we cannot buy foods together.

When I read magazine, I will try to look for healthy style… I buy them normally like once a month. Normally they same a healthy recipe, so I normally try to have experiment form them.
Interviewer: So when you go food shopping, what are the main criteria in selecting foods?

The first thing is personal favour I guess. There is something I like more than the other. I like mushrooms, but I am allergic to onion. Secondly, I normally but fresh foods then I cook, so it would be like the appearance of freshness, and I also look at the expiry date… so it doesn’t go off.

**Cooking and eating habit:**

Normally, I try to only cook for one specific meal, as I don’t really want to have leftovers. I don’t want to do the same thing first, and the foods are not really healthy when you heat them up again, and I don’t want to eat them cold… Sometimes I just have half of it, and then I will just throw it away, but it doesn’t happen very often.

I lived in different countries, I can cook different style. I think it’s a kind of combination, I mean if I see something, I would like to combine it with something very random in that way.

I will just get the idea [from cook books], for example, I will see how they combine different certain spices and herbs with certain ingredients, but I rarely follow the recipe from the beginning to the end. Or there is something in the recipe I don’t like, so I don’t choose that thing and do something else.

**Sources of food knowledge:**

I am just living on my own, and cooking. And like looking magazine, cook books…

**Food storage:**

We have different shelves in the fridge… I normally use fresh foods, so I can’t buy a lot of thing at the same time because they would go off. Secondly, as I have only one shelve, so I can’t physically put in lots of thing.

**Dinner party:**

If I am doing a dinner party, I go with the list, and I decide in advance what I am going to cook… Or I just find out what I am missing in the house, then I will write it down, but I will not have a full shopping list.

Interviewer: So do you do a lot of dinner parties or socials?

I guess it is relatively less than when I am living in France… I’ve done few here. Normally I will ask people if they have any preferences, if not, I am by the time vegetarian, so I never cook meat. And then depends on what the answers I get [from the others]… I am not very good at estimating the portion. I just buy depends on how many people are coming, and may be look at the package as well. If I am making several dishes, I will just make sure that everyone can try a bit of everything… I guess it is enough for 4 people, if there are more people, I make something else, again, it is very approximate.

Interviewer: So do you find lots of leftovers after party?

Yup, I tend to cook too much for party somehow, but not for myself. If it is just me, I know how much I can eat, but sometimes I cannot estimate how much people are going to eat.
And I think it is somehow a Balkan’s thing, if you have a dinner party, there is only 1 rule, people must not leave the party feeling hungry, so we always tend to overcook, and it is always better to have more instead of people don’t having enough. I think it is a kind of cultural thing.

**Takeaway:**

I never order takeaway. My housemate buy ready food, but he buy in portion, and then he eat it up, I don’t think there is much leftover.

**Housemate’s rotten foods:**

My housemate will sometimes go for 3 or 4 days, when he comes back, there are lots of rotten foods found in the fridge. He is probably a bit worse than I am… I can guess what he has in the fridge, but I never touch that… We don’t really talk about food, because we have really different lifestyle, and 2 of us are rarely in the house at the same time, unless we arrange to have dinner together.

**Food waste:**

I guess everything that’s leftovers, and anything that cut offs of foods like peels, anything that is food related and can be composted… I could probably decrease it a bit if I am planning it more carefully, but in order to decrease food waste, especially the foods that would goes off, I will have to go to shop more often and would probably have to plan to bring food and eat it here [on campus]. Sometimes I buy foods that enough for 4 or 5 days, but I end up eat here, and then throw away something at the end.

Moreover I find peels from vegetables, I normally buy fishes with skin on it [fish skin], and sometimes salad in bag, as they have a very short expiry day.

I would have to buy in smaller quantity and I really have to plan where I eat. But it is not easy, because sometimes you plan to have lunch at home, but you will just stay with people here and eat with them. Or maybe go to shop more often and buy less… I will buy thing that I really like, if it is frozen, I will buy, but I will try to avoid [buying big bundles of food]. Or something I will eat a lot, so I know I will eat them and they wouldn’t go off. But normally the other things not really.

We do have food waste bins, but they are a kind of stink so I don’t keep them in the house. I sometimes try separating food waste, but it may be raining and then I would throw them in the general’s. And this is what I really hate, if you put the plastic bag inside the food waste bin, but you still found something that is stuck at the bottom. I think it is a sort of discouraging for using the food waste bin. And they fact that my housemates, they don’t even recycle, so not to mention separate food waste.

**Coding #6**

**General food habit:**

I live with 10 people, but right now many people left, may be travel or something. But we have 11 people in the same flat with 1 kitchen... We rarely share foods. After cooking, I will
bring my food to my room to eat, instead of eating in the kitchen. Sometimes people may ask you to sit down and try a little bit [of their dishes].

These days, I usually have 2 meals a day, brunch and dinner. Normally I will have Chinese foods, but these days I will have milk or bread or toasts, and I cook less rice and noodles. I don’t really have the mood to cook, and sometimes I will eat pasta. Weeks before, I have stomachache, which was really bad. I cooked dairy products for a week, and I am still eating diary products now…

Food shopping:

Normally, I will go food shopping by myself. We have a fridge and freezer, each of us has a layer in the fridge [to store food]. Usually I will go food shopping [in the supermarket] once a week or twice a week… Because usually I will relax a bit in the weekends, so in Friday’s afternoon or Saturday’s morning, I will go shopping. And I have a volunteer work on Tuesday, so sometimes after work, I will go for a shop, but normally, it will be less amount of foods, just sometimes when I really want something.

Sometimes I have shopping list in my mind. I want certain vegetables or meat or products very much, I will just go for it… If I am not too busy, and I really want something, I will go for it. But if I am busy, I will just probably look for anything in my fridge and use them.

When I shop in Morrison with a blanket, I will count how many vegetables I have got? How can I match them with meat? Like, you know, how to make a dish? Because I don’t want to buy too much, because the fridge is too small, so usually just 5 to 6 vegetables, that will be quite enough I think… Usually it is just vegetables, bread and meat. And meat, I can store it in the freezer…

Interviewer: Do you usually use up all the foods in your fridge and go shopping the next week?

Yes. I think the food waste I usually generate is rotten potatoes, they gone bad… Maybe I bought too much. I usually store it in the corner, and just ignored it. And when I saw it, I don’t know what kind of dish I can cook with that. Potato is a very common vegetable in my fridge, so usually it goes bad very often.

When I first come here, I tended to buying too much, foods gone bad easily. So I think I have to control myself. And basically because of the size of the fridge, you can’t buy too much.

I think I usually bought a little bit too much. Maybe a week, and 1 or 2 days. I will look if there is something left in the fridge, so I know I still have some food, so that I don’t have to buy that kind of vegetable and buy something else. Normally, I don’t generate much food waste.

Cooking habit:

It’s not like something new and fancy… I will have onion, eggs, pepper, broccoli, cereal… Normally, if I plan to cook everyday, every meals will be different. But usually, just those kind of vegetables and meat.

Sometimes I don’t really have the mood to cook, and it happens a lot these time. Probably just bread… And I can’t eat meat [these days]… so just really simple things. It’s just really
busy… actually I have time to cook, but I don’t have the mood to cook… I am under pressure, worry and depressed, and a lot of negative things you can think about.

Interviewer: Will you cook with recipes?

Sometimes I will. For the dishes I am not familiarise with, normally just Chinese dishes…. Sometimes because you miss the taste.

Eating habit:

Normally, I don’t have breakfast, just lunch and dinner. But right now is bunch and dinner…. When I have bunch, it will be like 10 or 11 [o’clock]. I don’t want to eat breakfast, as I am not hungry in the morning. And usually, dinner will be really big…. Sometimes I will have chicken soup or some pork… And one more thing, I can’t remember when I started to eat cheese… One of my flatmate recommended me cheese, after eating cheese with friends, I though it is good.

I buy them because I want to eat meat or meat soup. It’s simple, because I have some instant soup, I cook it with meat. And normally, we Chinese might meet, like having a reunion or something, we eat together… Normally, if we have dumplings, we will make it together. But normally we [each person] will make one dish. Sometimes we will have hot pot, and a lot of vegetables left, but only a little bit will go to garbage, those can be used will be taken for reuse.

Basically, I will eat the vegetables I normally eat, but sometimes I will cook it differently… Sometimes I will buy foods, maybe just sandwiches from the supermarket, but not a lot… If it is really urgent, I will go to UFO [on campus], but it is much expensive than supermarkets.

Food waste:

Rotten potatoes, peppers and sometimes tomatoes, normally just such things. I remember I threw away a lot of bread before… because it goes bad. Sometimes I bought them, but I don’t really want to eat them. For bread, it’s not the thing I can eat for dinner…

So, do you mean you changed your mind after you bought it?

Yup… I think it’s just based on my normal habit. Because before these 2 months, I don’t have breakfast. And now I am having breakfast [bunch], so I need bread.

Other factors:

I can’t think of any… I think the reason why I start eating breakfast now is because of Ryan, he said it is not good. I know it is not good, but I don’t have the mood in the morning. I will just have bunch instead of breakfast and lunch…. And because of Ryan, I start to eat baked beans.

I will look for special offers, like meat. I will ask my Chinese friends whether they want some. If it’s is buy one get one free, or half price or something, I will ask them. If they don’t want, but I really want that meat, I will have it too, just store it and try to finish it. And meat I can put it into the freezer, so it will not be rotten probably.
General food habit:

I usually have cereal, toasts and some fruits for breakfast, and may be some snack in the middle of breakfast and lunch. I’ll make sandwiches when I am in university, so I buy a lot of bread… But when I am at my home, I eat leftovers from my mom for lunch, I quite like using leftovers in reducing food waste. I cook dinner usually, mainly a bit meat with that, things like spaghetti bolognese or chicken… When I am at home, my mother usually cooks more meats, lambs, Yorkshire pudding, things like that, and then a sweet pudding at the end.

I live with 4 other people, but we don’t usually cook together. We just have different routines… At first, I tried to encourage them to cook together, but it was quite difficult to encourage them to do that… I may cook once a month for another person, like in Tesco they got some quite cheap steak, I’ll cook that for one of my housemates. Sometimes I cook pilaf… I would cook for them, but they didn’t offer cooks for me. And one of them is vegetarian, I don’t know many vegetarian dishes. Or sometimes I worry I will mess up cooking for others, it requires a lot of planning.

Food shopping:

I shop on my own. I go to a shop which is just 5 minutes walk from where I live, it saves me a lot of time from going to bug supermarkets. I go there maybe 3 times a week. I don’t want a big shop to supermarket, I don’t have a car, it is more easy to carry if I just go more frequently. And I figured it is more expensive to go to smaller local shop, but I am willing to pay a bit more for the convenience… Once a week I will go to the Tesco at the city centre, it’s a bit cheaper there.

I usually just think about that [what to buy] when I walk back, I plan it in my head. I just routinely cooking the same thing, so I don’t think about it too much. But occasionally I will find new recipes like pork with honey and mustard dressing… Usually from the BBC website, or just search recipes depends on what I got left in the fridge…

Interviewer:

How often do you cook new recipes?

Maybe once a month. Just try to keep some variation, make things interesting, and the taste… It’s quite a creative activity. I think it’s good to spend half an hour or more to keep your mind to think. I enjoy cooking.

Interviewer: Can you tell me 3 main criteria for you to select foods?

Price, how healthy the food is, and taste, environmental impacts, carbon footprint. So, I will try to find more vegetarian recipes, like spinach sandwich. I aware meats have a higher carbon footprint. But I am not willing to cut off meat completely, I think it’s important to get a source of protein, so that’s why the healthy fact come quite highly.

It’s likely to buy special offers with a large volume… Especially for meat, it will go off quite quickly. Occasionally I will freeze some leftovers, but there is limited room in the freezer…
And there is another issue. When you have so many choices in front of you, you will just easily to your habit, so I tend to buy the same things.

Interviewer: So when you are in Norwich, you will go food shopping in a needed basis?

Yea.

Interviewer: And your mom will buy more to have more food storage at home?

Yea. Probably she got more money, she just buy a lots... She just has the habit of buying too much... She routinely buying the same thing I think. And I think she buy too much may because she forgot what already in the house... And she is French, food is quite a big part of quality of life, so have a big variety of food, yeah, good life.

Food storage:

Everyone have their own shelve [in the fridge], we don’t share foods, not even the milk. The only thing we share is salt, and species. But some of the housemates are quite protective, even oliver oil, we have 4 bottles of oil in our house.

I usually use them [foods in the fridge] up before it goes off the use by day. I will plan, for example, cut the chicken a half, I will use half and then put it in the freezer. And then things like vegetables, I don't really look at the best before day, that's more about quality more than safety. If there is a little bit mold, I'll just cut it off and then eat the rest.

But when I am at my parents’ house, I think we throw away much more food, as my mom buy too much I think... She cooks for the whole family... I don’t know, maybe she’s just worry about there is not enough foods around. She buys too much bread. When I am in student house, the bread never gets molded as I will eat by the plan when you buy the bread.

Cooking habit:

I usually don’t cook at home, but I will help. Maybe I will offer cook once a week.

I learn cooking form my mom. But then I continue with that interest, I bought some recipe books, with all the different favours come together, I learn the recipes from that. So, I quite like inventing recipes... Yea, I quite good at mix things and fry it. And sweet things as well, like mint pies, and chocolate cakes... And I quite like using the leftovers, so with the roasted lamb, I will make it in Greek style with mint...

And I am quite good at cooking the right amount of quantity, just like know how much meat and pasta I need... But I will just end up cook too little [for other people]. Sometimes I cook slightly too much for myself, and I ate it up, then I got stomach-ache... My stomach cannot handle too much food.

Takeaway:

We have a takeaway once a week, Chinese takeaway... There will not be too much food waste as it comes in small packages.

Food waste:
Food that’s not eaten and thrown into the bin. So even food that gone into compost, that’s still wasted. It will be more sustainable if not going into landfills.

Interviewer: What do you usually find in your food waste bin?

Breads, and things like carrot peels, eggs shells, and sometimes whole bit of ham that become go out of date.

Interviewer: So do you usually have much food waste at home?

Yea. Cakes, my mom buy a lot of cakes, obviously so much cake than I can eat, so sometimes it’s just like half leftovers… But usually something like meat, like roasted lamb, usually quite a bit leftovers… Usually store it in the fridge, but she will forget about it, stuck at the back of the fridge. She will just try to cook another dish the next day.

Sometimes it come in a big size pre-set weight, it might be 500 grams which is too much for 3 people, so some of the food get wasted because the supermarket only sell it in that size… When I am in my student house, if the weight is too much, I usually split it into 3, so 1 of them may do spaghetti bolognese, the next may do meat balls, so I will do different meals with the same ingredients, just to get the variety, but still use it up.

If I am thinking about throw it away, I usually put it in the main bin. Because I couldn’t find the bags for composting, so I don’t know how to sort this out. But I think I found them now, yea, I found them, so I might plan to do that [composting].

Other factors:

I am not terribly organized… I just thought in my head about what I need and think the day before. I think I just got a bit lazy, and I think I got better memory about what I need. But there is no big difference if I go food shopping with a list or not.

Health:

Sometimes can be a better thing than eating too much. For some people, obesity might be a more problematic that food waste. So if you go to restaurants, and you are given a large piece of cake, or may be with this hot chocolate for example, may be I should only drink half of it. You may drink it all to avoid waste, but may be for my health it’s just better to drink half of it.

I think food can affect my mood. If I eat too much, I can get a quite low mood, so I have to be careful about how much I eat at once. Maybe in the restaurants, just don’t worry about waste, just eat as much as I can.

In America, they have a massive cup of coffee. I can just drink half of it, because that stopping me sleeping. So, I think you have to let that sort of food goes to waste.

Older generations:

For some people, Food waste is quite a big issue, like my grandparents, especially my grandfather, because he lives through the war. He will make sure nothing go into bin, and he is always completely clean, completely white… Because World War II has such an influence on them… I think it is a good influence, it was a very tough time.
## Appendix 6 – Table of coding analysis

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<th>Coding</th>
<th>Supporting quotes (+)</th>
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<td>Compromise – ‘We go food shopping together… One of the girl is very choosy about what she likes, so we normally have the foods she like owning to friendly reason. When she is not here, me and my housemate will have something different’ (#2)</td>
<td>Lacking cooperative actions – ‘I would cook for them, but they didn’t offer cooks for me. And one of them is vegetarian, I don’t know many vegetarian dishes. Or sometimes I worry I will mess up cooking for others, it requires a lot of planning.’ (#7)</td>
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<td>Organisation and cooperation – ‘They [the friends I am living with] are just fine, they like the idea of sharing foods, cooking together, and I think you gonna to do that, we need to be a bit of organised… as long as everyone agrees and conforms to the plan, then it all works’ (#4)</td>
<td>Different lifestyles – ‘One of the housemate is not very often in the house, he has his dinner at about 11 o’clock in the evening, so I couldn’t eat with him. The other one is not socialable, he just eat ready foods, so you can not eat with him. And I am a vegetarian, so we cannot buy foods together.’ (#5)</td>
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<td>Good relations with housemates – ‘We all share food… you cook a big dish, and everyone can finish the leftover very quickly…As we are family, we don’t have the money problem.’ (#1)</td>
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<td><strong>Routinely similar cooking habit in normal days (A2)</strong></td>
<td>Plan in advance – ‘We [in charge of] cook in turns… we write down what we are going to have tonight, and what to be get out of the freezer… We sort it out at the beginning of the week we sit down altogether [to plan].’ (#2)</td>
<td>Novelty – ‘May be because I don’t eat meat, if you eat the same vegetable every single day, it wouldn’t be so nice, so I just want to prepare them in different ways.’ (#5)</td>
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<td>Action gap – ‘I try to, I am a bit ambitious. I have got a lot of cook books, but the sad thing is I haven’t used it, they are always on the book shelve… I have read them all, but rarely practice it.’ (#3)</td>
<td>Interests – ‘And we generally quite like cooking, so got quite a lot recipe books… We cook Italian, German, American style, Mexican, Curry, Thai curry as well, a bit Chinese foods sometimes… cover most of the world… And we normally make a cake once a week.’ (#4)</td>
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<td>Habitual action – ‘When you have so many choices in front of you, you will just easily to your habit, so I tend to buy the same things.’ (#7)</td>
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<td><strong>Cook</strong></td>
<td>Better estimation –</td>
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<td>Development of good cooking skill (A4)</td>
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<td>Leisure (B)</td>
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<td>‘We use a recipe to cook and it tell us how much quantity is needed so when we plan, we’ve already got an idea about how much do we need.’ (#2)</td>
<td>‘We are all good at cooking… we all enjoy cooking, especially during weekends when we have more time.’ (#2)</td>
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<td>Build up cooking skills –</td>
<td>‘I bought some recipe books, with all the different favours come together, I learn the recipes from that. So, I quite like inventing recipes… Yea, I quite good at mix things and fry it.’ (#7)</td>
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<td>Cooking specific dishes –</td>
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<td>Personal experience –</td>
<td>‘I lived in different countries, I can cook different style. I think it’s a kind of combination, I mean if I see something, I would like to combine it with something very random in that way.’ (#5)</td>
<td>‘I try to, I am a bit ambitious. I have got a lot of cook books, but the sad thing is I haven’t used it, they are always on the book shelve… I have read them all, but rarely practice it.’ (#3)</td>
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<td>Learn from recipes –</td>
<td>‘I bought some recipe books, with all the different favours come together, I learn the recipes from that. So, I quite like inventing recipes… Yea, I quite good at mix things and fry it.’ (#7)</td>
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<td>Personal interests –</td>
<td>‘I like cooking, so will pick things up.’ (#4)</td>
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<td>Leisure –</td>
<td>‘We are all good at cooking… we all enjoy cooking, especially during weekends when we have more time.’ (#2)</td>
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| **Big food shopping once a week** (B1) | **Convenience**—  
'Stically a kind of random basis, sometimes I go once a week, sometimes if I miss thing in the house I just go and buy… I have 1 convenient store is 10mins walk from where I live, and the other 2 bigger stores, like Tesco is about 15 mins on foot… I may go there 4 or 5 days a week.' (#5)  
'I go to a shop which is just 5 minutes walk from where I live, it saves me a lot of time from going to bug supermarkets. I go there maybe 3 times a week. I don’t want a big shop to supermarket, I don’t have a car, it is more easy to carry if I just go more frequently.' (#7)  
| **Plan in advance**—  
'You need to plan 2 days ahead, for examples chicken and lamb, you have to defrost them… and put some favours onto it, it will take about 2 days… if anything we haven’t got, we will go to Tesco express to buy the extras.' (#1)  
| **Shopping list**—  
'Normally we all in the house in evening, eating together, so we talk about what to eat the next week…. If we plan to cook, say 2 meals, then pretty much a week done. And then, you know, what do you need to cook that? Do we have it? Make a shopping list' (#4)  
| **Buying much foods** (B2) | **Buying much foods** (B2)  
'Usually supermarkets… sometimes we buy in wholesale as well, as we need to feed quite a few people, so the food goes quite quickly… something that we buy in bulk, we will make sure that it goes quickly… or cut off and put some favours in, you know, that the meat will not go so quickly… and store them well… and the you can eat it in a week… And the out of day is not tat short either, anything we buy in bulk, we will check the out of day as well, so that we can finish it on time.' (#1)  
| **Food sharing**—  
'I will look for special offers, like meat. I will ask my Chinese friends whether they want some. If it’s is buy one get one free, or half price or something, I will ask them.' (#6)  
| **Habit**—  
'I forgot to buy some liquid soup, it got an excuse to go back to the supermarket again… and you think that’s new, that looks nice, I will try | **Limited fridge space**—  
'We have different shelves in the fridge… I normally use fresh foods, so I can’t buy a lot of thing at the' |
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<td>Organisation – ‘Whatever should be in the fridge, we will just put it there. We haven’t go food shopping for a week, so it looks a bit bare now, but generally it can be quite full. I mean, we are quite organised.’ (#4)</td>
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<td><strong>Store and reuse leftovers (D1)</strong></td>
<td>Family culture– ‘When there is leftover, we can also combine it with new dishes… although it is old food, but we can also eat it… I think I am not worrying about the consequences that it will brings, but for my uncle…in the old day, how difficult it (food) is made’ (#1)</td>
<td>Taste of food – ‘The foods are not really healthy when you heat them up again, and I don’t want to eat them cold… Sometimes I just have half of it, and then I will just throw it away.’ (#5)</td>
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<td>Good cooking skills – ‘Yea, I quite good at mix things and fry it… And I quite like using the leftovers, so with the roasted lamb, I will make it in Greek style with mint.’ (#7)</td>
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<td><strong>Much leftovers after meal (D2)</strong></td>
<td>Culture – ‘I know how much I can eat, but sometimes I cannot estimate how much people are going to eat. And I think it is somehow a Balkan’s thing, if you have a dinner party, there is only 1 rule, people must not leave the party feeling hungry, so we always tend to overcook, and it is always better to have more instead of people don’t having enough. I think it is a kind of cultural</td>
<td>Organised – ‘I can use the leftovers to cook new dishes. But you know, we are quite well organised at the moment, it rarely happen. But in the past, I did that.’ (#4)</td>
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<td>Good estimation – ‘And I am quite good at cooking the right amount of quantity, just like know how much meat and pasta I need.’ (#7)</td>
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<td>‘Sometimes can be a better thing than eating too much. For some people, obesity might be a more problematic that food waste.’ (##7)</td>
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<td><strong>Throw away foods past use by day (E3)</strong>&lt;br&gt;<strong>Healthiness</strong>&lt;br&gt;‘Refer to the guideline you have to use it in a time period after you open the package, just a bit worry about the meat… it’s a issue of healthiness.’ (##2)&lt;br&gt;‘The [food past] sell by day… That’s a certain thing we don’t take risk with… I don’t have much leftover… but sometime I may prepare too much, e.g. too much potatoes.’ (##3)&lt;br&gt;<strong>Quality of foods</strong>&lt;br&gt;‘No, we still eat it… looking to see if it’s still fresh.’ (##1)&lt;br&gt;‘Things like vegetables, I don’t really look at the best before day, that’s more about quality more than safety.’ (##7)</td>
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<td>Other factors</td>
<td><strong>Mood (F1)</strong>&lt;br&gt;<strong>Feeling too busy / lazy</strong>&lt;br&gt;‘I found myself too pressurized by time… I think this encourages a lot of waste… I think is the course, I</td>
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<td><strong>Enjoyment</strong>&lt;br&gt;‘If I am really busy, I am still doing my share… I wouldn’t say it is really affects me [about food</td>
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still catching up on lots of things… So it put you to convenient foods. When you are really hungry, you want something quick. Maybe it is a form of laziness. But sometime we are really busy, so a bit of contradiction there.’ (#3)

Pressure – ‘I have time to cook, but I don’t have the mood to cook… I am under pressure, worry and depressed, and a lot of negative things you can think about.’ (#6)

Provision system of food (F2)  
Changing pattern – ‘In the early 1960’s, people had plenty of garden, they grow a lot of own food. In my case, my mother didn’t go out to work… so she go out shopping in every few days and bring back what she can carrying with her carry bag… There wouldn’t be so much food in the house, and it would be used up quickly… Pattern of shopping has changed, people go supermarket, they will do a big shop in a week, they will be intended by the special offers.’ (#3)

Big pre-set weight – ‘Sometimes it come in a big size pre-set weight, it might be 500 grams which is too much for 3 people, so some of the food get wasted because the supermarket only sell it in that size.’ (#7)

Capacity to eat (F3)  
Health & mood – ‘Sometimes I cook slightly too much for myself, and I ate it up, then I got stomach-ache… My stomach cannot handle too much food… I think food can affect my mood. If I eat too much, I can get a quite low mood, so I have to be careful about how much I eat at once.’ (#7)

Environmental awareness (F4)  
Ethical problem – ‘You will feel really embarrassing when you see the world starving.’ (#3)

Buy in small quantity – ‘So I may randomly go once in a week or when I see the fridge is getting empty… I have 1 convenient store is 10mins walk from where I live, and the other 2 bigger stores, like Tesco is about 15 mins on foot… I may go there 4 or 5 days a week. And I try to buy in small quantity, so the foods wouldn’t go off.’ (#5)

Family culture – ‘I think I am not worrying about the consequences that it will brings, but for my uncle… in the old day, how difficult it (food) is made, and people treasure it more than just bin it …’
| **Cultural difference (F5)** | Quality of life –  
'She [my mom] is French, food is quite a big part of quality of life, so have a big variety of food, yeah, good life.' (#7)  

Family culture –  
'I think I am not worrying about the consequences that it will brings, but for my uncle…in the old day, how difficult it (food) is made, and people treasure it more than just bin it … I think it is a Chinese culture.' (#1)  

'I think my mom affects me for doing that [about food management]… You know, it’s not necessarily the case for everybody… But I know the people I lived with wouldn’t do that… And I think it’s a sort of family culture thing.' (#4) |
| Past experience (F6) | War time –  
‘For some people, Food waste is quite a big issue, like my grandparents, especially my grandfather, because he lives through the war. He will make sure nothing go into bin… Because World War II has such an influence on them.’ (#7)  

Hard life before –  
‘I think I am not worrying about the consequences that it will brings, but for my uncle…in the old day, how difficult it (food) is made, and people treasure it more than just bin it … I think it is a Chinese culture.’ (#1) |