Understanding Waste Minimisation Practices at the Individual and Household Level

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by

Claire Louise Cutforth

Cardiff University

Summary

Over recent years, the issue of how to manage waste sustainably has intensified for both researchers and policy makers. From a policy perspective, the reason for this intensification can be traced to European legislation and its transposition into UK policy. The Welsh Government in particular has set challenging statutory targets for Local Authorities. Such targets include increases in recycling and composting as well as waste reduction and reuse targets. From a research perspective there has been dissatisfaction with behavioural models and their willingness to explore alternative social science thinking (such as leading approaches to practice).

Despite policy interest in sustainable waste practices, there remains little research which focuses specifically on waste minimisation at the individual or household level. What research exists focuses on pro-environmental or recycling behaviour, and tends to focus upon values, intention and behavioural change, rather than on what actual practices occur, and for what reasons. This research focuses on what practices take place in order to access a more complex range of reasons why such practices take place. The methodology adopts a qualitative approach to uncovering practices in a variety of contexts, and discovers a number of key insights which underpin waste minimisation practice. This thesis demonstrates that waste minimisation performances take place, but often do so 'unwittingly'. Coupled to this, many witting or unwitting waste minimisation actions occur for reasons other than concern for the environment. Furthermore, this research suggests that practices (and their motivations) vary dependent upon the context in which they occur. In general, three key themes were found to be significant in influencing the take up and transfer of practice: cost, convenience, and community. As a waste practitioner, the researcher is able to engage with these themes in order to suggest future directions for waste minimisation policy as well as research.

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1.1 Waste Minimisation Practice

This thesis examines the problem of waste and the practice of waste minimisation. Despite increasing political and legislative pressure to change consumption and disposal practices, current research and understanding into when and why waste minimisation activities take place is limited (Bulkeley and Askins, 2009). There is a distinct lack of research into the general publics' understanding of and engagement in waste minimisation behaviour (Read *et al* 2009; Tonglet *et al*, 2004). Literature that does explore waste minimisation focuses on behaviour change, intent and values rather than the practices themselves. Historically the focus of policy has been to increase recycling and as a result much academic research has been undertaken in relation to recycling behaviour and how to encourage residents to recycle (Cialdini, 2008; Davis *et al* 2006; Evison and Read, 2001; Martin *et al*, 2006; Thomas, 2001). This thesis tackles these issues by offering critical insight into waste minimisation practices focusing on actions at the individual level.

The challenge of managing waste is an issue of international scale, posing dilemmas for all industrialised countries (Barr *et al*, 2001a). Waste treatment, recycling and disposal are vital end-of-pipe solutions for waste management, but solutions that tackle the problem at source - such as waste avoidance and reuse - offer an equally useful and more sustainable option. Policy has started to evolve to encourage a change in focus from waste disposal to waste prevention (See Chapter 2). However, research and policy have yet to provide clear guidance as to how waste minimisation can and should be achieved (Bulkeley and Askins, 2009; Barr, 2006). This creates a problem in the UK in particular where the cost and convenience of landfill have made it the preferred option for many years, making a change in practice challenging.

Altering waste management practices is problematic for many reasons, including the costs of managing waste, the environmental effects of waste treatment and disposal, the conflict between achieving targets and conserving resources and a public attitude to waste as 'someone else's problem' (EEA, 2005). The historical approach of Local Authorities in the United Kingdom (UK) (the stakeholders charged with managing

waste under section 45 of the Environmental Protection Act 1990[1]) has been to collect and dispose of waste in the most cost-effective manner: by burying it in the ground. It is only in the last decade that an increase in recycling and composting has been sought as a result of recycling targets and increasing landfill taxes set by the European Union. The preceding focus on disposal in the UK was due to cost and convenience, and there is a linked, possibly even resultant public apathy in relation to the responsibility of waste disposal. Regulatory bodies are now charged with trying to reverse this trend through a series of legislative measures aimed at increasing recycling and diverting waste from landfill (Price, 2001).

Whilst policy seeks to minimise waste, the production of waste is symptomatic of the contemporary economic system, as Bauman (2003:13) writes:

"...perfectly usable, shipshape cars, or computers or mobile telephones in quite decent working condition are consigned to the rubbish heap with little or no regret the moment their 'new and improved versions' appear in the shops and become the talk of the town."

Lebow argues that the production of waste is not only symptomatic of a capitalist society, but the consumption of resources and thus by extension the production of waste, is essential to the capitalist system,

"We need things consumed, burned up, worn out, replaced, and *discarded at an ever increasing pace. We need to have people eat, drink, dress, ride, live, with ever more complicated* and*, therefore, constantly more expensive consumption… systematised wastefulness is good for the economy" (1955:3).* Writing in the mid 20th century, Lebow is famous for his words highlighting the manipulation of consumers to encourage conspicuous consumption. Arguably, these words are still valid today, as the 'disposability' of items is endemic. In societies where consumption is based on desire rather than need (see Jackson, 2005), and one-purpose, one-use items are the norm, the notion of waste minimisation appears anathema. The fact that items such as cars, microwaves and dishwashers have become so disposable is particularly concerning given that ownership of what were once luxury items has become commonplace (Tudor *et al*, 2012). This thesis aims to increase understanding of waste

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[1] As amended 1995

minimisation behaviour through a study of practice in order that researchers and policy makers can develop strategies for managing the production and disposal of waste in a more sustainable manner.

1.2 Waste Policy and Regulation

In order to fully appreciate the context of the waste problem, it has been necessary for this thesis to consider waste policy and regulation. Traditionally, Local Authorities were simply charged with ensuring the collection and correct disposal of waste. However, in recent years, waste legislation (including the Environmental Protection Act, 1995 – as amended) has been significantly developed by a series of Directives and Regulations passed down from the European Union, such as the planning requirements of the Waste Framework Directive. This in turn has led to the production of national waste strategies for England and Wales (DEFRA, 2000), Scotland (SEPA, 2003) and Northern Ireland (DOE, 2000). These strategies are waste management plans which outline how the UK intends to manage the rubbish produced each year and include targets for the composting and recycling of a certain percentage of waste. In addition, there are further fiscal incentives for Local Authorities to change the way in which they deal with their waste, including increasing taxes on waste sent to landfill and financial penalties for failure to meet statutory targets. The combination of target and fiscal incentives led to a wealth of literature focusing on how to maximise recycling and composting. Whilst recycling and composting can to some extent help to divert waste from landfill, in the longer term this will not be sufficient to meet requirements to reduce the total amount of waste produced. Chapter 2 provides a more detailed overview of the role of legislation and policy in influencing changes to waste management practices in the UK.

1.3 Waste Minimisation

In order to gain a greater understanding of waste minimisation practice, it is essential that a clear definition of waste minimisation is adopted. A common misconception is that waste minimisation is simply reducing the amount of waste that is being sent to land-fill by recycling and composting as much as possible (Pongracz *et al*, 2004; Obara, 2005). However, this approach focuses on 'end-of-pipe' solutions to waste management, rather than the waste prevention element of waste minimisation (Bulkeley and Askins, 2009). As well as having a role to play in terms of what they

throw away, households are significant in terms of what they consume as there is a correlation between waste arisings and changes in household consumption patterns (Tudor et al, 2012). Therefore, rather than simply studying disposal practices in isolation, it is essential that, in order to truly understand waste minimisation practices, avoidance of waste at source (consumption) and repair and reuse practices are considered (disposal) (Gregson et al, 2007b; Bulkeley and Gregson, 2009; Evans, 2012).

Previous research literature has segregated waste minimisation behaviour at the individual and household level into two categories: 1) avoidance of waste at the point of consumption *(prevention)*, and 2) repair or reuse (Barr *et al*, 2001; Tonglet *et al*, 2004; Read *et al*, 2009). However, often practices that constitute avoidance also equate to reuse, furthermore, some practices, such as saying no to Junk Mail arguably fall outside of both of the categories put forward. Table 1.1 provides an overview of actions that can be undertaken that represent the practices of avoidance and reuse/repair. It is important to note that the list in Table 1.1 is not exhaustive; rather the Table demonstrates that waste minimisation is a difficult practice to study as practices can fall within both categories. Furthermore, sometimes it is the omission to act (avoidance) that constitutes behaviour, and recognising non-existent behaviour is arguably very difficult for both researchers and the researched.

Table 1.1: Examples of Waste Minimisation Practice

Practice	Avoidance at point of consumption	Repair/ Reuse	Other Avoidance
Buy refillable/refills	X	X	
Avoid disposables/single use e.g. Camera's, batteries	X	X	
Avoid packaging e.g. Buy loose fruit & vegetables	X	X	
Downloading media e.g. songs/books	X		X
Compost at home	X	X	
Sign up for 'No Junk Mail'			X
Using real nappies	X	X	
Use both sides of paper	X	X	
Donate clothes, books, toys etc to charity	X	X	
Reuse bottles and tubs instead of cling film or foil	X	X	
Reuse shopping bags	X	X	
Repair items e.g. TV	X	X	
Hire/borrow	X	X	
Use up 'left-over' food			X

It is also important to ensure that the definition clarifies the type of waste that it refers to (Pongracz *et al*, 2004[i]) - i.e. household or commercial waste. The Organisation for Economic Co-operation and Development (OECD) in 1996, defined waste minimisation to include:

"Preventing and/or reducing the generation of waste at the source; improving the quality of waste generated, such as reducing the hazard, and encouraging re-use, recycling, and recovery." (Riemer and Kristoffersen 1999).

This definition incorporates hazardous waste, demonstrating that schemes such as collecting batteries for recycling can be considered as waste minimisation as the definition focuses on the *quality* as well as the quantity of waste (Coggins, 2001). However, it does not specify what waste it refers to i.e. household or commercial. Other definitions have expanded further by including the *'design, purchase, manufacture or use of products* and *materials which reduce the amount of waste generated.'* (Envirowise, 2001). Nevertheless, the focus of this thesis is waste minimisation at the household level, rather than in the field of design and production (see Section 1.4).

This thesis defines waste minimisation as follows: *"the conscious and unconscious avoidance and reduction of household materials, including waste prevention, reuse and repair"*. The definition adopted removes the presumption of *intent* to perform a waste minimisation behaviour, which this thesis demonstrates is crucial in order to identify as many practiced activities as possible, rather than those only intentionally (or 'wittingly') performed. Whilst the definition focuses on the waste prevention elements of waste minimisation i.e. avoidance and reuse - rather than emphasising recycling (for which there is already a wealth of literature, see Chapter 3) - recycling practices and literatures are considered in order to identify what similarities and distinctions can be drawn between waste minimisation and recycling practices.

An important element of the definition of waste minimisation adopted by this thesis is the focus upon materials rather than waste. It has been argued that simply by defining a material as waste, the item is devalued (Bulkeley and Askins, 2009). Items have to be perceived as 'good enough' to be re-purposed, suggesting that materials have 'cultures' of their own (Svensson, 2012). Sometimes people do not gift or hand-down because of fear of rejection or being judged on the basis of goods (Gregson et al, 2007b; Evans, 2012). In order to take a holistic everyday practice approach, it will be necessary to study what individuals and households do with different items, and this will include 'binning' and recycling, as well as waste minimisation practices (Bulkeley and Askins, 2009). Understanding how, when and why certain materials are not re-purposed is potentially as important as how, when and why they are (Evans, 2012; Gregson et al, 2007b).

1.4 Researching the Individual and Household

This thesis approaches the issues of waste minimisation from the initial starting point of the individual and household level. Given the historical focus on waste collection and waste disposal, and that householders are not the only producers of waste, it is necessary to understand why the role of the individual is so significant. Although municipal waste[2] only accounts for about 8 or 9% of the total waste stream (Waste

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[2] Municipal waste includes household waste collected at the kerbside, but also other household waste such as 'bulky' waste, waste collected at Household Waste Recycling Centres (HWRC's) and bring sites, as well as litter and sweepings, such as municipal parks and gardens waste, beach cleansing waste, and waste resulting from the clearance of fly-tipped materials.

Strategy, 2000; Davies, 2007; DEFRA, 2007; Tudor et al, 2011) - in 2010/11, household sources accounted for 89.5 per cent of *local authority collected* waste generation (DEFRA, 2011). In addition, municipal waste is important because historically a lower proportion of it is recycled or reused compared with other types of waste (such as construction and demolition waste). It is also a major producer of greenhouse gases which contribute to global warming, not to mention the limited landfill space available (Davies, 2007).

Given the drive for reduced waste and increased sustainability the need to understand practices at the individual and household level is paramount (Price, 2001). The need to encourage individuals and householders to reduce waste was outlined in the Waste Strategy, 2000 (DETR, 2000: 51):

'*Individual consumers* and *households have a vital role to play in achieving sustainable waste management. We can all help by:*

• *Buying products which will produce less waste, and those made from recycled materials*

• *Separating our wastes for recycling, and composting kitchen and garden waste*

• *Participating in local debates about how best to manage our waste'*

This extract from the Waste Strategy for England and Wales (DEFRA, 2000) highlights the important role that individuals in particular can play in helping to tackle the waste problem. Such strategies refer to the importance of *changing behaviour* in order to help *reduce* the amount of waste produced, but none give a clear direction as to how this is to be achieved. Following the lead of waste management practice in the UK, this thesis argues that previous research surrounding waste management behaviour has tended to focus on three objectives: 1) how best to deal with the waste produced, 2) how to maximise recycling, and 3) how to engage with communities in order to successfully introduce new waste processing or disposal facilities. These aims have been pursued whilst ignoring the need to understand waste minimisation behaviours and the benefits of waste prevention. The need to address the focus upon values to the detriment of practices cannot be understated. Barr (2007: 436) identifies:

"the waste problem is one that is likely to be resolved only when policies are implemented that are based on a clear understanding of what factors influence individual intentions and *behaviours, which in turn have to be grounded in rigorous social research."*

Despite some researchers beginning to focus on waste minimisation behaviour at the individual and household level, the general consensus appears to be that more research is needed (O'Bara, 2005; Tucker and Douglas, 2006; Hargreaves, 2011; Evans, 2012). This thesis argues that not only does there need to be more research in this field, there is also a need for a change in the focus of waste research. Those projects that have engaged with waste minimisation at the household and individual level have tended to tackle only half of the issues outlined by Barr above. Research that has ventured into the realms of waste minimisation has tended to focus on 'intentions' i.e. the attitudes, values and perceived obstacles to action, rather than focusing on 'behaviours' i.e. the actual practices that individuals perform in their everyday life. By focusing on intentions and values, researchers have found that there is not always a strong correlation between an intention to act and actually performing a particular practice. The focus on intentions in research surrounding waste minimisation practices has been useful in identifying the 'gap' between what people report that they would like to do, and what they perform in practice. This schism between intent and action has been labelled the 'value-action gap' (Blake, 1999; Barr *et al*, 2001a; Barr, 2006 and Tonglet *et al*, 2004).

The value action gap draws attention to the problem that whilst people claim to hold environmental values, and even a willingness to carry out a pro-environmental behaviour, they do not always carry out the behaviour - there is a 'gap' between their values and their practices. Researchers have turned to models of behaviour to try to explain the gap, however these studies often 'have only weak explanatory power' (Cox *et al*, 2010). Whilst researchers relying upon behavioural models have continuously endeavoured to strengthen their models through identifying alternative influences on behaviour (as discussed more fully in Chapter 3), other researchers have recognised that research in the field of social science and social psychology focuses too much on intent and not enough on normative behaviour (Jackson, 2005; Bulkeley and Askins, 2009).

1.5 A Turn to Practice

There is an emerging body of literature arguing for change in the arena of waste research. In particular, there is increasing evidence to suggest the need for research to focus on practices rather than values (Warde, 2005; Gregson et al, 2007; Bulkeley and Askins, 2009; Bulkeley and Gregson, 2009; Shove, 2010; Hargreaves, 2011, Evans, 2012). This turn is required in order to achieve a number of goals. Firstly, to include both consumption and disposal practices in the scope of research (Bulkeley and Gregson, 2009; Evans, 2012); secondly, to consider the impacts of people and places on practices (Reckwitz, 2002; Bulkeley and Askins, 2009; Bulkeley and Gregson, 2009; Hargreaves, 2011; Moore, 2012; Svensson, 2012); and thirdly, to study practices through repeat interviews in order to take into account the transient nature of practices and the impact of practice changing events (Tucker and Douglas, 2006; Gregson et al, 2007b; Bulkeley and Gregson, 2009; Harris, 2011).

This thesis argues that this 'turn to practices' comes in degrees. For example, Barr *et al* (2011) signal their interest in being positioned in the vanguard of the turn to practices, but maintain a strong focus on practices undertaken for environmental reasons and a reliance on reported 'sustainable' behaviour, rather than engaging with the performance of everyday practices. In contrast, Shove (2010; Chappells *et al*, 1999; Hand *et al*, 2007; Shove and Pantzar, 2005) takes a more action-oriented approach, championing actual and specific practices, and drawing analysis on intention from these behaviours. This thesis argues that a focus on practices themselves can give useful insight into the practices of waste minimisation at the household level.

Firstly, turning towards practices draws attention to the (un)importance of intent. A turn to practices enables a focus on what people actually do, regardless of environmental intention, value, or attitude. This thesis argues that people do not necessarily need to be environmentally motivated to undertake waste reduction behaviour (see also Herridge, 2005; Obara, 2005; Middlemiss, 2011). By focusing on practices, it will be possible to identify practices that take place for reasons *other* than an intention to reduce waste. It is important to highlight at this point that a focus on

practices does not mean that values are unimportant; merely that they should be accessed in a different way so that a broader range of influences can be accessed, not just those that influence environmental intention to perform a practice (as discussed in Chapters 3 and 5). Through studying what practices take place and why, it will be possible to identify the range of influences that are significant, thereby reducing the prominence of environmental values when compared with previous social and psychological models of pro-environmental behaviour.

Secondly, the turn to practices draws attention to the importance of context. By focusing on actual practices, rather than abstract intentions, important connections can be drawn from the behaviours engaged in, and the influence of context upon them. As will be argued in greater depth in Chapters 3 and 6, the turn to practices makes it clear that the 'geographical' context within which practices are performed can, to differing degrees influence the existence, strength, and efficacy of that practice. This point also draws our attention to the many contexts in which individuals live their lives (e.g. home, work, leisure, travel etc). By engaging with practices we can therefore begin to examine how these contexts enable or obstruct waste minimisation practices, and whether one practice can exist in many contexts, or whether they are context-specific.

With the importance of context in mind, this thesis also seeks to explore the concept of *spill-over effects*. This phrase was used by Thögersen and Ölander (2003) who investigated whether pro-environmental behaviours 'spilled over' within a person's lifestyle. If, for example, a person purchased organic milk, would they be more likely to adopt other sustainable behaviours such as cycling to work? Their research found that some behaviours 'go together', and some transfer goes on between environmental behaviours that are closely linked in a persons' mind (such as buying organic milk and buying organic peas). Transfer did take place between different *categories* of behaviour (for example alternative transport and buying organic) but this was less likely. Whilst Thögersen and Ölanders' research was not entirely conclusive, this thesis extends and develops the concept of spill-over effects by exploring whether practices can transfer not just within an individuals' own lifestyle, but between

individuals and even between places, contexts or settings[3]. The focus on practices therefore needs to be informed by a broadly geographical perspective (see Massey, 1993; Cresswell, 1996; Bondi, 2005; Bulkeley and Gregson, 2009) that suggests that the spatial contexts in which we live influence these practices. It is important to consider the impact of not just place, but the people and social norms within a given context to assess the impact of friends, family, neighbours and colleagues upon individual practices.

Thirdly, a turn to practices draws attention to the importance of studying habits and routines over a period of time. Time is significant because practice-changing events can take place, thereby impacting upon whether an individual maintains a particular practice in different contexts (Bulkeley and Gregson, 2009; Barr *et al*, 2011c). Through interaction with different contexts and communities, individuals often change their practices, and a failure to study practices over time might neglect to detect this. However, much contemporary research on waste management at the household level employs 'one-stop' engagement with individuals (often through a quantitative survey) rather than attempting to understand the ongoing relations between context, practice, and behavioural change. Any focus on behaviour has to monitor how and why practice changes occur, and how they may be harnessed or effectively encouraged by policy (Tukker *et al*, 2010; Barr *et al*, 2011c). As such, this thesis considers individual practices not just within, but also beyond the household.

In order to successfully embrace a 'turn to practices' in waste minimisation research, a new methodology needs to be adopted when compared to the traditional 'intentions' based research. Existing research on waste minimisation has tended to utilise surveys in order to access values and actions. Although this has led to the identification of the gap between values and actions it has been unable to access the full range of practices that contribute to waste management in the household. As noted above, research has shown that waste minimisation practices can be undertaken *unconsciously* (Obara, 2005), for reasons other than waste minimisation (Herridge, 2005; Tucker and Douglas, 2006). In a survey assessing waste minimisation behaviour in Cardiff, Obara

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[3] Indeed, from literature concerned with recycling behaviour it is clear that 'peer pressure' can be influential when it comes to participation in a kerbside scheme (Perrin and Barton, 2001), see Chapter 3.

found that respondents had claimed not to minimise waste when completing a survey, yet in discussion, they admitted to reusing plastic bottles. There could be a number of reasons for this; Tonglet *et al* (2004) identify, for example, the existence of conscious and unconscious reporting of behaviour. Tonglet *et al* argue that when using a questionnaire it is possible for people to consciously provide the answer they think the researcher wants to hear, or respondents may equally unconsciously under-report behaviour because they do not understand the question. Certainly, the latter potential for under-reporting emphasises the need to access unwitting or unconscious practices. Indeed, it has been documented that people may not always know that they are undertaking waste minimisation behaviour (Obara, 2005; Tucker and Douglas, 2006), indicating that the use of a survey is unlikely to identify what people are doing and why – especially, as Latham has pointed out, if sometimes people do not understand why they do things themselves (Latham, 2003).

In a review of literature on household waste minimisation behaviour, Tucker and Douglas (2006) identify a number of gaps in existing research, including very little transfer between academic and practitioner research. In order to overcome the identified gaps between values and actions and also between research and practice, this thesis adopts a more qualitative, policy-relevant approach. The research undertaken included a series of interviews with eleven individuals in order to access the range of waste minimisation practices undertaken. These interviews occurred in the home (but also in the broader community or work place, as appropriate) which helped gain access to the impact of context on practice (see Sin, 2003; Anderson *et al*, 2010). Interviews also occurred over a ten to twelve month period (with up to four interviews being undertaken with each respondent) in order to identify whether seasonal variations or festivities have significant impacts on individuals behaviour, as well as monitoring any changes in practice that may have occurred. This approach was supported by the use of ad-hoc diaries in which participants noted anything they felt significant between meetings. As a result, this thesis provides direction for future research, policy and practice in relation to waste minimisation behaviour. Furthermore, as a waste practitioner (as outlined in Section 1.8), the researcher is able to ensure that there is a strong link maintained between academic and waste practitioner research.

1.6 Research Questions

The above sections demonstrate the need to look at waste management practices at the individual and household level in order to identify what choices individuals make in relation to product usage from point of consumption, during the use of the product, right through to disposal. As Shove (2003:2) argues: "*the point is to discover what new theoretical challenges the study of a handful of ordinary practices might generate.*" This thesis argues that from a theoretical point of view, the challenges raised by waste behaviour have not been sufficiently addressed by existing approaches to research in this area. It anticipates that by using the approach that Shove suggests, unwitting practices will be identified that take place for reasons other than an intention to minimise waste.

This thesis contends that one barrier that had prevented previous researchers from overcoming the value action gap is a focus on values. A further barrier in previous research has been the assumption of behaviour taking place consciously or 'wittingly'. This research therefore focuses instead on practices and will utilise this approach to study both witting and unwitting practices. A focus on practices will enable a review of waste related behaviours in different spaces (at home, at work, or leisure) to identify how these social and geographical factors affect the production and non production of waste. Ultimately this information will help to better inform measures to encourage waste minimisation at the individual and household level through an improved understanding of what really encourages waste minimisation practices, rather than what drives pro-environmental attitudes.

This thesis will therefore use a practice based approach to answer the following key questions:

1. What waste minimisation practices take place at the individual and household level (both wittingly and unwittingly), and why?

2. A) To what extent do waste minimisation practices transfer between different contexts? And,

   B) To what extent do waste minimisation practices transfer between people?

3. What are the implications of these results for policy?

This research utilises a qualitative approach in order to gain an in-depth insight into the waste related practices of individuals in various contexts. Several individuals were invited to take part in a series of interviews over the course of a year in order to discuss their social habits, networks and their relationship with waste both inside and outside the home. Through a study of practice, this thesis advances existing understanding of waste minimisation and addresses the gap between reported or intended values and actions. By focussing upon both witting and unwitting practices, regardless of environmental intent, a broader range of influences are identified – Cost, Convenience and Community. The three C's identified are not wholly unfamiliar as convenience and social norms (or community norms) have previously been linked with recycling behaviour. Nevertheless, waste minimisation practices have previously been distinguished from recycling practices, and perceived as undertaken due to concern for the community or the environment, rather than being normative (Barr *et al* 2001; Barr, 2004). Whilst money has been linked with reuse practices such as the reuse of items through online auction sites (Herridge, 2005), cost in relation to this thesis encompasses not just potential income, but also the cost of a particular product or action in a variety of contexts. This thesis therefore consolidates and builds upon previous research by providing three key influences that can be linked to waste minimisation practices.

The fact that practices can be influenced by lack of infrastructure, or excessive cost, helps to explain the gap between individuals' pro-environmental intentions and their actual performances. Whereas an individual may desire to act in a pro-environmental way, when making decisions (as opposed to acting in a sub-consciously routine way), individuals make choices based upon a variety of factors, and in any given context, cost or convenience might prevail over environmental values. The context-specific nature of practices provides further explanation as to why there is a gap between intention and action. Whilst a practice may be performed or values held in one context, this is not necessarily the case in a different context. Indeed, the thesis also finds that practices can vary dependent upon the material and an individual's perceived value of that material. As such, this thesis demonstrates the complexity of

waste minimisation practices, and the need for research and policy to take into account the material and context specific nature of practices.

1.7 Research Location

This study was based in Cardiff, UK. As the capital city of Wales, Cardiff provided a broad range of demographic groups, with households ranging from cosmopolitan inner city apartments to working farmlands in the rural outskirts. As such it is a good location to undertake research as it reflected the diversity of many other areas across the UK. As a Capital City, Cardiff faces major waste challenges: it has a large migratory population, provides housing for students in three Universities, predominantly during nine months of the year; has a large number of flats designed for single persons and couples; and also has a large number of family homes. This is significant as links have been made between increases in single person households and changes in consumption and waste patterns (Tudor *et al*, 2012). Indeed, single person and family dwellings are renowned for producing large quantities of waste (Cardiff Ecological Footprint[4]). The Local Authority also faces language barriers due to Cardiff's diverse population. Furthermore, the Millennium Stadium in the Centre of Cardiff attracts millions of visitors each year for musical and sporting events. Cardiff is economically vibrant and with money, comes consumption, and ultimately comes waste, resulting in an increase in the scale of the problem in this case study.

Whilst Cardiff provided a good location for a case study due to the nature of the city, the role of the researcher within the capital also contributed to the benefit of selecting Cardiff as the case study location. As a civil servant in Cardiff Council (see Section 1.8), the researcher already had a good understanding of waste management policy and practice in Cardiff and the ability to ensure the results of the study could inform the policy debate. It is clear that a focus on everyday practice enables access to unwitting practices, and overcomes some of the issues highlighted by non-representational theory (see Chapter 3; Hinchliff, 2000; Thrift, 2002); as a consequence, there are elements to the findings that are of relevance not only to Cardiff, but also on a national scale for both research and policy.

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[4]Cardiff Council, BRASS Research Centre, Cardiff University and WWF Cymru (2005): Cardiff's Ecological Footprint, September 2005. www.cardiff.gov.uk/sustainabledevelopment.

1.8 Practitioner Based Research

When commencing this research, the author of this thesis was also Waste Minimisation and Strategy Manager for Cardiff Council. This role involved drafting strategies for managing Cardiff's waste, as well as designing and implementing waste awareness campaigns. Prior to completion of this research, the researcher became Operational Manager for recycling and waste services. The researcher is therefore able to influence waste management policies and practices in Cardiff, as well as having some influence in relation to the practices of other Local Authorities across the UK via association with institutions such as CIWM (The Chartered Institution of Waste Management), Waste Awareness Wales (WAW) and LARAC (the Local Authority Recycling Advisory Committee). It was important to be aware of the advantages and disadvantages of the nature of the researchers' role from the outset. Positively, it enabled the introduction of more robust policies in relation to waste minimisation practices, bearing in mind the lessons learned from evidence-based research and theory, thus making the connection that Tucker and Douglas (2006) argue is lacking between academic and practitioner research. By having a dual role as a researcher and practitioner, the researcher was able to consider the academic perspective as well as bearing in mind the constraints faced by national bodies and local authorities. Negatively, there was potential for the researcher to show bias in how the research was undertaken and evaluated. However, this research was born out of academic interest and, whilst the researcher has been sponsored by Cardiff Council, no other members of the authority have had any input into the questions asked, the methods used or the results provided by the research. Therefore whilst this research has not been compromised by its relationship to the Council, it has been facilitated by it, not only through funding, but also through access to the Council's Statistics and Resources.

1.9 Contributions to Policy

Through the researchers' position within Cardiff Council, this thesis is able to outline the barriers that practitioners and Local Authorities face when seeking to change waste management practices. Moreover, this thesis provides practical guidance as to how waste minimisation can be encouraged by Local Authorities, taking into account the challenges faced. Previous research involving Local Authorities has tended to

focus upon how best to achieve recycling targets (Read, 1999; Tonlget et al, 2004; Cole et al, 2014), how best to engage the community in the decision making process (Petts, 1995; Owens, 2000; NRWF, 2003) and/or how to change resident behaviour (Evison and Read, 2001; Barr, 2004; Barr, 2007; Miller, 2011). Whilst literature has considered barriers to public participation in recycling and waste minimisation activities, it has failed to consider barriers for those tasked with managing the waste produced, even though it has been recognised that individuals, companies and the public sector all have to adjust their practices in order to conform to EU policy (Deutz and Frostick, 2009). In spite of the recognised need for the public sector (as well as individuals and companies) to change in line with policy, there is little guidance as to how this should be achieved, as Deutz and Frostick summarise:

"variable, but often significant, gaps remain between policy objectives and practice. Policy objectives can be related to theorisations of sustainable development, but formulation may lack sufficient understanding of the implications of the theories to overcome barriers to implementation." (Deutz and Frostick, 2009: 250).

Thus even though theories are generated as to how practices might change, there remains a lack of understanding of the practical implications of the theories. As a consequence, there are likely to be difficulties applying them in practice.

Coupled to this problem, in the field of recycling and waste management, academic literature refers to the costs of managing waste, the existence of stringent legislative targets, and the complex issues of treatment and disposal (e.g. reducing landfill capacity and NIMBYism). However, there is a lack of literature that acknowledges and details the complexities that individual Local Authorities have to contend with in managing waste, such as political and budgetary constraints (Deutz and Frostick, 2009; Tucker and Douglas, 2006). Arguably, there is a need for academia to have a greater understanding of the barriers that public services face in minimising waste in order that the development of theory can account for and help tackle these potential obstacles. This thesis addresses the highlighted lack of cross-fertilisation between research and practice, and also outlines barriers to implementation in order to identify ways in which they can be overcome. Barriers discussed include i) the conflict between budget pressures and the need to increase recycling, ii) political appetite for change, iii) the historical focus of policy and research upon recycling targets and changing behaviours, iv) the need for distinct processes for different materials

(therefore incurring additional costs), v) the instability of markets for material recycling/reuse and vi) the conflict between waste policy and the policies of other departments seeking economic growth.

Of these six barriers, the tension between shrinking budgets and the need to meet recycling targets is the biggest challenge facing Local Authorities. However, there is a shortage of academic literature which considers the impact of austerity on Authorities' abilities to meet the targets set. Although the conflict between economic growth and sustainability has been highlighted by previous literature, work in this area focuses on the relationship between increased economic activity and increases in waste generation rather than the impact of austerity on implementation strategies (see Bauman, 2003; Tudor et al, 2011). Literature is starting to emerge surrounding the economic need for waste services to be delivered differently (Callan and Thomas, 2001; Zafra-Gomez et al, 2014), but such literature focuses solely on alternative models of delivery (e.g. public sector partnerships, privatisation etc) and countries outside of Wales and the rest of the UK. Whilst Local Authorities are increasingly seeking alternative ways to deliver services, alternative operating models are only part of the picture. For example, in England austerity measures have been taken into account when targets have been finalised, with waste policy opting for 'de minimis' compliance with the Waste Framework Directive targets (see Johns, 2014). However, authorities in Wales and Scotland continue to chase much higher targets (Johns, 2014). Coupled to this, in Wales the focus of policy is increasingly not just about *how much* Authorities can capture for recycling, but also the *quality* of what is collected. The Welsh Government in particular provide increasingly prescriptive instructions for how waste should be collected and treated in order to ensure sustainability (Cole et al, 2014; Johns, 2014), further increasing the burdens upon waste collection and disposal authorities, and the need to understand these problems in practice.

As well as changing the ways in which services are delivered, the financial climate is impacting upon the promotion of recycling and/or reuse, in other ways. Promotional activities, for example, are increasingly seen as non-essential (non-statutory) services (Cole et al, 2014) and ones that can be cut or drastically reduced in scope and scale. Given that Local Authorities now have less funding than previously to try to encourage waste minimisation and recycling, there is arguably an even greater need

for research in order to establish how Local Authorities can most efficiently and effectively facilitate desired waste practices. Such research needs to take into account not only what waste minimisation practices take place and why, but also how Local Authorities can practically encourage such practices. Indeed, in the case of Cardiff, the Authority already employs a number of the policy recommendations included in the Waste Prevention Programme for Wales (Welsh Government, 2013), such as the promotion of reusable nappies, 'Say 'No' to Junk Mail' and Love Food Hate Waste. In spite of undertaking multiple waste minimisation campaigns, Cardiff's municipal waste arisings are on the increase. As such, a new approach to waste minimisation is required.

Despite evidence of 'unwitting' practices and the identified gap between pro-environmental intention and action, the focus upon environmental behaviour remains embedded within Welsh Government policy. This thesis argues that rather than seeking to achieve sustainable citizens through a programme of behaviour change, Welsh Government and Local Authorities should be seeking to attain sustainable practices. The focus should be upon enabling desired practices through provision and promotion of the required infrastructure. Rather than preaching at individuals about the environmental benefits of particular practices, this thesis argues the focus should be upon the benefits of a particular practice for the individual (i.e. it's easy, it's local, and/or free). In order to overcome the gaps in existing policies and research surrounding waste minimisation, this thesis reviews a number of ways that this can be achieved. General principles include connecting the disposer with the end market for a particular material by streamlining the process and/or raising awareness of facilities, and working with communities, including third sector organisations, to intensify existing practices. In addition, this thesis provides a very practical contribution by presenting a number of specific examples of the types of schemes that Local Authorities could explore, whilst taking into account the achievability of such measures. In so doing it directly engages with the challenge of shifting the focus of policy from changing behaviour to enabling practice.

1.10 Thesis Overview

This thesis provides a contribution to researchers' understanding of waste minimisation behaviour and also offers suggestions as to how future waste policy

should encourage waste minimisation practices. In order to contextualise its contribution, Chapter 2 outlines current waste practice and policy in the UK. Chapter 2 identifies that the absence of substantial progress in relation to waste minimisation policies is strongly related to the lack of understanding of waste related behaviour. There is therefore a need for better informed policies, which in turn necessitates more detailed research into household waste management practices; as Tonglet et al sum up: *"Understanding waste minimisation behaviour is key to achieving sustainable waste management."* (Tonglet *et al*, 2004: 27).

In order to further contextualise this research, Chapter 3 provides a review of existing research relating to waste minimisation behaviour. Due to the deficit of literature relating to waste minimisation, it also considers the related social science and social psychology literatures of pro-environmental behaviour, recycling behaviour and sustainable consumption. Through analysing these literatures, Chapter 3 provides a framework for this research by identifying how alternative approaches to understanding behaviour might be utilised to access a greater understanding of waste related behaviour. Much previous research and policy has linked waste minimisation behaviour with pro-environmental behaviour, often assuming that pro-environmental values are required in order for practices to take place. This thesis argues that this is not the case as behaviours can be affected not only by values, but also by other factors, such as the 'busyness' of everyday life (Tucker and Douglas, 2006). Therefore, Chapter 3 challenges current research by questioning the focus on values and intent and exploring alternative approaches that are developing in the field of human geography: the study of everyday practice.

Chapter 4 provides a detailed explanation of the methodology employed in order to carry out this research. As well as outlining the theoretical and epistemological position of this thesis, Chapter 4 describes the various techniques adopted by this thesis in order to access a greater understanding of waste minimisation practices. One of the distinguishing features of this research is the alternative approach it has taken in order to understand waste minimisation behaviour. Chapter 4 therefore provides details of not only the methodological techniques adopted, but also the way in which the chosen methodology was put into practice, providing an account of the

recruitment process and the benefits and limitations of such an approach to accessing practices.

Chapters 5 and 6 address the research questions raised by this thesis through a review of empirical evidence. Chapter 5 focuses on the concept of witting and unwitting practices, and the reasons that such practices take place, in order to identify what factors (other than pro-environmental behaviour) can facilitate waste minimisation practices. It discovers three key factors that were significant to individuals' practices: cost, convenience and community. The significance of community links not just with context, but also with 'social norms' within a given group, and the role of social ties in facilitating waste minimisation practices.

Developing this idea further, Chapter 6 considers the role of contexts and agency in influencing individual practices. It identifies that the practices of an individual do not automatically transfer from one context to another, due to issues of infrastructure (consistency) and agency (the autonomy of the individual in a given context). Context here refers to the situation within which an individual might find themselves on a day to day basis – for example at home, or at work – and the significance of context is that a person may behave differently in different places. The influence of community identified in Chapter 5 is arguably inextricably linked with context (Anderson, 2010), and Chapter 6 identifies that there are multiple contexts that can impact upon an individuals' practices. Chapter 6 also verifies the findings of Chapter 5, as the factors that influence individuals in a given context are again cost, convenience, and community.

Chapter 7 examines the implications of the empirical findings of this thesis for policy in the field of waste minimisation and also research relating to pro-environmental behaviour and behaviour change. In addressing the third and final research question, this thesis provides practical examples of how the three C's can be utilised to encourage specific waste minimisation practices, something which previous research has failed to offer. In addition, Chapter 7 outlines the barriers that Local Authorities face in implementing such changes including financial and policy barriers to change. A study of waste minimisation practices also reveals that people divest different materials in different ways, further illustrating the complexity of practices.

Finally, this thesis concludes by summarising the significant findings of this research and its contributions to the field of waste minimisation. Firstly, Chapter 8 outlines how the theoretical approach has demonstrated the benefits of a turn to practices. A turn to practice allows consideration of external influences upon the individual and enables access to practices that are undertaken 'unwittingly'. Secondly, the results of this thesis contribute to further understanding of waste minimisation practices through identification of three themes which can both positively and negatively impact upon practice. Thirdly, Chapter 8 highlights how the methodology employed by this thesis has enabled the study of practices over space and time: this thesis has furthered understanding by exploring the impact of people and contexts upon practice. Furthermore, this research highlights the need for policy to also embrace a turn to practice. Rather than promoting environmental values, policy needs to adopt both a contextual and practice based approach. Through the provision and promotion of services, utilising the three C's framework, this thesis provides examples of how policy could make (waste reduction) practices more attractive to individuals. Chapter 8 concludes by making recommendations regarding the need and scope for future and policy research in this field.

Chapter 2: Waste Policy and Regulation

2.1 Introduction

As Chapter 1 has outlined, this thesis examines waste minimisation behaviour at the individual and household level. The thesis adopts a new definition of waste minimisation – "the *conscious* and *unconscious* avoidance and reduction of *household* waste, including waste prevention, reuse and repair*"* - alongside an approach that emphasises practice rather than values or intentions. It does so in order to gain novel, policy-relevant insight into individual waste minimisation practices. In order to fully appreciate the context of the waste problem, this chapter considers waste policy and regulation operating within the UK and its role in influencing changes to waste minimisation practices, thus demonstrating the drivers for change and the historical focus of policy and research on recycling and behaviour change.

Despite highlighting the importance of waste minimisation at the household level, both policy and research have fallen short of providing guidelines for local authorities to achieve it (Barr, 2007; Bulkeley and Askins, 2009). Traditionally, Local Authorities were simply charged with ensuring the collection and disposal of waste. However, in recent years, waste legislation has been significantly developed by a series of European Directives and Regulations (such as the planning requirements of the Waste Framework Directive). This in turn has led to the production of national waste strategies for England and Wales (DEFRA, 2000), Scotland (SEPA, 2003) and Northern Ireland (DOE, 2000). These strategies are waste management plans which outline how the UK intends to manage the rubbish produced each year. They include targets for the composting and recycling of a certain percentage of waste. In addition, there are fiscal incentives for Local Authorities to change the way in which they deal with waste, including increasing taxes on waste sent to landfill and financial penalties for failing to meet statutory targets. Whilst recycling and composting can to some extent help divert waste from landfill, in the longer term, this will not be sufficient to meet the requirements to reduce the total amount of waste produced.

2.1.1 Waste Management Policy and Practice in the UK

Figure 2.1 depicts a waste management hierarchy, similar to the one included in the Waste Strategy for England and Wales (2000). The hierarchy is designed to illustrate

the preferred waste options for UK waste management. This hierarchy, like most versions throughout the world, places waste prevention and minimisation at the top of the pyramid i.e. as the most preferred option. However, both the hierarchy and the Waste Strategy fall short of advising how the aspirational top tiers of waste prevention and minimisation should be achieved. Whilst the hierarchy makes the crucial distinction between waste minimisation and recycling or reuse, waste minimisation is often considered to mean diversion via recycling, reuse and composting - rather than as waste prevention and resource efficiency (Incpen, 1995). The fact that waste minimisation is not widely understood or distinguished from recycling, is frustrated by the absence of a single definition across the policy sector; hence waste minimisation can represent different things for different people (Read et al, 1998; Pongracz, 2004). As discussed in Chapter 1, this general lack of understanding makes it hard for the public, researchers and practitioners in this field to undertake, to research or to promote waste minimisation behaviour.
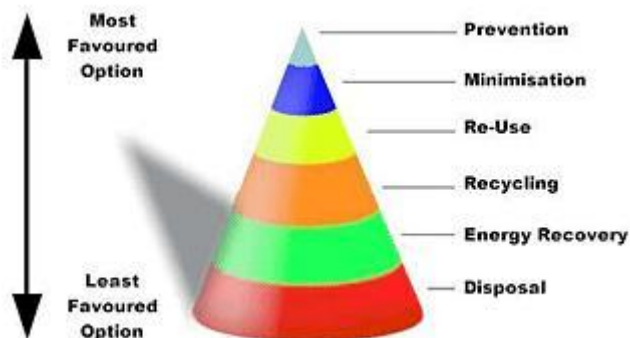
 Figure 2.1: The Waste Hierarchy[5]

Figure 2.1 highlights that although disposal is the least preferable waste management option (placed at the bottom of the triangle), proportionately, it is the largest section of the triangle. Arguably therefore, if the waste strategy sought to use this model as an aspiration, they should have turned the triangle upside down so that disposal is the smallest segment at the bottom, and prevention the widest at the top. Instead, the hierarchy is somewhat reflective of current waste management practices in the UK, where a great proportion of the waste is sent for disposal. In addition to a historic reliance on landfill, issues facing waste practitioners include unpredictable

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[5] http://www.wastecycle.co.uk/index.asp?c=1065 12/12/2006

fluctuations in waste generation, household attitudes to waste, economic factors and depletion of resources (EEA, 2005). Each of these issues is discussed in more detail below, before examining legislative and policy drivers for change in the area of waste management.

2.1.2 UK Reliance on Landfill

In 2007 it was reported that the UK was the 'Dust-bin' of Europe: land-filling 27million tonnes of waste per annum.[6] As a result of recent legislation and policy, the situation is improving, with increases in recycling and composting creating some diversion from landfill. Nevertheless, there will always be a need for some element of waste disposal and the longer-term technological need has not yet been addressed. In 2004, the Welsh National Audit Office (NAO) claimed that 500 new waste management facilities would be needed by 2010 in order to manage Wales' waste.[7] Yet, in 2009, only 250 facilities were in operation and claims were made that Wales would need over 650 new waste management facilities by 2013 in order to achieve the targets set (Stephenson and Mellett, 2009). The need to develop appropriate waste treatment facilities is reflected across the British Isles, leaving the UK poorly positioned in relation to all European countries, many of which have already achieved their statutory targets to reduce reliance on landfill (for details of targets see Section 2.2).

In order to prevent waste, it is necessary to change behaviour at the point where waste is created, or even modify the broader culture in relation to (over)consumption, built-in obsolescence and one-purpose one-use products (as discussed in Chapter 1). Historically, however, waste management in the UK has provided a convenient solution to the problem with waste management practices driven by cost and practicality, rather than a concern for long term, sustainable solutions. Indeed, the very nature of the definition of waste provided by the EU Waste Framework Directive centres upon waste disposal: *'waste shall mean any substance or object which the holder discards or intends or is required to discard'* (Pongracz, 2009:93). However, in order to move waste management practice up the waste hierarchy, it is necessary to look beyond the end product of waste to the point of consumption. Changing practices

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[6] BBC news UK, cited 13/10/08: http://news.bbc.co.uk/1/hi/uk/6238357.stm

[7] http://news.bbc.co.uk/1/hi/wales/4261466.stm 22/04/09

at the individual and household level is a huge step for Local Authorities whose involvement in waste management began with a simple responsibility to provide a waste collection service (Bulkeley and Askins, 2009). It is also a huge frustration for householders who see it as a transfer of responsibility from waste collection authorities to individuals and households (Chappell and Shove, 1999; Evison and Reed, 2001; EEA, 2005 and Woolgar, 2007). Furthermore, with consumption practices having changed drastically over the last century, turning the tides of consumerism is not an easy task (Hobson, 2002; Jackson, 2005).

2.1.3 Economic Factors

Fluctuations in the economy have been linked with variations in waste generation (EEA, 2005; Martin *et al*, 2006). Between the 1980's and the early 2000's waste arising increased by over 100kg per person (Tudor et al, 2011:53). Despite increases in recycling and composting and the light weighting of packaging (DEFRA, 2004), between 2001 and 2005, increases in consumption were so high that technological advances in efficiency of production were overshadowed (EEA, 2005). However, later in the first decade of the 21st century there was a 6% decline in household waste collected per person (Tudor et al, 2011; DEFRA, 2006; DEFRA, 2008). Why the amount of waste generated is decreasing is unclear, therefore measuring the performance of waste minimisation campaigns is very difficult as there are a range of factors intervening to affect the total amount of waste produced by households (Read et al, 2009). There is a need to investigate both witting and unwitting (waste) practices at the individual and household level so that any behaviour can be identified, documented and replicated.

It has been argued that it is possible to de-couple waste generation from economic growth and this is something which waste policy is keen to achieve (Mazzanti, 2008; Read et al, 2009; and Cox *et al*, 2010). The Waste Strategy for England - published in May 2007- stated that its first key objective was to *"Decouple waste growth in all sectors from economic growth and put more emphasis on **waste prevention and reuse"** (Mike Read Associates, 2007). Whilst economic instruments such as landfill tax (see Section 2.2.3) and green taxes aim to improve people's behaviour in relation to the environment, trying to reverse the trend of increasing consumption could be politically sensitive (Hobson, 2002). Indeed, given that there can also be periods of

economic downturn there is a conflict of interest between businesses, marketing and tourism, and the need to reduce the quantity of waste produced. Whilst businesses want to increase consumption and therefore revenue, waste minimisation policies seek to reduce it through avoidance, reuse and repair. Conflict between governmental policies is not unique to the field of waste management. The issue of public mistrust of governmental policies and intentions is experienced in relation to other areas such as transport where the aim to manage climate change is apparently overridden by policies to expand airports (DEFRA, 2008).

A further financial consideration is the cost of managing the waste produced. As waste legislation demands waste is treated and processed in a particular way (for example, composted or recycled), Local Authorities have to find new ways to collect and process the waste, yet are not necessarily allocated enough funding from central government to procure the infrastructures needed (Price, 2001). However, there are fiscal drivers for Local Authorities and Waste Collection Authorities to increase recycling in order to reach the targets set and avoid increasing landfill taxes and arduous fiscal penalties (see Sections 2.2.3 and 2.2.4). In addition, there are a number of government funded organisations that have been introduced in order to provide additional funding and support to developing waste minimisation practices, although most of these have now been amalgamated under the umbrella of WRAP in England (Bulkeley and Askins, 2009) and Waste Awareness Wales (WAW) in Wales.

Several countries have introduced fiscal incentive and/or penalty systems to encourage the householder to reduce waste and recycle, thus passing the economic burden onto individuals. For example, bottle deposit schemes, which used to be prevalent in the UK, are still popular in other countries in Europe. In Ireland, Canada, the United States, Australia and several European countries, variable rate charging - often referred to as "pay as you throw" – has been introduced in order to help them achieve legislative targets for the reduction of waste (Enviros, 2000; Curtis et al, 2011). Householders in these countries have to pay by weight, by frequency, per container or by volume for any waste that they dispose of as a non-recyclable; it is claimed that such schemes can reduce the quantity of waste produced by as much as 10% (Eunomia, 2006). However, it has also been found that the introduction of such schemes can have a negative impact, including increases in reported incidents and

sites of fly-tipping (Bulkeley and Gregson, 2009; Curtis et al, 2011; Tudor et al, 2011).

Whilst charging has neither been permissible nor popular in the UK, section 72 of the Climate Change Act 2008 gave Councils the ability to introduce charging, with five Councils being permitted to trial schemes. However, to date, charging has not been introduced in England and Wales (Tudor et al, 2011). Furthermore, the coalition government has abolished the previous governments' plans to introduce a pay by weight system, arguing that it would only lead to an increase in fly-tipping. The Coalition Government have announced an alternative policy to provide residents with points or fiscal rewards for recycling, rather than penalising people for producing excess waste (Pickles, 2010). Arguably, these political u-turns are related to the lack of understanding of how to change household waste practices.

2.1.4 Attitudes to Waste

As discussed in Chapter 1, this thesis focuses on the role that the individual and householder can play in relation to waste minimisation. Whilst there is undeniably a role for producers as well as consumers, there is a clear need to understand waste-related household behaviours, as around 5.3 million tonnes of household food and drink waste (equivalent to 64%) produced each year could have been avoided (Tudor et al, 2011). In addition, although a great deal of literature (Ackroyd et al, 2006; Phillips et al, 2003; Phillips et al, 2004; Coskeran and Phillips, 2005; Phillips et al, 2006) policy[8] and legislation[9] exists to tackle industry and commerce, literature relating to household waste behaviours is limited (see Chapter 3 for more discussion of this point).

Research in the area of household waste management has focussed upon two main priorities: how to encourage public involvement in the planning process for developing waste treatment facilities (Sharp, 2002; Petts, 1995) and how to encourage

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[8] Such as the Courtauld Commitment voluntary agreement which sets waste reduction targets for those retailers signed up to the agreement.

[9] For example, the Packaging (Essential Requirements) Regulations 2003 and the Producer Responsibility Obligations (Packaging Waste) Regulations 2005. See also, Towards Zero Waste (WAG, 2010).

recycling in order to meet statutory requirements.[10] Firstly, in relation to planning, it is estimated that before 2020, the UK will need between 1500 and 2300 new recycling, reprocessing, treatment and disposal facilities in order to meet its legal obligations, these come with an estimated cost of between 10 and 30 billion pounds (Davies, 2007:13). In addition to the financial costs, the establishment of new waste treatment facilities in the UK is discouraged due to NIMBYISM (Not In My Back Yard Syndrome: Barr et al, 2001a).

Whilst householders are major producers of waste, they do not wish to have technologies for dealing with this waste on their door-step. Whether or not this label is reasonable, there is certainly a phobia of waste technology in the UK that is not mirrored in other European countries (National Audit Office, 2006). There is a conflict between the desire to achieve effective waste management and the willingness of communities to allow waste treatment facilities to handle waste in their own locality. Common features of countries that have successfully introduced waste treatment facilities include a greater acceptance of energy from waste technology, good promotion of alternatives to landfill, high landfill costs and the ability of municipalities to introduce variable charging (National Audit Office, 2006). However, as discussed in Section 2.1.3, the introduction of variable charging can have negative impacts on how people dispose of their waste.

Secondly, academic research has increased in the field of waste management as researchers, policy makers and practitioners try to gain a greater understanding of how best to achieve the recycling targets set. A key element of achieving the targets is encouraging individuals and groups to change their practices. This is not an easy task as historically waste was mixed in one container (bag or bin), and taken away, thus the householder did not have to give waste management a great deal of thought (Evison and Read, 2001; Woolgar, 2007). However, there are now increasing demands upon the individual householder to think about which container to put their waste in as paper, cans, glass, compost and food waste are segregated for recycling. This necessitates a change in the routines and habits of their everyday practices, at work, at home and at play.

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[10] For example, the Waste Strategy, 2000 and the Biodegradable Municipal Waste Diversion Targets. See section 2.2 below for more details.

As legal requirements and previous practice in the UK have encouraged the view that waste management is a task that should be fulfilled by the government (EEA 2005), some individuals see prospective change as an infringement upon their lifestyles. Such a shift in responsibility for waste management is not a positive image to sell from a political point of view (Herridge, 2002). Research undertaken by Oxford Business School found that people are becoming increasingly disheartened by this transfer of responsibility for waste from the government and producers onto consumers or householders.

"People feel their lives are increasingly being controlled by ordinary objects and everyday technologies, and recycling and waste management is one area where passions are aroused," (Woolgar, in Edie, April 2007).

As well as demonstrating householders' dissatisfaction at the increasing responsibility with which they feel they are being burdened in relation to waste, this research suggests that certain factors such as technology can affect or 'control' their behaviour. The fact that infrastructure has such a strong impact upon individuals' autonomy when it comes to waste is not a new concept. For example, Chappels and Shove considered the role of the dustbin in relation to everyday practices; they identify that:

"These new [recycling] bins mark a radical change in rubbish responsibilities, with multiple options emerging for the separation, classification and collection of waste." (1999:275). Thus, context and agency emerge as potential influences on individual practices (see Chapter 3).

Arguably, the UK's various strategies for waste have been short sighted in not promoting waste reduction prior to recycling as a preferred environmental option, as the shift in policy towards waste minimisation will add to individuals' frustrations relating to what is expected of them. This is of particular concern given that it is individuals and households that are essential to achieving the legislative and fiscal targets set. As Barr identifies:

'...although economic instruments can have some impact on the waste process (at the preconsumer and postconsumer ends of the cycle), the decisions that individuals make about what to buy, how to use, and how to dispose of products have fundamental importance if the waste problem is to be tackled effectively.' (Barr, 2007: 436).

Here Barr emphasises the key role that individuals play, both at the point of consumption and at the point of disposal. Indeed, it has been argued that previous research has tried to focus on consumption behavior rather than disposal practices, and that only by considering the whole process of how individuals manage materials can understanding of (witting and unwitting) waste minimisation practices be improved (Evans, 2012; Bulkeley and Gregson, 2009; Gregson et al, 2007b). However, it is also important to note that the quotation from Barr suggests that individuals only make conscious (and independent) decisions, something which this thesis contests. That is not to say that individuals have no autonomy, but that decisions can be both conscious and unconscious (Herridge, 2005; Tucker and Douglas, 2006; see also Section 3.3) and can vary dependant on the setting (Shove, 2010; Hargreaves, 2011; see also Section 3.5.5).

2.1.5 Consumption

Research has shown that people are often more concerned with keeping up with the Jones' (Herridge, 2005) than they are with the environment. As Bauman (2003:9) states "*Consumables attract, waste repels. After desire comes waste disposal... In its essence, desire is an urge of destruction.*" (2003: 9). Similarly, it has been argued that lifestyles and practices have evolved to produce a throw-away society, where peer pressure also supersedes any desire to conserve (Herridge, 2005). This issue of consuming more leads to increased disposal and therefore an increase in waste, thus discouraging waste minimisation.

However, a study of 'waste' practice has revealed that material culture is far more complex, as people actively try to repurpose items that they perceive to hold value in order to off-set their guilt of displacing old items (Bulkeley and Gregson, 2009). Whilst some items are re-purposed due to their perceived value, other items enter 'gaps' (Evans, 2012) or 'spaces of abeyance' (Tudor *et al*, 2011) such as garages and lofts where they are held indefinitely until something prompts their divestment (Bulkeley and Gregson, 2009).

Ultimately a significant number of items enter the disposal stream, and it is evident from consumption and waste data that over the past few decades there has been an increase in the consumption of luxury items such as dishwashers and tumble driers, an

increase in the consumption of disposable items, and an increase in waste generation per capita (Tudor et al, 2011; McCollough, 2012). Therefore, understanding household consumption and disposal patterns is essential for achieving sustainable development (Kok et al, 2006).

Individuals can feel powerless when it comes to consuming goods – perhaps because the item they want is over-packaged or disposable and no alternative is available (NWAI Survey, 2000). Moreover, consumers can be caught up in the media's specification of what people 'need': *"People's taste, priorities and value systems are manipulated by the very 'markets' that are supposed to serve them."* (Porritt, 2005: 301). It is widely recognised that people feel that government and business 'edit out' certain consumer choices, and the inability to choose a more sustainable alternative has been labelled consumer 'lock-in' (Jackson, 2005; see also Porritt, 2005; DEFRA, 2008). When questioned, consumers place responsibility on producers and supermarkets for excessively packaged convenience foods and '3 for 2' offers (Obara, 2005). Councillor Paul Bettison, Chairman of the LGA Environment Board stated that manufacturers should take responsibility for the life cycle of their products and council tax payers should not be left with the bill (LGA, 2007). Indeed, many people see waste minimisation as pointless as they feel businesses have more power to change than householders (Holdsworth, 2005).

Whilst there are regulations aimed at getting businesses to reduce product packaging and make it recoverable, consumers feel they are inflicted with over-packaged goods – they do not want their vitamin pills in a bottle twice the size of its contents – this is a result of 'value for money' marketing, not consumer demand (The Independent, 27/04/07). Indeed, Gille (2010: 1050) argues *"the problem with splitting waste into categories of producer waste and consumer waste in the literature is that this reinforces the false assumption that consumers in Western capitalist societies make garbage, when in fact neither do they make trash materially nor do they have much choice in what materials they buy…"*

Indeed, the role of the producers has been identified and is being addressed to some extent by legislation. In addition, the Cortauld Commitment is a voluntary agreement between national government and signatories from the retail sector. The Commitment

has been criticised for failing to set sufficiently challenging targets, and also for failing to regulate all retailers (Saint, 2008). Nevertheless, the targets set have intensified since the Commitments initial introduction. The agreement is now in Phase Three and the targets have strengthened at each phase.

Notwithstanding, consumer power should not be underestimated; indeed, some argue that consumers have more influence than they realise (see Martin *et al*, 2006; Clifton, 2005). As Price (2001) points out; whilst a decrease in consumption is ambitious in the short term, much can be made of product selection. In recent years manufacturers have responded to customer desires in a number of ways. In theory, if householders show a desire for products with less packaging, shops and ultimately their suppliers (manufacturers) will have to produce more of the products that are being demanded. Unfortunately, at present this demand is being led by a 'culture of convenience' (Martin et al, 2006), which has led to an increase in disposable goods (McCollough, 2012) and an increase in the tendency to replace rather than repair, which have of course resulted in an increase in waste.

It is clear that not creating waste in the first place is the most preferable waste management option, as Sort It identify: *"Waste that is not created in the first place does not need to be reused, recycled or disposed of, so preventing or reducing waste generation is the most efficient way to deal with your waste"* (Sort It[11], 2007). Despite this being acknowledged by the waste hierarchy (in Figure 2.1), thus far this Chapter has demonstrated that in the UK, waste management is far from being efficient. Although recycling is increasing year on year across England and Wales (DEFRA, 2011), there are still a large proportion of usable materials sent to landfill (indeed, it has been suggested that landfill mining may one day be common-place as countries seek to re-claim the materials they once readily discarded (Webb, 2010)). In order to try to make policy more efficient and take into account these (cultural) contexts of convenience and consumption, policy-makers have sought to integrate models of behaviour and behavioural change into their policy. However, as we will see in the next section, despite the diversity of these models, many prove to be ineffective in

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[11] 'Sort It!' is an awareness raising campaign funded by the Scottish Government to increase public awareness of how to reduce, reuse and recycle waste. See www.sort-it.org.uk for more details.

giving practitioners positive help in delivering change in waste minimisation behaviour.

2.2 Policy and Regulation in the UK

Across Europe and the UK, policy-makers have tended to rely upon basic models of behaviour in order to try to facilitate change. The AIDA model (Awareness, Information, Decision, and Action) in particular has been a popular choice for government-led campaigns that try to change behaviour, whilst DEFRA (2005) offer the 4 E's framework - Enable, Engage, Exemplify and Encourage (see Figure 2.2) - as a model for behaviour change.

Chapter 3 will critique the AIDA model in detail, however at this stage it is worth identifying that the assumption made by this model that information will lead to action is overly simplistic and fails to take into account the range of factors that could positively or negatively affect behaviour (see Blake, 1999; Barr *et al*, 2005; Jackson, 2005). The 4 E's framework does consider external influences such as peer pressure and infrastructure, but not only does it encompass multiple factors, as argued by Shove (2010) in relation to similar models, it fails to provide a definitive guide as to how these factors interact or how they can be used to change behaviour or practice. For example, in "Tackling the Waste Challenge" (DEFRA, 2006), it is identified that individuals' behaviour is not linear as it is affected by a myriad of factors which practitioners *'need [to] address… simultaneously to facilitate change'* (Read et al, 2009). This quotation reflects discussions in Chapter 1 which outlined that practices can take place unwittingly (i.e. without intent) and that practices can be impacted by a variety of influences upon the individual – including context (see Chapter 3 for further discussion on this point). The DEFRA (2006) report also highlights that different target audiences respond differently and therefore campaigns need to be tailored to a specific audience. However, the report falls short of providing a framework of these factors that influence behaviour, how and when they interact, or a mechanism to address them.

Defra 4Es Behaviour Change Framework

Approach evolves as attitudes and behaviours change over time

- Remove barriers
- Give information
- Provide facilities
- Provide variable alternatives
- Educate/train/provide skills
- Provide capacity

Enable
(Make it easier)

- Expenditure – grants
- Reward scheme
- Recognition/ social pressure – league tables
- Tax system
- Penalties, fines & enforcement action

Encourage
(Give the right signals)

Catalyse
Is the package enough to break a habit and kick start change?

Engage
(Get people involved)

- Community action
- Co-production
- Deliberative fora
- Personal contacts/enthusiasts
- Media campaigns/opinion formers
- Use networks

Exemplify
(Lead by example)

- Leading by example
- Achieving consistency in policies

(Defra, Securing the Future, 2005)

Figure 2.2 DEFRA 4E's Behaviour Change Framework

Since the 2006 report, DEFRA has developed a 'Framework for Environmental Behaviour' (DEFRA, 2008), which proposes the use of a segmentation model, in which seven types of individual are defined by various characteristics such as environmental attitudes and socio-demographics and the likely incentives and barriers that influence their propensity to undertake pro-environmental behaviour. Whilst the application of segmentation models appears to be evolving as the preferred policy discourse, the segmentation approach has been the focus of some criticism. A key concern with existing policies is that they seek to rely upon social marketing to try to change consumption behaviours that are strongly embedded in contemporary society. In addition, the segmentation model developed by DEFRA only focuses on practices within the home, and therefore fails to consider the impact of different contexts such as at work or leisure (Barr et al, 2011). As outlined in Chapter 1, this thesis argues that a more nuanced understanding of waste minimisation practices should consider not only waste minimisation behaviour at the household level, but also the range of contexts and settings in which the individual lives their lives (and how practices transfer or not between different contexts and settings).

A further issue with the DEFRA (2008) Framework is that it focuses on a model of willingness and ability, placing intent and values at the centre of the framework (as discussed in Chapter 3). Shove (2010:1275) argues that such policy uses an ABC model of behaviour change and that such policies are flawed. "*For the most part, social change is thought to depend upon values and attitudes (the A), which are believed to drive the kinds of behaviour (the B) that individuals choose (the C) to adopt*." Here Shove is emphasising that such policies assume values and choice are significant in relation to pro-environmental behaviour. However, Shove argues that values, attitudes and choice are not realistic predictors of practice as peoples' habits and routines evolve over time. Shove also suggests that the ABC model is actively selected by policy-makers as it suits their needs to place an emphasis on individuals' choice as this makes the design of policies more politically expedient. In addition, the bulk of research in this field also provides an exhaustive list of drivers and barriers identified as researchers attempt to 'catch-all'. This in turn leaves policy makers with a range of factors that they can selectively choose to act upon, yet the validity of those factors is questionable.

Although useful for policy makers, the models that have been developed to date lack a theoretical grounding and robust methodological framework that can assist practitioners in delivering changes in lifestyle. There is therefore a trade off between overly simplistic behavioural models that offer attractive options to policy makers, and alternative, theoretically richer approaches that are more challenging in their prescription but which may offer better options to practitioners charged with implementing changing (waste) practices.

2.2.1 Waste and Recycling Legislation

Alongside the policy challenge to change waste related behaviour at the individual and household level, waste legislation has evolved to try to enact changes in the practices of waste collection and disposal authorities. In this arena, policy has been more prescriptive. Whereas Waste Management Authorities previously had to simply arrange the collection and disposal of waste, new legislation requires that they must segregate waste or face severe financial penalties. The legislation utilises two forms of incentive to encourage Waste Collection and Disposal Authorities to comply – *fiscal*

incentives, with increases in Landfill Tax; and *target-based incentives* for recycling, composting and Biodegradable Municipal Waste (BMW) Diversion. Some legislature incorporates both by incurring financial penalties if you fail to reach targets. The remainder of this Chapter considers the development of legislation in the UK, the introduction of fiscal and target based regulations and resultant implications for UK waste management policy and practice.

The pressure to not just collect waste, but to collect waste in a sustainable manner, has come from European Directives and Regulations. Controls on waste in the UK originated via the Control of Pollution Act 1974 but were greatly strengthened by the introduction of the EC Waste Framework Directive (75/442/EEC), which expanded regulation from the control of waste disposal to include the storage, treatment, recycling and transport of waste. The Waste Framework Directive was transposed into UK law via the Control of Pollution (amendment) Act 1989, the Environmental Protection Act 1990 (EPA), the Waste Management Licensing Regulations 1994, and the Controlled Waste (Registration of Carriers and Seizure of Vehicles) Regulations 1991 (Bell and McGillivrey, 2005).

The EPA was one of the first comprehensive pieces of legislation in relation to the environment, and remains one of the most significant legislative frameworks for UK Local Authorities (Bell and McGillivrey, 2013). It lays down regulations for the disposal of waste, requirements for prevention of and response to major pollution incidents and covers industry, agriculture and local authorities. It not only specifies that local authorities are responsible for the collection and disposal of household, commercial and industrial waste, but also that it is up to the local authority to decide how frequently and in what receptacle refuse is collected. Section 50 of the Environmental Protection Act (as amended) 1995 states that waste regulation authorities have a duty to produce a waste disposal plan, but no targets are set for waste minimisation, recycling or any other form of sustainable waste management.

The planning requirements of the Waste Framework Directive have led to the production of national waste strategies for England and Wales (DEFRA, 2000), Scotland (SEPA, 2003) and Northern Ireland (DOE, 2000). These strategies outline how the UK intends to manage the increasing amount of rubbish produced each year,

and set a series of recycling targets to meet the requirements of the Waste Framework Directive, the EU Waste Strategy, the Landfill Directive and the 6th Environment Action Programme.[12]

It is also now a legal requirement that all EU Member States have a Waste Prevention Programme in place (Article 29 of the Waste Framework Directive). In Wales, this has been complied with through production of the Waste Prevention Programme for Wales in which a target is set to reduce total municipal waste by 1.2 per cent every year to 2050 based on 2006/7 waste arisings (Welsh Government, 2013). Whilst the Prevention Programme sets a target for reuse, the target set is non-statutory and has to compete with statutory targets for recycling (see 2.2.2 below). In the current economic climate, Authorities are increasingly focussing upon delivering statutory rather than non-statutory requirements. In addition, whilst the Prevention Plan proposes increasing campaign promotions surrounding reuse activities, funding in this area is likely to be significantly affected by the current economic climate, as again such functions are non-statutory (Cole et al, 2014).

2.2.2 Target Based Incentives

The Waste Strategy for England and Wales 2000 aimed to increase the household recycling and composting rate from 9.4% to 25% by 2005, 30% by 2010 and 33% by 2015.[13] Wise about Waste: The National Waste Strategy for Wales' (published in 2002) increased these targets further for Welsh Authorities with an ultimate aim of 40% recycling by 2009/10. Despite the strategies hailing the waste hierarchy as significant, no targets were set in relation to waste prevention or minimisation. Therefore, mirroring policy in this field, the focus of the research that followed was recycling behaviour and what makes recycling schemes successful (Davis et al, 2006; Martin et al, 2006; Perrin and Barton, 2001; see also Chapter 3). Furthermore, the waste strategies did not attach penalties to the targets, and several authorities failed to

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[12] The 6th Environmental Action Programme provides a framework for environmental policy-making in the European Union for 2002-2012 and outlines actions that need to be taken to achieve them. It includes four priority areas: Climate Change, Nature and Biodiversity, Environment and Health and Natural Resources and Waste.

[13] DETR (2000): *Waste Strategy 2000 for England and Wales.*

reach some of the targets set, as there was little financial or operational incentive for them to do so (Price, 2001). The Waste Strategies for England (DEFRA, 2007) and Wales (Welsh Government, 2010) appear to have taken these criticisms into account in the new strategies in which legally binding targets are set and there is some sign of a move towards waste minimisation targets (for example, in Towards Zero Waste, Welsh Government, 2010).

2.2.3 Combined Fiscal and Target-Based Regulations

Fiscal targets were introduced in relation to the diversion of Biodegradable Municipal Waste (BMW) as a result of Article 5 of the EC Landfill Directive. The targets were introduced to UK law via the Waste and Emissions Trading (WET) Act 2003. The targets have been in force since 2010 and have been a primary focus of local authorities concerns. The targets require the amount of BMW going to landfill to be significantly reduced to 75% of that produced in 1995 by 2010, 50% of that produced in 1995 by 2013 and to 35% of that produced in 1995 by 2020. Under the Landfill Allowance Scheme (LAS), each authority is allocated a Landfill Allowance, and if they exceed this they face severe financial penalties.

The targets are not for waste minimisation, but for waste diversion – which recycling, composting or energy from waste can fulfill. But not creating this waste in the first place would reduce the need for so many waste treatment facilities and vehicles, making it a far more attractive option economically as well as environmentally. Not meeting the targets will incur heavy financial penalties as the government plan to charge local authorities a fine per tonne of waste sent to landfill that is in excess of their allowance. This will ultimately mean financial costs for the householder.

Statutory targets for recycling and composting have also been introduced in Wales, the first country in the UK to adopt statutory targets. 'Towards Zero Waste' (2010), proposes extremely ambitious targets of 52% recycling and composting by 2012/13, with steadily increasing targets to 70% recycling and composting by 2024/25. These are far higher than those set by the Waste Strategy for England (2007), which sets

recycling and composting targets of 40% by 2010, 45% by 2015 and 50% by 2020.[14] Local Authorities will be fined for failure to attain these targets.

The Waste Strategy for England (2007) also introduces a target to reduce the amount of household waste not re-used, recycled or composted by 45% from 22.3 million tonnes in 2000 to 12.2 million tonnes in 2020. Although this refers to reuse as a method of reducing the amount of waste, there is still potential for authorities to focus on the composting and recycling element as they are both easier to target and to measure (Obara, 1997; Price, 2001).

'Towards Zero Waste' (the Waste Strategy for Wales) also introduces some measures that attempt to move waste management up the waste hierarchy. These include a modest reuse target of 1% by 2024/25 as well as introducing targets for the reduction of residual household waste produced per head, per annum, with a 295 kilogram goal set for 2012/13, falling to just 150kg by 2024/25 (Welsh Government, 2009: 31).

Given the lack of suitable waste treatment facilities in the UK, and the multiple other obstacles mentioned earlier in this chapter, achieving these targets is going to be very difficult. Indeed, both the England and Wales strategies still fail to deliver the promised framework for waste minimisation policy. The focus of local authorities is yet again shifted to the wrong section of the waste hierarchy, as the strategies are more concerned with higher targets for recycling than waste minimisation. However, Towards Zero Waste has been followed by a series of six sector plans to help deliver the targets set in the waste strategy for Wales. Sector plans have been developed in relation to Food and Retail; Construction and Demolition Waste; Collections, Infrastructure and Markets; and Municipal Waste.

The Municipal Waste Sector Plan encourages Local Authorities to switch to a weekly collection of recycling and food waste and a fortnightly collection of residual waste. It also stipulates that certain materials should be segregated prior to collection. Arguably, it is a little late to be changing methods that authorities have been using for many years in order to achieve the targets set. However, the aim of the sector plan is

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[14] DEFRA (2007): Waste Strategy for England 2007.

to ensure that waste management is sustainable, not merely target driven, as has been the case previously (WAG, 2010a).

2.2.4 Fiscal Incentives

A further economic incentive introduced to help reach the targets is the Landfill Tax Regulations (99/31/EC) 1996, which were transposed into UK Law via the Finance Act 1996. The financial burden on Waste Disposal Authorities (WDA's) has been steadily increasing since then. The Landfill tax regulations introduced a tax for land-filling waste of £7 per tonne[15]. This initially rose by £1 per tonne per year, then by £3 per tonne in subsequent years rising to £32 per tonne in 2008/09. This was still low in comparison to many European countries where landfill is not relied upon so heavily. In Gordon Brown's last Budget as Chancellor of the Exchequer in March 2007, he increased this to an annual rise of £8 per year from 1st April 2008 until at least 2010/11 (see Table 2.2). The Landfill Tax escalator has since been extended to 2014, so will continue to rise by £8 per year (Tudor et al, 2011).

Table 2.1: Cost of landfill tax per tonne of non-inert waste. Landfill Directive (99/31/EC)

Financial Year (s)	£/tonne
1996-1999	7
1999-2000	10
2000-2001	11
2001-2001	12
2002-2003	13
2003-2004	14
2004-2005	15
2006-2007	21
2007-2008	24
2008-2009	32
2009-2010	40
2010-2011	48
2011-2012	56
2012-2013	64
2013-2014	72

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[15] For active waste and £2 per tonne for inert waste (Tudor et al, 2011)

Landfill tax is paid in addition to the usual fee that businesses and local authorities have to pay when disposing of waste at a landfill site. It is designed to encourage them to produce less waste and to find alternative method of disposal. By increasing the cost of landfill, recycling becomes a comparatively less expensive option. Whilst this clearly provides a financial incentive for reducing waste, it appears that diversion for recycling has been the preferred focus - perhaps as encouraging waste minimisation is perceived to be so difficult (O'Bara, 2005).

2.3 Conclusion

Having reviewed the legislation and policy surrounding waste management in the UK it is clear that policy has outlined the need to push waste management further up the waste hierarchy by moving from a reliance on landfill and seeking ways to recycle, reuse, reduce and ultimately prevent waste (Waste Strategy, 2000; Phillips et al, 2002). However, thus far regulations and strategies have failed to provide guidelines or strong incentives for reaching the waste minimisation level of the hierarchy. The situation is compounded by the lack of a clear definition of waste minimisation in the policy arena, making practices difficult to measure (Obara, 1997; Price, 2001), and guidance difficult to implement.

It is clear that, until this Century there has been a failure to provide any incentive or framework within which to successfully enact waste minimisation at the household level (Read et al, 1998). Indeed, the policies that do exist mostly originate from European frameworks, and tend to focus on maximising recycling, thus are diverting the attention of those responsible for waste management away from waste reduction and reuse. The fact that the legislation has made recycling targets weight-based means that Local Authorities are in the position of having to recycle for the sake of recycling – no matter what the cost in terms of finance or the environment. Waste sector plans seek to overcome this in Wales by being more proscriptive about how materials should be collected and dealt with.

Table 2.2: Summary of Recycling and Waste Minimisation Targets

Policy/Regulation	Key Target	Waste Minimisation Target
Waste Strategy 2000: England and Wales	25% recycling and composting by 2005, 30% by 2010 and 33% by 2015.	None
Wise About Waste 2002: Wales	40% recycling and composting by 2009/10	None
Waste Strategy for England 2007	40% by 2010, 45% by 2015 and 50% by 2020	Reducing the amount of household waste not re-used, recycled or composted by 45%
Towards Zero Waste 2010	52% recycling and composting by 2012/13, 58% by 2016/15, 64% by 2019/20 and 70% recycling and composting by 2025	Reducing the amount of residual waste per head, per year to 150kg by 2024/25. 1% reuse by 2024/25
The Landfill Directive	Reduce BMW to landfill by 50% by 2013 and by 65% by 2020	None

In order to achieve the targets set (summarised in Table 2.2), it is essential that there is a change in behaviour in relation to household waste practices. Diverting waste from landfill and achieving 70% recycling can only be achieved if all households recycle and compost as much of their waste as possible, and also reduce the amount of waste they produce that is neither recyclable, reusable or compostable. This demonstrates the need for waste and consumption to come together as waste management increasingly becomes *"a direct intervention in the flow of goods and materials through society."* (Bulkeley and Gregson, 2009: 929). The implication is that a Local Authority no longer merely collects and disposes of waste. They are expected to intervene in people's consumption and disposal practices, and encourage households to change their habits.

On a positive note, the (new) coalition government have indicated a desire to move away from target based incentives (see DEFRA, 2011). In order to truly manage waste sustainably, waste minimisation strategies and campaigns targeted at the householder are essential (Thematic Strategy; DEFRA, 2004), and these need to be based on a better understanding of householders material practices. However, as the following Chapter will demonstrate, the gap in understanding of waste minimisation practices and how to encourage them in the policy arena is closely aligned to the lack of

understanding in an academic context. The following chapter therefore reviews literature in the consumption, disposal, waste, and everyday practice arenas in order to identify a method for bridging this gap.

Chapter 3: Overcoming the Value-Action Gap

3.1 Gaps, gaps and more gaps

The preceding chapters have outlined why this research focuses on waste minimisation practices at the individual and household level in the UK: the increasing significance of waste minimisation for waste policy and practice, and the corresponding lack of understanding of how to encourage waste minimisation practices. As the issue of waste management is not one which is restricted to the academic field, Chapter 2 provided a review of waste management policy and practice in the UK in order to demonstrate how legislative measures are trying to move waste management practices further up the waste hierarchy (figure 2.1), with various degrees of success. From Chapter 2 it is clear that although there is a desire to move waste management from a reliance on landfill towards waste reduction, reuse and prevention, this desire is frustrated by a lack of understanding of waste minimisation practices and how to encourage them, and a historical focus of policy and practice on recycling and behaviour.

There has been a tendency for academic research and policy in the field of waste behaviour to focus on three objectives: 1) how best to deal with the waste produced, 2) how to maximise recycling, and 3) how to encourage pro-environmental behaviour. This Chapter argues that because these aims have been pursued, the need to understand waste minimisation practices has been overlooked. Instead, there has been a tendency for researchers in the field of waste minimisation to adopt social and psychological models of pro-environmental behaviour to try to understand and explain waste related behaviours. This Chapter therefore commences with a consideration of social and psychological models of behaviour (Blake, 1999; Barr, 2006; Barr, 2007 and DEFRA, 2008). The review of behavioural models outlines the models adopted and how these models have then been utilised for the study of waste behaviour, with varying degrees of success.

Similarly to policy in this field, academic literature on waste minimisation behaviour (Coggins, 2001; Barr *et al,* 2001; Barr and Gilg, 2005; Tonglet, Phillips and Bates, 2005; Tucker and Douglas, 2006) is still evolving, hence the amount of literature relating to waste minimisation is limited (Read *et al*, 2009). As a result, several key

works and authors are frequently referenced within this thesis, including waste related (work by Barr and his colleagues, as well as research by Tonglet et al; Evans, Tucker and Douglas, Shove, Bulkeley and Gregson) and consumption related research (Hobson, 2002; Jackson, 2005; Tukker et al, 2010; Tudor et al, 2011), several of which use pro-environmental models of behaviour as a cornerstone for their research. During this Chapter it is argued that approaches to understanding waste minimisation that focus solely on *intentions*, *environmental values* and *waste* are flawed.

It has been necessary to undertake a review of related research in order to bring waste minimisation into mainstream discussions relating to behavioural change in the social sciences. Whilst the review has been extensive, this Chapter focuses on selected research relating to everyday practice (Chappells and Shove, 1999; Shove, 2003; Shove and Pantzar, 2005; Shove, 2010; Reckwitz, 2002; Warde, 2004) and non-representational theory (Thrift, 2004; Anderson, 2010) in order to ensure an in depth engagement with the strengths and weaknesses of the chosen approaches to understanding behaviour. This chapter argues that a practice-based approach has the ability to overcome the shortcomings of research that focuses on either consumption or waste by following the flow of materials through households (Gregson and Crang, 2010; Bulkeley and Gregson, 2009). In addition a study of practice allows for external as well as internal influences upon individuals' practices, including the impact of people and places on performances (Shove, 2010; Hargreaves, 2011; Evans, 2012). To this end, literatures from cultural geography and the social sciences are considered, alongside the growing body of research which emphasises the importance of *practices* with regard to pro environmental behaviour more generally (see for example Warde, 2004; Shove and Pantzar, 2005; Bulkeley and Gregson, 2009; Reid, Sutton and Hunter, 2010; Cox *et al*, 2010 and Shove 2010). Furthermore, the turn to practices draws attention to the importance of context, namely the impact of people and places on practice. By focusing on actual practices, rather than abstract intentions, important connections can be drawn between the practices engaged in, and the influence of various factors upon them. Building upon this, the study of practices is used by this thesis to explore the concept of *spill-over effects,* or the likelihood of practice transfer between people and between contexts, and how practices form and change.

3.2 Pro-Environmental Behaviour

An exploration of models of pro-environmental behaviour is important in order to identify current approaches to understanding waste related behaviours, in order that their strengths and weaknesses can be identified and overcome. This section considers models of behaviour which research and policy have utilised to try to understand and change consumption and waste related behaviour. Whilst the study of sustainable or pro-environmental behaviours covers a broader willingness to protect the environment (McKenzie-Mohr, 2000), researchers in the field of waste management have considered these general models (Ajzen & Fishbein, 1977; Ajzen, 1991) with a view to develop more specific recycling and waste minimisation behaviour models (De Young, 1986; Ebreo & Vining, 1994; Barr *et al* 2001; Woollam *et al*, 2003). The review will demonstrate that there is a 'gap' in existing research because researchers have relied upon *intended* and *reported* behaviours, which vary from the practices actually undertaken for two key reasons. Firstly people don't always realise that what they are doing constitutes a waste minimisation practice. Secondly, individuals practices can be so embedded in their routines that they may not know why they do things the way they do (Latham, 2003).

Chapter 2 discussed how governmental campaigns have used the AIDA model to try to encourage pro-environmental behaviour, for example in campaigns such as 'Are You Doing Your Bit' (1998) and 'Going For Green' (1995). AIDA stands for Awareness, Information, Decision, and Action and is based on the premise that *awareness* and *information* result in a linear progression to a *decision* to act and ultimately to *action* (Collins *et al*, 2003). This approach is developed from the 'information deficit' model and the belief that the failure to act is due to a lack of information (Hinton, 2010). However, the assumption that information leads to action has been widely criticised because often simply providing information is insufficient to lead to action as there are various other factors that can influence behaviour (Blake, 1998; Barr *et al*, 2001; Jackson, 2005; Barr, 2006).

The AIDA and information deficit models, along with related ideas such as Rational Choice Theory, make two key assumptions. Firstly, that individual's decisions are the result of conscious cognitive deliberation, and secondly, that an individual enjoys

complete freedom of agency. These theories emphasise the autonomy of the individual; they assume that the individual alone has control of their intent and that individuals have the capability to perform the behaviour. This has been labelled an 'internalist' approach, as it does not consider external influences such as cultural and social factors and how they can influence the decision making process, and ultimately the actions of an individual (Jackson, 2005). Many researchers would argue that an approach which fails to take into account external as well as internal influences over individual behaviour is flawed (Giddens, 1986; Jackson, 2005; Hinton, 2010; Hargreaves, 2011). Certainly, literature relating to structure and agency would suggest that an individual does not always have complete autonomy over their actions, as they can also be influenced by external factors such as social norms (Shove 2003; Jackson, 2005; Taylor-Goodby, 2008; Silvera et al, 2008; see also section 3.5.5).

More complex models of behaviour have been developed which take into account social influences, including the theory of reasoned action (TRA) as outlined by Ajzen and Fishbein (1977). The TRA model has been utilised as a platform for many of the more comprehensive models of behaviour, and is a general theory of social behaviour based on social-psychological modelling. It is significant because it differs from previous models by attempting to account for the effects that other people's behaviours can have on an individual i.e. it considers the impact of normative social influences on individual behaviour (known as subjective or social norms, see 3.5.4). The underlying assumption of TRA is that individuals' act according to the beliefs and values that they attach to likely outcomes. These beliefs and values lead to an overall 'attitude' which ultimately has a significant influence on the individuals' *intention*. Although consideration of social influences adds strength to the TRA model, the assumption that intention is the immediate precursor to behaviour is a key weakness of the model, as multiple studies indicate that behavioral intention does not always lead to actual behavior because of circumstantial limitations (Barr, 2005; Blake, 1999). Such models retain the assumption that an individual has the capability to undertake any intended behaviour despite the potential limiting effects of external infrastructure.

Ajzen (1995) built upon the TRA to develop the theory of planned behaviour (TPB: See Figure 3.1). The TPB again assumes that people have a rational basis for their behaviour and that they consider the implications of their actions. It differs from the TRA as it incorporates perceived behavioural control, which attempts to explain the reason why intention may not lead to behaviour. Perceived behavioural control is defined as an individuals' belief as to how easy or difficult it will be to perform an act. The concept of perceived behavioural control has been linked with self efficacy theory (Ajzen, 1991). Bandura (1986) defined self-efficacy as an individuals belief that they can undertake the action required to produce a desired outcome.

Multiple researchers have used the TRA and TPB as a basis for trying to understand behaviour, despite their multiple flaws. Jackson (2005) questions the TPB as even though it considers subjective norms, personal norms and perceived behaviour control, there are a multitude of external factors which may influence an individual's behaviour, such as social norms, personal experience, personality and demographics, which the model does not incorporate. It also fails to consider external non-human influences such as infrastructure and context (Hinton, 2010) and the role of what Jackson calls consumer lock-in (Jackson, 2005; see also section 3.5.5).

Whilst it is easy to argue that the TRA and TPB models are too simplistic, models that attempt to map the true complexity of consumer behaviour are not useful tools for policy makers. As a result, pro-environmental models of behaviour have been adopted by policy with little success, but social researchers continue to modify and develop these approaches because they are popular with policy-makers (Shove, 2010; Tukker *et al*, 2010).
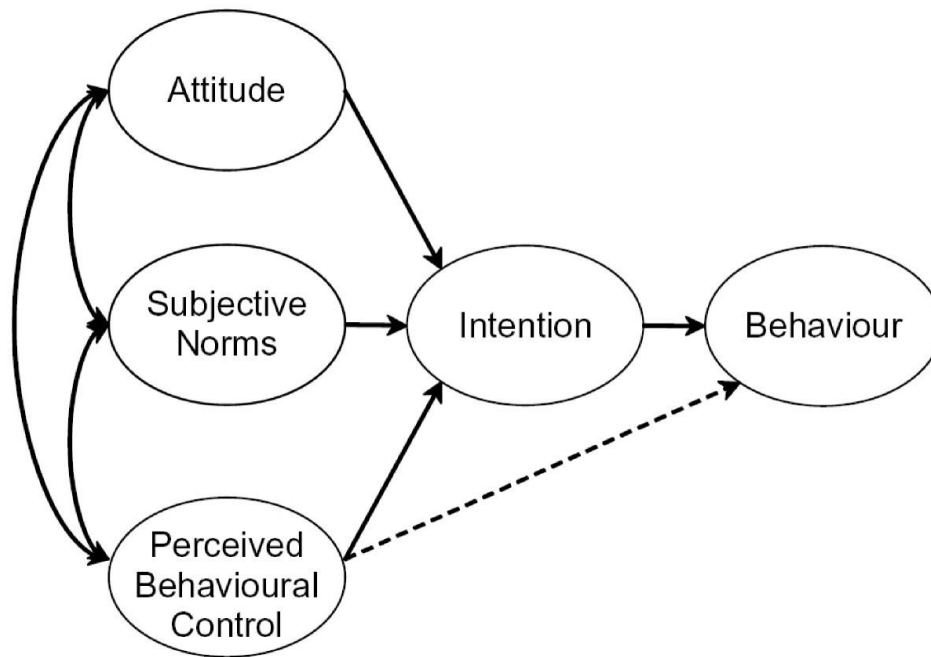
Figure 3.1: The Theory of Planned Behaviour

Ultimately, the TPB model again assumes *environmental values* and/or *intention* are necessary pre-cursors to *behaviour*. However, this assumption has been criticised by researchers who have formalised the problem that define these approaches: there is often a gap between *intention* and *action* (Blake, 1999; Barr, 2006). Labelled the 'Value Action Gap' (Blake, 1999, see also Chapter One), research into waste related behaviour has confirmed that even though there might be a willingness or intention to act, the corresponding behaviour does not necessarily follow (Barr *et al*, 2001; Barr, 2006).

3.2.1 Actions Vs Values: The Value Action Gap

Research investigating the Value Action Gap has continued to develop psychological models of behaviour change in order to try to understand what is intervening between values and a willingness to act and actual action. From a review of previous literature in the social-psychological field, researchers have developed an alternative model of behaviour, based on the TRA, but identifying three sets of variables that intervene between intention and behaviour: 'Environmental Values'; 'Situational Variables' and 'Psychological Factors', as illustrated by Figure 3.2 (Barr and Gilg, 2005: 234).
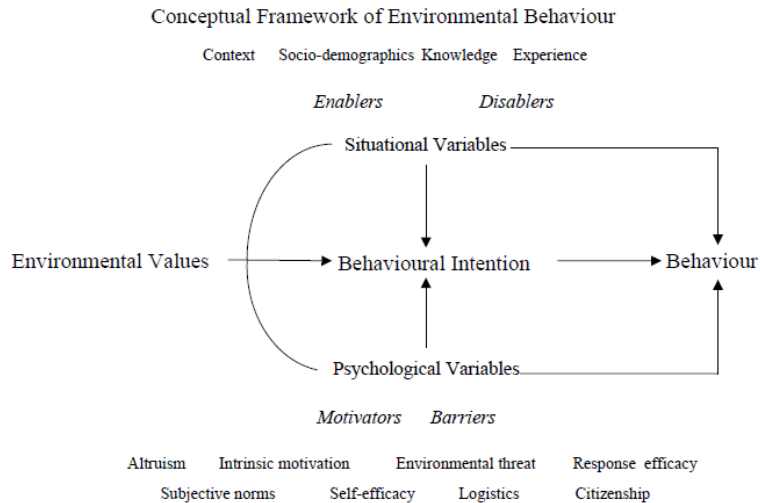
Figure 3.2: Conceptual Framework of Environmental Behaviour

Arguably, the three factors outlined in the conceptual framework (Barr *et al*, 2001; Barr and Gilg, 2005) have strong links with research by Blake (1999) into 'Overcoming the Value Action Gap'. Blake suggests three barriers that prevent willingness from becoming action: 'Individuality', 'Responsibility' and 'Practicality'. These are similar to Barr's Environmental, Psychological, and Situational Variables respectively.

Individuality, similarly to Environmental Values, refers to personal attitudes and belief, such as whether or not the individual displays environmental concern. Blake (1999) also mentions that attitudes are likely to be better predictors of behaviour if they are based on direct experience. This reflects the influence of the external factors referred to in the TPB – demographics, personal experience and personal characteristics.

As well as an intention to perform the behaviour stemming from Environmental Values, the conceptual framework offers two alternative influences that can result in Environmental Behaviour: Psychological Variables and Situational Variables. The second inhibitor identified by Blake – Responsibility - links with Psychological Variables as it claims that residents need to feel not only empowered to minimise their waste, but also responsible for it. Blake found that there is a difference between

being aware and actually being eco-friendly. There also needs to be a willingness to act (Barr *et al*, 2005). This links with Practicality, Blake's third inhibitor; similar to Barr's Situational Variable, Practicality refers to the time, convenience and ability to undertake pro-environmental behaviour (Blake, 1999). Situational Variables are factors that affect the individuals' position or circumstance. In other words, enabling and disabling factors such as facilities, knowledge, experience (Daneshvary *et al*, 1998) and socio-demographics (Barr *et al*, 2001). These are quite broad categories and could encompass a vast array of inhibiting or enabling factors. However, when applying their conceptual framework to recycling behaviour, Barr and Gilg (2005) give insufficient consideration to how the various outlying motivators and inhibitors interact with one another. As Tucker and Douglas (2006:4) highlight, "*there is no general consensus on the relative importance of each factor and how the individual factors are linked.*" In practice, the fact that there are so many barriers and motivating factors means that the findings are not of practical use in guiding policy (Shove, 2010).

Whilst Barr and Gilg's (2005) conceptual framework is a step forward as it does - to some extent - recognise context (situational variables) and agency (psychological variables), neither Blake nor Barr's theories consider that behaviour can take place without intention. This assumption occurs despite the fact that researchers have begun to argue that there may not need to be intent or environmental values for a pro-environmental behaviour to take place (Perrin and Barton, 2001; Herridge, 2005; Tucker and Douglas, 2006; Bulkeley and Gregson, 2009; Cox *et al*, 2010). In his paper entitled 'Investigating the 'Value-Action' Gap, Barr (2006) emphasises the importance of understanding what motivates environmental *action* as opposed to *intention*. Although a focus on action warrants further exploration, in a more recent paper, Barr (2007) again focuses on a 'willingness to act' and environmental intention, thus failing to bridge the gap between intent and action. This model is therefore underpinned by a belief that investigating reported environmental values is a valid method for predicting pro-environmental behaviour (Barr and Gilg, 2005; Thompson and Barton, 1994; Dunlap *et al*, 1992). As Barr (2006:46) states "*Positive environmental values would be expected to lead to an intention to be pro-environmental and then to action.*" This is a crude and positivist assumption as behaviour, as their own models imply, is far more complex.

This Chapter argues that such conceptual frameworks are flawed in their basic assumption of underlying environmental values and intent as it is increasingly evident that waste minimisation practices can take place for non-environmental reasons (Perrin and Barton, 2001; Herridge, 2005; Tucker and Douglas, 2006; Bulkeley and Gregson, 2009; Cox *et al*, 2010). The listed researchers have provided examples of people avoiding waste or reusing items for financial reasons, some have even argued that people on lower incomes tend to produce less waste by consuming less and consuming more wisely because of the cost implications. However, this is not to do with being environmentally motivated but about social need and lifestyle (Hobson, 2002). The significance of non-environmental reasons for action is highlighted by other researchers who provide examples of using web-sites and community ties to enable the reuse of items. Such waste minimisation practices occur for non-environmental reasons, such as cost (Herridge, 2005) convenience (Tucker and Douglas, 2006) and the strength of community ties (Bulkeley and Gregson, 2009). Therefore environmental concern is not a reliable predictor of environmental or waste related behaviours as waste minimisation practices can take place for reasons other than an intention to reduce waste; hence a focus on environmental values does not provide a definitive guide to behaviour.

A further concern relating to Barr and Gilg's (2005) conceptual framework is the way in which it has been tested. Barr and Gilg utilise a questionnaire in order to ask people about intended behaviour (or 'willingness to act') and about their actual (or reported) behaviour. A number of researchers have identified that the majority of UK households undertake some form of waste minimisation practice as part of their everyday routine, yet they often fail to report this when surveyed (Bulkeley and Gregson, 2009; Tucker and Douglas, 2006; Obara, 2005). As Tucker and Douglas highlight in their research, this misreporting is often due to the disconnection between intent and action – even though many of those surveyed did carry out waste minimisation behaviours, they did not necessarily do so for reasons of waste prevention. Hence, when asked to provide examples of waste minimisation behaviour, they were unable to do so (2006:8). Consequently, using an environmental approach to understanding waste minimisation behaviour, especially in the case of a

survey, is likely to lead to limited responses from individuals who only highlight behaviours they have undertaken 'knowingly' or for environmental reasons.

3.2.2 Reflections on Behavioural Approaches

Having reviewed the behavioural models surrounding pro-environmental behaviour, it has been possible to identify some shortfalls in the research. Perhaps most significantly, the various frameworks (Blake, 1999; Barr *et al*, 2001; DEFRA, 2005) fail to provide a clear and definitive guide as to how waste minimisation behaviour can be encouraged at the individual and household level, as they outline so many influences upon behaviour (Shove, 2010). Moreover, the multiple influences that are referenced are given no hierarchy of significance, and arguably do not represent a full complement of influences as they are attained by focusing on environmental intent rather than upon when and why practices take place. According to Cox (*et al*, 2010:201) "*Two of the main studies (Tucker & Douglas 2007 [WR0112], Barr 2007) found that some 70 to 85% of the variation in behaviour could not be explained.*" Arguably, the reason for this unexplained variation is that the frameworks adopted fail to overcome the value action gap as they focus on the wrong element of the process: values and intent instead of the practices themselves. Indeed, Tucker and Douglas (2006) acknowledge that attitudinal factors only account for a minority of behaviours. Therefore knowing whether or not a particular action will constitute minimising waste is not necessarily important in order for practices to take place, but clearly when researchers are relying upon reported actions in order to understand waste minimisation behaviour, the fact that an individual may not recognise a practice as waste minimisation will mean that the practice goes unreported.

Sometimes there is a fundamental and necessary distinction in the approaches adopted by research, not simply because the researchers are from different academic disciplines, but because they are addressing the problem in a different way (Shove, 2010). The following sections provide justification for this thesis adopting an alternative approach, including evidence of practices that take place without a primary intention to minimise waste. In addition, further details on the benefits of utilising an everyday practice approach to gain a better understanding of how to encourage waste minimisation are provided.

3.3 Witting and Unwitting Practice

From the above review of behavioural models it is apparent that 'intention' and 'environmental concern' are not necessarily good predictors of waste minimisation behaviour. Research suggests that people may be undertaking waste minimisation actions, but they are doing so 'unwittingly' and often for non-environmental reasons (Herridge, 2005; Tucker and Douglas, 2006; Bulkeley and Gregson, 2009). Tucker and Douglas (2006) found that waste minimisation behaviour was rarely practiced with a primary intention to reduce waste. Instead practices were influenced by factors such as cost, habits and routines. *"The motivations to partake in waste reduction activities…are seldom based on a prime consideration to reduce waste. Actions are taken mainly because they are the cheapest, or the most practical."* (Tucker and Douglas, 2006:4). Here Tucker and Douglas suggest that intent to undertake waste minimisation is not significant, as cost and convenience are more important to the individual.

The fact that the waste minimisation element of a practice can go unnoticed (Bulkeley and Gregson, 2009; Cox *et al*, 2010) highlights the need for an alternative approach to understanding waste minimisation behaviour, but also to understanding why 'unwitting' practices take place. As Shove writes: *"Only by setting 'the environment' aside as the main focus of attention will it be possible to follow and analyse processes underpinning the normalisation of consumption and demand."* (2003:9) Arguably, the reason for a gap between values and actions and a reason for people claiming not to minimise waste, yet later admitting to undertaking a form of reuse behaviour, is that individuals can undertake a practice 'unwittingly'. This Chapter argues that in order to overcome the value action gap, a different approach to the problem is required. Rather than asking what encourages pro-environmental behaviour, there is a need to look beyond values and intent to the actions themselves in order to identify not just practices that take place for environmental reasons, but also practices that take place without the aim of waste prevention. Through adopting such an approach, it will be possible to identify waste minimisation practices that take place for non-environmental reasons such as cost or convenience. Therefore, it is essential that future research considers not just 'witting' practices, but also 'unwitting' waste minimisation practices, and why they take place in order to

appreciate how habits are formed and sustained. Future research should not concentrate on whether environmental values lead to action, but on (witting and unwitting) practices and when, where and why they take place.

'Unwitting' is defined in the English Dictionary as "not aware of the full facts", or "unintentional" (Oxford, 2009). Hence, the term 'unwitting' is suitable for describing waste minimisation practices that take place where reduction of waste is not the primary intention of the action. For example, where an individual attends a car boot sale to sell second hand items, they may not be doing this with the primary purpose of waste minimisation, they may be motivated by financial reasons. Waste minimisation is potentially an unintentional by-product of these actions, yet people do not often make the connection; it may simply be an 'unintentional' and unacknowledged by-product.

As well as putting environmental intention and values to one side in order to identify unwitting practices, it is important to also put aside the concept of waste. The term waste minimisation is, similarly to sustainability, a term which individuals struggle to explain or demonstrate through provision of examples. In the case of waste minimisation practices, it is possible to contend that by preventing an item from becoming waste, individuals are maintaining its status as a product of use rather than seeing the item as a waste product. Through adopting a 'material practice' approach, it is argued that a range of material related performances will be identified including prevention and reuse practices that are in fact not waste minimisation practices in the mind of the performer, but which nevertheless produce the desired result of reducing waste (Gregson *et al*, 2007).

In addition to not fully understanding what they are doing, it has been identified that people can be unable to provide an accurate explanation as to *why* they are undertaking a particular practice (Latham, 2003). As Anderson states, "*we have all been in situations where we can't find the words to express ourselves, to talk about how we feel, or why we do things.*" (Anderson, 2010: 31). As Anderson highlights, people do not always instinctively understand why they do things the way they do. This could be because there are a combination of factors that have led to their action, or because the practice is a habit that has formed over time. Researchers therefore

need to be sensitive to these issues, and questions that assume rational motivations and linear relationships between intent and action are unlikely to engage fully with these unwitting or unacknowledged practices.

Not only do people not always know why they are doing something, they often wish to give the 'correct' answer to researcher surveys, as DEFRA acknowledge, *"Peoples' responses are affected by their sense of what is socially acceptable, such as what they think they should do or most people do."* (DEFRA, 2008:30). Given the desire for people to give the 'correct' answer, and the fact that people do not always know why they are doing something, there is clearly a need for an alternative approach to researching waste minimisation behaviour in order to identify what practices take place at the individual level and why. A turn to practices represents a viable alternative to better understand waste minimisation at the individual and household level.

3.4 Everyday Practice

There is a growing body of research surrounding the study of practices (Shove, 2003; Hand *et al*, 2005; Shove and Pantzar, 2005 and Shove, 2010), waste management practices (Chappells and Shove, 1999; Gregson *et al* 2007; Gregson *et al*, 2007b; Bulkeley and Gregson, 2009; Gregson and Crang, 2010; Evans, 2012) and a range of other studies (Warde, 2005; Seyfang, 2005; Hargreaves, 2011). The major difference between a study of behaviour and a study of practice is that the former concentrates on reported behaviour and the latter focuses on what is actually performed (Bulkeley and Gregson, 2009). The latter allows for a more holistic approach to studying not just what, but how and why people form and break routine performances (Hargreaves, 2011). The study of practice has strong links with schools of thought that recognise that practices can be undertaken 'unwittingly' or without intent – such as scholars of affect (for an overview see Davidson et al, 2005) and actor-network theory (see Callon, 1986, Latour, 1999; Law & Hassard, 1999). Thrift has developed an approach which takes into account all of these theories under the heading of 'non-representational theory', or a theory of practices (Thrift, 2004).

Non-representational theory discusses the relevance of language and meaning in relation to cultural geography. It is an approach that is being developed by human geographers to access performances or practices that cannot be accessed by mere representations. Its advocates claim that practices can be 'before or beyond conventional linguistic articulation' (Anderson, 2010: 31). Non-representational theory therefore suggests that human geographers and social scientists should not focus simply on representations and interpretations which assume individuals follow contemplative models of thought or intent (Thrift, 2004). Instead, researchers should base their studies on practice and identify how particular practices are performed in order to access individuals' own accounts of their attitudes, motivations and behaviours (Hakim, 1987: 26) and thus develop 'more-than-representational' geographies (Lorimer 2005). What this and Shove's approach have in common is a commitment to an understanding of practice and performance that does not privilege what people say they do over what they actually do. As Smith sums up:

"...the emphasis of human geography should be on practices – either on their reproduction (stable repetitions), or on the production of new practices (perhaps inspired improvisations) – because it is practices (performances using materials to hand) rather than representations that are at the root of the geographies that humans make every day." (Smith, 2002:68).

The above quotation articulates the significance of practices over intent or values. As people do not necessarily know why they do things, the theory of practices begins with the actions themselves, and from there, try to work through the variety of factors that influence agency. This approach therefore opens the door to new influences being identified by viewing the whole – the 'saying and doing of practice' (Warde, 2004:3), rather than just accepting people's initial representations of what they do.

Before exploring the theory of everyday practice further, it is important to establish what 'practice' means. According to Reckwitz (2002: 249-50)

"a practice represents a pattern which can be filled out by a multitude of single and often unique actions reproducing the practice...she or he is not only a carrier of patterns of behaviour, but also of certain routinized ways of understanding, knowing how and desiring."

This definition demonstrates that practice can be made up of multiple actions, which can be habitual or unique to a particular individual or context. The quotation also

alludes to the fact that practices can be shaped by an individuals' knowledge and understanding and also by habits and routines. Shove (2010) highlights that, although practices can be 'routine', they are not necessarily static as practices can change and evolve over time, or even between places.

Incorporating the idea that practices can be influenced by external factors, Barnes provides a societal definition of practices, outlining them as *"socially recognized forms of activity, done on the basis of what members learn from others, and capable of being done well or badly, correctly or incorrectly."* (Cited in: Schatzki *et al*, 2001:19). Barnes' definition implies that practices are influenced by social contexts. Indeed, the foundation for a focus on practices is arguably that they allow consideration of social influences, material infrastructures and context, all of which have been argued to influence practice (Shove, 2010; Hargreaves, 2011).

The fact that a study of practice considers the role of external as well as internal influences is emphasised by Warde (2004:5):
'It is not dependent on presumptions about the primacy of individual choice, whether of the rational action type or of expression of personal identity. It starts from somewhere other than the individual and does not presume the primacy of individual action.'
Here Warde is suggesting that a study of practice does not assume that the individual operates in isolation or has complete autonomy over their choices. Nor does a study of practice assume that all individuals lack agency to make decisions or that they always conform to social norms. Everyday practice theory also recognises that individuals can use their understandings and know-how and apply it to particular practices (Reckwitz, 2002: 256). However, the study of practices allows for influences such as structure and agency to be taken into account. Hence, rather than focusing purely on waste minimisation at the individual level, it is important to also consider the social influences surrounding participants in order to establish the range of factors that can impact upon an individuals practices.

Given the need to take into account the unique natures of practices, as well as their ability to change across space and time (Shove, 2010); the definition of practice for the purposes of this research is as follows:

'A practice is thus a routinized way in which bodies are moved, objects are handled, subjects are treated, things are described and the world is understood. To say that practices are 'social practices' is indeed tautology: A practice is social, as it is a 'type' of behaving and understanding that appears at different locales and at different points of time and is carried out by different bodies/minds.' (Reckwitz, 2002: 250)

The above quotation is an appropriate definition as it highlights the importance of both structural elements as well as the significance of internal influences on individuals and also on groups through a discussion of the social element of practice. In particular, the methodological approach and the definition adopted need to allow for a study of material flows from the point of consumption to the point of divestment, rather than concentrating solely on waste behaviours.

The theory of practice allows for consideration of unlimited influences on the individual and moves beyond representations of what people do by looking at what individuals or groups actually do. Barnes emphasises the importance of establishing "*what disposes people to enact the practices they do, how and when they do; and their aims*" (Schatzki *et al*, 2001:22). A study of practice encourages researchers to investigate the what, when, where and how of individuals performances, but also to look beyond the performances of the individual to the contextual influences that have formed them. Hence, an everyday practice approach is more holistic than some of the pro-environmental behaviour models, as it considers 'why, how and when' people act the way they do. There is no assumption of one underlying reason for the practice to take place, nor that a particular practice will take place in any context as the theory of practice allows researchers to consider when and where actions take place.

It therefore appears that a focus on practice allows consideration of the myriad of factors that can affect behaviour, including context, infrastructure and societal and economic pressures. As well as providing an opportunity to explore the links between people and behaviours and constraints such as time and convenience, the use of practice theory allows for the identification of unwitting practices. Researchers in the social sciences have utilised a practice based approach to study a variety of topics including waste (Chappells and Shove, 1999; Bulkeley and Gregson, 2009), and in particular, consumption (Shove and Southerton, 2000; Shove and Pantzar, 2005;

Warde, 2005; Hand et al, 2005; Hand and Shove, 2007). Given the needs recognised by this Chapter for an approach to understanding waste minimisation that accesses practices rather than values or representations, and which takes into account the various influences that affect performances, an everyday practice approach lends itself particularly well to a study of waste, or rather, 'material' practices (Bulkeley and Gregson 2009; Shove, 2010).

It is in the everyday practices of life that unwitting waste minimisation behaviours are taking place. To ask people to represent these behaviours would be futile: as researchers are trying to access waste minimisation practices, but for the researched their practice so often represents something else. As the following quotation encapsulates:

"Waste prevention in its strictest sense, appears to be a relatively poorly understood concept...Yet many people actually carry out what we class as waste prevention behaviours as a normal part of their everyday lives." (Tucker and Douglas, 2006: 10) Through turning to the practices themselves and only then evaluating why individuals undertake waste minimisation it is likely that a broader range of practices and motivations will be identified, demonstrating the suitability of a practice based approach to a study of waste minimisation practices.

3.5 Promoting Practices

As illustrated by this chapter thus far, individuals are not always aware of when or why they undertake waste minimisation practices. Waste minimisation behaviour is often 'unwitting' in nature. When considering how to change practices and increase the popularity of waste minimisation performances it has been argued that more understanding of what constitutes waste minimisation is important, but also useful 'hooks' (aside from the 'environmental') need to be identified to encourage this activity:

"Opportunities exist to raise the profile and visibility of prevention, not through general exhortations to "reduce waste", but by identifying specific activities, helping consumers to be good at them...Consumers may not immediately identify such activities as 'environmental' and other hooks may need to be found, at least in this early adoption phase." (Cox *et al*, 2010:214)

The need to facilitate waste prevention behaviours through the use of 'hooks', links with the emerging popularity of the concept of 'nudges'. Thaler and Sunstein (2009) argue that governments can use nudge theory to create environments and contexts that encourage individuals to act to maximise their welfare. Thaler and Sunstein define a nudge as '*any aspect of the choice architecture that alters people's behaviour in a predictable way without forbidding any options or significantly changing their economic incentives.*" (2009:6). This definition of nudge theory assumes rational choice exists. Given that earlier in this Chapter it was highlighted that decisions are not necessarily rational or linear, this brings into question the validity of using nudges to create 'choice architecture'. Indeed, according to some scholars, nudge theory was developed to '*explain why people behave in ways that deviate from rationality as defined by classical economics*' (Marteau et al, 2011: 228).

Traditionally nudge theory has been labelled as a liberal-paternalistic approach based on the assumption that the nudges which create the choice architecture should not be compulsory or fiscal i.e. introduced via legislation or economic policy, but rather take advantage of existing social and economic factors (Marteau *et al*, 2011). Miller suggests that nudge theory is about overcoming barriers to enable sustainable practices "*...while information availability will affect decision-making, it must also be accompanied with supportive policies or campaigns that simultaneously reduce barriers for sustainable behavior and increase barriers for unsustainable behavior. Since there are various costs (barriers) associated with adopting sustainable practices and likewise a lack of barriers associated with preventing unsustainable behavior, there is little perceived reason for individuals to change their habits. These supportive policies or campaigns could take advantage of economic, social and cognitive components in order to create the incentives, peer pressure, nudges, commitment devices and the like that will further compel lasting behavioral change.*" (2011: 4)

Interestingly, Miller starts by detailing the need for information and campaigns, indicating links back to the AIDA model that has historically been popular with policy makers. In addition, Miller focuses on changing behaviour rather than practices.

The increasing interest of policy makers in the concept of nudges is understandable; in theory nudges are quicker, easier and cheaper to implement than other methods, such as regulation. However, there are also several issues associated with nudge theory. For example, there is no clear definition of what a nudge is or is not (Marteau et al, 2011). Not only is there no clear definition of a nudge, in the arena of waste minimisation, there is insufficient evidence on which to base nudge policies. Secondly, a key issue with nudge theory is that again it focuses on changing behaviour and attitudes rather than practices. Thirdly, nudges are arguably just another method that assumes that one measure will lead to action, yet the effectiveness of nudges remains untested, and there are justifiable concerns that an avoidance of legislation and regulation may mean that nudges are no more effective than other behavioural change models (Rainford and Tinkler, 2011). Lastly, 'nudges' have been criticised as a paternalistic approach. Advocates of nudge theory would contend that in some cases, influencing choice is justifiable as it is for the welfare of society (Rainford and Tinkler, 2011) and also that the aim of nudge theory is not to restrict choices, simply to highlight the preferable ones (Thaler and Sunstein, 2009). In practice, the level of paternalism will depend on the nature of the nudge. However, the terminology remains paternalistic; it suggests a stick rather than a carrot approach, albeit a gentle 'nudge' rather than the sort of stick that might be associated with economic policy drivers for change.

Arguably various practices are already subject to encouragement via governmental policy, '*many everyday practices are already shaped by state intervention whether through the design and development of supporting infrastructures...or through more subtle programmes...*' (Hand et al, 2005: 8). Rather than adopting a nudge approach and excluding policy and regulation as an option, this research focuses on what encourages individuals to perform practices in a particular way. Once these themes are identified and explored, policies can be developed on the basis of encouraging practices to take place more frequently and in more contexts. The focus then should be on identifying incentives that help individuals to perform waste prevention and reuse practices, rather than talking about 'nudges' and 'architecture', which constrain the individual and leave them feeling 'bruised'.

3.5.1 Identifying Themes Relating to Material Practices

This section reviews the range of themes that have been identified within the literature on waste management at the individual and household level that could be investigated at the individual and household level to develop strategies for encouraging witting and unwitting waste minimisation practices. The thesis continues by reviewing the range of factors that have combined to influence waste management practice at the individual level, before going on to introduce three key themes which are presented as significant in influencing both witting and unwitting waste minimisation practice.

Although the three R's of waste (Reduce, Reuse, Recycle) are often delivered as a combined educational message, over time people have tended to focus on the recycle element, despite reduction coming first in both the education mantra and the policy hierarchy surrounding waste management (Cox *et al*, 2010). When applying the 'conceptual framework' model to reduction, reuse and recycling behaviour, Barr *et al* (2001) found that the key drivers for recycling behaviour were; *convenience, 'social norms', and knowledge* (see also Perrin and Barton, 2001; Collins, 2001). Through utilising the TPB framework, Tonglet *et al* (2004) distinguish recycling attitudes from waste minimisation, similarly suggesting that recycling attitudes are influenced primarily by opportunities, facilities, knowledge and physical convenience. Indeed, it is possible that this perceived convenience of recycling over waste minimisation has actually had a negative impact on waste minimisation practices as several studies show that where people are keen recyclers, this can have a negative impact upon their attitudes towards and performance of waste minimisation performances (Barr *et al*, 2001; Bhate, 2005; Tucker and Douglas, 2006; Cox *et al*, 2010).

Multiple factors can influence behaviour, but it is evident that in the case of recycling, it was the provision of facilities which instigated a significant change in practice (Jackson, 2005; Bulkeley and Gregson, 2009), highlighting the importance of convenience in relation to recycling behaviour (Domina and Koch, 2002). In recent years, the number of individual households engaged in recycling has increased dramatically (Carlson, 2001). Prior to 1980, there were few incentives to recycle and the level of effort required to participate was high (Schultz *et al*, 1995). Schultz and Oskamp (1994) argued that because recycling involved a great deal of effort, only

people concerned about the environment recycled, but the introduction of recycling schemes has meant a reduction in the effort required from the individual. The fact that recycling is now widespread could be linked with peoples' desire to do what is right (Hobson, 2002). However, evidence suggests that infrastructure and convenience have been significant in making recycling behaviour a social norm, as there is a correlation between provision of facilities and the evolution of recycling as an everyday practice (Jackson, 2005; Bulkeley and Gregson, 2009). Despite the undeniable significance of facility provision, people are also conscious of whether their neighbours recycle or not, indicating that peer pressure or subjective norms play a part in influencing recycling behaviour (Perrin and Barton, 2001; Barr, 2004).

It has been argued that because more people are recycling today for reasons other than environmental concern (be they social or practical), the relationship between general environmental concern and recycling has declined (Schultz *et al*, 1995). Although waste minimisation has been linked to environmental concern through a study of reported behaviour, it is quite possible that, similarly to recycling, waste minimisation practices could be normalised by identifying the social and practical hooks that influence material performances. Assuming that the provision of facilities (i.e. convenience) was the key driver for encouraging recycling behaviour, it is necessary to consider what major drivers will enable the transition towards making waste prevention practices normative. In order to do this there is a need to "*engage with the things that (some) households are already doing and find ways to intensify (Bulkeley and Gregson, 2009) and diffuse these practices of redistribution…*" (Evans, 2012:1135).

As well as linking with environmental values, reuse behaviour was found to correlate with convenience (Barr *et al* 2001; Barr, 2004). Tonglet *et al* (2004) also found that perceived inconvenience can present a barrier to minimising waste, suggesting that convenience is an important influence affecting waste minimisation practices as well as recycling behaviour.

Reuse behaviour was also linked with a belief that the action would benefit the community (Barr *et al* 2001; Barr, 2004). Arguably, by making reuse practices more convenient, they could, similarly to recycling, become accepted social norms.

Perhaps then, it is not the case that the motivations for waste minimisation behaviour are greatly different to those for recycling; rather it is that waste minimisation practices are not as effectively enabled, researched and understood.

This thesis introduces three key arenas which can be used to encourage a change in waste minimisation practice at the individual and household level: cost, convenience and community. The following sections review existing evidence of how these 'Three C's' are significant in relation to recycling and waste minimisation practices in order to evidence their potential significance for waste minimisation practices in particular.

3.5.2 The Three C's (1): Cost

There are strong links between waste minimisation and sustainable consumption, and the latter has been argued to be affected by the issue of cost (Bonini and Oppenheim, 2008). Indeed, Padel and Foster (2005) found that in terms of buying organic food, price has been found to be a key barrier to the purchasing of organic products over non-organic products. In terms of waste minimisation, there is evidence to suggest that individuals' try to consume wisely in order to avoid food waste and save money (Barr et al, 2011). Fiscal incentives such as subsidised compost bins have also proven to be successful incentives for waste minimisation behaviour (Cox *et al*, 2010). In addition, where carrier bags are charged for there is an increase in people re-using bags and a significant decrease in demand for new bags (He, 2010).

The examples of carrier bags and home compost bins demonstrate how cost can have a positive impact on waste minimisation; however cost can have a negative as well as a positive influence on practice. For example, special offers on food encourage people to buy more, thus potentially resulting in increased waste (Cox *et al, 2010*). In addition, Fahy and Davies (2007) found that participants in their study did not buy refills as they cost the same as the original product, so the participants perceived that there was no incentive to reuse containers, indicating that the cost of a product overrides environmental values when it comes to waste minimisation practices.

Historically there has been a greater willingness to donate items for reuse than to consume second hand items and sometimes, where the alternative is cheaper, it can be seen as poor quality and have negative connotations attached to it. However, it is

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suggested that the popularity of sites such as freecycle and eBay may reverse this trend (Phillips, 2009). The example of the use of these sites again demonstrates the strength of cost in influencing both waste prevention and reuse. When people sell items on eBay, it is likely that their primary intention is to generate income for an item they no longer need, rather than to reuse an item in order to prevent waste generation (Herridge, 2005).

In addition, financial reward and penalty schemes have been successful tools for waste policy makers internationally (Cox *et al*, 2010). Viscusi *et al* (2011) found that economic incentive policies were extremely influential when it came to reuse and recycling behaviour, from bottle deposit schemes, to legislation enforcing recycling as a personal obligation. Perhaps then, once a greater understanding of the types of waste minimisation practices is gained, there is potential to affect practices through state intervention.

There have been suggestions that not just the cost of a product, but also the revenue that it might generate through reuse, can be a significant factor in encouraging waste minimisation practices (Herridge, 2005; Tucker and Douglas, 2006). Despite this, there exists little research investigating the role of financial factors and their influence upon (waste) practices. It is therefore necessary for future research to address the gap in existing research by providing evidence of waste minimisation practices that individuals undertake for financial reasons.

3.5.3 The Three C's (2): Convenience

Barr *et al* (2001), amongst others (Perrin and Barton, 2001; Price, 2001) have argued that convenience is a significant factor in encouraging recycling behaviour. Barr (2006) argues that waste minimisation is marginal compared with recycling as the latter is more convenient. Waste minimisation is argued to be less easy to undertake as:

"*Waste minimisation behaviour entails the conscious avoidance of certain materials (such as plastic bags) and the careful choice and use of other products (for example, the purchase of items that can be reused*)." (Barr, 2006:46).

Here Barr highlights the complexity of waste minimisation behaviour: It can involve multiple forms of avoidance and reuse. Unlike recycling, it does not involve merely

forming and maintaining one habit; it involves making multiple changes. Barr *et al* (2001) also claim the waste minimisation practices of reuse and repair are inhibited by perceptions of inconvenience; implying that convenience is important for waste reduction as well as recycling activities. Other researchers have also highlighted the fact that there is a perceived difficulty in relation to waste minimisation behaviour which acts as a major deterrent (Price, 2001; Tonglet *et al*, 2004).

There is evidence to suggest that targeting specific information about how the public can make a difference can have an impact on their behaviour, but they need direct experience of it (O'Bara, 2005; Blake, 1999; and Barr, 2001). It has been argued that provision of waste minimisation groups at a local level can help to facilitate waste prevention and reuse practices, by making waste minimisation behaviours more convenient at a community level (Horton, 2003; GAP, 2006; Bulkeley and Gregson, 2009). Perhaps providing a kerbside collection service for reuse of unwanted items, such as clothes and books could instigate a change in behaviour as witnessed in the case of recycling facilities (Bulkeley and Gregson, 2009).

Whilst the factors of convenience and community have links with 'situational variables' (Barr et al, 2001; Barr and Gilg, 2005), a significant difference between the nature of convenience and community in the Three C's framework and arguments brought forward by Barr, is that there is not an assumption of pro-environmental values. Rather, the Three C's framework is more concerned with what performance takes place and why, rather than whether an individual intends to minimise waste or understands the environmental benefits of a particular practice. Furthermore, arguably 'situational variables' is a catch all factor (Shove, 2010). There is a need to unpick situational impacts on the individual and identify how different material practices are influenced in different contexts (Bulkeley and Askins, 2009; Moore, 2012).

Convenience and concern for the community have been found to be significant in relation to waste minimisation practices in general, but distinctions have been made between repair and reuse practices and motivators and those factors which influence point of purchase waste minimisation:

"although waste minimisation overall is likely to be influenced by a concern for the environment and the community, repair/re-use is also influenced by ability to perform the behaviour and physical or situational factors, whereas buying to reduce waste may contain a moral dimension." (Tonglet *et al*, 2004: 40).

This quotation implies that perceived convenience and infrastructure are important in determining repair and reuse behaviour, whereas environmental concern is of significance in relation to prevention behaviours. Although this may be the case, this chapter contends that there are other factors that can impact upon prevention practices, such as the earlier example of cost. Furthermore, by focusing on 'material' practices from the point of consumption to the point of disposal, and putting the concepts of waste and values aside, this Chapter suggests that a greater understanding of waste minimisation practices will be achieved.

As well as identifying what alternative factors can influence practices, it is important to establish whether multiple factors can interact to influence individual waste minimisation practices. Price (2001:9) argues that it is not simply the convenience of the practice of recycling that makes it popular, but also the fact that recycling is a tangible habit which is culturally acceptable and individuals can undertake it with less effort they are more likely to recycle than minimise:

"The social credit gained from employing waste minimisation strategies is no greater than that from recycling the same materials, but usually requires more effort and greater change in lifestyle from the end user."

Here Price highlights the significance of convenience and also social influences in (dis)encouraging practice. Certainly, the significance of the social credit gained from recycling is widely recognised (Oskamp *et al,* 1991; Cox *et al*, 2010). However, waste minimisation practices – such as preventing waste by buying a product with less packaging – are not necessarily as rewarding because the practices are not as tangible and perceived to be more difficult to enact (Price, 2001). It is therefore crucial to further understand how cost, convenience and broader social or cultural influences can affect waste minimisation practices. The following section considers the role of social ties and social influences under the heading of communities.

3.5.4 The Three C's (3): Communities

The term Community can be interpreted in a number of ways, and often is associated with those who share a location, religion or ethnicity, for example, a 'rural community' (Soanes and Stevenson, 2009). For the purposes of this thesis, community is interpreted as 'a body of people with something in common' (McLeod, 1989:100). This is clearly a very broad interpretation of the term community, but this broad definition is important in order to reflect both the geographical and social importance of communities. The definition of community needs to reflect that an individual can be influenced by their neighbours, friends, relatives and other social bodies or networks and also that an individual might operate in several different communities, touching upon the fact that context is significant (see section 3.5.5 for a discussion of the role of context).

Barr *et al* (2001) found that in the case of reduction and reuse behaviour people claimed environmental factors such as 'concern for the community' and personal efficacy in relation to the problem to be significant. Barr (2004) consequently proposes that waste minimisation campaigns should focus on personal responsibility for the waste problem rather than empowering people with the message that they can make a difference. This Chapter argues that the significance of communities is their role in providing social ties and social norms (something people do because others do it).

Firstly, it has been suggested that the strength of social ties can be a key facilitator for reuse behaviour, as where people can redistribute goods in order to off-set their guilt of buying replacements, they will. However, where people do not have strong social ties within a community, reuse is inhibited (Gregson et al, 2007; Bulkeley and Gregson, 2009). Arguably, the increase in the use of sites such as e-bay and freecycle provides an outlet for materials for those who do not have appropriate social ties to redistribute the goods in other ways – but only for those who have internet access.

Secondly, passing on items is becoming more socially acceptable. There has been an increase in the second hand and hand me down economies (Gregson *et al*, 2007; Phillips, 2009), indicating the 'normalisation' of reuse practices (Tucker and Douglas, 2006; GAP, 2006; Cox *et al*, 2010). Normative behaviour refers to actions

which individuals undertake in order to conform. According to Tucker and Douglas (2006:3); *"Norms provide the important message that others carry out the behaviour"*. Norms have also been described as non-conscious (unwitting) actions with people taking part due to convenience (provision of facilities) and 'social norms' (seeing others participate), rather than being driven by environmental concern (Barr, 2006).

It has been argued that waste minimisation is not a normative behaviour and therefore should be distinguished from recycling, which is socially normative behaviour (Tonglet *et al,* 2004*;* Barr *et al*, 2001). Whilst recycling is now widely accepted as a social norm, waste minimisation behaviour has been distinguished as a 'marginal' behaviour, more closely linked with concern for the community and environmental values (Barr *et al*, 2001; Barr, 2004). However, it has also been acknowledged that recycling behaviour is normative because it is more developed than waste minimisation practices, and that over time waste reduction and reuse behaviour could also become normative (Barr, 2006). However, to directly compare recycling with waste minimisation is unrealistic. It would be better to unpick waste minimisation practices and focus on specific performances – such as using up left-over food – to identify whether certain waste minimisation practices are already a social norm. By identifying what waste minimisation norms exist, and gaining an understanding of when, how and why they take place, it will hopefully be possible to replicate these performances (Gregson et al, 2007b; Bulkeley and Gregson, 2009; Evans, 2012).

For example, research has begun to demonstrate that, similarly to recycling behaviour, reuse behaviour can be (and already is being) influenced by social norms. A study was undertaken into towel reuse in hotels in California (Schultz *et al*, 2008), where use of messages such as 'Nearly 75% of hotel guests choose to reuse their towels each day' increased the likelihood of guests reusing their towels. The research by Schultz *et al* suggests that by showing others were undertaking a particular environmentally friendly behaviour, people were encouraged to do so themselves. It also demonstrates that normative-based campaigns can play a role in the promotion of pro-environmental behaviour and again evidences that people do not necessarily undertake behaviour based on environmental motivations.

There is evidence to suggest that social norms can inhibit as well as promote waste minimisation practices. For example, in a study of food waste practices one participant explained how he had found his Indian neighbours 'odd' because they would sometimes gift him food that they had cooked. He believed that 'it's not the done thing' (Evans, 2012:1126), demonstrating that whilst in some cultures and contexts such practices are normal, in others, they are perceived not to be.

As we have seen in this section, this thesis argues that there are three key themes that can influence waste minimisation practices: cost, convenience and communities. It argues that it is necessary to explore material practices in order to identify how these influence both witting and unwitting practices. By putting waste and environmental values to one side, and focusing on what people do, from point of consumption to disposal, it will be possible to demonstrate which practices are influenced by which themes. Thereafter, relevant policy recommendations can be made that will help to reorient individuals' practices, or intensify desirable practices that are already taking place (Bulkeley and Gregson, 2009). As Horton (2003:75) suggests: '*Rather than aiming to produce 'sustainable citizens', it is perhaps the making of 'sustainable performances' that should take centre-stage*.' In a similar way to Thaler and Sunstein's 'choice architecture' (2009) Horton identifies that it is the provision of 'new green architecture' that would encourage the performance of green (waste minimisation) practices. However, just as the significance of each of the three C's may vary from one type of waste minimisation practice to another, performances can also vary between different contexts (Gregson et al, 2007; Bulkeley and Gregson, 2009; Anderson, 2010; Hargreaves, 2011; Moore, 2012).

3.5.5 Context

Whilst this thesis focuses on practices, it is important to note that it is not just about what humans do, it is also about how their (waste) practices relate to a particular place or a particular social group. For example, an individual can operate in several different social groups, and what is a socially acceptable norm in one context e.g. the home, might not be accepted in work and vice versa. In different contexts, the influence of social norms and communities on the individual may vary, and as a result the practices of an individual may be different in one context compared with

another (Reckwitz, 2002; Bulkeley and Askins, 2009; Anderson, 2010b, Shove, 2010; Hargreaves, 2011; Moore, 2012).

The role of structure and agency within a given context has long been recognised, with Giddens' Structuration theory seeking to overcome the debate between whether agency or structure impacted upon individuals by arguing that both could be significant (Giddens, 1986). Giddens structuration theory has therefore been considered as an attempt to unite *"those who consider social phenomena as products of the action of human 'agents' in light of their subjective interpretation of the world, and others who see them as caused by the influence of objective, exogenous social structures"* (Currie and Galliers, 1999:104). Giddens (1986) believes that there are elements of society that are outcomes of interactions between individuals, but there are also aspects that are embedded in society, which influence individuals. The combining of these arguments provides a more balanced approach to the complexity of influences over groups and individuals and is reflected in an everyday practice approach, which allows for consideration of social and structural influences on performance (Reckwitz, 2002).

The significance of place or context is reiterated in the following quotation from Bauman:

"Human experience is formed and gleaned, life-sharing managed, its meaning conceived, absorbed and negotiated around places. And it is in places and of places that human urges and desires are gestated and incubated, live in hope of fulfilment, risk frustration and are indeed, more often than not frustrated." (Bauman, 2003:102)

Here Bauman suggests that whilst in some places certain behaviours will be nurtured, in others, they will be restricted; this could be due to different facilities or different social norms within different groups. Therefore, a consideration of communities goes hand in hand with context (Anderson, 2010). Indeed, Smith and Blanc (1997: 282) also argue that "*empowerment of individuals to act does not itself guarantee action without appropriate institutional location within which action is located.*" In other words, the *context* also needs to be correct – for example by provision of facilities in the right place – in order for behaviour to take place. For example, one might recycle religiously at home but not at school or work due to a lack of facilities in one context compared with another.

Jackson (2005) provides the example of consumer lock-in, arguing that the choices of an individual are restricted by what is available in the shops, consequently consumers can become 'locked-in' to unsustainable practices. Arguably, where there is a lack of facilities or choice, desirable practices can becomes less convenient (Barr *et al*, 2001; Perrin and Barton, 2001; Price, 2001), raising questions as to the amount of effort an individual is willing to input in order to replicate a practice:

 "What goes into the household bin and what stays out also depends on the range of disposal options available at the time and the effort people invest in finding new homes or uses for things they no longer need or want" (Chappells and Shove, 1999:269).

Chappells and Shove highlight the significance of what is practical for the individual, again demonstrating the significance of convenience, but this quotation also touches upon the role of availability of options in affecting the convenience of a particular practice.

From the above review it is evident that structure and agency have a role to play in influencing practice, as although an individual may perform one way in one context, they may act quite differently in another. Therefore, in any study of practice it is important to take into account 'cultural contexts'. As a result, not only is there a need to alter approaches to understanding waste minimisation behaviour by looking at practices rather than values, there is also a need to look at these practices in different cultural spaces. A number of researchers have highlighted the historical tendency for research into specific environmental practices to focus on individuals rather than households or social networks (Tucker and Douglas, 2006; Gregson et al, 2007; Bulkeley and Gregson, 2009;), as well as emphasising the need for future research to study alternative sites of practice (Bulkeley and Askins, 2009; Barr, Gilg and Shaw, 2011; Anderson, 2010b).

Whilst the starting point of this thesis is a study of individuals, an everyday practice approach will allow consideration of a multitude of influences, including infrastructure, autonomy and societal pressures. When utilising a practice based approach, it is important to consider looking beyond the individuals' practices, to how contexts and cultures impact upon individuals' practices (Anderson, 2010b), as

practices are not static (Shove, 2003). Practices can change over time, but they can also change as a result of 'practice changing' events (Bulkeley and Gregson, 2009; Harris, 2011) and vary from one context to another (Tucker and Douglas, 2006). Hence there is a need to consider whether waste minimisation practices transfer between contexts in order to gain an understanding of when, where and why practices (do not) take place.

3.6 Spill-over and the Transfer of Practice

The notion of 'spill-over' effects was conceptualised by Thögersen and Ölander (2003) who investigated whether a transfer of behaviour can take place between one pro-environmental action (such as recycling) and another (such as cycling instead of driving). When they tested this theory, they found that where environmentally friendly transfer does take place, it is usually between associated behaviours. For example, if a person buys organic produce they are more likely to display other eco-friendly shopping behaviours. Whilst the evidence was not overwhelming, they concluded that habits deserve particular attention in future research in relation to spill-over, as *"The likelihood that environmentally-friendly behaviour enables a person to reflect on behaviours in other domains is lower the more habitually these other behaviours are performed."* (Thögersen and Ölander, 2003:234).

Thögersen and Ölander (2003) also found that where spill-over does take place, the process is slow and that spill-over effects can be negative as well as positive. An example of this can be identified in research by Bhate (2005) which found that the introduction of recycling facilities made people less likely to seek opportunities to minimise their waste, suggesting that there is a real conflict between recycling and waste minimisation behaviours. Similarly Barr (2006) found that where there were no recycling facilities, residents were more likely to reduce and reuse waste. Perhaps then, by recycling, people's guilt for producing waste is 'off-set', thereby causing this reduction in waste minimisation behaviour.

Whilst Thögersen and Ölander's research (2003) focused on spill-over between behaviours (with relatively little success), the concept of spill-over effects is of great significance to this thesis because it has potential to be developed in a different

direction through consideration of social norms and context. As Tucker and Douglas (2006: 4) argue: *"Behaviour change can also occur through 'natural diffusion[16]', through social pressures or from social examples or from a 'spill over' of one behaviour prompting another."* This quotation indicates that there is a potential for behaviour to spill-over between people. Research has shown that the practices of 'significant others' (housemates, friends and family) can have significant impacts on the practices of the individual (Fornara *et al*, 2011). In addition, there is a growing interest in the ways in which practices are (or are not) related between home, work and leisure (Dickinson and Dickinson, 2008; Tudor et al, 2008; Barr et al, 2011a).

3.7 Conclusion

This chapter has outlined how many of the conventional approaches to understanding waste minimisation are flawed. By focusing on behavioural models that attempt to explain and predict pro-environmental behaviour, conventional approaches fail to provide a clear and definitive guide as to how waste minimisation behaviour can be encouraged at the individual and household level. Their explanations account for a confusing array of influences, without guidance on their interaction or relative significance. These approaches are also limited by their focus on environmental intent rather than upon when and why practices take place. As the above literature review has demonstrated, waste minimisation practices can occur with or without intent to perform waste minimisation behaviour. Rather than asking what encourages pro-environmental behaviour, there is a need to look beyond values and intent, and beyond waste and the environment to the material practices themselves in order to identify not just practices that take place for environmental reasons, but also practices that take place without the aim of waste prevention. Through adopting an everyday practice approach, it will be possible to identify waste minimisation practices that take place for non-environmental reasons such as cost or convenience.

By turning towards practices this chapter has also highlighted the importance of context, and the need to consider how practices operate in particular contexts, as there is potential for social expectations or norms to influence practices. This chapter has

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[16] In many cases this diffusion may not be 'natural' but rather is a consequence of social norms in different contexts. As such it it vital to examine these process as part of a practice-based approach to understanding waste minimisation.

highlighted multiple examples of research suggesting that social norms can influence individuals in terms of recycling and reuse behaviours (Schultz *et al*, 2008; Perrin and Barton, 2001; Barr, 2004). In contrast there is limited research into the role of social norms in relation to waste minimisation practices, despite emerging indications that norms might also be significant in affecting such performances (Fornara et al, 2011; GAP, 2006, Jackson, 2005). This chapter has engaged with spill over theory in order to identify a means for understanding when and how practices spill over or transfer from one individual to another and one place to another.

These insights feed directly into the research aims of this thesis, summarised in the following research questions:

1.   What waste minimisation practices take place at the individual and household level (both wittingly and unwittingly), and why?

2.   A) To what extent do waste minimisation practices transfer between different contexts? And,

   B) To what extent do waste minimisation practices transfer between people?

3.   What are the implications of these results for policy?

The thesis goes on to outline how these theoretical insights inform the methodology chosen to answer these questions.

Chapter 4: Accessing Practices – Methods and Principles
4.1 Waste Minimisation Practices: What, Where and Why?

Conventionally, academic approaches have tended to use surveys to access everyday waste behaviours – but as this Chapter outlines, surveys have been demonstrated to be inadequate in accessing everyday practices. Although existing research methods have enabled the identification of a gap between values and actions, by focusing on witting and pro-environmental behaviours, research has failed to access the full range of practices that take place.

Establishing what people actually do in relation to everyday household practices further complicates the task. As Bulkeley and Gregson (2009) identify, *"households remain a closed entity within which daily routines and everyday practices of creating, storing, and circulating unwanted materials are hidden."* (Bulkeley and Gregson 2009:930). Identifying this problem emphasizes the need for a methodological approach that can access unwitting (hidden) everyday practices in and outside the home, rather than solely focus on values, intentions or attitudes. In addition, Bulkeley and Gregson's point that 'waste' practices relate to the creating, storing and circulating of 'materials' is also significant. There is a need for a methodological approach that allows consideration of what happens to specific materials from the point of consumption (or creation), to the point of disposal or divestment. Through reviewing what people actually do, rather than focusing upon environmental values and intent, it will be possible to access both 'witting' and 'unwitting' practices and gain a better understanding of waste minimisation at the individual and household level.

In addition to a focus on practices, the methodology adopted must be sensitive to the fact that waste minimisation practices – similarly to recycling behaviour – can vary between different contexts for a number of reasons, including the role of structure and agency within a given setting, e.g. home, work, or leisure space. It is important to identify *what* practices take place, both wittingly and unwittingly, and *where* they take place, in order to better understand *why* they take place. This chapter details the approaches used to enable a study of both witting and unwitting practices, and the impact of people and places on practice. The chapter begins by outlining the

methodological principles that underpin the research questions in order to contextualise the techniques adopted to recruit participants and gather the empirical data. A discussion of the number and nature of participants is followed by discussions of the advantages and disadvantages of the various methods utilised by this thesis. Lastly, the chapter reflects on the ethics and efficacy of the methodological decisions taken.

4.1.1 Methodological Principles

Whilst the nature of the research questions has a strong influence over the methodological techniques that are employed, it is also important to clarify which ontological and epistemological approaches are appropriate to this research. As Shurmer-Smith (2002:95) highlights:

'Methodology is not just a matter of practicalities and techniques; it is a matter of marrying up theory with practice. When one adopts a particular theoretical position, some methods will suggest themselves and others become inappropriate, for both theoretical and practical reasons. So, for example, if one takes the view that all human beings are unique, with a uniqueness which comes from within, there would not be much point in conducting extensive questionnaire surveys or using 'scientific' methods… The method would not be capable of singing in tune with the theory.'

The above quotation discusses the influential role that theory can have upon a researcher's choice of methods. In particular it selects the example of how approaches to structure and agency can impact upon a choice between quantitative and qualitative methods. The role of structure and agency was considered in Chapter 3, where it was evident that in order to develop understanding in the area of waste minimisation, it would be necessary to choose a methodology that considers the impact that other *individuals, groups, and contexts* can have upon individual practices. In accordance with the above quotation, this research demands a qualitative approach, one that allows consideration of the uniqueness of individuals in order to generate the level of detail required by the research questions.

4.1.2 Structure and Agency

According to Bryman (2004) qualitative research is normally linked with ontological constructivism. Constructivism is the belief that individuals shape society, the opposite rationalist or objectivist position being that individuals are defined by

external and historical influences - that a reality exists beyond and external to human beings. However, rather than choosing between an internalist and externalist approach, the work of Giddens' (1984) offers an alternative approach. As discussed in Chapter 3, Giddens' structuration theory is viewed as a unification of the externalist and internalist approaches (Currie and Galliers, 1999). Giddens argues that whilst individuals can influence society, it is also possible for social practices to influence individuals (Giddens, 1986). Therefore Giddens gives equal credence to individual agency and the role of structure, the latter including the role of the social norm in a given context. Giddens' structuration theory allows flexibility through acknowledging both internal and external influences and, by extension, appreciating that what an individual feels is or is not acceptable behaviour in a given context may vary. As a consequence, this theory provides a framework for the study of practice (Reckwitz, 2002).

4.1.3 Positivism and Non-positivism

As well as having links with constructivism, Bryman (2004) argues that qualitative research is usually associated with a non-positivist approach: i.e. an understanding of the way in which individuals interpret their world. A non-positivist approach emphasises the importance of the ways in which individuals perceive and interpret the world around them; it is not interested in objective truth (as Graham (1991) states, it is ambivalent whether such truth can ever be known by humans), and is more concerned with identifying positioned knowledge and particular interpretations of the world:

"*social scientists would note that even when objective measures are available, it is often more useful for predicting behavior to measure a person's perception of their world than to measure their actual world.*" (Borgatti, *et al,* 2009. See also Haraway, 1988)

The methodology employed when undertaking the research for this thesis has progressed in line with traditional approaches to qualitative pieces of research, utilising an inductive approach by gathering information in order to generate knowledge, rather than testing a hypothesis (Flick, 2009) and by favouring a non-positivist (or interpretivist) approach. Given the nature of the research questions for this thesis and the need to understand individual practices in social contexts, it was

essential to adopt a non-positivist approach in order to capture individuals' descriptions and interpretations of events, rather than 'objective' truth as established by a positivist, realist approach (Burns, 2000).

4.2 Methods and Principles: An Everyday Practice Approach

There are a number of methods that can be employed when utilising a qualitative approach, but many existing studies of waste management behaviour have relied on surveys (Ebreo *et al*, 1999; Barr et al, 2001; Barr and Gilg, 2005; Obara, 2005;). Survey based research has provided foundations for future research by identifying the gap between intent and action and also by highlighting some of the similarities and differences between recycling and waste minimisation behaviour. In order to build upon previous research, there is a need to concentrate on practices rather than reported behaviour. From a critical evaluation of the literature, Chapter three identified that surveys are a limited method when trying to access waste minimisation practices and the influences upon them.

Firstly, people can undertake waste minimisation practices unwittingly (Obara's, 2005; Tucker and Douglas, 2006). Therefore, a questionnaire is unlikely to access the full range of practices that individuals are undertaking. Secondly, by utilising a questionnaire, the researcher limits the researched to pre-determined responses, and encourages respondents to provide potentially inaccurate environmental reasons for their behaviour, which can lead to the true motivations for a particular practice being overlooked. Questionnaires intentionally remain impersonal and respondents can find themselves restricted in the ways they interpret, understand, and respond to questions (see Valentine, 1997). Surveys encourage individuals to provide standard, pre-structured representations of their lived experience, rather than more bespoke answers that faithfully coincide with their experiences (Holliday, 2002; Fontana & Frey, 2000). Furthermore, there is a tendency for people to provide the answers that they feel are expected of them (DEFRA, 2008) so approaches which focus on pro-environmental values or intent as a pre-cursor to action are likely to overlook practices that are taking place for other reasons (Herridge, 2005). Indeed, as people do not always know the reason why they are doing something the way they do (Latham, 2003), using a questionnaire to ask participants what practices they undertake and

why is unlikely to always give a true reflection of what encourages or inhibits certain practices.

Due to the weaknesses of surveys for a study of this kind, it was necessary to choose alternative forms of qualitative research. The researcher, in the words of Hammersley, was *"not faced, then, with a stark choice between words and numbers, or even between precise and imprecise data; but rather with a range from more to less precise data. Furthermore, [the] decision about what level of precision is appropriate in relation to any particular claim should depend on the nature of what we are trying to describe, on the likely accuracy of our descriptions, on our purposes, and on the reasons available to us; not on ideological commitment to one methodological paradigm or another."* (Hammersley, 1992:163). Here Hammersley highlights how the nature of the problem being addressed helps to determine the appropriate methodological approach. Whilst approaches to studying practices have varied, from 'desk based' studies of practices (such as research into the history of showering, Hand et al, 2005) to mobile methodologies (see Lorimer, 2005:89), it is important to consider what best suits the research at hand.

In order to answer the first research question and access unwitting practices, the research method needed to approach waste behaviours from a different perspective – looking at everyday 'material' practices rather than focusing on waste. As well as identifying a method that would overcome the aforementioned shortfalls of a survey-based approach, it was necessary to adopt an approach that would allow the researcher to monitor and review individuals' practices over time (Rubin and Rubin, 1995; Latham, 2003) and the impact of social and contextual influences upon them.

To this end, this thesis adopted a range of qualitative methods to access waste minimisation practices at the individual and household level. Namely semi-structured interviews, reflective diaries, 'show me your rubbish' discussions, and focus groups, a combination of methods that has been used with success in other studies (Latham, 2003; Silverman, 2009; Evans, 2012). In addition, the researchers' role is used alongside relevant literature to help answer the third research question, and to help clarify the barriers faced by local authorities when seeking to put policies and theories into practice. This thesis also draws upon quantitative data such as Cardiff's waste

arisings and recycling performance. These statistics help to contextualise the location in which this research took place.

The quantitative data used has been obtained through analysis of data gathered by Cardiff Council and also public data produced by National Statistics for Wales. The data produced by the Local Authority is gathered in order to monitor Cardiff's performance against the recycling and waste diversion targets and has to be formally submitted to the using a system called Waste Data Flow. Local Authorities across the UK use this system, and the data generated is then used by each of the UK countries to produce national data, hence in Wales the National statistics for Wales reports are ultimately based upon data submitted by each Local Authority in Wales (WasteDataFlow, 2014). This thesis uses both the national data and local data in order to illustrate the distinct challenges faced by Cardiff. Furthermore, through the researchers position, an additional level of detail can be provided in terms of the performance of different areas within Cardiff – something which the Waste Dataflow system does not measure, but which the Local Authority can measure in order to help target resources. Through triangulation of the quantitative and qualitative data with the barriers faced, this thesis makes a significant contribution to both research and practice in this field, as the researcher is able to consider the barriers to waste minimisation performances from more than one viewpoint (Flick, 2009).

The following section outlines the research context, detailing challenges specific to Cardiff and also specific to Wales. The overview includes details in relation to Cardiff's recycling performance as compared with the rest of Wales. A review of the research context is followed by information relating to the timescales of the research and the number and type of participants involved. An overview of the methods used to recruit participants is then provided before detailing the set of qualitative methods employed to successfully access waste minimisation practices at the individual level.

4.3 Research Context

Given that the researcher was living, studying and working in Cardiff, with a position that could influence Cardiff Council waste policy, Cardiff was clearly a strong contender for the location of the research, as it would be possible to base future

campaigns on an understanding of local practices (Curtis et al, 2011). In addition, the researcher had in depth knowledge and understanding of the communities and infrastructures within Cardiff, as well as access to demographic information that would facilitate the research by including both inner-city and suburban participants. Indeed, Cardiff was not chosen simply because it was a convenient location. As discussed in Chapter 1, Cardiff is the capital city for Wales and, as such, faces a number of challenges when it comes to waste management. It has a diverse population as well as large migratory communities as a result of its universities, stadiums, and tourism industry. Whilst the study was not intended to be representative, the diversity of Cardiff's population its various 'communities' combined with the researchers role within it, made it an ideal location in which to identify the impact that social ties – or their absence – could have upon waste minimisation practices.

Cardiff is the seat of the Welsh Government and a key economic driver in South East Wales. It receives a range of visitors each year as its city centre is the main shopping venue for South East Wales and is ranked the sixth top retail destination in the UK (Cardiff Council, 2011). Cardiff's sports stadiums and theatrical venues are another important element of the leisure and tourism sector, attracting hundreds of thousands of visitors to the city each year. Cardiff also has a large student population, with three Universities operating within its boundaries. In addition, it has the largest overall population of any Local Authority in Wales, with an estimated 345,400 inhabitants (Cardiff Council, 2011).

According to Cardiff's Local Development Plan (2011), it is anticipated that between 2014 and 2024, the population of Cardiff will increase by 45,000 and the number of households will rise by 23,000. To put this into perspective, for every additional 2500 properties, waste services will have to spend an additional £100,000 per annum on waste collections. On this basis, waste collection costs could increase by £1,000,000 per annum, by 2024. The increasing population and its associated costs place additional pressure on Cardiff. Moreover, Cardiff's household growth projections are higher than the rest of Wales. A report by the Welsh Government advises that households are estimated to increase by over 40 per cent for Cardiff between 2011 and 2036, whereas other Local Authority areas, such as Wrexham, Swansea and

Newport are anticipated to increase by over 20 per cent over the same period (National Statistics for Wales, 2014a).

The projected increase in residential properties in Cardiff is concerning, as not only will it increase costs; it will result in an increase in the total amount of waste generated. If waste reduction targets were per capita, the growing population would be taken into account. However because the targets set relate to total waste arisings, meeting the targets is particularly challenging for Cardiff. On the whole, waste arisings have decreased over the past 5 years in Wales (see Table 4.1 below), and the reduction in waste arisings in Cardiff between 2009/10 and 2011 has been linked with economic decline (Cardiff Council, 2011a). It is generally accepted that there has historically been a link between economic growth and waste arisings, meaning that a recovery of the economy is likely to result in increased waste generation (Mazzanti, 2008). As such, growth of the economy and growth of the population both pose potential threats to Cardiff Council's ability to achieve waste diversion targets. Moreover, although the waste management and sustainability departments might be expected to seek the reduction of waste and challenge unsustainable consumption patterns, other departments are tasked with growing Cardiff in terms of both the creation of jobs and the development of infrastructure in order to accommodate an increase in population.

Whilst there are impacts of a strong economy upon waste generation, a declining economy also has significant implications for Local Authorities in terms of the budget available to deliver waste services. In times of austerity, waste practitioners therefore have to try to manage reducing budgets whilst seeking to ensure compliance with increasing statutory obligations, including the targets for recycling and waste reduction. As Local Authorities have to do more with less (i.e. collecting a broader range of materials and receptacles), radical changes to waste services are being implemented. For example, in England, Bury Council have introduced three weekly residual waste collections in order to save money, reduce residual waste and drive up recycling performance (CIWM, 2014:6). In Wales, Gwynedd Council were the first to opt for three weekly residual waste collections, again with the aim of decreasing waste, increasing recycling and saving money (BBC, 2014). The introduction of three weekly collections has already taken place in Falkirk in Scotland, but such a move is

contentious, particularly given claims by Eric Pickles (in his role as Secretary of State for Communities and Local Government) that he wants to introduce minimum service standards for waste collection, including a weekly collection of residual waste (CIWM, August 2014: 10).

Like other Authorities, Cardiff is faced with a contracting range of options as to how best to reduce waste and ensure compliance with statutory targets. In addition, Cardiff is operating in a context of atypical population growth and housing growth. Furthermore, whilst previously waste strategies were extensively researched and consulted upon, due to extended budget cuts Local Authorities now (and for the foreseeable future) lack the time and money to invest in research, resulting in reliance upon the knowledge and experience of practitioners. It is therefore essential that this thesis provides practical examples, informed by research, which can be applied in the Local Authority context, taking into account the barriers faced.

4.3.1 Waste Arisings

Waste arisings have been decreasing year on year since 2008/9 in Wales (see Table 4.41). However, whilst waste is decreasing in some areas, in other areas, such as Cardiff, Swansea, Denbighshire and Flintshire, there has been an increase in total waste arisings between 2011/12 and 2012/13. Given the target to reduce waste arisings by 1.2% year-on-year on the basis of 2007 arisings, there is an urgent need to understand the reasons for the increase in waste arisings in these areas and whether the increase is likely to be replicated in subsequent years. Whilst Local Authorities are facing budget cuts as the public sector faces a period of austerity, it is possible that the increase in 2012/13 reflects a recovering economy in Cardiff as a whole. The increase in waste arisings could also be linked with an increasing population. Ultimately, whilst it is possible to provide theories to explain waste variations, it is not possible to provide a definitive reason (Read et al, 1998; Price, 2001; Cox et al, 2010). Furthermore, even though there are targets for reduction, practitioners are pre-occupied with the statutory recycling targets and the landfill allowance targets, as these carry significant financial penalties if missed.

Table 4.1 Local Authority Municipal[17] Waste Arisings (Thousand Tonnes)

	2008-09	2009-10	2010-11	2011-12	2012-13
Isle of Anglesey	44.5	43.2	43.8	43.2	41.9
Gwynedd	79.9	80.3	77.6	76.4	77.0
Conwy	77.2	72.5	67.8	67.2	66.8
Denbighshire	48.8	44.4	44.0	42.1	43.5
Flintshire	87.9	87.7	88.3	86.9	88.1
Wrexham	82.2	79.0	80.1	77.4	75.8
Powys	82.4	79.7	76.1	76.1	78.7
Ceredigion	43.1	44.5	39.6	35.6	34.6
Pembrokeshire	70.9	69.1	68.9	65.3	64.5
Carmarthenshire	84.2	79.0	78.1	73.7	71.2
Swansea	130.4	127.4	120.1	110.3	111.4
Neath Port Talbot	87.4	87.0	83.0	74.3	71.7
Bridgend	85.9	74.3	68.9	71.2	63.5
Vale of Glamorgan	66.2	63.3	60.1	59.8	59.8
Cardiff	**180.8**	**181.0**	**172.8**	**169.2**	**174.1**
Rhondda Cynon Taf	120.3	121.2	122.0	114.6	114.3
Merthyr Tydfil	33.8	32.9	32.0	30.5	29.5
Caerphilly	107.0	101.6	99.0	98.6	98.4
Blaenau Gwent	35.9	33.1	32.4	32.1	32.9
Torfaen	55.7	50.7	50.4	50.6	43.7
Monmouthshire	49.1	47.8	46.9	45.5	46.0
Newport	70.9	70.2	69.0	66.5	65.8
Wales	**1724.4**	**1670.0**	**1620.9**	**1567.2**	**1553.5**

(National Statistics for Wales, 2014)

The Waste Strategy for Cardiff 2011-2015 states that *"Over recent years, Cardiff's municipal waste has shown a small but positive decline in growth. This is, in part, due to waste minimisation initiatives introduced over the last few years, but also the*

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[17] Municipal waste is Local Authoirty collected waste including waste collected via kerbside collection, household waste recycling centres, and street cleansing.

current economic climate. Future predictions remain uncertain and close monitoring will need to continue." (Cardiff Council, 2011a). This statement illustrates that whilst certain factors can be cited as impacting waste arisings, there is no quantifiable data to back this up as 'predictions remain uncertain'. It is therefore evident that there is a lack of understanding in relation to waste arisings and the reasons for any variations. Whilst the inability to predict how waste arisings will fluctuate is a concern for Cardiff, many of the factors that are likely to impact upon waste growth are out of the Local Authority's control - for example, economic growth, light-weighting of packaging, or the impact of the weather upon compostable waste arisings (Burnley, 2007). The inability to robustly identify reasons for variations in waste generation highlights how difficult it is to measure the effectiveness of efforts to minimise waste. As such, further understanding of how to encourage waste minimisation is essential.

4.3.2 Recycling Performance in Cardiff

In order to attain the recycling targets set, Cardiff Council has made a number of changes to their waste collection services. Food waste has been labelled as a priority waste stream due to it representing a large percentage of household waste (Welsh Government, 2013). In 2008 Cardiff was the first Authority in Wales to introduce weekly food waste collections city wide. Residents were provided with kitchen caddies for their food waste which had to be emptied into their garden waste receptacle for collection. At this time residual waste was collected weekly, as was garden waste, with green bag recycling (cans, paper, card, plastic bottles, glass bottles and jars) collected fortnightly. The majority of households (approximately 80%) had wheeled bins for their garden waste and for their residual waste, with the remainder receiving bag collections (i.e. garden waste was collected in bio-degradable sacks, recycling in green bags and residual waste in black sacks). Properties on the 'tri-bag' scheme tend to be terraced properties and flats with little or no frontage, and are mostly found in the inner-city areas of Cardiff. Whilst the divisional split between properties receiving bin collections and properties receiving bag collections remain unchanged (approximately 80% and 20% respectively), there have been changes to collection frequency and the method of food waste collection. Prior to 2011, properties in bin areas had to empty their kitchen caddies into their green wheeled bins, whereas properties in bag areas had to place their food waste into bio-degradable garden waste sacks. This was not very convenient for householders in bag areas; due

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to the nature of biodegradable bags, they breakdown quite quickly, especially if food is placed in them, making them difficult to store. In addition, bags containing solely food waste are attractive to various animals, increasing the likelihood of bags becoming split and causing litter when presented for collection.

Since 2011 households throughout Cardiff have had their green bag recycling collected weekly, food waste caddies collected weekly, garden waste collected fortnightly, and residual (black) waste collected fortnightly. During the changes to collections in 2011, residents were provided with a kerbside caddy for food waste, so that kitchen caddies could be emptied into the kerbside caddies, rather than collected co-mingled with the garden waste. The introduction of kerbside caddies and fortnightly black bag collections in 2011 sought to provide an incentive for residents to segregate their food waste for recycling. These changes were accompanied by a great deal of publicity regarding the scheme, and promotion of the 'Love Food Hate Waste Campaign'. Figure 4.1 shows that the quantity of food waste collected for composting in Cardiff decreased between 2011/12 and 2013/14[18], which could be taken to indicate that people are throwing away less food waste, perhaps through watching what they buy or using up left-overs. However, given that residual waste has increased, it is more likely that the reduction in food waste collected represents a reduction in participation in the food waste scheme.
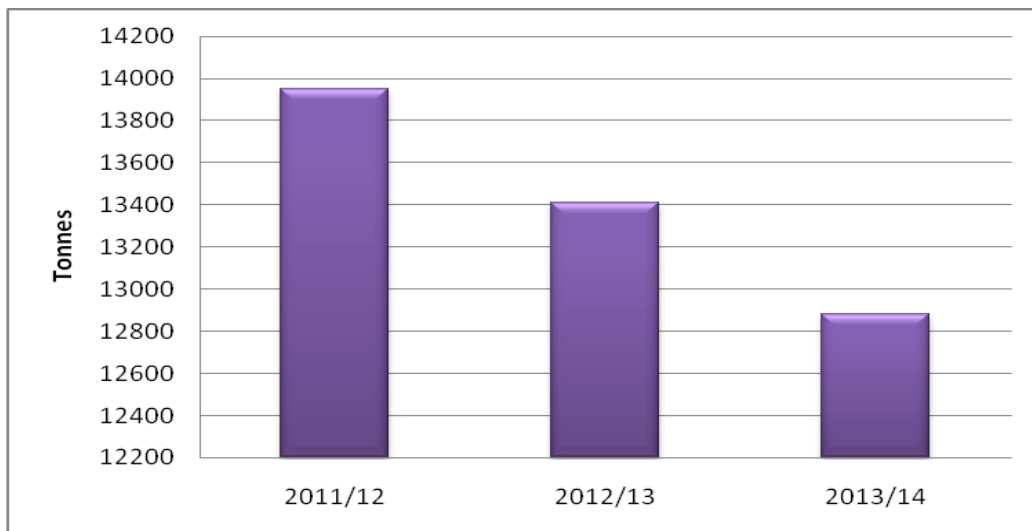
Figure 4.1: Kerbside Collected Food Waste Tonnages for Cardiff[19]

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[18] Data is not available prior to 2011 as food waste was collected with garden waste until this time.

[19] This figure is generated from weighbridge data. All vehicles have to weigh back in following collection before tipping off their materials in the relevant location (e.g. the recycling plant or the

The decline in food waste composting could be due to the fact that once certain residents ran out of caddy liners, or caddys were lost or damaged, those residents ceased participating in the scheme. Moreover, given that Cardiff has a number of households where inhabitants are transient, it is possible that as people have moved out and new residents have moved in, caddies have not transferred and new ones have not been requested. Therefore, work needs to be done to ascertain reasons for non-participation (some are identified in Chapters 5 and 6) and encourage the practice of separating food waste again.

Recycling performance varies between waste streams and between areas (known in Cardiff as wards). Table 4.3 outlines recycling performance per ward in Cardiff based upon the tonnages of waste collected. Table 4.3 uses conditional formatting to highlight which areas compost the most food and garden waste, and also those that recycle the most (highlighted in green). The Table also shows which areas recycle and compost the least and produce the highest percentage of waste (highlighted in red). There are also a number of wards and waste streams where performance is neither red nor green, as these are neither high nor low performers. From table 4.3 it is clear that bag areas (Cathays, Plasnewydd, Riverside, Butetown, Grangetown) are the wards that consistently produce the least recycling as a percentage of total waste. There are a number of potential reasons for this, including the fact that those serviced by the tri-bag scheme are likely to have smaller gardens (or no garden at all) and also less storage space to segregate materials for recycling (Burnley et al, 2007). Inner city bag areas also tend to be those with the most transient populations; 'people are just passing through' (Alan, research participant, Riverside).

waste disposal site). The weight of each vehicle is assigned to a particular waste stream, thus generating a report of the total quantity of a particular waste stream collected over a given period

Table 4.2: Recycling Performance per Ward in Cardiff 2013/14[20]

Ward	Recycling	Compost	Food	Recycling Total	Residual
% of Waste Type per Ward					
Caerau	18%	28%	7%	53%	47%
Creigiau & St. Fagans	18%	37%	7%	62%	38%
Ely	18%	28%	7%	53%	47%
Fairwater	19%	25%	7%	51%	49%
Pentyrch	20%	39%	7%	66%	34%
Radyr & Morganstown	18%	31%	7%	56%	44%
Butetown (bag area)	21%	5%	5%	30%	70%
Grangetown (bag area)	17%	8%	8%	32%	68%
Riverside (bag area)	22%	4%	8%	34%	66%
Canton (partial bags)	23%	14%	11%	48%	52%
Llandaff	22%	34%	8%	64%	36%
Llandaff North	21%	24%	9%	54%	46%
Cathays (bag area)	26%	11%	6%	43%	57%
Cyncoed	19%	41%	8%	67%	33%
Gabalfa	20%	13%	10%	43%	57%
Plasnewydd (bag area)	20%	11%	8%	38%	62%
Pentwyn	19%	19%	8%	46%	54%
Penylan	17%	18%	7%	43%	57%
Adamsdown (bag area)	19%	4%	7%	30%	70%
Llanrumney	17%	31%	6%	55%	45%
Pontprennau	15%	32%	5%	53%	47%
Rumney	16%	30%	6%	52%	48%
Splott (bag area)	20%	12%	7%	39%	61%
Trowbridge	16%	22%	6%	43%	57%
Heath	12%	41%	6%	60%	40%
Lisvane	17%	48%	5%	71%	29%
Llanishen	16%	33%	7%	55%	45%
Rhiwbina	21%	32%	8%	61%	39%
Whitchurch	17%	33%	8%	58%	42%

Whilst compost performance is unsurprisingly low in bag areas (given property types), food waste performance appears to be as good in bag areas as in bin areas. In

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[20] This table is generated from weighbridge data. Each vehicle collects a particular type of waste from a specific area, thus, through analysis of the weighbridge data it is possible to generate a report showing the total quantity of a particular waste stream collected over a given period.

some cases, food represents a higher percentage in bag areas than in bin areas: for example in Grangetown, Riverside and Canton food percentages are higher than in Heath, Pontprennau and Lisvane. It is possible that food waste percentages are higher in bag areas as residents in these areas are encouraged to use the food caddies because black bags are collected fortnightly, and it is more difficult to store food waste in bags than in bins or caddies. However, as Lisvane and Heath are high performing wards overall, it is also likely that food waste is simply a smaller percentage of the total waste generated in more affluent sub-urban areas such as Heath and Lisvane (compared with garden waste and dry recycling).

From Table 4.3 it is possible to identify that recycling performance varies from as little as 30% in some wards up to 71% in other parts of Cardiff, and on average across all wards performance equates to 50%. However, whilst this is indicative of Cardiff's recycling performance, it is not reflective of overall performance as it does not include non-kerbside collected waste. In addition, each ward does not represent exactly one 29th of kerbside collected waste arisings: as such, where wards produce more waste (for example, because they have more households), their performance will have a greater impact upon overall performance than wards that produce the least waste.

In terms of overall performance, Table 4.4 shows that Cardiff's recycling performance has increased steadily from 34.5% in 2008 to 52.2% in 2012/13. The biggest peak in performance was a 10% increase between 2010/11 and 2011/12. This increase in recycling performance corresponds with the change of collection frequency in 2011 from weekly to fortnightly general waste collections and from fortnightly to weekly recycling collections. Making recycling more convenient and disposing of residual waste less convenient has therefore had a significant impact upon the practices of residents in Cardiff.

Table 4.3 Local Authority Municipal Waste Reuse/Recycling Rates (%) by Local Authority

	2008-09	2009-10	2010-11	2011-12	2012-13
Isle of Anglesey	45.9	51.2	55.8	57.1	55.2
Gwynedd	36.7	43.0	45.9	48.1	51.2
Conwy	38.7	37.3	40.2	48.1	56.4
Denbighshire	33.7	52.5	56.8	55.7	58.0
Flintshire	42.4	43.2	47.1	48.3	54.9
Wrexham	37.4	41.0	48.8	53.3	52.8
Powys	41.3	39.7	37.7	42.6	50.9
Ceredigion	48.7	48.5	51.4	58.4	53.6
Pembrokeshire	38.9	44.3	48.9	50.0	53.1
Carmarthenshire	33.8	40.1	43.4	49.3	53.8
Swansea	32.1	34.9	40.5	45.2	47.9
Neath Port Talbot	34.9	37.1	44.0	43.9	48.3
Bridgend	38.4	33.5	48.0	56.3	57.1
Vale of Glamorgan	40.4	41.2	43.8	52.4	54.5
Cardiff	**34.5**	**38.3**	**41.6**	**51.2**	**52.2**
Rhondda Cynon Taf	37.2	36.9	44.7	47.3	46.2
Merthyr Tydfil	31.6	35.7	36.4	43.2	49.1
Caerphilly	36.5	47.3	53.7	59.1	57.1
Blaenau Gwent	25.0	29.2	35.5	42.3	51.2
Torfaen	49.0	47.5	46.7	47.5	47.1
Monmouthshire	38.5	40.9	48.6	55.3	55.5
Newport	38.2	40.7	45.7	48.2	49.2
Wales	**37.5**	**40.5**	**45.3**	**50.0**	**52.3**

(National Statistics for Wales, 2014)

Table 4.4 illustrates that although Cardiff is not achieving the highest recycling rate, neither is it the worst performing local authority in relation to recycling targets, in spite of the challenges it faces. As a capital city with high volumes of transient populations, such as students and visitors, Cardiff faces challenges that are distinct from some of the less urban Welsh Authorities. In a report by National Statistics for

Wales (2014) it is highlighted that urban authorities produce the highest amount of residual waste per household, with rural authorities producing the lowest. Furthermore, urban authorities had the lowest combined reuse/recycling/composting rate, whilst rural authorities had the highest reuse/recycling/composing rate. The fact that urban authorities face particular challenges in relation to waste management is reflected in Table 4.4 which shows several authorities failed to reach the Welsh target of 52% recycling by 2012/13, including Swansea, Newport and Neath Port Talbot.

Cardiff is currently deciding upon how it can change its waste services in line with budget cuts, but, like many authorities, Cardiff is also contending with the issue of needing to meet statutory recycling and waste diversion targets. In 2013/14 Cardiff failed to sustain its previous recycling performance, with the recycling rate dropping to 50%, thus missing the 52% recycling target. Cardiff's failure is arguably a direct result of in year budget cuts which included a reduction in resources deployed in relation to education and enforcement, and cessation of the processing of street sweepings for composting. Cardiff now faces a potential fine of hundreds of thousands of pounds for failure to meet statutory recycling targets. The Welsh Government has some discretion as to whether or not to fine Cardiff (and other Authorities who missed the target), as Wales as a whole is exceeding the targets set by the Waste Framework Directive; hence it is not a case of the EU fining Wales and the Government passing this on. Should the Welsh Government fine the Authority, Cardiff will be in an even worse position to meet the 52% target, let alone the target of 58% recycling and composting by 2015/16. Therefore, the wider context within which Local authorities are operating needs to be taken into account when the Welsh Government is making a decision as to whether to impose a fine. However, although the economic pressures have been taken into account when developing strategies in England, this has not been the case in the rest of the UK where recycling targets are far higher (Johns, 2014).

4.3.3 Cardiff and Waste Minimisation

The Waste Strategy for Cardiff (2011-2016) planned to facilitate waste minimisation in two ways. Firstly, the strategy proposed exploring partnerships to reuse more 'bulky' waste (i.e. furniture), as only white goods and electrical items are collected separately via this service. Secondly, the strategy proposed restricting residual waste

capacity by changing the wheeled bins provided for residual waste from 240 litre bins to 180 litre bins (Cardiff Council, 2011a). As of 2014, neither of these measures has been adopted, although work is under way to identify an appropriate partner to facilitate the reuse of WEEE and furniture collected both via Household Waste Recycling Centres (HWRC's) and via the kerbside 'bulky' waste service. Whilst there were only two key actions in relation to waste minimisation in the Strategy for Cardiff, other factors have interceded to prevent these activities from being prioritised. In terms of restricting residual waste, the initial cost of exchanging the bins is currently acting as a barrier, and therefore alternative options for restricting residual waste need to be considered, such as reducing the frequency of collection. With regard to the reuse of bulky waste, Council Policies and Procedures make this process time consuming. Officers cannot identify potential partners and put a suitable arrangement in place; they must first gain political approval then tender for a partner. The need to follow political and financial procedures is resource intensive, and as such, projects that will deliver greater savings have been prioritised.

In addition to the two measures detailed above, the Waste Strategy for Cardiff incorporates a Waste Minimisation Strategy as an appendix. The Waste Minimisation Strategy includes the promotion of 'Love Food Hate Waste', the encouragement of home composting (through three discounted compost bin sales per annum), the promotion of real nappies (through promoting Cardiff's Credit Union Scheme which aims to make the up-front outlay for reusable nappies more affordable), and promoting 'Say No to Junk Mail'. As such, the promotion of waste minimisation schemes has been common practice in Cardiff for several years. However, waste arisings in Cardiff are increasing; as such there is a need for a new and better informed approach to encouraging waste minimisation practices. It is therefore concerning that the Consumer Engagement Programme (Welsh Government, 2013:16) outlined in the Waste Prevention Programme for Wales focuses upon the promotion of home composting, real nappies etc as if they are a novel approach to waste minimisation, a point highlighted in the feedback provided by Friends of the Earth Cymru (FOE, 2013).

A further concern is that whereas previously Cardiff had a number of waste education officers, due to budget cuts, this team merged with the waste enforcement team in

2011. Overall numbers of officers have significantly reduced, and the majority of those that remain are directed towards enforcement activities (such as issuing fixed penalty notices for littering, and tackling both householders and businesses who do not present their waste for collection correctly). The financial climate, increasing waste generation and declining recycling performance all present serious concerns for Cardiff Council waste management. Reduced budgets mean reduced resources to research and analyse Cardiff's waste statistics, but also a reduction in the number of officers tasked with encouraging recycling and waste minimisation activities.

Although reducing budgets are posing challenges for local authorities, there is an opportunity for this thesis to address the shortfall in resources by providing a practical evidence base as to how Cardiff can encourage waste minimisation practices. Moreover, Cardiff's Waste Strategy is currently under review given the emergence of the Waste Sector Plan for Municipal Waste (Welsh Government, 2011). The Sector Plan includes a collections blueprint which requires Authorities to review their methods of collecting dry recyclables and food waste, to ensure that they are using the most technically, environmentally and economically practicable option (TEEP; Welsh Government, 2011). As such, both the budget cuts and the strategy review provide an opportunity for the findings of this thesis to be utilised to shape the delivery of services in Cardiff.

4.3.4 Timescale of the Study

When planning this research, it was clear that in order to gather the quantity and quality of data required, one interview with each participant would be insufficient for a number of reasons. Firstly, each participant needed to be interviewed using a series of interviews in order for a rapport to be built enabling the free flow of conversation. Secondly, conducting a series of interviews would allow the respondent and researcher time for reflection between interviews; As Rubin and Rubin put it: *"I think in the course of conversation it's given me the time…to reflect…on what we are doing and how we are doing it…it has given me a good opportunity."* (Rubin and Rubin, 1995: 1). Allowing time for reflection *between* interviews with the same individual could allow time for further reflection not just on the conversation, but on practices that the individuals undertake daily yet had previously not considered as waste minimisation. It would also enable time for the interviewer to reflect upon research

techniques and topics discussed at the first interview, so that areas of interest could be focused upon at the second (Briggs, 1986). Thirdly, it would allow for the study of practice-changing events and allow for consideration of the 'lumpiness' of waste generation. According to Bulkeley and Gregson, 'lumpiness' (variations in the amount of waste generated by a household) can occur as a result of practice changing events such as seasonal weather, special occasions and visitors, amongst other factors.

It was decided that three to four interviews should be undertaken with each participant over a 12-month period in order to gain an insight into the impact of a wide range of events on waste practice (such as Christmas, good weather etc). However, there was also a need to review the progress of the interviews and the data gathered at each stage of the research to ensure that the interviews were still worthwhile and had not reached saturation point: it would not be fair on the interviewee to prolong the interviews where nothing further was being gained from them (Rubin and Rubin, 2005; Keegan, 2009). Overall 32 interviews were undertaken, and one focus group was held with five of the participants, totalling 37 meetings with 11 participants (see below). In addition, data was used from a focus group held by Cardiff Council in November 2008 which involved two of the research participants

4.3.5 Number of Participants

Having decided to undertake the study in Cardiff, with primary participants nominating others to participate, it was important to establish how many people to recruit initially, to prevent the research group from becoming too large and unmanageable. Deciding how many participants to recruit had to be considered alongside the timescale of the study and the number of interviews to be undertaken with each individual. It was essential to ensure sufficient people were involved to generate the information needed to answer the research questions in the time allocated. As Travers (2001:3) writes

"There is no hard and fast rule for how many people you need to interview, since it will partly depend on the time available to collect, transcribe and analyse your data."

It was therefore necessary to consider each of these factors. The study required the researcher to meet each individual four times over the course of a year, and in between it would be necessary to analyse the data gathered from the previous interview and prepare a plan for the next interview. The aim of the recruitment

strategy was to secure 10 to 12 participants in order to limit the data collected to a manageable quantity, as ultimately quality rather than quantity was what was required to answer the research questions

Since the interviews were to take place over a rolling 12 month period, a key challenge was identifying persons willing to take part in such a study (Silverman, 2009). In practice, most of the interviewees were met with on four occasions, though there were circumstances, as anticipated, where participants became difficult to meet with after one or two interviews[21]. Participants also needed to be willing to nominate persons within their social groups to take part in the study, an element of the research which proved challenging (see section 4.4.4). In practice, 5 groups were recruited varying from one to three persons

It was important to consider how to recruit participants that would provide a good cross-section of people whilst also obtaining the necessary information. Although information gathered would be specific to the participants studied, the results of the study could be relevant on a much larger scale by uncovering unwitting practices and the role of social and structural elements that have thus far been missed by quantitative questionnaires.

Whilst there was an element of self-selection, this was not a flaw in the research as the aim of the study was to learn more about waste related practices, therefore there was a need for people who undertook such practices to take part (Denscombe, 1998). It was also important to study those who were not necessarily keen recyclers in order to provide a comparison, so a combination of methods was used in order to recruit a variety of participants (see 4.4 below). As a consequence, when asking initial participants to nominate group members, they were encouraged to nominate relatives, friends and neighbours regardless of their interest (or not) in recycling.

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[21] There were two instances where this was the case. One was Sue, who was very busy and therefore difficult to meet with even on the first occasion. The other was Alice, who after two meetings was not as responsive to e-mails as she had been previously. At the second meeting, she said her dog had been unwell, which was a possible reason for her becoming less responsive. In line with consideration of ethics and ensuring consent to participate it was decided that as she had not responded after three e-mails it would be inappropriate to pursue her further. Nevertheless, some valuable material was obtained from her during the first two meetings, as well as via her nominee, Ken.

4.4 Recruitment

The previous sections outlined the key principles considered prior to the recruitment of participants, ranging from the timescale of the research to issues of self selection and representation. This section outlines how the recruitment was undertaken in practice.

4.4.1 Recruitment Phase 1

In order to trial the methodological approaches adopted, a pilot group was recruited a few months prior to the other participants. Having a pilot group allowed a phased approach to the method (which is outlined in detail below), rendering the collection and organisation of data more manageable. An important factor in planning how to recruit participants was identifying persons willing to commit to taking part in a series of interviews who could provide rich and relevant data that was pertinent to the research question (Tonglet *et al*, 2007). A common approach of qualitative research is to start with an acquaintance who is a member of the group being studied (Rubin, 2005), in this case residents of Cardiff. Therefore, this is the approach that was utilised in order to recruit the pilot group. The researcher asked a number of acquaintances to participate in the study and identified a neighbour who was willing to be interviewed and also to nominate friends and colleagues to take part in the study. The first recruit, Jen[22], was living in Plasnewydd at the time of the research. Plasnewydd is a low-recycling area known for its terraced properties and high level of rented housing consisting of students and young professionals. Jen nominated a work colleague (Rebecca) and a friend (Vera) to also take part in the study. Details of their relevant demographic information can be found in table 4.1, along with details of the other participants.

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[22] Jen is a pseudonym adopted for the purposes of this research, as are the names of the other participants to ensure anonymity.

Table 4.4: Participant Demographics

Group/ Participant	Sex	Married	Age (Years)	Work Status	House Type	Tenure	No Persons
Group A							
Jen	F	N	20-30	FT employed	Terrace	Rented	3
Vera	F	N	20-30	FT employed	Flat	Owner	3
Rebecca	F	Y	30-40	FT employed	Semi	Owner	4
Group B							
Ben	M	Y	60-70	Retired	Semi	Owner	2
Group C							
Ken	M	Y	60-70	Retired	Semi	Owner	2
Barbara	F	Y	60-70	Retired	Semi	Owner	2
Alice	F	Widow	50-60	PT employed	Detached	Owner	1
Group D							
Vivienne	F	Divorced	50-60	PT employed	Detached	Owner	1
Denise	F	Y	60-70	Retired	Detached	Owner	2 to 3
Group E							
Alan	M	N	20-30	Unemployed	Terraced	Rented	1
Sue	F	Divorced	50-60	Employed	Flat	Owner	1

4.4.2 Recruitment: Phase 2

A number of options for recruiting further volunteers were considered – such as utilising the researcher's links at the Council or at the University. According to qualitative research the appropriate participants should be 'theoretically defined' (Mason, 1996). Whilst the scale of this study meant that it could not be wholly representative, it was still beneficial to recruit participants from various household types in order to identify how different relationships and structures impacted upon individual practices (Silverman, 2009). Therefore, to enable selection of appropriate household types, rather than providing an open invitation to unknown entities, it was decided that the optimum method of recruitment would be via the Council's Research Department. The Council's Research Department holds a list of over a thousand people that are willing to volunteer for various forms of research. This database of people is renewed on an annual basis, and the panel is made up of a cross-section of the Cardiff community who agree to take part in various types of research; written surveys, e-mail surveys, interviews, focus groups and so on. The database holds details of the types of research volunteers are willing to take part in, as well as a

breakdown of gender, age, occupation, tenure and ethnicity. It was therefore possible to invite participants from the panel on the basis of various demographics.

Although there were ample suitable participants registered with the panel, there is no obligation upon panel members to take part in research. First, potential participants are briefed on the nature of the research and they then choose whether or not to participate. Due to the length of this particular study, finding people willing to commit was going to be a challenge. It was important to ensure that the research brief gave potential participants a sense of how onerous (or not) the study would be for them. The brief therefore outlined that although the research necessitated a series of interviews over a given period, in practice this would mean a maximum of four 1 hour interviews with the researcher over a 12 month period (See Appendix 1).

Initially only 12 people from the database were contacted (via their chosen method of e-mail or letter) in order to ensure that the invitation did not result in an excess of respondents given that a pilot group of three had already been established and was producing valuable data. Those contacted were selected by looking at their household types and selecting a range of single persons, couples and families in order to try to capture participants who might be subject to different external structures (Silverman, 2009). Those contacted lived in areas of both high and low recycling performance, such as Lisvane and Heath who (at the time of commencing the research) had the highest set out rate for recycling in Cardiff, and Ely and Riverside, who conversely had the lowest recycling rates.[*] The logic behind this was that it would be possible to identify persons subject to different external influences and how these impacted upon their practices. For example, the two persons recruited from Riverside during phase three both lived in flats rather than houses, and therefore storage space could have provided a structural barrier to them recycling or home composting (See section 4.3.3 for further details of this recruitment phase).

Following the initial invitation to participate in the research, two people responded within the first week agreeing to participate in the study. The following week, a

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[*] These figures are based on the weights of green bags, green bins and black bags **collected** during July 2009. i.e. it is not necessarily representative of how much of the green bag materials were actually recycled.

reminder e-mail was issued to those who had not yet responded, after which a further person agreed to participate in the research. Whilst a variety of persons were contacted, two of the three initial respondents (they will be named Ben and Ken for the purposes of anonymity) were retired and resided in households consisting of a retired married couple. The third participant (Vivienne) was a single person, but was also over 50. Furthermore, whilst there was an even split between the number of households contacted in the more affluent areas and those in the less affluent areas, all respondents were from the high recycling and affluent areas of Cardiff. Although the pilot group (Group A, see table 4.1) provided a slightly different household type to those recruited, after the first series of interviews with Ben (Group B), Ken (Group C) and Vivienne (Group D) it was clear that the contacts nominated by the latter recruits tended to be of a similar age and domestic situation. Therefore, a third phase of recruitment was undertaken in order to ensure both sufficient quality and quantity of data.

4.4.3 Recruitment: Phase Three

In September 2008, a focus group was being held by Cardiff Council Waste Management in conjunction with the Research Team in order to investigate views of an alley-gating scheme in Riverside. The aim of the scheme was to reduce incidents of fly-tipping in lanes in the Riverside area of Cardiff. Riverside, similarly to Plasnewydd, is an inner-city area with low recycling rates and a transient population, so it provided an interesting dynamic to the research groups.

Attendees at the focus group were asked if they would be willing to take part in this study and two people consented, thus providing a fifth group (Group E) in a less affluent area of Cardiff. Whilst the participants of this group were only connected via the focus group, similarly to Ben, they did not feel they could nominate anyone else to participate. Nevertheless, sufficient data was gathered from the other 'networks', but also from groups B and E themselves to make this diversion from the original template feasible. Indeed, it was anticipated from an early stage that either participants or their nominated counterparts might withdraw from the research at some point (Rubin and Rubin, 2005).

4.4.4 The Nomination Complex

It is interesting that three of the research participants felt that they could not nominate friends, family or colleagues to participate in the study (Ben, Alan and Sue). There are a couple of possible reasons for this. For example, it was evident from discussions with Ben that many of the friends and family he referred to during meetings did not live locally, so perhaps he had no-one to nominate within the geographical area of the study. However, it also appeared that in the case of all three participants, they did not feel comfortable volunteering someone else to participate in the research. When initial recruits were asked why they could not nominate any, or more people to participate, some mentioned that their associates would not have the time (Alan, Vivienne, Sue), but Ben in particular seemed concerned about what people might think about being involved in the research. For example, during his first interview, Ben mentioned that friends have said that his (pro-environmental) actions are 'commendable', but he believed the undertones of how they said it implied his actions were 'weird'. Perhaps then, he felt that his associates were not 'green' enough for the study, or he was in some way embarrassed about his role in the research. Indeed, he even mentioned during one meeting that his wife did not understand why he did 'this sort of thing'.

In sub-urban areas, where there was a strong sense of community, participants appeared to find it easier to nominate neighbours and friends. Ken has been living in his house as long as the estate has been in existence and has a good rapport with his neighbours. This meant he was very quick to supply names of neighbours who I could contact for the study. Ken suggested three neighbours and provided an overview of his connections with them, their household (i.e. family, widow, pets) and commented on whether they were good at recycling or not. It was brought to his attention that this did not matter. He appeared to be a very sociable person with strong family ties in Cardiff, but he only volunteered neighbours and his wife to participate in the study. He seemed to nominate those he thought would be most likely to be willing to take part. Nevertheless, when it came to contacting those neighbours, only one was willing to take part in the study, and the wife was only present for one of the interviews.

Similarly Vivienne was reasonably quick to nominate her friend and neighbour, but in spite of being asked on a number of occasions to nominate an additional contact, she felt unable to do so. The fact that two of the groups chose to nominate neighbours

rather than friends or relatives outside of their neighbourhood is itself of interest. Perhaps participants felt that 'waste' is a community issue, or that it might be more convenient for the researcher. When asking participants why they nominated persons, they frequently referred to the fact that either they thought it would be of interest to them or that they were keen recyclers, whilst in other cases, they felt that the persons nominated were most likely to be willing to participate – either because they had the time or because they had a pre-existing interest in the environment and/or recycling.

Interestingly, those participants living in the more central areas of Cardiff were less likely to nominate neighbours and more likely to nominate work colleagues, friends, or no one at all (Jen, Sue and Alan). In contrast to Ken and Vivienne, Jen took a great deal of time to nominate a work colleague and a former work colleague and friend. Whilst Ben did not live in a central area of Cardiff, he was clear from the initial meeting that he did not wish to nominate anyone, as were Alan and Sue who did live in a central area. It is important to note that even those who were recruited as part of the research groups belonged to somewhat partial or constructed social groups rather than providing an existing one.

4.4.5 Reflections on Recruitment

Although social networks can be difficult to access, the reward is the generation of quality data. Through discussions with both Ken and his social network it was possible to verify things that he had said about himself, but also to hear a different perspective on them. Nevertheless, the importance of social ties was not only evident within the groups studied (i.e. between the participants within a given group). In the course of discussions with the research participants it was also possible to identify influences of other groups and individuals on participant behaviour. For example, some participants described the impact of the media, their family members and visitors upon practice (see Chapter 6).

Through developing relationships with the researched during the course of the interviews and focus group, it was possible to gain in-depth insights into their habits, routines and social connections. The establishment of a connection with the participants also helped in the interpretation of the data: by getting to know participants – their hobbies and routines, it was possible to establish how the

'busyness' of everyday life impacted upon practices. For example whereas Ben is retired, and cycling to the shops is convenient for him, Jen works full time and does not drive. Therefore, whilst Ben has to (and has time to) carefully plan his shopping in order to transport it all on his bicycle, Jen explains how she is limited as to where she can shop, and what she can buy. In turn, what she consumes impacts upon what she throws away as she explains that food from the local corner shop does not last as long, or is not available in the portion that she needs. Therefore, by knowing the individuals, you can interpret the data with far more depth and insight than through the use of alternative methodologies.

Overall the number of participants recruited provided a rich and varied source of data. In addition to enabling the capture of relevant data, the sample size was sufficient to allow for cross-referencing between case studies to identify trends, similarities and differences. The adoption of a phased approach to the recruitment meant that organisation of the data was more manageable, and that it was possible to review the type and quantity of data gathered at each phase in order to identify whether further recruitment was necessary. Indeed, whilst the size and number of the groups recruited may appear low, this was essential in order to facilitate the in depth study that such an approach allowed, and the success of this approach is demonstrated in the results chapters where the richness of the data gathered is evident.

4.5 Interviews

In order to overcome the shortfalls of a structured interview or survey questionnaire approach, this research sought to personalise the methodology in order to fit individual's circumstances. As a consequence, interviews were focused in a semi-structured way. In this type of interview, *"questions are normally specified, but the interviewer is more free to probe beyond the answers in a manner which would often seem prejudicial to the aims of standardization and comparability"* (May, 1993: 93). In this way, issues surrounding intention, witting or unwitting practices could be explored in the context of individual practice. Interviewee circumstance and experience was prioritised, enabling rapport to be built, and an atmosphere of dialogue rather than interrogation generated.

Indeed, the interviews were oriented in the spirit of Eyles' 'conversation with a purpose' (1988). In other words, interviews took a conversational, fluid form, varying according to the interests, practices and views of the interviewees. Such an approach allows the research to be people sensitive, and foregrounds individual experiences and practices:

"Unlike a questionnaire, the aim of an interview is not to be representative but to understand how individual people experience and make sense of their own lives... The fluid and individual nature of conversational-style interviews means that they can never be replicated, only corroborated by similar studies or complementary techniques" (Flowerdew & Martin, 2005:111)

Given that this research places emphasis on both witting and unwitting waste minimisation behaviour, it was essential that the study of practice did not simply rely upon questions and answers; it needed to access routine practices. The interview situation was used to access these practices through asking individuals about their habits, routines and hobbies in different contexts of their life. Individuals recounted these stories initially in the household environment, and used cues and examples from this context in order to elaborate and explain their practices, such as pointing to the fridge, compost bin etc in the kitchen, or taking the researcher on a tour of the house or garden (see section 4.5.2 for the significance of the research settings). Through this familiarisation process, both interviewer and interviewee could build up understanding about the nature of practices and the nature of the research process in an unthreatening and friendly way. As a consequence of the nature of this initial encounter, individuals became aware of the their own waste minimisation practices in more detail, and from this they were asked to make notes of any further actions, ideas, or problems they encountered in relation to these practices between meetings (see section 4.5.1).

Although interviews were intended to be relaxed and semi-structured, having some questions written down proved useful. People can find it difficult when asked to talk about something that they may not have given much thought to before unless they are given prompts (Rubin and Rubin, 2005). When undertaking the interviews it was evident that, in particular during the first meeting, it was important to have questions

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prepared in order to start the conversation and also to keep it flowing. Ice-breaker questions were included in the first interview to get conversations started. For example:

       Have you lived in Cardiff long?

       Have you always lived in this area?

       What do you like to do in your spare time?

Following on from the ice breaker questions, a set of themes were drafted for discussion such as eating and shopping habits. Therefore the first meeting helped to establish an overview of people's day-to-day, week-to-week practices in order to identify aspects of household lifestyles and habits that could be explored in future interviews (Pole and Lampard, 2002).

Table 4.5 provides an overview of the topics discussed at each interview.[23] Overall, the methods adopted worked well and no significant alterations to the questions and themes were necessary. Minor alterations were made to the way in which questions were framed dependent on the nature of the household and previous discussions with participants.

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[23] Please note that the focus group did not include all participants in the study, so the reference in the table to all contacts, refers to all contacts who attended the focus group.

Table 4.5: Overview of Interview Themes

	Meeting 1	Meeting 2	Meeting 3	Focus Group
All contacts	Offered free home compost bin and given diary to record notes	Discuss diary notes; thoughts and queries since last meeting	Discuss diary notes; thoughts and queries since last meeting	Tour of Materials Reclamation Facility (MRF)
All contacts	Theme: Day to day practices: Eating out, hobbies, pets etc	Theme: Show us Your Rubbish - Material Practices	Theme: Points arising from a review of previous interview notes.	Discussion of what they had seen at MRF; thoughts arising
All contacts		Witting waste minimisation behaviours and their incentives. Used list of practices to prompt unwitting behaviour.		Discussion of what would encourage waste min and recycling, given our discussions.
Initial contact only	Asked to Nominate friends/ neighbours/ colleagues	Anything that nominees had mentioned that was relevant for discussion		
Nominated contacts	Discuss their relationship with the initial recruit; similar interests/links e.g. gardening.	Discussed anything the initial contact had mentioned that was relevant to nominees.		
Appendix	Appendix 2	Appendix 3	Appendix 4	Appendix 5

When asking questions and allowing free-flow of conversation, it is possible to miss the obvious (Rubin and Rubin, 2005), it was therefore important to record the interviews and listen back to the recordings between interviews so that any point of interest can be explored at a later meeting. By listening to what interviewees were saying and raising topics that they had brought into the realm of questioning in

previous interviews it was possible for both the researcher and the researched to reflect upon and explore interesting themes.

As well as using a voice recorder to document the conversation, a written record was kept in order to roughly document physical observations such as household layout (which was relevant for issues such as waste storage). In addition, notes were kept to record key points to follow up in later conversations if it was inappropriate to probe immediately. For example, during an interview with Jen, she claimed not to have received any recycling literature from the Council, yet she had both a council collection calendar and a recycling leaflet on the fridge (see figure 4.2). When questioned regarding the information on her fridge at a later interview, Jen confirmed that it was provided by the Council.

Figure 4.2: Jen's Fridge and Council Literature

When planning for and undertaking interviews, it was important to consider how questions were phrased, as well as how the interviewee was responding, in order to ensure that the meaning of what the researcher and the researched were saying was not 'lost in translation' by the person hearing the information. Understanding the way in which the 'meaning making' process evolves is important, it is a two way process, where one person describes their interpretation and the other person further interprets it (Silverman, 2004). Thus, given that interviewees are providing their own explanations, in line with the non-positivist approach of the thesis, these conclusions were viewed as interpretations (or representations) rather than facts or laws (Gubriem and Holstein, 2001).

4.5.1 Accessing Practices: Interviewee 'Diaries'

As well as undertaking semi-structured interviews over several months, additional methods were adopted to facilitate the study of practice. These included the use of ad hoc diaries and the adoption of a 'Show Us Your Rubbish' approach. Firstly, participants were asked to keep 'ad hoc' diaries to ensure the time between interviews was well utilised, and in order to move beyond reported behaviours. Participants were given a notebook to write down any thoughts that arose in relation to waste practices between the interviews.

As Cook and Crang (1995:29) outline, a (field) diary functions as *"some kind of record to how the research progresses…and to chart how [individuals] comes to certain (mis)understandings".* In this case, interviewees made notes of certain consumption and disposal related practices (or non practices) in between meetings, and also recorded any reflections they had between interviews. Indeed, Latham (2003) calls for a resurgence of the use of diaries and repeat interviews because of the reflection that they allow.

Through keeping an *ad hoc* diary, interviewees were able to record any practices that they undertook between meetings that they felt relevant to our discussions. For example practices they had undertaken for a long time, but they had not previously thought of as waste minimisation, such as avoiding over-packaged mushrooms because loose mushrooms are cheaper or sharing excess allotment produce with friends and neighbours. Through this process it was possible for both the researcher

and the researched to gain a greater understanding of participants' actions. Furthermore, participants could record any difficulties they faced such as not knowing how best to dispose of certain items, or their frustrations at certain products only being available in bulk or in excessive packaging. Through use of the diaries, interviewees were therefore able to guide the development of the research by highlighting what they felt was significant in relation to consumption and disposal.

4.5.2 Accessing Practices: 'Show Us Your Rubbish'

Shove and Pantzar (2005:44) argue that whilst Giddens (1984) talks of practices as everyday routines, habits, techniques and competence, it is equally important to consider material artefacts, infrastructures and products. Similarly, the 'Show Us Your Home' study (Jacobs et al, 2008). sought to establish not just ways of thinking but practical ways of doing, by interviewing individuals in their homes and asking them to show researchers around their properties providing a *"way of soliciting information on the relations between residents and the things with which they live."* (http://www.ace.ed.ac.uk/highrise/).

In terms of waste minimisation practice, such a methodology provided a means to discuss people's everyday practices in relation to various items, rendering the often abstract discussion of waste minimisation both grounded and immediate in their everyday lives. In this way discussions could be had about everyday items e.g. what they do with books and televisions when they are replaced, when they replace them, how they replace them and why they deal with them as they do. Such discussions were successful in verifying what influences individuals practices – for example infrastructure or cost.

In order to utilise this method, it was beneficial for interviews to take place in participants' homes. It was not always possible to interview people within their own homes. When arranging the first meeting, volunteers were provided with a number of potential dates and times and asked where they would prefer to meet. It was important to ensure the meeting took place in a location and environment in which interviewees felt comfortable and unrestrained by other commitments (Silverman, 2004:12).

Whilst the majority of respondents chose to meet at their own homes[24] (which enabled access to the environment in which many waste related practices take place), there was one participant (Alan) who chose not to be interviewed at home, with all meetings being conducted at a coffee shop as he was in the process of renovating his flat. This meant that rather than physically going through the sort of items that might end up in the waste or recycling bin, it was necessary to have a discussion about such items.

As Sin (2003) and Anderson *et al* (2010) have argued, the place of the interview can be used successfully to access the research subject under investigation. For example, the presence of a designated area for collection of recyclable and non-recyclable waste, the ownership of pets, whether participants had a garden and so on. In other interviews the home provided topics of conversation – such as pets or gardens, which invariably could be linked back to material practices such as home composting.

One participant (named Rebecca for reasons of confidentiality) asked for her first interview to take place in the rugby club bar where she worked part time. Undertaking interviews in both the work and home contexts proved useful as it enabled access to information on how certain elements of participants' home or work 'set up' impacted upon the performances of others. For example, both Jen and Rebecca had allocated a designated collection area for recyclable waste in order to encourage their housemates (in the case of Jen) and customers/workmates (in the case of Rebecca) to recycle.

Through this use of the context of interview (see Sin, 2003; Anderson et al, 2010), (non)practices regarding waste minimisation could be approached through the context in which they occurred – individuals were free to talk about their habits and routines, rather than fit their lives into specific, pre-structured notions of intent or action, enabling access to waste related practices that they might not otherwise have identified as they either saw them as something else or thought nothing of them as the performances had become an embedded part of their habits and routines. Moreover, it has been identified that goods and materials enter 'gaps' (Bulkeley and Gregson,

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[24] Prior to visiting participants it was important to consider personal safety issues. A record of visit times and locations was provided to colleagues.

2009; Evans, 2012) or 'spaces of abeyance' (Tudor *et al*, 2011) such as fridges, attics, garages etc. Through being in peoples' homes, it was possible to explore these spaces first hand, as in some cases people were happy to show what they had in their bins, what items had accumulated in their garages pending disposal, or what vegetables they were growing in their garden. As this thesis was interested in the ways in which contexts influenced practices, exploring these sites of (non)practice was insightful.

Interviewing Rebecca in the context of the rugby club provided some useful insights into how she had tried to influence practices in the workplace, but it was not appropriate to study all participants in the workplace for a number of reasons. Firstly, some of the participants were retired or unemployed, and secondly, this was not a pre-requisite of the research as it could have been a significant barrier to encouraging people to participate. Nevertheless, just as the methods adopted allowed access to witting and unwitting practices through discussions of everyday routines, the methods also allowed access to practices that took place in other contexts. For example, Rebecca explained how she was an active member of the environmental committee at her full time place of work, where she had again tried to encourage colleagues to recycle. This in turn links with the second research question and the transfer or spill-over of practice between people and between contexts.

4.5.3 Accessing practices: Identifying Practice Transfer

The first element of practice transfer explored by this thesis considers the impact of other people on individuals' practices, habits or routines. In order to identify whether practices transfer between people, it is necessary to examine the relationship between individuals. It was therefore important that the people taking part in the study were connected in some way. By interviewing individual members within a group of people, an understanding of the role of waste within that group could be established. For example, it was possible to identify whether a friend, neighbour, colleague or relative could encourage or inhibit another individual to perform a waste minimisation practice, as social ties have been argued to be significant in this regard (Bulkeley and Gregson, 2009).

As well as the significance of social ties in facilitating practice, this thesis considers how the culture or social norm within a given context might influence practice. *"People who live or work together…develop shared understandings that are communicated to others in their group and constitute their culture."* (Rubin and Rubin, 1995). According to this quotation, culture is something that is developed between individuals, in essence, the group dictates what is acceptable practice in a given setting. It was therefore important to review the role of the individual within a group context in order to identify how much the group influences the individual and vice versa. Gaining an insight into the nature of relationships and the way in which they do or do not impact upon each individual was significant in establishing whether or not waste minimisation practices transfer between individuals.

In order to further explore whether other people influence the practices of an individual, a 'snowball' approach to recruitment was adopted (Silverman, 2010). When recruiting initial participants, they were asked to nominate friends, colleagues or neighbours to take part in the study. As Jackson (2005) claims;
'Policies that seek to change environmental behaviour will need to engage with social context that constrains social action as well as with mechanisms of individual choice.'
The study therefore incorporated consideration of participants social networks in order to gain a greater understanding of how relationships, contexts and settings influence waste practices within the household.

Whilst there are benefits to a 'social network' approach, it is also important to consider the shortcomings of an approach that can lead to 'representations' of behaviour rather than actual behaviour. Indeed, even when studying practices themselves rather than representations, researchers are still faced with the challenge that people do not always have answers as to why they do the things they do. In the following example, Latham describes the issues he encounters when interviewing people to establish why they use a particular coffee shop: *'Joseph is…a subtle and socially sophisticated inhabitant of Ponsonby Road. He knows the casual but intricate etiquette of cafe usage, how to carry through a drifting conversation with Scottie as he attends to his barista work, how to work in Gail when she arrives, and he possesses a keen sense of the significance of self-presentation. He is also thoughtful and articulate. Yet, when asked about why he likes Duo, how he would*

*describe his relations to Scottie or indeed Gail, how he learnt to be so adept at doing coffee, he feels put on the spot. ...**making sense of and respecting the reasons why Joseph had difficulty in answering questions about his time spent on Ponsonby Road is centrally important in conceiving methodologies that take the flow of practice and its complex embodied inter-subjectivities seriously**.'* (Latham, 2003: 2000, emphasis added).

Latham goes on to explain that Joseph has never had reason to analyse his actions in this way before. Also, Latham's questions were those of a social science researcher – framed in a way that did not necessarily make sense to Joseph or how he thinks (or does not think) about his practices. This reinforces the need to engage with '*unarticulable practices that constitute everyday lives in ways that exceed representations…*' (Bondi, 2005:437). In order to engage with unwitting or unarticulable practices, it is necessary to examine what people do as compared to what they say they do by undertaking an analysis of their everyday practices (Lorimer, 2005).

4.5.4 Focus Groups

The combination of focus groups with in-depth, individual interviews is a popular coupling, as each can help to inform the other. Through a focus group, general concepts and ideas can be generated, that can then be explored through discussion with the individual (Morgan, 1996). In the case of this research, it was also possible that through discussions of topics with individuals, they had discovered new understandings that they could share with the group.

As an incentive for taking part in the research, interview participants were offered the opportunity to have a tour of the local Materials Reclamation Facility (MRF) in Cardiff where all the recycling is taken for segregation. When arranging the tour, participants were also asked if they would be willing to participate in a focus group afterwards along with their fellow participants. Different participants were at different stages in the interview process, therefore whilst for some it was their second stage of involvement in the study, for others it was their third. The focus group provided an opportunity for those who attended to feedback on what they had learned; to share

ideas and to discuss and reflect upon their experiences alongside others that were participating in the same process.

'The [focus group] method is particularly useful for exploring people's knowledge and experiences and can be used to examine not only what people think but how they think and why they think that way... The idea behind the focus group method is that group processes can help people to explore and clarify their views in ways that would be less easily accessible in a one to one interview.' (Kitzinger, 1995: 299-300)

Through this quotation Kitzinger highlights some of the benefits of utilising a focus group. Significantly, Kitzinger emphasises the ability of individuals to use focus groups to reflect upon their actions and identify why they do or think the things they do, thus offering an opportunity to overcome the barriers highlighted by Latham (2003) as through discussing their experiences, participants are potentially able to better understand their practices.

According to Stewart et al (2007), when conducting a focus group it is important to ensure that four key principles are adhered to: focused topic, group interaction, in-depth conversation, and human face-to-face interaction. Therefore, it is important to ensure that the right persons are selected to take part and that the focus group has a clear topic to discuss. Secondly, the group needs to be able to communicate freely and without conflict. This links with the third point which is about ensuring that the questions asked of the group are not too structured or limited so that responses can be realistic and unrestricted. The latter point is reflective of all qualitative research as it is highlighting the need to achieve meaning as opposed to measurement by listening to and empathising with the members of the group.

In relation to this research, the participants were to some extent pre-determined. However, it was necessary to ensure the right number of participants, as there need to be sufficient participants to generate a discussion, but not so many that people are unable to air their views. Approximately eight to ten participants is regarded as optimum (Kumar, 2010), and as there were a total of eleven participants in the study, all were invited to attend the MRF tour and focus group. Whilst several dates were sent out to participants in order to try to accommodate as many as possible, not all interviewees were either able or willing to attend. When it came to the event, 5 participants attended, and one interviewee requested to bring two of her work

colleagues with her which added extra constructive perspectives to the group. One of the colleagues lived outside Cardiff so was intrigued by the differences between waste management practices in Cardiff compared with his area of residence.

With regards to the focus group being 'in-depth', when planning the discussion it was important to ensure that the data obtained was relevant, but also to ensure that the length of the focus group and the number of questions raised were considered. In order to achieve quality data, and ensure participants truly were allowed to discuss and consider their views, it was essential not to overload the group with too many questions or with closed questions (Stewart et al, 2007). The topics for discussion at the focus group were therefore tailored accordingly and can be found in Appendix 5.

4.5.5 Interview Timeline

Each participant was interviewed at two to three month intervals, over a ten to twelve month period. In practice, due to the staggered nature of the recruitment (see section 4.4), in total the interviews took place over a longer period (see Figure 4.3). Recruitment began in January 2008 (Jen), and continued until August 2009. Individual interviews with those recruited lasted between 30 and 90 minutes. Interviews were in depth and semi-structured, to allow free flow of conversation and exploration of interesting points uncovered during discussions (May, 1993). In addition, some of the participants attended a focus group in January 2009 (Rebecca, Ben, Ken, Denise and Vivienne), which lasted approximately 2 hours including a tour of Cardiff's recycling plant. Data was also used from a focus group held in November 2008 which was attended by those recruited in phase 3 (Alan and Sue). Figure 4.3 illustrates the duration of the research, as well as the intervals at which each participant was interviewed.
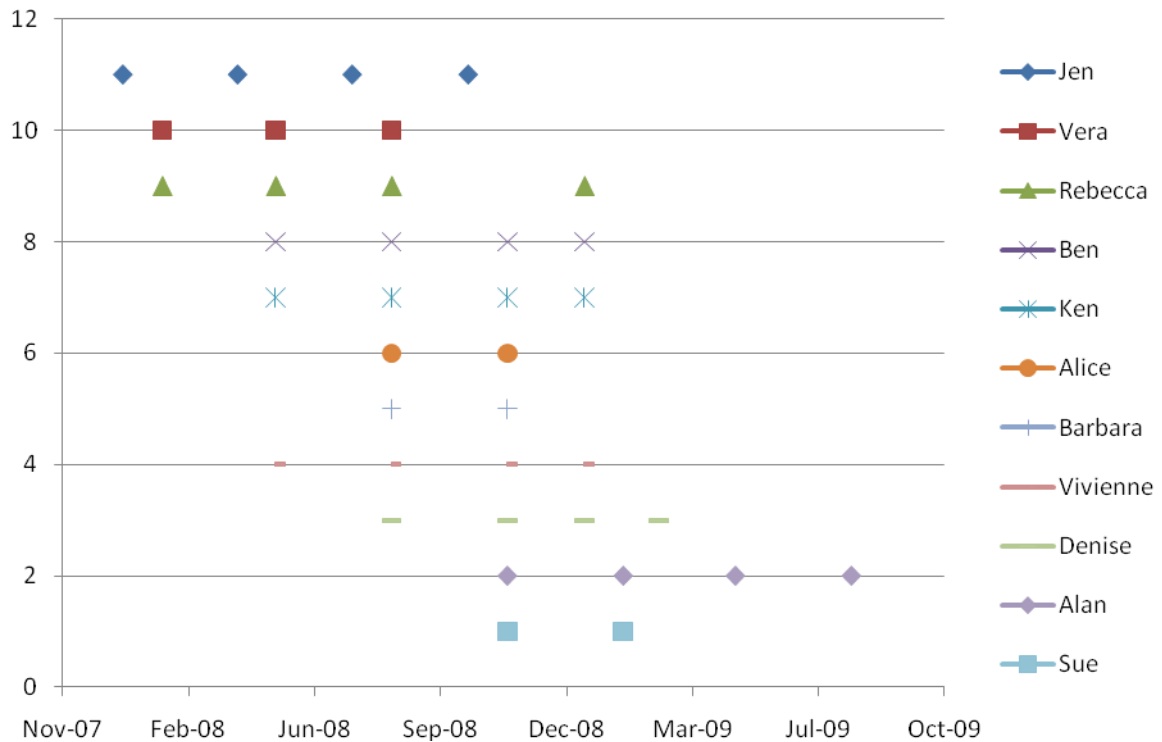
Figure 4.3: Interview Timeline

From Figure 4.3 it is possible to see that the initial recruit of the pilot group was interviewed first (Jen), closely followed by her nominated contacts (Vera and Rebecca – group A). Once the second set of initial participants was recruited (Ben – group B, Ken – group C and Vivienne – Group D), their first interviews took place at roughly the same time of year as the second meeting with group A (Jen's group). Once the nominees were provided by groups C and D (Ken and Vivienne), the first meeting with nominees was scheduled for the same date as the second meeting with the original contacts, and so on. Whilst interviewing those in the same group on the same day was possible in the case of Groups C and D, this was not the case with Groups A and E, where participants did not live as close. Also the majority of participants in these latter groups worked full time, therefore their availability was limited. Through gathering the data at regular intervals and through repeat interviews, it was possible to review and reflect upon data gathered from one interview to the next. Reviewing the content of previous interviews proved useful in preparing topics for discussion based upon points individuals had raised about their own practices, or the practices of their fellow group members, and also helped to verify interpretations of the data gathered (Rubin and Rubin, 1995; Denzin and Lincoln, 2000). It also proved useful to cross

reference the data generated from interviews with various participants in order to identify if there were themes or variations that should be explored at future interviews.

Figure 4.3 demonstrates that some participants were interviewed once or twice, whilst others were interviewed three or four times. The number and duration of interviews varied between different individuals' dependent upon their availability and their level of engagement with the study. Although in some cases four interviews were conducted, in others it became evident that sufficient data had been obtained at the point of just three meetings, and therefore it was neither necessary nor ethical to pursue the interviews further. In addition, whilst some participants were retired and therefore more willing and able to meet four times, others were not. As noted in section 4.3.2, in the case of Sue and Alice, this was because of their extremely busy professional and personal lives. Sue, for example, was often out of the country, and as such, even arranging the first interview proved difficult. Alice on the other hand appeared both willing and able to participate initially, and as a result some excellent data was obtained from the two initial interviews. However, at the second interview, Alice mentioned that her dog was very unwell, and thereafter she became unresponsive to communications. As such, after several failed attempts to arrange a further interview with either Alice or Sue, it was decided that it was not ethically appropriate to continue to pursue them. Nevertheless, the information they provided is still used within this thesis and provides a valuable contribution to it.

4.5.6 Ethical Considerations

When undertaking research, it is important to consider a number of ethical issues that might arise as a result of the investigative process. Ethical issues are of significance from the moment of commencing research, even when deciding the nature of the research questions, the principle of beneficence dictates that it is important to consider what the benefits will be for participants, not just the researcher (Kvale, 1996; Creswell, 2009). Indeed, there are a number of key elements that need to be considered when planning research. These include obtaining formal consent, researching vulnerable groups, confidentiality, the role of the researcher, and the consequences of your research (Kvale; 1996; Silverman, 2010).

In addition to establishing that there is no detriment to research subjects in the research questions that are being asked (in line with the beneficence principle), it was important to ensure that participants understood what was being researched, so that there was no risk of deception, and they are involved in the research on the basis of informed consent and voluntary participation (Cresswell, 2009). Clearly, this is more easily accommodated by some research methods than others, as ensuring informed consent by telling participants the aims of the research may skew the results. For example, in the case of this thesis, as interviewees were aware that the study was looking at waste practices, participants might be more inclined to try to prove that they undertake consumption and disposal practices for 'socially acceptable' reasons (DEFRA, 2008). The project brief therefore had to provide a balanced overview that did not deceive the participants, but which also did not steer participants in a particular direction by suggesting what the research may or may not identify.

A further ethical consideration was the potential for people to participate without consent. When undertaking an ethnographic study, or even interviews in the home, whilst the participant has formally consented to participate in the study, someone else may join in discussions, without having made an informed choice to do so (Flick, 2009). It has therefore been suggested that in qualitative research there is a need to be adaptable to situations that arise and to continuously reflect upon ethical issues "within the context and in 'the moment'" (Keegan, 2009: 202). During the research it was therefore necessary to bear in mind moral and ethical codes of conduct, and to respond accordingly should an ethical issue arise (Mason, 1996).

Ethical decisions are not limited to the planning stages of research; they need to be considered from commencement to production of the final report (Kvale, 1996). However, things that could be anticipated in advance were taken into account during the planning phases of this research – such as gaining informed consent from participants and also ensuring the protection of vulnerable people. In order to enable the process of informed consent, a research brief was sent to potential participants which clearly stated that volunteers could leave the study at any time without giving a reason, and that their participation was not compulsory. Interviewees were also reminded at the first meeting that they were not obliged to take part in any aspect of the research with which they were not comfortable, and that they could leave the

study at any time. During the first meeting, permission was also sought from each individual to record discussions before using voice recording equipment, as is common practice in qualitative research (Silverman, 2010).

It has been argued that *"there should be reciprocity in what the subjects give and what they receive..."* (Kvale, 1996: 116). It was therefore important to feedback to participants at key stages in the process to advise what the research findings were indicating. This would also help to ensure that given the length of the study participants remained informed of the nature of the research in which they were participating. In addition, in terms of reciprocity and beneficence, this research provided participants with access to a waste 'expert' (see section 4.5.6) and also the options of a free compost bin and a visit to the Materials Recycling Facility.

With regards to research in relation to vulnerable groups, whilst the research did not set out to target vulnerable groups or young people, there was a risk that as interviews would be undertaken in the home, some households within the study could contain children under the age of 16 or other vulnerable persons. It was therefore important to ensure that any involvement of children in the interview was a result of a parent or guardian being present and providing consent by proxy. In practice, no children or vulnerable people became involved in the research.

Confidentiality and data protection were also paramount to the credibility of the research process. Anonymity was promised to research participants, and as a result it was essential that the data was managed sensitively. For example, even when sending recordings for transcription and when storing the data on a computer it was important to ensure that the information was held and transferred anonymously. This necessitated utilising 'code names' to refer to participants, the key to which was only known and held by the researcher. A key point to note is that confidentiality in research only extends to the name of the individual, as clearly a key aim of the process is to disseminate the information gathered, hence it is not possible to state that anything that the subject says is 'given in confidence' (Seidman, 2006).

Given that relationships would be built with some of the participants during the course of interviews, it was important to have an exit as well as an 'entrance' strategy; to

consider the ethical implications of having worked to gain individuals' trust and then to withdraw (Marshall and Rossman, 2011). It was therefore important to maintain an element of formality throughout the process by advising participants of the research programme and structure so that when it came to the last meeting, they knew that this was the end of the face-to-face contact.

4.5.7 Position of the Researcher

As the researcher was also a waste professional it was important to ensure that no conflict of interest arose. Whilst this can be particularly hazardous for a health or social care practitioner (Mauthner et al, 2002), there was substantially less risk in relation to the topic of this thesis (which did not focus on social or health care issues). Nonetheless, the role of the researcher was significant, not simply for ethical reasons.

When commencing the research, participants were made aware that the researcher was also working full time for Cardiff Council's Waste Management Department. Indeed, as detailed in 4.5.5, when taking into account the ethical implications of this thesis, the benefits to the research subjects were considered, and arguably one benefit was that it gave them direct access to advice regarding waste services. The resultant risk was that discussions might be focused on Council practices, as opposed to those of the individuals that were the primary focus of the study. Whilst this scenario needed to be pre-empted and managed, it was also important to allow participants to ask the researcher (and waste practitioner) questions. A situation was established where both parties could exchange information so not only would help to put the interviewee at ease but also enhance the progress of the study by identifying questions and concerns participants had in relation to waste services in Cardiff.

Setting parameters for investigation can be complex, with many trans-boundary issues that are not easily segmented. This presents a huge challenge for the researcher, but once other parties become actively involved in the research, on some occasions it can be necessary to indulge their divergence; indeed in some instances it can prove most enlightening (Bryman, 1988). For example, Ben talked at length regarding his hobby of gardening, but through this elaboration, he advised how he had influenced his son and daughter who had finally given into his requests to attempt to grow their own vegetables in their small gardens in London and the Isle of Wight, thus providing an

example of a transfer of practice taking place.[25] However, there was a need to maintain some structure and topical focus so that data would be more relevant when analysing the results (Silverman, 2004). In practice, this meant redirecting the conversation away from topics unlikely to lead anywhere of value, such a complaints about graffiti and other local environmental quality issues (as experienced in discussions with Sue).

A further consideration was the potential for interviewer bias. As Rubin and Rubin (1995:15) write; *"If you impose on them what you think is important, you may miss important insights about the subject you are investigating and you may substitute your ill-informed view…for their experienced and knowledgeable one."*

Here, Rubin and Rubin highlight how the interviewee is the source of knowledge, helping to cement in the interviewers mind that although they are perceived to be the 'expert', understanding of an issue is entirely subjective and the important opinion in an interview situation is not the opinion of the interviewer, but the interviewee. Chapters 5 and 6 demonstrate the primacy that this research has given to the views and practices of participants.

4.6 Methods and Principles: In Summary

Having outlined the methods and principles adopted in order to undertake the research required this Chapter has demonstrated how and why the theory adopted by this research is inductive and interpretivist, as is traditionally aligned with a qualitative approach. Whilst this approach is contrary to the majority of previous research in this field, in order to overcome the value action gap an approach which focuses on practices was required. Therefore an everyday practice approach was adopted and research participants were recruited to undertake a series of interviews in which their general everyday practices were discussed. By discussing people's lifestyles with them – their habits and routines, as well as isolated actions, such as what they do when on holiday – it was possible to see how waste minimisation is or is not prioritised amongst the competing challenges of modern life, but also how it takes

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[25] Whilst this is not necessarily an example of a waste minimisation practice, it is an example of a pro-environmental one, and arguably one which can be associated with waste minimisation, especially as Ben went on to discuss how he and his acquaintances at the allotments frequently exchanged surplus vegetables.

place even when waste minimisation is not the individuals' intention. Before proceeding to a discussion of the data obtained, it is important to reflect upon the various strengths and weaknesses of the approach adopted, from the recruitment and selection process, to the techniques used for accessing practices at the individual, household and social level.

In terms of recruitment of research groups a number of challenges were faced. Firstly, it was necessary to find participants that were willing to make themselves available four times over a twelve month period, and secondly those recruited had to be willing to nominate members of their social groups. In practice, the latter factor was particularly challenging with people showing reluctance to nominate acquaintances once recruited. Whilst this posed a challenge for the researcher, in some cases it was overcome through building a rapport with participants so that they felt comfortable nominating others. In addition, in most cases, the role of social ties was accessed via the initial participants themselves through discussing their practices, habits and routines with them. For example, Ben did not nominate any friends or relatives, but he frequently discussed waste practices in the context of social ties such as family, visitors and friends at the allotments. Nevertheless, having links between participants was still valuable as in the case of Jen, Ken and Vivienne it enabled verification of data, strengthening the richness of the data gathered.

The techniques adopted were significant in facilitating access to the breadth and depth of data gathered and included a series of semi-structured interviews, a focus group and the use of ad hoc diaries - a combination of elements that have been proven to work well together in the past (Morgan, 1996; Latham, 2003; Silverman, 2009; Evans, 2012). Each of the methodological techniques adopted allowed time for reflection as advised by Rubin and Rubin (2005), therefore giving participants the opportunity to review practices that they undertook everyday that might unwittingly equate to waste minimisation behaviour. Through the use of diaries and interviews overtime, as well as a focus group, participants had the opportunity to consider and discuss what they do and why they do things the way they do. Indeed, the timescale of the research was a strength in many ways as it allowed access to unwitting practices, the role of social ties, and the opportunity to identify practice changing events.

Given that practices can take place in various contexts, and the theory that influences in different settings can impact upon practices (Gregson *et al*, 2007b; Moore, 2012), it was necessary to discuss practices with individuals in different contexts. Therefore, rather than simply focusing on household practices, it was important to discuss practices at work and at play. Whilst the everyday practices of individuals were discussed in relation to their habits and routines – be they shopping, working, or going on holiday – the majority of interviews took place in the participants' homes. In many ways this was a strength as being in participants homes highlighted certain information (as was the case with Jen, see Section 4.5, and Chapter 5 for a more general discussion). In addition, the prevalence of reading materials etc in the home added value to information that the participants were providing on their habits and routines. Undertaking interviews in the home mainly enabled visualisation of certain (household related) practices, and technically entered the realm of ethnographic study. However, it was not the aim of this research to undertake a full ethnographic methodology – it was anticipated that such a task would involve significant access and recruitment issues, as well as involving significant time to undertake the required in-depth study. Nevertheless, such an approach might be of benefit to future research in this field, as the methods employed have demonstrated the significance of the research questions, the approach adopted and the potential for in depth exploration of certain elements of the research.

As well as outlining the preparation that was required in considering how, when and where the empirical research would be undertaken, this chapter has documented details of the reflexive nature of methodologies and the need to review methods (Rubin and Rubin, 2005) and ethics 'in the moment' (Keegan, 2009) in order to ensure that the research not only commences correctly, but continues to be conducted in an appropriate manner for all parties. Therefore, the method that was adopted was robust, but also innovative in relation to waste minimisation practice (Pole and Lampard, 2002; Rubin and Rubin, 2005).

Having detailed the recruitment and methodological approaches adopted, the following chapters will consider each of the research questions in turn: What waste minimisation practices take place and why; whether practices can transfer between people or between contexts, and the implications of this thesis for research and policy.

The latter of these will include a detailed review of the methodology employed and its strengths and weaknesses in order to provide guidance to future research.

Chapter 5: Waste Minimisation Practices

Having evaluated the strengths and weaknesses of existing policy and research (in Chapters 2 and 3 respectively), three research questions were formulated to be the foundation for this research:

1. What waste minimisation practices take place at the individual and household level (both wittingly and unwittingly), and why?

2. A) To what extent do waste minimisation practices transfer between different contexts? And,

   B) To what extent do waste minimisation practices transfer between people?

3. What are the implications of these results for policy?

The research questions adopt a practice based approach in order to develop understanding in the field of waste minimisation. The research questions focus upon what practices take place at the individual level, enabling the research to move beyond a focus on values and intended actions to the practices themselves. In addition, the research considers how waste practices are influenced by people and place. Chapter 4 outlined how the methodological approaches adopted would overcome the shortfalls in existing research to address the research questions. This chapter analyses the empirical data gathered in relation to the following research question:

'What waste minimisation practices take place at the individual and household level (both wittingly and unwittingly), and why?'

In order to answer this question a practice based approach to the investigation of waste related behaviour was adopted. In an endeavour to overcome the Value Action Gap (outlined in Chapter 3), the research focussed on *material practices*, including consumption and disposal practices, rather than relying on reported *intentions* and *pro-environmental behaviour.* This does not mean that this thesis ignores the role of values; they are merely approached in a different way. By focusing on practices, it was possible to access actions that take place where there is no intent to minimise

waste i.e. waste minimisation practices that are performed unwittingly. Once both witting and unwitting practices were identified it was possible to explore the reasons why they took place. The first research question is therefore addressed in two parts. Firstly this chapter considers *what* practices take place (wittingly and unwittingly) at the individual level, and secondly, it considers *why* these practices take place.

5.1 A Turn to Practice

This Chapter demonstrates that through adopting a qualitative approach to answering the research questions, and undertaking a series of interviews, it has been possible to access a number of witting and unwitting practices. In addition, this Chapter argues that by focusing on intention and values, previous research has only been able to access witting behaviours, and thus has potentially overlooked a significant proportion of the waste minimisation practices that occur. Indeed, by utilising surveys to assess both what people do and why, only a limited range of underlying values and other influences upon the individual have been identified. In short, a partial picture of waste minimisation practices is given by previous approaches.

However, by adopting a focus on practices rather than values this research has demonstrated the potential to access both witting and unwitting practices. Having identified a range of practices, this research has explored the influences, motivations and intentions that surround such practices. Whilst this research has identified significant influences on waste related practices, it does not follow that this research has uncovered all influences that can impact upon all practices. Indeed, as will be discussed in greater depth in this chapter and subsequent chapters, the practice of minimising waste (either wittingly or unwittingly) is complex. Practices can vary dependant upon context (see Chapter 6) but also dependant upon the material divested (see below and Chapter 7). Whilst this research set out to establish whether practices transfer between contexts and what types of practice take place, it was beyond the scope of this research to study all influences, in all contexts in relation to every waste related practice. Nevertheless, the approach of this thesis allowed access to a broader range of practices than historical approaches, thus building upon previous research and providing a platform for future research.

5.1.1 Practices at the Individual and Household Level

As stated in Chapter 3, historically, research has tended to focus on a 'willingness' or 'intention' to act. In addition, previous research has placed a great deal of emphasis on environmental or community concern as motivations for undertaking pro-environmental behaviours, including waste avoidance and reuse (see for example, Blake, 1999; Barr et al 2001; Barr, 2007). However, as argued in Chapters 3 and 4, by utilising surveys and providing research participants with a list of values and a list of actions, such research has not accessed the full range of practices that take place, or the full range of motivations behind them. The use of a survey and the underlying assumption that waste related practices are environmentally motivated is flawed, as such an approach fails to identify waste minimisation practices that take place for other reasons. Therefore, relying on reported behaviour is unlikely to provide a complete picture of the full range of practices that are taking place. Indeed, when asked to outline what waste minimisation is, or to provide examples of waste minimisation practices that they undertake, interviewees struggled to provide an answer. It was evident that participants knew that waste minimisation is different to recycling, but they found it hard to articulate specific actions associated with it. For example, in a conversation with Jen, although she appeared to understand that minimisation was more than just recycling, when she was asked to explain this further, she reverted to a discussion of recycling behaviour.

So when I talk about waste minimisation what do you think of?
"Minimising just the waste that you produce, full stop."
Yes; and where would you say that you have got this idea of waste minimisation from?
"I have always been quite conscious about it because even when I lived in Devon. Back home…we had recycling coming around there once a week and we had a green box there which you used to put your - sort of like you know - paper and plastic and tins in there. They used to collect that once a week so we have always done it since, well at least 16 years old, if not beforehand, so it has always been… I have always known about it, always did it but it's obviously like you say it has just become more intense nowadays."

This conflation of waste minimisation and recycling was the same for Ben and Alice:

"I like growing my own [food], so that reduces waste, and I do my recycling" (Ben).

"I know it's [waste minimisation is] about reducing waste, and you know since we've had the 2 bins and the bag I have become more aware and you sort of follow the code for that but I can't add any more suggestions about what I do [about minimising waste]" (Alice).

Even when prompted, participants struggled to give examples when asked for them directly:

Are there any waste minimisation activities that you do that you can think of – like reusing plastic bottles?

"Oh yeah, I do reuse plastic bottles, but apart from that not really, no. If I do have a carrier bag I'll always reuse that, but not really to be honest no."

But I think you mentioned last time about making meals and freezing leftovers to use again so that's waste minimisation in a way.

"Yes, that in a way I suppose, yes. What I will do, if I'm making up steak and kidney pie filling and stuff that I've always done all my life, what I do is make up a normal amount and you know, have enough for a meal or two meals and then freeze the rest from there" (Alice)

In the above discussions, individuals find it difficult to provide examples of waste minimisation, yet through further discussion with participants, it was possible to identify that they were undertaking a number of (unwitting) waste minimisation practices. These quotations underline the general confusion concerning the crucial differences between waste management practices, as outlined in the waste hierarchy. Following the combination of waste minimisation and recycling in policy and political discourse (as outlined in Chapter 2), it is perhaps unsurprising that the public confuse the two processes in practice. Through periodic messages about recycling, along with the improvement in the architecture of storage and collection, the practice of recycling has become the 'routinised way of understanding' household waste management practices (Shove and Pantzar, 2005). The success of the recycling message may therefore serve to undermine understanding of and engagement in waste minimisation practice as, in general, individuals think they are minimising waste, when in fact they

are (simply) recycling (Barr *et al*, 2001; Bhate, 2005; Tucker and Douglas, 2006; Cox *et al*, 2010 as discussed in Chapter 3). As waste practices and (mis)understandings become habitual, the irony is that, as Thogersen and Olander note, *"the likelihood that environment-friendly behaviour makes a person reflect on behaviours in other domains is lower the more habitually these other behaviours are performed"* (2003:234). Therefore suggesting that individuals are unlikely to re-address or reflect on their practices, as these habits are now their 'normal' behaviour. As Ben states,

"I can't think of anything [apart from growing my own food and recycling], these things sort of creep up on you, you don't always realise what you're doing do you?"

Waste minimisation is therefore not only a difficult practice to access due to the general public's confusion over its very nature; it is also a difficult practice to encourage as a consequence. Although in general respondents mis-defined waste minimisation practices, in some cases they positively identified the acts of waste minimisation they undertook in their home.

5.2 Witting Practices

Whilst it is evident from discussions in Chapter 3, as well as the findings detailed in this Chapter (see section 5.3), that unwitting practices can take place, it is also possible for witting practices to take place. Due to the general confusion over what constitutes waste minimisation, 'witting practices' were difficult to identify for the majority of respondents (as outlined above, respondents often resorted to discussing recycling practices as the most easy to identify 'waste minimisation' behaviour). However, some respondents were able to appropriately connect their action to the ideal of waste minimisation, and most commonly did so in relation to food:

"Well I try to buy less things, and things that have less packaging, and trying to not throw away so much, reusing it so… like baked beans if you have got some left over don't just throw them out, keep them for the next day or something like that." (Jen)

"If we do a cooked dinner, for example, it's not usually on a Sunday cos we're never there, so it's usually on a Monday we'll cook instead, and if there's any veg left over then we usually have a fry up with it. You know, and if we've had a chicken, we'll boil

the carcass, make a soup. All that kinda stuff. Quite old fashioned cooking in a lot of ways." (Rebecca)

"We tend to finish off leftovers as light snacks and meals. ...I don't tend to take that much notice of sell-by dates and things. I tend to look on food waste disfavourably." (Ben)

"I mean if I've got something over I'll give it to the dog if necessary make a meal for her rather than waste it." (Vivienne)

"We just buy whatever we want to, if it's a 2-4-1 offer I'll have it, I frequently come back with more things than were on my list, but nothing is wasted." (Ken)

Minimising food waste was the most popularly cited witting waste minimisation practice. The everyday habit of making food seemed to render the often abstract and confused notion of waste minimisation a culturally understood and acceptable practice. Such behaviour didn't necessarily mean people bought less food (as is stated above, two-for-one offers were often purchased by Ken), but once bought, respondents tended to explicitly choose not to waste these commodities. It is possible that the awareness of food waste people mentioned during interviews was linked to the introduction of separate food waste recycling collections during the course of the research (see section 5.4.2). It is also possible that as discussions about everyday practices included eating and shopping habits, food was at the forefront of participants' minds.

Similarly to research by Evans (2012), it was evident that the 'gifting' of unwanted food was not commonplace, particularly once cooked or prepared. Individuals were happy to freeze leftovers, fridge them for the next day, or even give them to the dog, but they would not have thought to share the left-over food outside their household or family unit. Vivienne did mention that if she purchased a 2-4-1 offer that she could not use up herself, she would give one of the items to her son so that it would not go to waste.

Purchasing practices were also significant when highlighting waste minimisation practices. For example, reuse of shopping bags, avoiding buying more than they could use and avoiding produce with excessive packaging. Indeed, whilst people might not initially mention these practices when asked to give examples of waste minimisation, their performances were uncovered through discussion of shopping practices.

"...it's quite hard to buy small packs of things, it's always more economical to buy the large pack, and I'm so used to cooking for a family of four, but now I'm on my own it's a bit different…I saw a programme last week...about how food waste and how much people, and I realised that I contributed to that so now I am conscious of trying desperately hard to not overbuy." (Vivienne)

The fact that individuals recognised and engaged in witting waste minimisation practices relating to grocery shopping is perhaps due to the cost implications of food consumption. As mentioned above, the introduction of food waste collections during the time that this research was undertaken; also made the cost of food waste more visible to participants (see examples provided in s.5.4.2).

Another 'witting' practice identified by respondents was in relation to the utilisation of charity shops, specifically in relation to clothes. Whilst some respondents mentioned using charity shops in terms of purchasing clothes on occasion, the majority tended to use these amenities to make sure their unwanted clothes were not land-filled or otherwise wasted. Leaving out unwanted clothes for charity collections, or taking them to local shops, enabled these clothes to be re-used by others, as well as generating incomes for worthy causes. This witting waste minimisation practice was well-summed up by Ken:

"Clothes and shoes is something we do. If they are acceptable to be worn by someone else we normally put them in the Salvation Army bin in Sainsbury's or alternatively if they are very good quality my wife will tend to make a pile and then you know people come around for the Heart Foundation or the Cancer [charity] or what have you. They go out in a big bag then for collections but nothing, you know, no clothes go in the bin… Mind she does throw some of my T-shirts in the bin which upsets me greatly because they are only about 20 years old you know, there's plenty of wear left in

them! But yes very, very rarely because like an old T-shirt will be used as a rag before it eventually meets its demise in the bin".

The quotation from Ken suggests that there is a distinction drawn by individuals and groups between the value of some items compared with others (Moore, 2012; Evans, 2012; Gregson et al, 2007b). Indeed, Ken's statement illustrates that there is a hierarchy for disposal of clothes in his household, dependant on their perceived quality or value. The fact that people undertook different practices in relation to clothes compared with food supports the assertion that practices can also vary dependent upon the material that is being disposed of: *"Particular types of things...are shown to be divested using specific conduits in particular ways..."* (Gregson et al, 2007b:188; see also Evans, 2012).

In regards to clothing, there seemed to be a general consensus that clothes only went to the dustbin as a last resort. Individuals used available architecture to divest clothes where possible. Therefore, the thriving established second-hand economy (at the time of the research) provided individuals with a range of options including clothes banks but also frequent doorstep collections.

When exploring why participants felt that clothes and food in particular should not be wasted, various reasons were provided, including cost (Ben, Jen, Vivienne) and the media (Vivienne). However, a number of respondents (Ken, Ben, Barbara, Jen, Denise) claimed to have a 'waste not, want not' attitude because of the lifestyle or era in which they grew up (see also 5.4.4). Interestingly, the majority of respondents who claimed this were over 50 (with the exception of Jen).

"I was brought up in an ethos where you definitely didn't waste anything...I mean I hate it when I see people buying bags and bags of stuff and either they don't use it or don't wear it. I know lots of people that buy clothes and just shove them in a cupboard and never wear them..." (Denise)

"We had to eat what we had and you know make it last so we had that kind of view..." (Jen)

"I think about it more what I'm buying instead of just picking it up and putting it in I think about it, am I going to use it? Especially with rising food costs as well you know you need to." (Vivienne)

The recognition, infrastructure and culturally-accepted actions in the fields of food waste minimisation and clothes reuse therefore provide a working template for research and policy-oriented waste minimisation practices in the future. Although most respondents did not have a clear understanding of waste minimisation practice, that is not to say they did not engage in waste minimisation behaviour. Many did so, but either could not think of examples when 'put on the spot', or undertook practices 'unwittingly'. In addition, whilst underlying concern for the environment could be argued to be significant in terms of these witting practices and the 'waste not, want not' ethos, other influences are becoming evident as significant in affecting waste minimisation practices, including material cost or values and available material infrastructures.

5.3 Unwitting Practices

The term 'unwitting' is not one that has previously been applied to waste practices. Instead, research has focussed on values and a 'willingness' to undertake waste minimisation practices (Blake, 1999; Barr et al, 2001; Barr, 2004; Tonglet et al, 2005). However, this chapter argues that to perform waste minimisation practices, intention or even awareness, are not necessarily precursors for waste reduction to take place. For the purposes of this research, unwitting practice refers to the undertaking of a consumption (waste avoidance) or disposal (reuse, repair, recycling) practice without a *primary intention* to reduce waste.

Whilst people may not be able to *explain* waste minimisation behaviour, they nevertheless *undertook* it. These unwitting waste minimisation actions were accessed due to a 'turn to practices' and the methodological approaches adopted by this thesis (as outlined in chapter 4). When talking to Alice, it was evident that she could not identify specific waste minimisation practices when asked. However, through general discussions with her about her lifestyle and habits, it was possible to identify that she

undertook a number of waste minimisation activities such as borrowing tools instead of buying them, and signing up to the mailing preference service to prevent junk mail.

Have you ever borrowed tools or anything if you needed them?
"Yes because I wouldn't have a clue what I was doing with anything like that. For instance, I would borrow because I needed a strimmer. My strimmer - the electric one - is not very good for me because I can't get around the side [of the garden] and when I needed to strim around there I borrowed a petrol strimmer off someone which was very good."

"You mentioned junk mail as well; have you heard of the mailing preference service?
Yes. I've done that yes but I do still seem to get a little bit".

Similarly, the following quotation from Ken re-enforces the fact that waste minimisation practices can take place unwittingly. Ken did not offer book reuse as an example of how he practices waste minimisation, and it was not a prompt that was given to generate discussion, but such a practice became evident through a discussion with Ken about hobbies, reading and holidays:

On holidays in Menorca I read, in a fortnight when we had the kids I got through 7 books. If I was, if the kids weren't there I would have read a book a day. I'm going to Egypt in October for a week I will read 7 books then because all I do is sit down and relax."
'That's a lot of books to carry!'
"Well again you see you go to many of these hotels now, you take 2 or 3 books, read them, put them in the hotel lobby where there are other books so you take some back you know, swap them, but if I take 7 books with me I don't bring 7 home, they're gone, they stay there for other people to read."

When discussing with Ken what he did in his spare time, he said that he liked to read a lot, especially when on holiday, and only when the researcher commented that this was a lot of books to carry did he advise that he merely took some books, but after reading them, swapped them at suitable locations, for example at second hand book

shops (figure 5.1). Indeed, when interviewing Ken in his home there were not many books on display, whereas when interviewing Denise, she had a very large bookcase in her living room filled with books, which was interesting as she claimed to use the library a great deal.

Figure 5.1: Community Book Swap, Veno Lounge, Whitchurch, Cardiff. Authors Photo

Through talking individuals through their everyday habits and routines, alongside their hobbies and social networks, individuals began to make the connections between their lives and the practices of waste minimisation. Once this connection was made, individuals found it far easier to identify the waste minimisation practices that they engaged in. Unwitting waste minimisation practices were identified in a range of areas, including shopping, leisure, and the household. Material (non) practices identified included avoiding packaging, re-using or re-purposing a range of materials, and engaging in second-hand trading, not just relating to the home, but also in other contexts such as shopping, and (as per Ken's example) on holiday. Shopping related practices largely related to the avoidance of waste, whereas home based practices were more likely to be repair or reuse related practices. Whilst a participant may have undertaken a practice such as book reuse on holiday, this practice was not necessarily replicated in the home context, demonstrating the contextual nature of practices. Chapter 6 considers the role of context in greater detail, the remainder of this section therefore focuses on material practices of avoidance and reuse and the various factors that influenced them.

5.3.1 Material Practices and Reuse

Undertaking a study of practices within the home proved useful, particularly in enabling the 'show us your home' or 'show us your waste' methodology:

"..the one that my husband likes which is a Sainsbury's own make organic one; that says on the pot 'not recyclable'. Now I assume that that means what it says…I will show you. I have got a pot in the fridge."

Vivienne also embraced the 'Show us your home' methodology by allowing access to her kitchen to demonstrate her food waste practices and her garden to show her vegetable patch, as well as a trip to her garage to visually demonstrate the surplus furniture she had accumulated. Indeed, as well as enabling access to 'hidden' practices, the methods adopted enabled the researcher to uncover 'waste' or 'surplus' items that were hidden in the 'gaps' or 'spaces' of peoples' homes, such as garages, fridges, freezers and spare rooms (Evans, 2012). By interviewing respondents in the home it was possible to open up this often 'closed entity' (Bulkeley and Gregson 2009:930) and use it to identify further waste minimisation practices.

Various participants described how they had both individual and accumulated items that they needed to divest and explained how they were (un)able to divest them. Participants' discussion of what they did with particular items centred on having the facilities or the social ties to enable waste minimisation practices. The remainder of this section explores how different materials were divested, specifically clothes, books and large household items.

5.3.2 Clothes

In relation to clothes, it was evident that not only did different people divest clothes in different ways, even individuals could have a 'hierarchy' of disposal for this item – as evidenced by the earlier example from Ken (s.5.1.2) who would either donate, re-purpose or dispose of clothes dependant on the perceived quality of the item in question. Similarly Alice explains that she will dispose of some items via the dustbin, but other items, such as those belonging to her deceased husband she will donate to charity:

"I do put those [clothes and shoes] in the black bag but generally I tend to give a lot of those to charities... I've got a load of stuff to go to get rid of now my husband's...but that's all going to go to for Cancer Research Wales." (Alice)

Whilst Alice and Ken are quite clear about the methods of disposal that they use to part from clothes, others explain how changing infrastructures impact upon their practices:

"I used to put them [textiles, clothes and shoes] in the green bags, of course you can't do that now, so I usually save them all up and give them to charity." (Rebecca)

"Normally we have [charity] bags delivered, but it's just that I was going to move out recently and rent the house out, and I went through my wardrobe and I've got about 6 bags upstairs full of clothing to take to the charity shop, but I didn't quite know…There's one in Llanishen but I don't think they're taking anything so it's a bit difficult…its cluttering up my bedroom at the moment…" (Vivienne)

Vivienne explains that whilst she would normally donate via kerbside collections or to a charity shop, the doorstep collections have not coincided with her need to be rid of the items in question, and her local charity shop are not accepting the items she is trying to dispose of, thus frustrating her desire to repurpose these items. Vivienne was not the only participant to state that she had experienced difficulties when trying to re-purpose items. Other participants experienced difficulties with books and also with larger items such as furniture (see below). The issue of rejection therefore makes the disposal of certain items inconvenient, a concern raised by previous researchers relating to the impact of rejection on the individual (Bulkeley and Gregson, 2009).

5.3.3 Books

"I have got so many books that I have bought that I haven't read that… I took them to the charity shop… I even took a load to Hay on Wye but they weren't interested." (Ben)

In the above quotation Ben is explaining why he still has a pile of books that he is storing awaiting an opportunity to repurpose them. Ben demonstrates that he did try to undertake waste minimisation but found it difficult to do so, again reinforcing the significance of having appropriate infrastructure in the right place at the right time.

Having already been advised that the local library accepted books from Vivienne, it was possible to suggest this as an alternative outlet for Ben's items.

"Books I gave, I did a pile of those, I gave those to my local library cos there's a library in Lisvane and I think what they don't put in the library they sell on so that's ok." (Vivienne)

Similarly, through discussions with other participants it was evident that some charity shops would accept books, but others would not.

"Oh I would take those [books] down to the charity shop. When we cleaned my mum's house out we did that, we took them to a charity shop." (Ken)

Indeed, several of the examples provided by participants illustrated the significance of knowing who needs a particular item at a particular time, demonstrating the complexity of re-purposing an item as opposed to simply disposing of it.

5.3.4 Large Household Items

A great number of participants provided countless examples of how they had gifted or handed down furniture and other large household items for reuse. The most popular method was to 'gift' or 'hand down' items to friends and relatives. One participant made reference to the sale of an items, and a few mentioned donation of such items to 'Track 2000'[26] (see section 5.4.2). Reference was also made to the use of freecycle[27].

"Well, we use Freecycle, and for furniture we use Track 2000. My daughter said she uses Freecycle too, she got some really quite nice pieces...I did have one dresser which my wife decided she didn't want and took it down to the auction house, it sold for about £10 or something, so I think. There is a place in Cardiff which you've probably heard of called Track 2000...You know in the past we have got rid of some stuff with them" (Ben)

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[26] Track 2000 is a registered charity that was established to reuse/recycle unwanted household and commercial goods; provide support and training to individuals on low income or benefit; and assist with environmental management by reducing the amount of waste that goes to landfill sites (www.track2000.org.uk. About us, 3/07/10).

[27] Freecycle is a nationwide website with local virtual 'hubs', including a Cardiff-based web-site where people can advertise items that they wish to get rid of. As the name of the site suggests, the site is free for both disposers and consumers who use the site.

"Well the old TV's we've had, the last one we gave to my daughter, I don't know what she did with it because then she got a new one when she was setting up house. The one before that we gave to somebody who was an old person whose television had broken so... if it was really bad I'd take it down to Wedal Road. I think I did the same with an old freezer." (Ben)

"There's a couple of bits of furniture in the garage that need to go to the skip...It's not re-usable, that's the trouble... it's an old bookcase I don't know whether it would be any good to anybody." (Vivienne)

"I've just bought a table and chairs from Argos. My son when he moved a couple of weeks back took mine [my old table and chairs]." (Vivienne)

"I have always been quite fortunate in you know knowing people, it is like some of my son's stuff that a friend's daughter was you know just setting up home in a shared house and she wanted some furniture so I have been able to you know give stuff away. I am quite happy...to do that if I know somebody that wants something and I have got stuff." (Denise)

The above quotations related to the home highlight the importance of infrastructure and social ties – having the links to facilitate the waste minimisation practice of re-purposing items - indicating that structure, as well as cost and convenience can be significant in influencing waste practices.

In Denise's example, she emphasises the strength of her social ties and states that this usually enables her to find a home for items she no longer wants or needs. Denise even suggests that she feels good about repurposing items in such a way. Indeed, a number of participants were happy to volunteer examples of how they had donated items to others, but there was less evidence of people receiving items, suggesting that there is a social kudos associated with donating items, but not with receiving them.

Also significant to the re-purposing of furniture is its perceived value. Ken described his frustration that the Council would not collect his neighbours aluminium

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greenhouse frame for free, even though it probably had a high scrap value. Hence, the issue of rejection again arose in the material practice of furniture reuse as several participants mentioned that their items were rejected by Track 2000 (Ken, Ben) or they did not even bother trying to re-purpose them as the individuals themselves perceived them to be of little value. Vivienne described how a bookcase is not of sufficient value to be repaired or reused, and therefore suggests that it will end up being taken to 'the tip'.

Through discussions about the bookcase, Vivienne explains that taking items to the tip is not very convenient for her:

"...Unfortunately...I can't fit anything in my car to go to the skip really cos it's a low slung sports car and you can't get much in that so I usually have to wait for my son to come and do a skip run, or else I'll hire a skip, which is what I thought I might do, just get a small one, I've done that before now."

Vivienne described how she was in the process of trying to clear out various items from her house with varying degrees of success. Vivienne's contribution in this regard is significant for a number of reasons. Firstly, she was rationalising her belongings as she was trying to either sell or rent her house. Therefore, Vivienne provided an example of someone whose practices are the result of a 'practice changing event' (Bulkeley and Gregson, 2009). Secondly, Vivienne's examples of divesting clothes, books and furniture, demonstrate the range of materials that individuals have to try to divest and the various methods that need to be employed dependant on both the material and the context. Indeed, it is not just the type of material that the individual is trying to divest that is an issue for consideration (i.e. book, furniture etc); the perceived value of an item is also of significance in affecting the desire to re-home an item, and also the consumer market for such an item.

Therefore, the perceived value of an item, and the infrastructure and social ties available to an individual can all shape an individuals' performance when it comes to surplus furniture, clothes and books. As such, from a review of both witting and unwitting practices, it is evident that three key themes are emerging: Cost, Convenience and the Community.

5.3.5 Material Practice

The above review illustrates how different materials can be divested in different ways. The perceived value of a material can strongly influence the method of divestment selected by the person disposing of the item. Therefore, awareness of demand for specific items is important, in order that the disposer knows where to place a particular type of 'waste'. Whether or not certain organisations or social ties will accept an item at a given point in time can strongly impact whether or not that item is reused, disposed of or stored in a space of abeyance. As such, both social ties and accepted social norms have a key role to play. A further point that emerges from the above review of material practices is that different material streams are divested in different ways. Moreover, even different individuals divested different items in different ways. Table 5.1 illustrates the various practices the interviewees associated with food, clothes, furniture, WEEE and books.

Table 5.1: The Different Practices used to Divest Different Materials

Food	Clothes	Furniture	WEEE	Books
Avoidance (of bulk buy)	Charity Shop	Gift	Gift	Book Shop
Use up left over's	Handed Down	Track 2000 (Charity)	Store in Space of Abeyance	Library
Give to dog	Textile Bank	Freecycle	Bin	Book Reuse Scheme
Gift surplus fruit and veg	Bin (if poor quality)	Auction		Store in Space of Abeyance
Home Compost		Store in Space of Abeyance		
Kerbside Caddy		HWRC - Skip/Bin		

From Table 5.1 it is evident that the interviewees were more aware of the impacts of their consumption of food than other items in terms of waste generation. When talking about food, participants mentioned avoiding bulk buying produce, but seemed less concerned with this point when discussing other material streams. It is possible that people were so aware of their food consumption practices because of the timing of the

research. The interviews took place between January 2008 and August 2009, thus coinciding with the roll out of weekly food waste collections in October 2008. The roll out was accompanied by the promotion of the Waste Awareness Wales 'Love Food Hate Waste' campaign. In addition, the fact that the research took place during a period of economic downturn is likely to have had an impact upon the extent to which people think about the cost of certain items. Indeed, the latter was evident from discussions with Rebecca, Jen and Vivienne. For example, *"I think about it more what I'm buying instead of just picking it up and putting it in I think about it, am I going to use it? Especially with rising food costs as well you know you need to."* (Vivienne).

Another distinction that can be drawn between food and items such as books, furniture or WEEE, is that people were less inclined to gift purchased food. Whilst there were examples of gifting fruit and vegetable produce from gardens or allotments (see section 5.4), there was only one example of a participant 'gifting' surplus fruit (Vivienne), and there were no examples of people gifting cooked or unwanted food. It has been argued that in many cultures gifting cooked food is not an accepted social norm as it is considered an unusual thing to do, and people can be too embarrassed to pass on excess food they have purchased as they are worried about being judged by their discards (Evans, 2012). Thus, again, accepted social norms appears to be very significant in affecting how individuals choose to dispose of a particular item.

Although there was a strong desire not to waste food, or to buy unnecessary food, there appeared to be far less concern relating to the (over) consumption of other (more expensive) items such as clothes. When talking about consumables other than food, the majority of participants focussed upon the storage and disposal elements of their practices rather than evaluating their purchasing habits. One notable exception, though, is Denise: *"I know lots of people that buy clothes and just shove them in a cupboard and never wear them..."* Here Denise provides an example of materials that are over-consumed and stored in spaces of abeyance. However, whilst Denise recognises this fact, it is quite possible that for many others this is a completely unwitting practice in relation to clothes consumption. Given that Denise claims to know lots of people that do this, the over-consumption of clothes also appears to be an accepted social norm for some.

When it came to the divestment of clothes, the most popular choice was to donate them to charity, either via a shop, a kerbside collection, or a textile bank, whichever was most convenient for the individual. Similarly previous research found convenience to be the most significant factor encouraging the conation of clothes to charity, over and above any sense of social responsibility (Ha-Brookshire and Hodges, 2009). Whilst some of the participants mentioned having received hand-me downs as a child (Jen and Ben), none referred to passing on clothes, or consuming second hand clothes. However, it is important to note that the passing on and receiving of clothes was not the norm for the particular group of participants studied. The handing down of clothes may not have been prevalent in the research group, but passing on clothes has been associated with mothers who buy nearly new clothes for their young children (Clarke, 2000), and also pass maternity wear between family and friends (Gregson and Beale, 2004). At the time of the study, only Rebecca had children that were still living at home full time - they were in their teens.

Another factor that may be specific to this research group, is that none of the participants seemed to use eBay (or similar) to sell items in order to generate income. Although some participants such as Ken and Ben mentioned using local auction houses to sell items, interviewees seemed less inclined to use internet based trading sites.

What about car boot sales or using websites such as e-bay?
"I don't use e-bay very much" (Rebecca)

"No, no I mean I have used Track 2000…I would rather give stuff away I think" (Denise)

"because I live in one room I don't tend to have that much stuff to sell"(Jen)

"I've never done anything like that, I only took it (a dresser) to the auctions because at the time I was working part time for a car dealer and I had access to their vans so I could shove it in a van and take it down without costing me a penny." (Ken)

In the above quotations Jen claims that she does not have items to sell, whereas Rebecca feels that using e-bay or having a car boot sale is too much hassle. Similarly to Rebecca, Ken emphasises that convenience and cost have influenced whether or not he has gone to the trouble of auctioning an item. Whilst Denise mentions using Track 2000, they will come and collect items. Convenience is therefore proving to be an extremely significant factor affecting the divestment of many of the material streams. Nevertheless, social ties and norms are also significant in affecting whether certain materials are 'passed on' or not.

Social norms and ties were found to be particularly important in relation to whether people gifted items such as old furniture and WEEE. Several participants provided examples of times when they had gifted or received items of furniture and/or electrical items. However, a number of participants provided examples of items being stored in spaces of abeyance; for instance, a broken lamp, a wardrobe, or a working fridge freezer. Participants were unsure what to do with these items. In the case of the broken lamp, the perception was that it was not worth repairing (a common perception when it came to electrical items). The lamp was stored until Vivienne could decide whether to just put it in the dustbin or find some other use for it. There is a need for the perceived lack of value in relation to electrical (and other) items to be overcome. Indeed, even in relation to furniture, there were instances where interviewees had furniture in the garage, but thought it would have to go to 'the tip' because they did not think there was demand for second hand items.

As such, policies need to ensure that campaigns are tailored to specific materials, an argument supported by Figure 4.3 - a review of recycling performance by ward – which shows the inconsistent nature of practices between different neighbourhood areas but also between different waste streams. In addition, figure 4.1 shows how food waste participation can decline over time. Using the data generated by this research it will be possible for policy makers to determine which practices they wish to enable and encourage. For example, if the general consensus appears to be that there is no value to an item, yet there is a viable market for that material, then campaigns need to focus on changing this perception. The Waste Prevention Programme for Wales does touch upon the need for cultural change in order that certain materials can be seen as valuable (Welsh Government, 2013:16), but it only mentions this in relation to

textiles. Furthermore, as will be discussed in more detail in Chapter 7, the role for Local Authorities is not simply to promote facilities, but to ensure that adequate facilities exist. If people perceive the disposal of an item (e.g. furniture) to be costly or inconvenient, there is a role here for Local Authorities not just to promote the facilities, but to connect the user with them and make the process free and convenient. Several of the examples outlined in this Chapter show that participants faced issues of rejection, which in itself can lead to the perception of an item being of no value.

5.4 Motivations for Practice

As outlined above, interviewees could not always think of examples of waste minimisation practices when asked. However, in the example of Alice, it was evident that when practices were suggested to her, she did in fact undertake multiple practices, such as signing up to the mailing preference service and borrowing items rather than buying. In addition, through discussion with participants about their everyday practices such as eating and shopping habits, further practices were uncovered. Moreover, through ongoing discussions with participants, it was possible to identify underlying motivations and influences which contributed to both witting and unwitting practices.

The food trays are fine [to go in the green bag]; the mushroom punnets and the strawberry punnets, those sorts of plastic are fine.
"I started buying mushrooms loose because it's much cheaper and you can target how much you get rather than having a standard amount that goes off." (Ben)

Do you drive to the shops?
"No, I cycle to do the weekly shop...Its quicker, it takes me an hour and a half if I do it by car, it takes me an hour if I do it by bike and I don't use any bags; it's quicker and easier all round. It's all in panniers so when I get home I don't have to traipse from the car; I just lift the panniers straight off the bike. That saves on petrol and on all those bags" (Ben)

"When I lived on my own I used to do a lot of my food shopping in Marks & Spencer's which is quite expensive in comparison to some of the stores but if I bought fruit and

veg in Marks I knew that it would last me all week whereas if I bought it in Tesco's or Sainsbury's quite often it wouldn't last more than a few days...So yes it was more expensive but then I didn't waste it...So that used to be my argument. It still is my argument to a greater degree you know when people sort of say you know that's expensive and I think well yes but if you know it's going to last and you are not going to throw it out." (Barbara)

The above examples of avoidance of waste through shopping practices all touch upon the importance of cost. In addition, Ben feels that cycling to do his weekly shop not only saves money; it saves time and is more convenient for him.

It was therefore possible to open up the hidden world of waste minimisation practices by accessing them through a broader discussion of respondents' lives, habits and routines. For example their shopping and gardening practices. Furthermore, through this approach, incentives other than environmental concern were uncovered – such as cost and convenience. In addition, the significance of social ties in facilitating waste minimisation practices was identified:

"This morning, I was just walking over in Llandaff actually, a friend who I was surprised to see - I'd given her some beans - and she said how much nicer the home grown beans taste than the ones you buy in the shops." (Ben)

Through discussing gardening practices with individuals, it was possible to identify that rather than wasting excess produce, gardeners such as Alice, Ben and Ken 'gifted' surplus fruit and vegetables. In addition, where there was a strong sense of community, individuals were able to borrow or lend items (see Alice's examples of borrowing and lending tools and ladders in section 5.4.4).

The above illustrates how research that focuses on intentions to perform waste related practices can miss practices that people are undertaking, but also how and why they are being undertaken. Sometimes the individuals concerned do not recognise *what they are doing* (Latham, 2003) as the reduction of waste is an unwitting or unintended by-product of their actions (Herridge, 2005; Tucker and Douglas, 2006). It was clear that all respondents engaged in a range of waste minimisation practices; but they only realised they did so when discussing them in the context of their everyday practices. This is not to suggest that people are somehow ignorant of their everyday routines, but

rather these practices are so embedded in their habits that an abstract social science exploration of these actions may not access them adequately (Shove, 2003; Reckwitz, 2002; Chappells and Shove, 1999). Due to the prevalence of periodic or habitual waste minimisation practices at the household level, this offers some hope for the broader dissemination of waste minimisation practice despite the general lack of awareness of or confusion in defining this behaviour as such. The interviewees had not previously perceived some of these practices as minimising waste because the participants were motivated by other reasons.

This Chapter reinforces the fact that waste minimisation practices (whether undertaken wittingly or unwittingly) are not necessarily driven by a desire to reduce waste or benefit the environment (Herridge, 2005; Tucker and Douglas, 2006). It was evident from the research, that a focus on actions was beneficial in order to access the underlying values and a fuller picture of the range of practices that were taking place. There were several consistent underlying motivations regardless of whether the practice was witting or unwitting. As Shove (2010) highlights, previous research has identified a multitude of factors that can be both positive motivators and negative barriers to changing practices, and it is not always easy to see which is which. It is therefore essential to understand *"how practices evolve, how they capture and lose us, their carriers, and how systems and complexes of practice form and fragment."* (2010, P.1279)

Gaining an understanding of the reasons why individuals undertake material practices (be it with or without intent) will help to establish the focus for waste research and policy: should changing attitudes to waste and the environment be the focus of research and policies for change, or can waste minimisation practices be identified and encouraged through other means? The following sections therefore focus on the factors that were identified as enabling or disabling waste minimisation practices.

5.4.1 The Three C's
When considering how to change practices and increase the popularity of waste minimisation measures it has been argued that more understanding of the 'hooks' which encourage or obstruct this activity is needed (Cox *et al*, 2010:214). It is argued that such 'hooks' could be used to create a green architecture within which individuals

can perform better environmental practices (Anderson, 2010; Horton, 2003). Given that people can perform practices unwittingly, potentially the performance of sustainable practices could be encouraged without individuals recognising or understanding the environmental benefits of the waste minimisation activities that are occurring. This Chapter focuses on three key factors which have been identified from the empirical research as influencing the take up or otherwise of waste minimisation activities; cost, convenience and community. The three C's have been labelled thus in order to provide a framework for future research and policy. However, the three C's cannot be considered in isolation due to the role of context and agency (See Chapters 6 and 7).

The three C's are not entirely new; they comprise of elements of previous research in this field, yet are not wholly representative of an existing framework. Firstly, as cited in Chapter 3, the role of cost has been highlighted by previous researchers in relation to disposal practices such as selling items on ebay (Herridge, 2005; Tucker and Douglas, 2006). This thesis broadens the concept of cost to incorporate financial incentives to change consumption practices, such as buying cheaper alternatives, or reusing bags to avoid carrier bag charges.

Secondly, the notion of convenience enabling or disabling practice links closely with the concept of Situational Variables (Barr *et al*, 2001). However, the remainder of the conceptual framework by Barr et al incorporates Environmental Values and Psychological Variables. Whilst this thesis does not discount that environmental values can influence practice, it contends that in order to change existing practices, there is a need to encourage sustainable performances, not sustainable citizens (Horton, 2003; Anderson, 2010). As such, the focus is on the Three C's rather than environmental values. With regards to Psychological Variables, there are links here with discussions about context and agency. The impact of other people and places upon the individual is considered in Chapter 6, where it will be argued that such factors are indeed significant in affecting practice.

Lastly, the third C 'Community' represents the significance of both social norms and social ties in a given setting. Whilst previous research (Barr *et al*, 2001; Tonglet *et al*, 2004) has cited 'concern for the community' as significnant in encouraging waste

minimisation behaviour, such an approach differs from the definition of community used by this thesis. Here the term community represents the support (or lack of) that communities can provide to enable waste minimisation practices through the provision of social ties and social norms.

It is important to recognise that these 'three C's' do not occur in isolation. Using the example of Ben's quotation above outlining his choice to cycle to the shops, it is evident that his practices are motivated not simply by a wish to minimise waste (in terms of avoiding bag use through the reuse of his cycling panniers). Indeed waste minimisation could be considered to be the secondary by-product of a wish for a cost-effective practice (as Ben outlines further, he avoids impulse buying and fuel purchase: *'you really do save money, because you don't buy things you don't want. And, well, diesel has gone up phenomenally, so you're saving quite a bit on that too'*), and for a time-convenient option (cycling takes him less time than using his car). Given Ben's description of the cost effective and convenient nature of his practice (as well as the environmental benefits), it is evident that each of the 'three C's' do not necessarily influence practices in isolation, and – as this chapter has demonstrated – often combine to make some waste minimisation behaviour invisible or at least difficult to detect (even by those undertaking it). Despite the interconnected nature of the 'three C's', for the sake of clear analysis, each of the 'three C's' will be discussed in turn, in order to demonstrate their prominence in the empirical data.

5.4.2 Cost

As outlined above, the minimisation of food waste was the major witting waste minimisation practice in the home. There are perhaps a number of reasons for this. Food is an everyday necessity, and its consumption and disposal forms part and parcel of daily routines. In recent years, food costs have markedly increased, both in real terms, and as a percentage of household expenditure. DEFRA (2011) state that whilst food prices declined from 1975 until 2007, between June 2007 and June 2011 food prices in the UK increased by 26 per cent – or over 12 per cent when inflation is taken into account. The cost of food, and the cost of wasting it, is therefore significant to individuals.

"I just can't afford to be just buying things and not eating them" (Jen)

Coupled to this, food waste has become more visible in Cardiff where this research coincided with the Cardiff-wide promotion and implementation of a new food-waste caddy service. This council run service provided individuals with a food caddy and liners in which to place their food waste for recycling, the caddy is then collected weekly from the householder's property. The literature surrounding the service, and the practice of people segregating their food waste drew attention to the amount of food waste disposed of in the home, and the amount of food/money being wasted on a weekly basis. Individuals commented on how this process of making their waste visible had affected their practice:

Do you think food waste collections have made you think more about your food waste?

"Yeah, definitely. What you throw away and how much you spend on it! It's almost as if the black bag is now see-through, as before it just hid a multitude of sins – just put it in the black bag and its gone forever! The food waste, which you can see, kind of makes you stop buying food you won't eat. It's definitely changed the way I think about it I think." (Alan)

Clearly the provision of caddies, bags and collection infrastructure has made this reflection on food waste production more obvious to householders (and for many made its storage and collection for recycling more convenient, see below). What is crucial here though is the way in which these facilities have made the wasting of food (and money) more visible to individuals. Where before food waste was 'out of sight out of mind' in the depths of a black bin liner, housed in a caddy on a work-top in the kitchen, food waste becomes calculable and obvious on a daily basis. Such visibility has led to many wanting to save food and money as a consequence:

"I think about it more - what I'm buying - instead of just picking it up and putting it in I think about it, am I going to use it? Especially with rising food costs as well you know you need to." (Vivienne)

What do you think influenced you most in relation to food waste?

"Uh, my meanness really! (laughs)" (Ben)

"Cos I've retired I tend to do the shopping, and I worked out, I mean this is only in the last 3 months [since food caddy introduction], but loose mushrooms for example are actually cheaper than those in a punnet, but it was only on price so I do buy loose now and I waste less" (Ben)

Ben used buying loose mushrooms as an example of waste minimisation in another of his interviews, but here Ben openly admits that cost is the main reason for his change in practice. His avoidance of packaging is actually driven by a desire to save money. This example demonstrates how the factor of cost extends beyond the food itself to the packaging it is in. Indeed, the issues of packaging, and the cost of buying single items rather than buying in bulk such as 3 for 2's also arose through discussions. This is considered in more detail in Chapter 6 when discussing the context of shopping.

During the focus group, Ben again emphasised the importance of cost, but this time in relation to how much the Local Authority, and ultimately the local tax payer would have to pay should Cardiff fail to reach landfill diversion targets:

"Well it's just that – I've been thinking about those figures Bob[28] said [about how much Cardiff would be fined for not recycling] – and that works out to £2 million pounds – maybe if you told people how much it cost – gave them figures?"

From respondents' own experiences of their cost/food savings, and through discussion of this at the focus group, they began to consider issues of waste and cost on a larger scale. Costs to the council were seen by respondents as costs to the tax payers that were a direct consequence of household waste practices, as Denise stated: *"The public should know the cost of not recycling."*

In many cases, however, the economic costs related to waste production (as well as the related savings from waste minimisation) are often 'external' and invisible. As a consequence, the issue of cost often becomes an obstacle rather than a driver to minimise waste. Due to the 'horrendous cost' of commodities (Rebecca), items are

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[28] Bob is the member of staff who showed the group around the Material Recycling Facility and explained what happened there and why.

purchased in relation to their affordability, rather than their environmental impact or packaging waste (see also Chapter 6). For example, during the first interview with Vera, she quite clearly emphasised that cost (i.e. saving money) was more important to her than worrying about saving waste: *"we (the company) don't think about what we produce. All I care about is what is cheapest, not what is recyclable or wasteful – that doesn't even go on the radar."* Here Vera is demonstrating that in a work context, cost has overriding importance when it comes to product choice, demonstrating that cost can have a negative impact on waste related practices if the environmentally friendly option is more expensive. Vera also goes on to reiterate her belief that even in a domestic context, people are unlikely to choose an eco-friendly product over a regular product if the former is more expensive.

"People only buy organic as they think it will benefit them. With eco products it depends where it is on your priorities, but the majority will think, 'what is my little bit going to do' so go for what's cheapest."

Whilst a range of individuals of various demographics were interviewed, cost appeared to be a factor on everyone's mind. Ben, who is retired, is just as concerned with cost as Jen and Rebecca who work full time. As single persons, Jen and Vivienne find the cost of living high, as does Rebecca who has to support a family. It is important to note that the study took place in 2008, at a time of economic downturn. The economic climate at this time has been cited as a reason for reductions in consumer spending, item replacement and ultimately the amount of waste disposed (APSE, 2013). Therefore, arguably the economic climate could be a reason for cost being at the forefront of participants' minds. Notwithstanding, the above review indicates that, at the time the research was undertaken, cost was more significant in influencing individuals' grocery consumption practices (both positively and negatively) than environmental concern.

Cost is therefore a potentially useful tool for promoting *actions* rather than trying to change *attitudes*. The fact that practices are taking place unwittingly indicates that individuals do not necessarily need knowledge and understanding of the environmental reasons why they should undertake practices in order to reduce waste; but knowledge of the economic costs (both directly and indirectly) may act as a hook for change. In particular, the cost of an item was significant in relation to consumption

of grocery items, and therefore correlated with food waste prevention and the purchase of products with less packaging (where these were cheaper). Therefore, there are important lessons to be learned here in relation to the methods adopted when trying to encourage waste minimisation practices (as discussed in Chapter 7).

There were also a limited number of examples of where the value of an item at the point of disposal influenced practices.

"I used to do a few car boot sales but I just don't have the time anymore. It's a bit annoying though I think doing boot sales, as everyone assumes they can have what you're selling for next to nothing. So sometimes I'd rather give it away to charity than let somebody have something that's brand new for like 10 pence." (Rebecca)

"I mean the old lady dies next door and they had terrible trouble getting rid of her stuff. Fortunately my daughter was just getting married and setting up a house so they were fortunate in getting lots of lovely pieces from next door which they were charging two pounds for at the time to get rid of with Track 2000 yea, so she got some really quite nice pieces." (Ben)

"Well I did have one dresser which my wife decided she didn't want and took it down to the auction house...it sold for about £10 or something...I only took it to the auctions because at the time I was working part time for a car dealer and I had access to their vans so I could shove it in a van and take it down without costing me a penny. Now of course I would have to pay for it so." (Ken)

In the above example, Rebecca highlights that she feels that the income she would generate from a car boot sale is insufficient to justify the time it would take to attend a boot sale. In Ben's example, it would have cost his neighbours money to arrange for a local charity to collect the items for reuse, therefore they were encouraged to look for cheaper alternatives. Similarly, Ken mentions that he was able to take his dresser to the auction house at a particular point in time as he had transport. However, now that he would have to pay to hire a van, he would be encouraged to seek a more cost effective method of disposal. The above examples also demonstrate the complexity of divestment practices; cost is not the only factor influencing individuals' disposal practices. Ben highlights the significant role that social ties (i.e. community) can play

in facilitating reuse practices (as will be discussed further in section 5.4.4 and 7.6.2 below), and multiple examples demonstrated the significance of convenience (including time and transport). Therefore, the three C's cannot be considered in isolation.

5.4.3 Convenience

Convenience is not necessarily a new concept in terms of what can influence waste practices (it has already been identified as an incentive for recycling see Barr *et al*, 2001; Perrin and Barton, 2001; Price, 2001, Tonglet et al, 2004; and a possible incentive for waste minimisation see Tucker and Douglas, 2006). This research provides further evidence that convenience can have a significant role to play in relation to both witting and unwitting waste minimisation practices. For example, the earlier unwitting example from Ken regarding reuse of books on holiday indicated that he undertook this practice because it was convenient – it saved him carrying lots of books, whilst Ben avoided excessive packaging by cycling to the shops in part because of the convenience in terms of time for him. Such examples also serve to show that convenience is a relative concept, what is convenient for one person (e.g. cycling to shops), may be viewed as inconvenient to another. However, some facilities and infrastructure can be understood as providing more convenient opportunities for all.

Convenience and social ties were crucial factors in minimising waste in terms of furniture and book re-homing, and clothes donation. The availability of organisations such as Track 2000 in Cardiff, who will collect and redistribute unwanted furniture and white goods, or 'Freecycle', an online site which is a bulletin board for unwanted goods, provides 'convenient' options for the householder. As the following respondent outlines, the convenience of Freecycle is crucial to her utilisation of the site:

"I have got this enormous fridge freezer. Now obviously it is not saleable because it is second-hand but I don't know, it seems such a waste to get it recycled or taken for scrap. So I was going to Freecycle it."
Yes it's a really good site. That's what I did and there are always people looking for fridge freezers on there.

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"Right, that's going to be good for me because the thing is that I need somebody that can pick it up" (Denise)

In relation to clothing reuse, charity donation appeared to be most popular. This is interesting, as although some evidence of handing down clothes was provided in relation to young siblings (Jen and Rebecca), it appeared that this was not so much the norm for older generations. The range and diversity of charity shops in Cardiff, alongside the regular posting of charity bags, allowed the vast majority of individuals to conveniently get rid of unwanted or outgrown clothes, without resorting to conventional waste disposal. Thus such amenity, service, or infrastructure provision can make minimising waste more convenient for all. As was the case in the examples of 'cost' above, this activity is occurring (and could be further encouraged), not necessarily or purely due to values but because a convenient service is provided for the public.

Notwithstanding this point, a number of participants experienced issues with their chosen outlets rejecting the items that they wished to re-purpose (Ben, Ken, Vivienne). The impact of this 'rejection' on their practices could potentially be significant – again a factor to be considered by service providers, as highlighted by Bulkeley and Gregson, 2009 (see also Chapter 7).

In terms of convenience, a further case in point was the food caddy provision in Cardiff (highlighted above). As Alan states, this provision made his life easier:

"But with the food waste being collected – if you do it properly in your house, I think it takes actually less time than doing your bins before." (Alan)

Here Alan emphasises how the new service saves him time. Similarly Vivienne felt that the ability to compost food waste using a kitchen caddy was an improvement compared with just throwing it all into the general waste bin:

"It's easier than it was before you know, it's the same with potato peelings they just go straight in because it's right by the sink so yes it is easier, it's a good idea."

Vivienne is clearly emphasising the fact that she finds the food waste scheme easier and more practical, rather than the fact that she is ecstatic that she can now recycle more of her food waste. She is certain that without this convenience, she and others would simply not engage in this activity, as she puts it: *"If it wasn't easy we wouldn't do it; until it's really convenient then people won't do it"*. Whilst these examples of using the food waste scheme relate to recycling rather than waste minimisation directly, they are relevant because the separation of food waste led to the minimisation of waste in many cases. Furthermore, Alan, Jen, Denise, Vivienne and Barbara all mentioned neighbours who had not incorporated the separation of food waste into their daily routine, evidencing that what is convenient for some is not convenient for all. Similarly to the example of Ben cycling to the shops, whilst Vivienne and Alan actually found separating their food waste for recycling quick and easy, it does not automatically follow that others would also view separation of food waste for composting as convenient. Indeed, some individuals viewed separation of waste as an additional task, and even felt it was unclean or untidy. For example, Barbara, felt that the caddy was unsightly: *"I don't like the idea of the thing in the kitchen. It is not the most attractive of things, and I think, well, it doesn't really go with the kitchen."* Indeed, if people perceive things to take more time, or to be inconvenient, then this can actually have a negative rather than a positive impact upon practice, as time is a valuable commodity.

It is therefore important to note the range of commitments and responsibilities individuals have in their lives when considering the relative burdens of the (in)convenience of waste minimisation. For example, whereas Ben who is retired has the time to plan his meals and cycle to do his shopping, people such as Rebecca are looking after a large family alongside holding down a full time and a part time job. Therefore, people like Rebecca have very little time – which negatively affects her ability to engage in the range of waste minimisation practices that she once may have undertaken, illustrating one of the strengths of a method that looks beyond the individual to their commitments in the various contexts within which they operate. The following quotation from Rebecca highlights how time has had an impact upon her ability to perform a waste minimisation practice, making it inconvenient. *"I used to do a few car boot sales but I just don't have the time anymore."* Through building a picture of Rebecca's lifestyle, it is possible to identify that whilst previously she had

sufficient time to undertake boot sales for financial reward, she now sees the income generated as insufficient to justify the time, given that she now has two jobs and three children.

However, it does not follow that all waste minimisation practices take place solely because they are convenient or cost effective. In the earlier examples of furniture reuse it was evident that social ties can have a significant role to play in preventing items from entering the waste stream. Similarly, the social ties in Alice's neighbourhood enable her to avoid consumption through borrowing items from neighbours:

"...people are very good so we tend to do that. I know I can knock any door if I wanted to borrow anything and I know if I go and say can I borrow a screwdriver, somebody will say well what do you want it for and they will come over and do it and I feel terrible!"

Whilst this example demonstrates elements of convenience and also saves Alice money, a further key point is that this practice is facilitated by the fact that she lives in a close-knit neighbourhood *"I know I can knock on any door if I wanted"*. This highlights that it is not just a case of convenience or cost encouraging particular practices; the social ties afforded by a close-knit *community* have enabled Alice to prevent waste by borrowing instead of buying. Indeed, whilst this is possible for Alice in her suburban community, such opportunities might not exist in other communities or contexts.

5.4.4 Community

Concern for the community has previously been heralded as a primary driver for waste minimisation practices (Barr *et al*, 2001). However, such research has been considering the role of concern for the community in relation to *intended* and *reported* waste minimisation behaviour. In contrast, this chapter considers the role that community can play in enabling both witting *and* unwitting waste minimisation practices. Furthermore, this chapter argues that the role of the community represents the role of social networks or ties and social norms (what may be considered accepted ways of behaviour in a given context): *'...the significant part that the reproduction of*

culture through pedagogic action plays in the reproduction of the whole social system'. (Bourdieu and Passeron, 1990: Forward xvi).

From the empirical data gathered during this research it was evident that community was important to waste minimisation in a range of ways. Throughout the interviewing process it was evident that where there was a strong sense of community, the likelihood of waste minimisation practices such as borrowing equipment and gifting furniture and fresh fruit and vegetables to friends was far greater. Alice, for example, lives in a sub-urban area of Cardiff. She lives opposite Ken who is keen on gardening and often helps out his more elderly neighbours with their grocery shopping and mowing their lawns. Ken has lived in his house since it was built over 20 years ago and knows all of the people who live on his street. The sense of community is therefore very strong.

"I've got ladders out in the garage that neighbours borrow or if anybody wants to borrow they know they're here so we sort of share it around like that..." (Alice).

"I do the gardens for quite a few people around here because some of them are very elderly. I've got a couple across the road they're both in their 80's, he can't walk, she never goes out the house. There's another chap down here in his 80's, if you blew, he'd fall over. I've just filled up 5 green wheelie bins from his garden this week ...Err next door I do a bit, as I say they're new neighbours so we're re-styling the garden." (Ken)

In Ken's case, there is a culture of co-operation and facilitation in his neighbourhood, from gardening to shopping, the neighbours help each other out for the benefit of the community. Similarly, Vivienne and Denise live around the corner from one another in an affluent, suburban area of Cardiff, and they also talk about the benefits of community ties in facilitating waste related practices. When first visiting Denise for interview, Vivienne popped around to discuss the re-purposing of an old chest that Denise wanted to get rid of, so was giving to Vivienne. Moreover, through discussions with both individuals it was evident that Denise did a great deal to facilitate waste practices in her community.

"For a couple of people up here I've volunteered to get their recycling food bags because they can't be bothered to go and get it from the library. They probably don't know where the library is." (Denise)

Therefore, for those in these communities, the presence of strong community ties can create a culture which enables and encourages individuals to undertake waste minimisation practices (for example, sharing tools, equipment, and even knowledge). Such community ties therefore save individuals money, but also make their lives easier and complex tasks more convenient. In these cases the community functions as a sort of 'social infrastructure' enabling and facilitating sustainable actions (Granovetter, 1983; Bulkeley and Gregson, 2009). In addition, social norms within an area can influence practice (Schultz *et al*, 2008). For example, whilst it is a norm in Denise and Vivienne's area for people to recycle and to look to other neighbours to find out when it is recycling day, or to get more bags, in areas where there is less sense of community, this does not appear to be the case, meaning that interviewees in these areas felt isolated:

"...there are a lot of people moving through, people aren't that committed to their area, if you know what I mean, people passing through so they don't care about what they do with rubbish." (Alan)

Here Alan describes how he is frustrated by the fact that some residents do not take pride in their local community; he explains that he feels this is because they are only part of that community for a short period of time. Alan lives in Riverside which is located on the southern side of the city centre. Riverside comprises of mainly terraced properties. Located adjacent to the river that flows past the millennium stadium, Riverside sees tens of thousands of visitors passing through each year, either parking, staying or eating in the area in order to attend large music and sporting events.

Sue, who like Alan lives in Riverside, highlighted the issues of living in an inner city area that is so close to the stadium:

"I am ashamed to live here on [rugby] match days...And you know...a week later the rubbish is left from that burger van. A week later we have got things in the road where people have just dumped them and we shouldn't have to put up with that."

In a focus group with other Riverside residents aimed at overcoming some of the issues that both Alan and Sue highlight, one of the residents asks a very pertinent and hard hitting question.

"Can I ask why is waste a problem in Cardiff compared to other cities? I haven't seen such a filthy city in my life. I've been to Oslo and they've got tower blocks. Most people live in flats right there. They've got this one massive bin outside and everybody puts them there and they know that they are punished if they don't do it. It's a social responsibility to do with being a good citizen." (Fred).

This quotation from Fred raises a number of interesting points. He feels that this issue is unique to Cardiff, or possibly even to the UK as he compares his local area to Oslo. Like Alan, Fred suggests that people do not care for Riverside as they might for other areas, suggesting that a transient population can have an impact upon the performance of the local community. Thus, in less affluent inner city areas where populations are more mobile, such as Riverside, people are less likely to take the time to find out about and participate in recycling schemes, but also less likely to become part of the community, in turn meaning there is not a strong sense of social ties or infrastructure in such areas. Whilst the lack of community ties and concern for the community might mean that community plays less of a role in facilitating practices in such areas, it does not necessarily mean that waste reduction activities do not take place in these locations, but that perhaps different practices take place and they occur for different reasons and to different degrees. For example, whilst there may be fewer propensities to redistribute furniture through social ties, it has been argued by previous research that residents in poorer areas consume less (Hobson, 2002).

As well as the practical examples above of how community members can facilitate each other through the provision of infrastructure and support, communities can act to generate and spread waste minimisation practice through creating it as an acceptable social norm. Chapter 3 considered how significant social norms were in relation to recycling behaviour, and whether it would be possible to engender waste minimisation practices in a similar way. Norms can be defined as a framework within which individuals operate and take direction from, a pattern of action, co-operative behaviour or regulatory statements (Hechter and Opp, 2001). However, in this

instance, interest in practices dictates that the interpretation relates to a pattern of action, which has been proscribed by social behaviour. The following example demonstrates how different members of a local area interact in order to facilitate recycling behaviour.

"My next door but one neighbour composts, he's got an allotment, we always rely on him if we can't remember what day our recycling goes out, you know he's the one, the reliable one. And my friend across the road, she was the one I was talking to about the green bags."

Whilst in isolation this does not prove that what this individual was doing was trying to conform to a social norm, this is definitely the impression obtained from discussions with Vivienne about her habits, where she claims to be 'trying to do better'. Indeed, it transpires that she did not know how to get more green bags, but was able to obtain some via a neighbour (Denise) who helps out several people in the street by picking up bags when she goes to the local library.

In addition to this example of how Denise has facilitated Vivienne's (and others) practices, during another interview Vivienne explains how a different neighbour has encouraged her to grow her own tomatoes and potatoes, demonstrating the impact that the local community can have on other environmental practices.

Community can also function effectively through family connections and advice that individuals give to and receive from their relations.

"I realised about food because my son when he finished school he went abroad to work and what surprised him was it was when you could still go to Yugoslavia before it was all split up that everything in Yugoslavia was past its sell by date. He said it is obviously where we send all the food that we don't eat like biscuits and things like that because everything he bought it was past its sell by date so obviously they are not bothered. It was him that said to me once you don't need to throw it away because it is out of date because it is OK". (Denise)

"We've always been quite conscious about what we're throwing away. I think being brought up to sort of throw away as little as possible it influences your kids. The kids have always taken that on board, and because in school, they're taught to be more environmentally aware now, they've taken it on quite easily. ...They're pretty pro-active". (Rebecca)

The above quotations demonstrate how the 'community' can influence the individual in different ways, not just through neighbours, but also through family ties, and influences at school. The role of Television was also cited as an important community advice mechanism:

"I'm conscious of, in fact I saw a programme last week, I think it was on TV, about how food waste and how much people, and I realised that I contributed to that so I now I am conscious of trying desperately hard to not overbuy. ...I'm conscious of that now so I am going to try and be good and not waste so much food". (Vivienne)

Vera also mentioned the television adverts by Waste Awareness Wales that try to encourage people to recycle, using the slogan 'it's our future, please don't throw it away.' Vera believed that if messages brought home the impact that people are having on their locality, campaigns would have more success. *"I think they should promote waste minimisation and things like that more to do with, it's always presented with 'it's our future please don't throw it away', I think people see it as part of the huge picture and they're not much to do with it. If they did it as its part of your town's future or your country's future, and you know, condition of living then people would do more."*

As well as current community 'norms' having an influence on practice, it was evident that historical norms could also have an impact on practice. For example;

"I don't tend to take that much notice of sell by dates and things, but if things are really mouldy we might throw them away...I was brought up post-war with rationing you see" (Ben)

In this example, Ben claims that a significant influence over his practices is the era in which he grew up. Indeed, other participants also felt that this had a large impact upon the way in which they approach food waste.

"I don't know; it's probably because I was brought up in rationing after the war that I have always, you know, food was always a prized item I suppose in our household. It wasn't something that you threw away but I mean people have changed. I'm still old-fashioned." (Denise)

From discussions with participants it was evident that what were acceptable social norms several decades ago are not necessarily the same as what is acceptable today: 'people have changed'. Whereas immediately after the Second World War minimising waste was the 'done thing', now it's perceived that minimising waste is somehow unfashionable and odd. As the following respondents state:

"I was brought up post-war with rationing and things and I tend to look on food waste disfavourably. I don't tend to take that much notice of sell by dates and things, but if things are really mouldy we might throw them away, but my wife's probably keener on throwing things away than I am. I mean occasionally you might get the odd thing that gets really passé but on the whole… not very much." (Ben)

"I tell people and they say oh yes, that's very commendable, but they really think it's a bit freakish for example." (Ben)

"I see it as what you're leaving behind. I mean also I was brought up in an ethos where you definitely didn't waste food". (Denise)

"It sort of beggars belief that people have this; people seem to have a view that you know more is good whereas I think less is best." (Denise)

Many respondents spoke of their unease about an apparent present day culture of consumption. Denise talked about how she was brought up in an era where food was not wasted and where 'less is best' and Ben mentioned how his attitude to waste is different to his acquaintances and also to some extent his wife. Also, Barbara referred

to the consumption of expensive items such as cars, houses and televisions in order to illustrate the cultures of consumption she had witnessed (see also 6.2.2).

The idea that 'modern society' is more wasteful than when participants were growing up is a belief that was echoed by various participants of different ages and demographics[29], as Jen states: *"...when I grew up it wasn't the state where you...kids seem to get a lot nowadays." (Jen).* Furthermore, during the course of the interviews Jen explained that as one of four girls, many of her clothes were 'hand-me-downs', hence her reference to the need to 'make it last'. Jen refers to the fact that when she was growing up, it was not the 'norm' for children to get so much. This social norm was part of Jen's upbringing, as well as being influenced by what was the norm, Jen alludes to the roles of convenience and cost, as she attributed the way in which she was brought up to the fact that her family could not afford to be wasteful, and both she (and possibly her family) lacked the agency to choose an alternative lifestyle.

Ken and his wife Barbara identify that situations like Jen's are less apparent in contemporary society. For them, attitudes towards waste, thrift, and community have changed; a different generation has been brought up in a different way:

"I think it is a different... I'm not being funny...But it is a different generation from us." (Barbara)

"It is. Of course it is. Or different generations then but we weren't… the parents they don't seem to care either." (Ken)

"No. We were taught to be clean and tidy." (Barbara)

"You can't give them discipline in the school. They don't have discipline at home." (Ken)

Indeed, much of the research into waste minimisation behaviour has found that older age groups are more likely to reduce waste than others (Tonglet *et al*, 2004; WAW, 2010). Nevertheless, despite the fact that there may be some discrepancies between the attitudes of different age groups in general, there was evidence to suggest that some younger interviewees, such as Alan, do seek alternative ways to reduce the

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[29] However, it is important to note that most interviewees were 30+, but even those in their 20's felt there was a difference in attitudes towards waste between their generation and the youth of today.

amount of food waste they send to landfill, provided it fits in with their lifestyle. Perhaps then a sense of community and the benefit that residents obtain from it is dependent upon a number of factors, making this influence more complex than convenience and cost. Community can be affected by whether populations are transient or stable, but also potentially by the age and demographics of the members of the community.

Community is therefore not an easy element to nurture, given that not all areas will have a sense of community that is strong enough to facilitate changes in practices. Bulkeley and Gregson (2009:939) refer to this as a lack of social capital (see also Putnam, 2000) and the absence of 'social connection'. Indeed, this research strongly agrees with their argument that policies should take advantage of the practices that are already going on in households, but also facilitate practices in those communities where such practices are inhibited by a lack of community ties. For example, by making services available at a community level in areas where there is less of a community, such as providing furniture reuse and hire shops to establish a 'swap shop' within the local community. Indeed, as Horton (2003) argues, instead of focussing on values or intention to act, we should be providing a green architecture that is conducive to waste minimisation practices. Arguably all the examples link back to cost and convenience, therefore, where certain practices are less prevalent due to a lack of social ties, alternative convenient infrastructure needs to be provided (Bulkeley and Gregson, 2009; see Chapter 7 for further discussion on this point).

5.4.5 Reflections on the Three C's

Table 5.1 provides an overview of those participants who provided examples of cost, convenience and community norms facilitating waste minimisation practices. It also includes information on their age group and their community type (urban, suburban etc). The three Cs are not mutually exclusive, and as such it has not been possible to state one particular C that influenced each individual more than another. Moreover, whilst one C may have been most significant in relation to one material stream or context, the participants may have been strongly influenced by a different C in a different context (see Chapter 6 for a discussion of context).

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Table 5.2: Influences Associated with Participants Waste Minimisation Practices

	Age	Area	Cost	Convenience	Community
Jen	20-30	Inner City	X	X	
Vera	20-30	Inner City	X	X	X
Rebecca	30-40	Inner City	X	X	
Ben	60-70	Suburb	X	X	X
Ken	60-70	Suburb			X
Barbara	60-70	Suburb		X	X
Alice	50-60	Suburb	X	X	X
Vivienne	50-60	Suburb	X	X	X
Denise	60-70	Suburb	X		X
Alan	20-30	Inner City	X	X	
Sue	50-60	Inner City	X	X	

Whilst this study cannot claim to be representative, it is interesting that those in suburban areas, in older age groups were more inclined to cite the community as a facilitator. Indeed, the role of social norms was clear, and the impact of friends, family and neighbours on individuals' practices will be considered in more depth in Chapter 6 in order to answer the second research question. In terms of the role of community, it was evident that those who were more established in their communities were more likely to give and receive help from neighbours, but also that they were more likely to have family connections that enabled waste minimisation practices. Social norms within a given community were significant in influencing recycling

practices. In addition, community norms and ties proved to be important in enabling the gifting of home grown produce and the lending and borrowing of tools.

In regards to the role of the area in which they live, it was evident that those in suburban areas were more likely to offer and receive support from their friends, neighbours and relatives. This could arguably link with the fact that those in these suburban areas were of an older generation which links with previous studies that indicate age is a significant demographic (Tonglet *et al*, 2004). In addition, this research demonstrates that a less transient community where social ties are able to develop is also of benefit to waste minimisation practices. Whilst there is a role for communities in making practices more convenient and normative in the home, there are certain individuals in society who choose not to conform to the social norms of their community, perhaps because they do not feel that it is convenient to do so as a particular practice is too difficult to accommodate in their lifestyle.

Interestingly, it has been evidenced that affluent areas actually produce more waste in the first place for fiscal reasons (Burnley, 2007). Whilst this may be the case, this research indicated that as well as consuming and producing the most waste, waste minimisation practices in affluent areas tended to be influenced by social norms and community ties. It is also evident that an individual's practices can be influenced by community context. In the case of communities, individuals are influenced by what social ties are available, what amenities accessible, and advice given.

Cost was evidently significant to a greater majority of participants. The above review demonstrates that cost was important at the point of purchase in terms of what was cheapest. Financial incentives were also significant at the point of disposal, as the value of a product (alongside convenience) influenced individuals practices. Therefore, cost could have both a positive and a negative impact on waste minimisation practices, particularly in relation to grocery shopping.

Convenience appeared to be important to most individuals and most material streams. Whilst convenience does relate to the availability of facilities or transport, it was also evident that what is convenient to one individual is not necessarily so for another. For example, borrowing tools instead of buying them was perceived as convenient by

Alice, but this might not be the case for everybody. Similarly, cycling to do the shopping was convenient for Ben, but not necessarily perceived as such by his acquaintances.

5.5 Conclusion

Rather than simply offering research participants examples of waste minimisation practices and asking which they perform, this research sought to engage with the individual in order to access practices that were performed unwittingly. By talking to participants about their everyday habits and routines, as well as about waste related practices, a whole wealth of information was obtained relating to both witting and unwitting practices. It has been identified that whilst some waste minimisation practices are undertaken wittingly and with the intention of reducing waste, other practices are undertaken both wittingly and unwittingly for other reasons.

An exploration of both witting and unwitting practices has identified that factors such as cost, convenience and communities have a significant role in influencing waste minimisation practices. Through a review of literature in Chapter 3, it was evident that research in the field of waste minimisation was limited. Research that did exist tended to focus upon environmental values and intent. By utilising a focus on everyday practices, it has been possible to access a wider range of waste minimisation practices that take place, as well as a broader range of factors which influence practices.

The Three C's identified have links with previous research in the fields of waste minimisation and recycling. Researchers in the field of waste minimisation have touched upon the potential role of the cost or value of an item in encouraging reuse practices (Herridge, 2005; Tucker and Douglas, 2006). Whilst Barr *et al* (2001) suggested that concern for the community was significant in relation to reuse, this research has explored the concept of community further, linking its significance with the norms in a given context as well as the social ties afforded by community. This Chapter has identified both convenience and social norms as influencing waste minimisation practices, suggesting that recycling and waste minimisation drivers are not as different as previous research has claimed (Tonglet *et al*, 2004). As such, this research has built upon and consolidated previous research.

Through a focus on practice, this chapter has demonstrated the significance of multiple factors. Whilst some of these factors have been touched upon by previous studies of recycling, waste minimisation and pro-environmental behaviour, this Chapter evidences the ways in which these factors influence waste minimisation practices. Having utilised a practice based approach this research has demonstrated that the role of community is not simply about a concern for community or environmental matters. Furthermore, this research has demonstrated that social norms are not limited to influencing the practice of recycling.

A study by Shove (2003) in relation to comfort, cleanliness and convenience has strong correlations with this research. Firstly, Shove highlights that environmental consumption is invisible because - similarly to waste minimisation - such practices can be habitual or routine. Certainly, this Chapter has demonstrated that practices can take place both wittingly and unwittingly, and that sometimes practices take place because they are embedded within an individuals' routine. For example – Ben's habit of cycling to the supermarket in a particular way shapes his practices. Secondly, Shove highlights the normative element of practice. A study of the role of Community has highlighted the significant role that social norms can play in facilitating or inhibiting waste related practices. Thirdly, Shove suggests the need to change the policy agenda from one which seeks more environmentally friendly behaviour, to one which questions the service specifications and their appropriateness for encouraging the desired practices. Given the last point, it is important to explore how the lessons learned from this research might facilitate a change in agenda by challenging existing services and making recommendations for improvements. Chapter 7 explores how the Three C's can help to inform such challenges and recommendations.

However, the roles of cost, convenience and community do not necessarily operate in isolation and their influence upon the individual can vary between contexts and settings. In addition, it is evident that people divest different materials in different ways. As such, there is a need to consider the various social and infrastructural influences on the individual in different contexts and the impact of these influences upon material practices. Chapter 6 therefore considers when practices do or do not transfer between contexts such as between the home and the workplace. In addition,

Chapter 6 will look at whether practices transfer between people, highlighting when and why they do or do not in order to provide a comprehensive outline of what encourages or prohibits both witting and unwitting waste minimisation practices. Chapter 6 will reveal that the three C's can be significant in facilitating or inhibiting the transfer of practice. Chapter 7 will consolidate the theories generated from Chapters 5 and 6 to demonstrate how the various factors influence different material practices. Chapter 7 will include suggestions as to how the three C's could be used to encourage waste minimisation practices.

Chapter 6: The Transfer of Practice

6.1 Introduction

Chapter 5 identified that three key themes (aside from environmental concern) arose from the interviews as significant in facilitating waste minimisation practices: cost, convenience and community, and these factors often arose *independently* from the environment. Chapter 5 highlighted the significance of cost in relation to waste avoidance at point of purchase, and to a more limited extent, at the point of disposal, although the perceived value of an item was significant in how it was divested. Chapter 5 also illustrated the significant and subjective role that convenience can play in relation to reuse practices. In particular, having appropriate conduits at the point of divestment through which to pass on items was found to be significant. As well as relating to contextual infrastructure, the notion of convenience links with the third C – Community because of the significance of social ties. The role of communities is complex, incorporating the impact of people and places on practice.

From the preceding chapters it is evident that an exploration of how different 'communities' and different contexts influence an individuals practices is required, in order to identify why practices do or do not transfer. Therefore, this chapter analyses the interviews undertaken in order to answer the second research question:

2. A) To what extent do waste minimisation practices transfer between different contexts? And,

B) To what extent do waste minimisation practices transfer between people?

In order to answer the second research question, this Chapter firstly reviews the empirical data in order to establish whether or not practices transfer from one context to another. In undertaking this review, consideration is given as to why practices do or do not transfer between contexts. Secondly, this chapter explores whether or not practices transfer between people. In studying the transfer of practice between both contexts and people, this Chapter identifies key drivers that encourage or discourage the transfer of practice. As a result, this chapter highlights the role of agency and

reiterates the significance of the three C's. In addition, the analysis reveals that practices are not only dependant on the 'who' (i.e. the agency of the individual) and the 'where', but also the 'what', as it is evident that different materials are divested differently.

6.1.1 Practice Transfer

As discussed in Chapter 3, a number of different terminologies have been adopted in the study of whether or not certain practices transfer between contexts. These range from an exploration of spill-over of pro-environmental behaviour between practices (Thögersen and Ölander, 2003) to the 'natural diffusion' of practices between people (Tucker and Douglas, 2006). However, these approaches have not considered the influence that both context and people can have upon an individuals' waste minimisation practices and whether or not that individual transports them from one setting to another.

Thögersen and Ölander (2003) adopted the term 'spill-over effects' in their examination of pro-environmental practices. Thögersen and Ölander argue that an individual's need for consistency ensures pro-environmental behaviour in one context leads to its transfer into all contexts in which that individual operates. Arguably Thögersen and Ölander's theory has its limitations as it assumes conscious, linear decision making, yet Chapters 3 and 5 detailed that practices can take place unwittingly and without intent. Furthermore, much social science theory has argued that there is in fact inconsistency in practice between settings (see Reckwitz, 2002; Bulkeley and Askins, 2009; Anderson, 2010b, Shove, 2010; Hargreaves, 2011; Moore, 2012). Individuals may perform contradictory actions in different places and ignore (in)consistencies in their behaviour. If this is the case, then spill over effects may be less likely in different contexts and settings. Finally, Thögersen and Ölander assume an absence of contradiction between competing pro-environmental practice. As we will see below, in some cases environmental and ethical decisions are in tension, so attaining consistency in practice often proves an unviable objective. Notwithstanding these limitations, the concept has potential to be developed through the exploration of the transfer of practices between people and spill over between places. In this way it may be possible to sensitise inquiry to the role of social context and geography in waste minimisation practices (see Chapter 3).

Tucker and Douglas (2006) point towards this sensitivity with their term 'natural diffusion'. Through the term natural diffusion (which may be better understood as 'social diffusion' in the context of this study), Tucker and Douglas are describing the way in which practices can transfer between people to become a social norm i.e. diffusion acknowledges a behavioural change as a result of social pressure. Diffusion therefore enhances the concept of spill-over as it is used to explain not just how practices spill-over from one practice to another, but also to explain how one person's practices can 'rub-off' on another person.

It is clear, therefore, that scholars have identified the capacity for practices to spill-over or rub off on to other practices that an individual undertakes, or even to transfer between individuals. However, as we know it would be a mistake to assume that pro-environmental behaviour spreads due solely or perhaps even predominantly due to environmental concern. (Indeed, the fact that Thögersen and Ölander (2003) identified occasions where practices did not 'spill-over' highlights that there are other factors at play.) As demonstrated by the previous chapter, the 'Three C's' are key drivers for both witting and unwitting waste minimisation behaviour. This Chapter develops this insight by firstly exploring to what extent practices transfer between different contexts in which individuals live their everyday lives (i.e. to what extent do people strive for consistency or whether social norms in places encourage incoherence in practice); and secondly how they transfer through people in their community networks – not just at home, but also at work and 'play'. The term transfer is being adopted as it does not assume intent, but it can be utilised to explain both the transportation of habits and practices from one context to another, and also the transfer of practices between people or across community ties.

Through an exploration of practice transfer, this chapter also develops the significance of cost, convenience, and the community in relation to waste minimisation practices. Given the theoretical supposition of this thesis that both structure and agency can have an impact on the individual, it is argued that both the nature of a given location and the impact of others in that setting are significant. Gaining a greater understanding of when practices are or are not transferred, will help to develop the concept of the Three C's and ensure that they can be used in a robust manner. Understanding whether these

factors are overridden by influences such as other people or places is crucial in order to provide guidance as to how, when and where waste minimisation practices can be encouraged.

6.2 Practice Transfer Between Contexts

Shove (2010: 1273) argues that for a change in practice to take place *"new forms of living, working, and playing will have to take hold across all sectors of society."* Here Shove is alluding to the fact that habits and routines are embedded in how we live, work and play, indicating that various 'sectors' of society act differently depending on the context. It is therefore important to explore whether the role of any of the themes identified varies between different contexts in terms of waste minimisation practice.

It is evident from this research that not all waste minimisation habits are formed within or associated with the home. However, as discussed in Chapters 2 and 3, much attention has been paid to the individual at the household level in previous attempts to understand waste related and pro-environmental behaviours, despite a number of researchers highlighting the need to explore the significance of various contexts (Shove, 2003; Bulkeley and Gregson, 2009; Barr et al, 2011).

Context refers not only to the place or location in which a particular practice takes place, but also the role of agency in a given setting. Whilst an individual may act in one way in one place or social context, it is possible they may act in a completely opposite way in a different context because of the external influences upon them (contra. Thögersen and Ölander, 2003). The term context can be interpreted broadly; Shove (2010) argues that researchers such as Andrew Darton (2004) have used it as a 'catch all' variable, so that ultimately, it becomes an unusable concept as, similarly to DEFRA's overview of barriers and motivators, it incorporates too many factors. The use of the word context in relation to this thesis is more constrained, incorporating the agency of the individual, and opportunities and barriers presented by location and infrastructure. The agency element of the definition is limited in this instance to the individuals' ability to shape practices, as question 2(b) evaluates the impact of interpersonal influences (e.g. the impact of others) and community expectations (social norms).

In Chapter 5, multiple waste related practices were identified that took place in the home, from using up left-over food to passing on items. The context of the home is clearly an important one but it does not exist in isolation. The following sections focus on the other contexts in which individuals live their lives, such as shopping, the workplace and leisure (the latter including holidays, recreation etc) to investigate whether, and how, material practices transfer from the home to the workplace (for example), and vice versa.

6.2.1 Shopping

When discussing shopping practices with interviewees, it was evident that some waste minimisation habits were established, but that these practices did not necessarily transfer between the various contexts in which shopping can take place. Whilst an individual might undertake a particular practice in a supermarket, this practice may not transfer to the context of a local newsagents or a clothes store. There were multiple reasons for this, including policies that the shops have in place, and the individual's ability to choose an alternative.[30] For example, when discussing the practice of bag reuse with interviewees, it was evident that although individuals reused carrier bags for grocery shopping, they did not necessarily transfer this practice to other shopping contexts such as shopping for gifts and clothes.

"Yes well I mean I try not to have carrier bags at all but I admit that in Sainsbury's because they're free and on the counter I always take some because I use them for lining the pedal bin...I mean I wouldn't if I didn't have that use for them I wouldn't take them. I mean with M&S and Waitrose they give you these bags for life don't they because you have to pay? so...I mean I have got canvas bags as well..."

"if ...I'm buying something for a present I always accept the carrier bags. I notice a lot of people ask you now but if it's something I mean for clothes I would take a carrier bag" (Denise)

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[30] It is important to note that this research took place in 2008/9. At the time this research was undertaken, some supermarkets had started to introduce charges for carrier bags. Other shops had reward schemes in operation such as offering club-card points to those who re-used carrier bags. Subsequent to the study taking place, a carrier bag levy was introduced in Wales in October 2011.

Here Denise highlights that (prior to the levy) she takes carrier bags at grocery stores because they are free and useful. In addition, she highlights that whilst she would reuse canvas bags for grocery shopping (in particular where there is a charge) she would not necessarily do so when shopping for other commodities. This raises the question why? In relation to what Denise is saying, it appears that the main reasons for her actions are cost and convenience 'because they are free and on the counter'. Similarly, other interviewees who claimed to be in the habit of reusing bags at supermarkets suggested that they reused bags when shopping for groceries because some shops had already begun to charge for bags prior to the introduction of the carrier bag levy in Wales.

When you go shopping do you reuse bags?
Oh yeah, yeah. Definitely (laugh)! Especially since they've gone to 10 pence a time! No, but having said that I've, there's an old canvas bag I always take to the shops, you know, more often than not anyway before this came in the charging for your bags. (Alice)

"...it's not something you can avoid any more. Shops are like forcing it on you even if you don't want to be, because I know like M&S you have to pay for the bags now, you don't just get them. Tesco's you don't pay for them but you have got to ask for them. Sainsbury's I think you have to pay."(Jen)

It was evident from the interviews that the majority of participants claimed to re-use bags for groceries 'more often than not', despite the fact that this research was undertaken prior to the five pence tax being introduced in Wales for single use carrier bags. Nevertheless, some supermarkets had already introduced measures to try to encourage bag reuse prior to the carrier bag levy being introduced, with incentives ranging from club card points to charging for bags. According to Alice and Jen their change in practice in grocery stores has become more pronounced as a result of shop policies: the introduction of fiscal rewards or penalties for bag reuse has had an impact upon their practices. The fact that the practice of bag reuse has not transferred to other retail outlets, suggests that where a charge was not in place, the practice does not transfer.

A further point worthy of note is that only some shops were charging for bags prior to the levy and others were not, therefore where an individual shopped prior to the change might have impacted upon whether or not they reused bags, again highlighting the significance of retail context – where people choose to shop – on waste minimisation practice. Now that a tax has been introduced on all single use carrier bags, in all retail outlets in Wales, research has commenced to demonstrate the role of cost in influencing the transfer of practice from one context to another. According to a Cardiff University study the number of shoppers who said they used their own bags on their latest supermarket visit rose from 61 per cent to 82 per cent across all age groups following the introduction of the levy and has *"helped to instil a habit in Wales of 'always' bringing one's own bag to the supermarket and other shops"* (Poortinga *et al*, 2012:41). However, figures from retailers show that whilst the practice is transferring to some shops, it is not transferring to all. Statistics from the British Research Consortium show that whilst supermarkets reported a drop of up to 96 per cent in demand for carrier bags and DIY stores a drop of 95 per cent, figures reported for other retail outlets were slightly lower with statistics of 85 per cent from mobile phone shops, 75 per cent from clothing stores and a very low 45 per cent at fast food outlets (Mail Online, July 12).

As highlighted in Chapter 5, cost is clearly significant in influencing practices. What is becoming evident from a study of practice transfer is that different practices take place in different contexts, meaning that practices do not automatically transfer from one setting to another. Previously, only some supermarkets charged for carrier bags, and as a result, participants claimed to only reuse bags for grocery shopping. It was therefore possible to argue that people only reused bags in supermarkets prior to the levy because of the financial incentives in place. Indeed, now that there is a consistent policy in place, there has been a measurable decline in the consumption of single use bags at supermarkets and DIY stores. However, even though there is a consistent levy in place, the practice of avoiding single use bags has not increased as greatly in the context of fast food consumption. Therefore, whilst the policies of both the supermarkets and the government have shaped practice, the extent to which their policies have been successful has depended upon the context.

The example of bag reuse and its failure to transfer between all shopping contexts also demonstrates the role of convenience in relation to whether people transferred practices. For example, fast food is by very definition 'convenience' in so much as convenience has evolved as a concept closely correlated with time (Shove, 2003). As such, fast food purchases may not be planned; hence people do not take bags with them when purchasing such items. Moreover, reusable bags are not necessarily suitable for use for fast food. Indeed, some participants commented on the practicality of using re-usable bags over single use carrier bags in the context of grocery shopping:

"To be honest the plastic bags you get in Sainsburys or wherever are so thin and wishy washy they're just not reliable for carrying things in... I don't use those plastic bags now, I've now got hessian bags... they're quite strong and you can get a lot in them. I use my [stockpile of] plastic bags for putting the rubbish in to go in the bin so at least they're being used" (Vivienne)

In Vivienne's example, shops which only make available poor quality bags have acted as a trigger for her to conduct waste minimisation practices – she will use a hessian bag in order to protect her shopping and make her life easier. In her case, the need for bags to be fit for purpose has led to a new waste minimisation practice.

In addition, where interviewees shop is significant in influencing practice; not just in terms of how much they charge for bags, or the quality of their bags, but also in relation to the quality of the produce available. For example, Jen describes how her ability to shop at a supermarket or newsagents impacts upon the freshness and quantity of the food purchased and therefore whether it lasted long enough to be consumed, or ended up being disposed of:

"I walk up to say Sainsbury's because it is the nearest shop and then I will get a taxi home and then I can get things like tins and stuff like that but otherwise if I go shopping I have got to think about carrying it home. That is a bit of a hassle sometimes so I end up having to do more shopping really because I go to the local corner shop which I end up spending more money for food that may go off quicker because the food is not as fresh from the local shops as in the big supermarkets."

Jen works full time and therefore does not always have the time to visit the local supermarket, particularly as she does not have access to a car. For Jen, lack of transport means that grocery shopping not only takes more time and costs more, it leads to her producing more waste, and it is clear from discussions with her that waste is something she feels she cannot afford. In contrast Ben who is retired, chooses to cycle to the shops as and when he needs to. As sell-by-dates are not as good in the shops that Jen has access to on a daily basis, Jen does not have time to consume the food that she buys before it goes off. Whilst one might argue that perhaps Jen should buy less, in other interviews, Jen talks about how frustrated she is by the fact that certain items are only available to buy in bulk, or are more costly to buy in smaller portions.

"...it costs twice as much for a small loaf of bread as it does for a big loaf of bread..." *(Jen)*

From discussions with Jen it is clear that she is motivated by what is perceived to be the best value, and as it works out cheaper to buy more, she does so, but she remains frustrated by the amount of waste that this produces. For many, the range, quantity and dependability of supermarkets offer a useful convenience for regular shopping choices. However, it was evident that participants could become locked in to unsustainable consumption practices, thus preventing the transfer of waste minimisation practices. From the carrier bag example outlined above, it could be argued that the profit motive drives down the quality and cost of bags in supermarkets, and thus leads to waste minimisation behaviours, but in many cases, the convenience and cost of supermarkets leads to individuals becoming 'locked-in' to the structure of consumption within this context. Many interviewees felt locked-in to waste producing practices due to the choices made by supermarkets in terms of their packaging.

"Packaging drives me insane, it's so unnecessary in a lot of cases." (Vivienne)

"...its quite hard to buy small packs of things, it's always more economical to buy the large pack, and I'm so used to cooking for a family of four, but now I'm on my own it's a bit different" (Vivienne)

"It's what the shops are selling [that influences my consumption and disposal practices] as well...if you want to buy 4 kiwi fruits, they come in two kinds of wrapping – one of which is polystyrene where if you had a big bag, you'll have 6 of them, but I'll throw half of them out – that doesn't help." (Jen).

Through the above quotation, Jen reinforces the fact that her consumer choice is structured by the types of goods available, their quantity, and the packaging options that supermarkets provide. Rather than buying loose fruit and vegetables, if Jen wants kiwi fruit, she either has to buy over-packaged ones or more than she can consume. Conversely, other fruit and vegetables can be bought loose – as Bens example of buying loose mushrooms demonstrates. However, the constraints of what is available in the supermarket prevent the practice of buying loose vegetables from transferring.

Similarly Vivienne describes her frustration with over-packaged items, and, like others (Jen and Alan), she states that shopping for one can be more wasteful. In discussions with Vivienne she explains that because she tends to rely more on ready meals now that she is only cooking for one - and these tend to have a lot of packaging - she creates more waste. Likewise, Alan details his frustration at excessive packaging, not just because of the waste it generates, but because it is likely to be costing the consumer.

"You can't help it sometimes you know products you buy or whatever are going to be ridiculously overly packaged. But generally speaking with food, you can always get something that isn't if you know what I mean. And you're normally just paying for the packaging anyway…" (Alan)

Here Alan indicates that it does not follow that purely because individuals shop in a particular place they have to be locked into a particular practice. Similarly, Denise demonstrated how she utilised her agency to opt for less wasteful options, thus transferring her waste minimisation practices from the home to the consumption context:

"I'm not so fixed that I buy all organic because as I say if it is too much then I don't do it and also I don't buy anything that comes from Israel at all and I try to buy with fruit and veg stuff that has come from Europe, if you can't get British, that if

something comes from I don't know South America or America…I don't buy it. I will change what I'm buying so I do look at where it comes from." (Denise)

Whilst talking about her practice of buying organic, Denise has raised multiple factors that intervene to prevent her pro-environmental practices from transferring. One is cost; another is the distance that the produce has travelled. Denise's example demonstrates that sometimes there are barriers preventing transfer as whilst she likes to buy organic produce, she is not so committed to this practice that she will do so at any cost: She appears to consciously weigh up the benefits of her choices. This in itself sets Denise apart from many of the other interviewees as she is actually consciously trying to be 'environmentally friendly'. Denise prioritises cost and air miles over her preference for buying organic. Therefore, Denise's example demonstrates that as well as the significance of cost and convenience, environmental values do still have a part to play in relation to the practices of some individuals. In addition, Denise's example demonstrated that contrary to the original spill-over theory – one environmental practice (buying organic) can actually inhibit another (reducing packaging/air miles). However, if Denise was very committed to satisfying all of these criteria, arguably she could change her practice of shopping at the supermarket and shop at a local farmers market instead. A positive by-product of such a change in consumption patterns would be that market produce tend to have less packaging, and be locally grown and transported, thus minimising waste (McEachern et al, 2010; FARMA, 2012).

As we have seen, the supermarket context offers the opportunity to facilitate waste minimisation practices, but also prevent them. This is particularly true due to the fraught relationship that waste minimisation has in relation to consumption. In the case of Jen, Alan, Denise, Vivienne and Ben's examples, it is evident that what is available in the places where individuals shop can have a significant impact upon whether waste minimisation practices transfer. Whilst Ben provides a positive example of transferring his practices (albeit for cost reasons), Jen and Vivienne are conscious that their practices lead to more waste, but their primary motivators in making their shopping choices (similarly to Ben and Alan) are cost and convenience. Indeed, both Jen and Vivienne also mention their frustration at how much bread they throw away, yet the only alternative is to buy smaller loaves which are less cost

effective. In terms of being locked-in to overconsumption, another common theme discussed during the interviews was the role of 'buy one get one free' and 'two for one' offers.

"It's like of course with Sainsbury's at the moment they have got an offer on organic broccoli but it's 2 for the price of 1. Now I don't need 2 - I just want 1 and why can't they do it half price? So I just bought the organic cauliflower instead and I just thought I'm not doing that because I mean if two of us can't eat it what on earth do you do if you are a single person?" (Denise)

Here Denise is emphasising how she is being encouraged to purchase goods above and beyond her needs due to the offer in the place where she has chosen to shop, in effect highlighting how policies of the shops often 'nudge' the consumer to purchase more preventing the transfer of waste minimisation practices. Jen and Vivienne, as well as Denise commented on the impact of 2 for 1 offers on single persons, highlighting the impact that an individual's lifestyle can have. For example, as Jen and Vivienne live alone, they feel it contributes to them producing more waste. Whilst a number of participants cited supermarket offers as something which encourages waste production rather than minimisation, Denise was not alone in her claim that she gave thought to what she would actually use.

"Sometimes you look at a piece of cheese and it is buy one get one free and when you read it, it is 300g and the normal one would be 500g. So it doesn't entice me. I'm a bit more of canny shopper than that. It would have to be something like if it was a bottle of champagne buy one get one free I would think oh yes we will have that. It has got to be you know something good." (Sue)

Here Sue emphasises that although items are on offer, it does not necessarily mean that they are value for money, so she carefully considers whether or not it is a good offer as well as whether it is something she likes. Similarly, Rebecca states that whilst she has been tempted by offers in the past, she has now realised that they are not always cost effective where items are purchased over and above what her household would normally consume.

Are you tempted by Buy One, Get One Free offers?

"I would be, or I am, but not if it's, you know, 200 kiwi fruit that I'm never gonna get through or something, but if it's something that I eat a lot of or use a lot of, then its better."(Alan)

"there was a time, when we were a bit I suppose, frivolous with things like that – cos you're like oooh bargain bargain, but then you sit down and think about it and its like, well I wouldn't usually have bought that...So yeah, we do think about obviously, if we're gonna eat it or just buy things for the sake of it, it's hard sometimes but we try not to... especially when everything is getting so expensive." (Rebecca)

Here Rebecca is again evidently driven by cost, and she, Alan and Sue consider whether or not they are actually getting value for money, or just purchasing items they do not want or need. This therefore suggests that often value for money (or cost) is at the forefront of the purchasers mind. However, not all consumers are quite as savvy as Sue, Alan and Rebecca, with some interviewees purchasing items they did not need simply because they were on offer.

"...sometimes if there is an offer on something that he knows that we use like you know clothes, Comfort or something like that say, he will end up with 8 of the flaming bottles of the stuff you know rather than using one. You have to say for God's sake don't buy any more of that even if it's on offer until I have used up some of this stuff, isn't it?" (Barbara, talking about her husband Ken)

Fortunately, detergents do not have such a limited shelf life as food produce, which means that the main issue this creates for Barbara is having to store the materials purchased. Nevertheless, it is clear that Ken is very tempted by offers as he also confesses he has an eye for a bargain:

So when you go shopping how do you choose items?

"Just buy whatever we want to, whatever we fancy eating we buy. Alright, if it's a 2 4 1 offer I'll have it, I frequently come back with more things than were on my list... I go to Sainsbury's every day to buy newspapers and she'll give me a list of half a dozen things and I'd come back with 10...I'll come back and she says, why did you get that?"

Here, Ken explains how his wife gives him a shopping list, yet he fails to stick to it, suggesting that for him shopping at a supermarket may not be cost effective (let alone in line with his waste minimisation practices at home) as he always tends to buy more than he needs. Therefore, shopping at supermarkets, and shopping every day may not necessarily be cost effective for Ken, although he was one of the few who did not relate any of his waste minimisation practices to cost, and he does also claim that he only buys things on offer that he knows they will use.

Despite some consumers becoming locked-in to waste production practices due to the structure of the supermarket context, it is possible to argue that consumers have a choice about where they shop and therefore the sort of options that are available to them (Holdsworth, 2003), and secondly a choice whether to identify an alternative product, as Denise did with the cauliflower and the broccoli. However, there is also a growing body of research to suggest that people lack agency to make consumer decisions without being influenced by social norms and values (Shove, 2003; Jackson, 2005; Taylor-Goodby, 2008; Silvera et al, 2008). Indeed, Jen explained how her lack of transport can impact upon her ability to transfer waste minimisation practices as she is sometimes 'locked-in' to shopping at a local newsagents where produce is less fresh. Whereas Vivienne (similarly to Alan and Denise) demonstrates agency through the example that she previously purchased meat from one producer, but found that the packaging was excessive, so has since considered alternatives.

"I bought a load of meat from a company in Scotland and there's an awful lot of packaging with it which I need to write to them about and it came in a big - because it comes frozen - it came in a big polystyrene box with a lid on it and I wasn't quite sure what to do with that so in the end, it had been sitting in my garage for a couple of weeks"

The above quotation was taken from Vivienne's second interview. Through discussion of how she disposes of various materials, she identified that the meat she had been buying comes in excessive packaging. By her third interview, Vivienne stated that she had stopped ordering meat from this supplier (as per the quotation

provided in Chapter 5). In addition, Vivienne suggested that shopping at a farmers market might be an appropriate alternative.

"I read somewhere that I've got to try and go to the farmers' markets, that's what I was going to try and go to...there has been a lot of you know in the cookery programmes they recommend farmers' markets where you can get odd looking carrots and you know local produce, support the local producers which is what I would like to do." (Vivienne)

In the case of Vivienne, it appears that through separating her waste for recycling, and through discussion of that practice, she has become more aware of how much waste she is producing. In addition, Vivienne appears to have been influenced by the media and the aspiration to shop at farmers markets (See Section 6.3.4), as well as the fact that shopping with her previous supplier was very expensive. Whilst Vivienne stated the intention to use farmers markets, she did not provide examples of doing so during the cours of the research. Similarly, whilst other interviewees, such as Alice and Denise, mentioned that they used farmers markets or other local producers', it did not appear to be a routine practice for any of the participants.

"I generally go shopping to the supermarket once a week and usually if I'm in town I go to somewhere like...Bean Freaks and Holland and Barrett… also occasionally I will go to - there is an organic market in Roath - I'd go there." (Denise)

Through the course of the interviews it was evident that most people found the supermarket to be the preferred and most convenient place to shop. Participants were in a routine of undertaking their shopping in this context and therefore were affected by the constraints that the supermarket context carries with it. Whilst it could be argued that shoppers have the option to take their buying power elsewhere, Jen explains that this is not necessarily easy due to other contextual constraints, such as lack of transport and time. This in turn means that consumption and ultimately waste generation, are affected due to the restrictions that time and transport place on an individual's choices.

The issues of *convenience* and *agency* in a given context therefore come to the fore again, as arguably the reason consumption habits are both enabled and restricted is the

initial choice to shop at a supermarket. In the case of Denise, although there are other options such as shopping at local farmers markets or ordering an organic vegetable box in order to ensure she bought organic, she stays with her routine of utilising the supermarket, a context (with a structure) where she is unable to have a completely free choice. In the context of grocery shopping, the sovereignty of the consumer is brought into question (Porritt, 2005). Indeed, consumption behaviour is notoriously complex to try to understand as decisions about what to consume are not necessarily linear or logical, they can be habitual, an impulse or a result of interpersonal influences on the individual (Jackson, 2005; Taylor-Goodby, 2008).

Consumption practices can be impacted by personal preferences and also by the lifestyle of an individual, such as whether they have access to transport, and whether they are feeding a family or just themselves. Evidently, even where individuals do have pro-environmental intentions, these can be overridden by factors such as cost and convenience when it comes to the context of *grocery* shopping. Hence, where products with less packaging are cheaper, and where carrier bags are charged for, people are more likely to choose the more sustainable option: *"Especially since they've gone to 10 pence a time!" (Alice)*.

6.2.2 Leisure

Shopping is not simply about the necessity of buying food and groceries, but also about purchasing commodities for pleasure. As such shopping has become a leisure activity, where people are defined by what they consume

"Everybody wants designer clothes, designer houses, designer cars - you know I have got a new telly - what sort of telly is it? Not oh how nice. Well how big is it? That's what people say now, isn't it?" (Barbara)

Indeed, what Barbara is saying here highlights that consumers are targeted with gadgets and gizmos that they suddenly feel they need, despite having survived without them previously. This position is summed up by the adage 'invention is the mother of necessity' (Porritt, 2005:53). This issue is compounded by the increasing disposability and built in obsolescence of such items (Bauman, 2003). Therefore, when shopping for luxury or leisure items, it is less likely that waste minimisation practices are

considered, let alone transferred from the home or the grocery shopping arena. (Indeed, research has illustrated that ornaments, kitchenware and furniture are most likely to be second hand items, whereas electrical items and white goods are least likely to be second hand (Watson, 2008)).

During the interviews, it was evident that many felt that the broader culture of pro-consumption was conspicuous in the context of shopping-as-leisure. Several interviewees talked, as Barbara did, about society in general and the desire to consume, but a couple of interviewees were also able to provide some specific examples of friends they knew who bought items on an impulse and never even used them.

"I mean I hate it when I see people buying bags and bags of stuff and either they don't use it or don't wear it. I know lots of people that buy clothes and just shove them in a cupboard and never wear them." (Denise)

Similarly, during an interview with Ken and his wife Barbara, they discussed how the father of a neighbour bought items that he never used.
"Well I did help my neighbour across the road because his father...he has been in Rookwood for a couple of months so he has had to dispose of a little holiday chalet down in Surrey...the amount of stuff that went in there it was frightening. Electrical stuff. He had 7 Hoovers... He had about 10 electric alarm clocks all you know chucked in the corner out of the way." (Ken)

"I think he was one of these people that might have an eye for a bargain. And so he would buy things like Boden coffee makers and things like that. They had never been taken out of the box because he thought oh that would be handy and instead of buying one he would buy three or four if they were at a decent price." (Barbara)

However, some interviewees did not choose to spend their leisure time in these pro-consumption, pro-waste contexts. Many inhabited different leisure contexts that fostered the transfer of waste minimisation behaviour, such as Ken re-purposing books when on holiday. Interestingly, when asked if he reused books at home, Ken advised that books were bought for him as gifts and that he did not use libraries or

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book swaps at home. Therefore, in this case a practice that is convenient for Ken in the context of leisure has not transferred to the home, presumably because it is less convenient, as when on holiday the book swaps are often in the hotels/resorts.

Some interviewees spent their leisure time in contexts which were interlinked with the home, but also were defined by structures that enabled them more agency to adopt waste minimisation practices: for example, the garden or allotment. A number of the interviewees were keen (or developing!) gardeners, including Ken, Barbara, Alice, Vivienne and Ben. Most of these also grew their own fruit and/or vegetables - a hobby that seemed to be the choice of older people who had gained their ideas of leisure in a different era to that which, as identified above, defines the twenty-first century.

"We grow our own veg. Had no option because you couldn't get as much fresh veg as was necessary in the past, but how many people… you know people don't want a garden now when they buy a house do they? They don't want one. They don't even want a lawn the size of this [room] because it is too much effort." (Ken)

"This morning, I was just walking over in Llandaff actually, a friend who I was surprised to see - I'd given her some beans [from the allotment]." (Ben)

"Yes she (my neighbour) was giving me beans. Another neighbour then dropped me a pile off just after you called last week. She also dropped me off some courgettes...I can however offer you some plums to go away with...So I will put some in a little bag for you; these were only picked last night." (Alice)

"When you say food waste, anything left from a fish goes on the lawn, the seagulls have it in 2 minutes, erm, chicken carcasses, down the bottom of the garden, when its dark my friendly little fox comes and eats it all... And you know any vegetable peel and stuff like that I've got the compost heap. So all grass and vegetable peelings and bits of paper, and things go into that." (Ken)

Ken outlines how, in the past, growing food in your garden was part and parcel to cultural life. In the absence of mass production and supermarket monopolies, people simply had to grow their own food (and through doing so, minimise food miles,

packaging and associated wastes). As these practices have continued, not only do individuals live a rewarding leisure life, but they also continue to connect their leisure context to their home and shopping context, and as a consequence, have joined up and transferred waste minimisation practices. Principles of composting, putting waste scraps out for the birds, etc, become an extension of their home-based waste minimisation practices as principles more commonly associated with permaculture are implemented in the domestic contexts. These individuals identify that these practices are not shared by all, or even perceived as culturally important anymore:

"There is no sort of real pride in [gardens] or anything. There is no interest in it from the young. Zilch. They are just not interested in it. You can always make the effort if you want to but they just don't. They would rather lie flat out on there [the sofa] watching that [the television] you know." (Barbara)

It is acknowledged here that gardening related leisure practices are not always the most convenient, taking time, commitment and energy. As a consequence, it is perceived that such hallmarks are not widely desired in younger generations' leisure contexts, hence, waste minimisation becomes a culturally alien activity. Nevertheless, how effective the practice of growing your own vegetables is, can be questioned. Even Ben who has an allotment and a garden cannot produce sufficient vegetables for him to consume all year. Therefore, growing your own becomes just another lifestyle choice that involves the consumption of tools, equipment and raw materials, which in many cases potentially creates more waste than it prevents. Moreover, whilst several of the participants suggested that gardening was not an activity embraced by younger generations, there has been a recent increase in the popularity of 'growing your own' as it has become a trendy or desirable practice. However, this in turn means the consumption of accessories for a hobby that does not yield sufficient produce to justify the quantity of items needed to undertake the practice.

Nevertheless, there is a sense of community related to gardening and this sense of community nurtures an environment where goods, services and tools can be shared.
"I had ordered one load of manure from this guy who became a persona non grata and was voted off the allotment and I didn't think I was going to get it…so I ordered another lot and then I went one day just before the second lot that I had ordered [was

due] …and this chap - he's a real character - he said oh your manure that you ordered is on your plot… and that was about 50 barrow loads worth of the stuff and I was due to have another load very shortly afterwards. Anyway I managed to find somebody who would take the second load but I could have been sort of inundated with manure." (Ben)

Those respondents who gifted items of manure and home grown fresh fruit and vegetables, did not appear to consider gifting their left-over food or home cooked produce, although Vivienne did mention giving half of a 2-4-1 offer to her son. Therefore, the social acceptability of a practice, and the normalisation of that practice within a given context can have a significant impact on whether or not a particular practice takes place (as found in the case of food waste in Evans, 2012).

In relation to the context of leisure, identified waste minimisation practices included lending, borrowing, gifting and receiving items (i.e. tools, and produce). The influencing factors at play here were complex. It is important to note that in relation to these practices there are two significant individuals – the giver and the receiver. What drives one, might be quite different to what drives the other, but what both individuals evidently share is a sense of community; a sense that the giving and receiving of the items in question is a normative material practice. In relation to the manure, Ben needed to divest it in the most convenient and cost effective way possible, hence he found someone through his social ties to pass the manure on to. With regards to the gifting of fruit and vegetables and the lending of tools, there is a clear benefit to the recipient who is receiving items conveniently and for free, but the benefit to the giver is not immediately apparent. Rather, it appears that items are donated as a gesture of 'good will', with an unwritten assurance that by giving or lending an item, not only is the individual maximising the value of the materials in question (including their nutritional, value added, or use value), they are nurturing social ties that may prove rewarding at a later date.

In the home and for grocery shopping waste minimisation practices have recognised benefits constrained or enabled by a combination of the 'three Cs'. In the context of leisure, the three C's again appear significant, but the significance of each factor depends on the material practice in question. The example of book reuse from Ken

indicates the significance of convenience in the context of holiday, yet the example of gardening seemingly contrasts with this notion as it is not necessarily convenient or cost effective, but it does potentially generate rewarding social ties.

Some participants provided examples of the waste related practice of recycling, when undertaking leisure activities such as shopping and drinking. In this context, it was clear from discussions with participants that convenience was significant in the leisure context as recycling was difficult outside of the home; they felt that the lack of choices when they were out and about inhibited their ability to recycle.

"It's hard because sometimes you go places where you can't have recyclable things – like chips on a night out, they always come in something you can't recycle." (Jen)

Jen's frustration was reflected amongst several of the interviewees in relation to facilities in the city:

"It's hard actually, cos there are very few places to recycle when you're out and about...I would almost – not to the nth degree, but take it home with me and recycle – or when you get to somebody's house recycle it. But I'm not sure how many people would do that. In fact sometimes I'd use those bins as well. The public ones rather than carry it round with me." (Alan).

Here it is evident that Alan was frustrated by the lack of facilities recreationally. Arguably, individuals could take items home with them when they are out and about if they want to recycle, but this brings us back to the issue of convenience. Nevertheless, when referring to the lack of recycling facilities at a local level, Rebecca mentions that she does in fact encourage her children to bring their rubbish home with them.

"I mean for a long while you couldn't find a bin let alone a recycling facility and the amount of times people just chuck it on the floor, so I've got into the habit of telling the kids to put it into your pocket and bring it home. Alright the rubbish thing has improved a little, I guess. But certainly round here there's no recycling facilities, and

again its whether or not people would actually use them or just chuck rubbish in them with everything else."

The above examples in relation to recycling in the context of leisure highlight that lack of consistent infrastructure or facilities can prevent someone from replicating a practice in a different context. In turn this means that despite a habit being formed at home or in relation to household waste, it is not replicated outside of the home. It is also evident from a review of leisure that there is a disconnection between waste minimisation in the home and shopping and leisure contexts. Whilst waste within the home is largely focused on disposal methods, shopping and leisure are about both consumption and disposal, but such waste practices are frustrated by the fact that people seem to have less agency outside of the home, and can be victims of the structures they find themselves in, the lack of facilities provided and also interpersonal influences such as consumer culture. Although practice transfer between contexts has not been strongly evidenced, this is in itself significant. The focus of much waste minimisation research has been on the home (Bulkeley and Gregson, 2009); yet major consumption and waste related practices are undertaken *outside* the home. If practices are not transferred by active domestic waste minimisers to other contexts, much waste minimisation is going to go un-practiced. It is essential therefore that incentives and inhibitors for waste minimisation in various contexts are understood. In the context of leisure, convenience and community appeared to be more significant than cost. In relation to recycling practices, and book reuse when on holiday convenience was key, whereas in relation to gifting or lending items, community ties and norms proved to be important.

6.2.3 Work

We have seen in this chapter how waste minimisation practices are often difficult to transfer from the household into other contexts. Due to the different combinations of structure and agency in different contexts, and the various influences of the Three C's, waste minimisation enjoys different priorities, values, and implementation. Similarly, in the context of the workplace, issues of structure and agency were again of significance, and it was difficult to identify waste minimisation practices that occurred in the workplace, as there appeared to be little transfer of even recycling practices from home. Due to the limited data available for waste minimisation in the workplace,

this section examines the examples participants provided in relation to recycling practices alongside other pro-environmental examples in order to demonstrate the difficulties that individuals faced in the work context. For example, the following quotation suggests that Jen has wanted to transfer her actions between home and work, but she has been unable to do so, due to the lack of options available to her:

"If I have a bottle of like Lucozade or something that I drink when I'm going to work sometimes, I get into work and I have to chuck it in the bin because there's nothing else and I think to myself that can be recycled but I have to chuck it in the bin because there are no other bins to chuck it in."

Although centred upon recycling in the workplace, this quotation demonstrates a range of points. Firstly, that when asked to discuss waste minimisation in the workplace, Jen, like many of the other interviewees, tended to resort to examples of recycling. In the work context, like those of entertainment and leisure, recycling is the one waste management practice that enjoys broad understanding and appeal. Although Jen chooses to drink a bottled beverage rather than employ a multiple-use mug for tea or water, for example, and opts not to reuse the bottle a second or third time, she still wants to recycle her bottle after its single use – i.e. she wants to transfer the habit she has adopted at home. However, in the work context this transfer of practice is impossible due to the absence of 'green infrastructure' at her workplace. The lack of facilities at Jen's work means that the practice of recycling was not transferred from one context to another. The fact that individuals might recycle regularly at home, but felt unable to do so in the workplace was a recurrent theme.

Would you say you recycle as much at work as you do at home?
"Probably not as much at work, for the simple fact that we used to have a charity that used to come and collect all our cans, but some people that really couldn't give a shit about recycling just used to throw all their rubbish in with the cans, so the charity then – it meant that they either had to sort through it themselves, which is not nice or they would get fined for all the rubbish that was in there, so they've stopped doing it now as a result." (Rebecca)

This quotation from Rebecca suggests that it is not simply an issue of lack of infrastructure; it is also the fact that many people did not use the infrastructure correctly when it did exist. Rebecca suggests the reason for this misuse is that people just didn't care about recycling in the work place. Several interviewees claimed that their colleagues simply couldn't be bothered to recycle as it was not convenient for them:

"We used to have in work, bins just for if we printed stuff off and didn't need it, it wasn't confidential waste, it was for recycling. But everything else would be just for like rubbish and those bins were right by your desk so it would be easier to just do that than to recycle it and it was a recycling company! We didn't have food waste recycling or anything and you can imagine in offices, you get food waste." (Alan)

In this example, both the facilities (lack of food recycling) and the lack of convenience (recycling bins further away) prevented a transfer of practice from home to the workplace. Clearly inadequate facilities in the workplace make the practice less convenient, but it was also evident that individuals did not feel able to challenge the systems in place at work (see below). Moreover, the fact that recycling infrastructures differ between contexts had a negative impact on individuals recycling practices. Several participants mentioned how they were confused what to do with particular items because either they were dealt with differently at work, or because friends or relatives had said that they could not recycle them in the cities where they lived.

For example, during a discussion with Jen, she mentions that she believes that envelopes can only be recycled if the plastic windows are removed. However, this is not the case for domestic recycling in Cardiff. When asked where she had heard this, she said she was told in the work context, because that is the nature of the recycling facilities there. As the recyclables at work were collected by a company and the requirements as to what materials were recycled were different. Vivienne also mentioned how the nature of the practices required can vary from one location to the next; in this case variation in requirements occurred between colleagues who work in the same place, but live in different areas.

"I do talk about waste and recycling in the office because um, in Canton they have, because it's a business they have different recycling. And also the girls live in different parts, one girl lives in the Vale, one lives in Caerphilly and I live in Cardiff, and we've all got different practices we are told to do. And it's different again in the office in Canton with the paper waste that we get from the post, etc. But I do nag them, I do make sure we always recycle all the paper so its, although we're meant to be a paperless society we're not are we?" (Vivienne, interview 1)

Thus Jens example and Vivienne's quotation demonstrate how practices can fail to transfer due to the different practices required in different contexts, and the consequent confusion, and perhaps even apathy that results from a break in individuals' habits and routines. Lack of infrastructure, or lack of understanding of the infrastructure in place can prevent practices from transferring. A study of practice therefore infers that consistent facilities are important. Nevertheless, facilities alone are not necessarily sufficient to ensure practice transfer – as evidenced in the example of bag reuse. In the example of the context of the workplace, it appeared evident that there was also a need for expectations of what the individual should do in different contexts and settings to be the same. In order to facilitate the generation and continuation of the habit, there is a need for there to be acceptance of the practice as a social norm within a given context. The importance of generating good habits and routines in the work context was identified by Jen. When talking to Jen about recycling at work, she mentions that people are not participating as much as they perhaps would at home.

"they have started to [recycle] but then there are still issues with people getting into the routine of it. I think it is more the routine. And it is silly issues like I mean we have a recycling bin and a cup bin for the plastic cups and yet a lot of people still chuck rubbish and cups in their own bin that is next to them just because 1 it is habit and 2 even though it is only a few steps away people can't be bothered to go over there. And then it is the issue when the bin is full nobody wants to empty it because it is somebody else's job to do that, nobody wants to do it."

This extract is interesting for a number of reasons. Jen discusses the role of routine, the fact that people are not in the habit of recycling at work, whereas this is the 'norm'

at home. This links with work by Shove (2003) relating to everyday practice. Shove argues that in reference to cleanliness, the introduction of infrastructure and the emergence of expectations surrounding various cleansing practices have led to routinised practices in this arena. Shove also talks about convenience and the conflict between the individual desire for convenience and the acceptability of a new practice *"Senses of obligation and of what is necessary and normal creep as individuals seek ways of coping with temporal pressures of coordination and as they look for convenient solutions."* (Shove, 2003: 413).

Therefore, in discussions of routine and everyday practices, Shove sights the significance of not only infrastructure and social expectations, but also of convenience. Jen's quotation also demonstrates the importance of convenience, as she mentions that people cannot be bothered to put items in the recycling bin when the general waste bin is closer. Jen also mentions the fact that nobody takes responsibility for emptying the bins in work as there is the attitude that it is someone else's job. Also of interest, is the fact that at home, Jen had placed her recycling bin right next to her waste bin in order to encourage her housemates to recycle, yet she did not do this at work: this suggests that Jen felt able to make changes at home but not in the workplace, reiterating the importance of what is accepted in a given context.

In addition, Jen mentions that security guards have been tasked with checking that lights and computers are turned off at the end of the working day in order to save energy. Jen believes that people do not transfer this practice between the home and the workplace because they are not paying the bill (see also 6.3.1).

"I would say that probably the majority of people would do it more at home than they would in the office...Because at home they are paying and the office they are not."

Similarly, Rebecca provides the example of her company introducing compaction skips in order to 'reduce' their waste and save money. Through compacting the waste, the skips need emptying less frequently, thereby saving the company money, as well as reducing fuel consumption (see 6.3.1). Again, this demonstrates steps that managers make in order to save the company money. The lack of waste minimisation practices in the workplace context appears to relate to the lack of responsibility most

of the research participants and their colleagues had in relation to the cost and management of material flows in the workplace. In other words, in a similar way to that outlined above, there is a disconnection between the production of waste and the individual costs borne by that waste production. Indeed, Vera had a management role within a company, and she talked about the importance of saving money over all other concerns when it came to business motivations to change waste practices *"we (the company) don't think about what we produce. All I care about is what is cheapest".* Therefore, it appears that practices not only depend upon the context, but also the individuals' role within that context, the expectations upon them and their autonomy to drive change.

6.2.4 Context and the Transfer of Practice

From the above and also the preceding Chapters it is evident that there can be multiple influences over the individual. Chapter 5 identified that cost and convenience and communities (social ties) appear to have a significant impact upon waste minimisation practices, but this chapter demonstrates that overarching these factors are the contexts within which practices are performed. The context in which the individual finds themselves can be significant not only in terms of infrastructure, but also in terms of the agency of an individual in a given setting. For example, individuals can be victims of consumer lock-in at the supermarket. In the context of shopping, cost was a very significant factor, and where fiscal incentives were inconsistent, there was a failure to transfer practice (for example bag reuse in grocery stores compared with retail outlets). In addition, convenience influenced the type of shop that people chose, and this meant that waste minimisation practices were affected, either because products were over packaged, because local produce was not available, because products were only available in bulk, or because long life products were not available in local shops, which in turn meant it went off before it was consumed.

In the context of work, agency was again demonstrated to be significant. It was evident that, inconvenience, a lack of consistent facilities, and the individuals perceived lack of autonomy/responsibility in this context prevented the transfer of recycling practices, let alone waste minimisation performances. With regards to the context of leisure, convenience was important in relation to some practices (recycling

and book reuse), but perhaps the most significant is the fundamental importance of social ties in relation to home related leisure activities such as gardening and DIY.

Cost and consumer lock-in appeared to have a great influence upon grovery shopping practices. Interestingly, even where policies were consistent (i.e. carrier bag charges), it appears that practices do not necessarily transfer. Arguably, this is because reusing bags is convenient in the context of grocery shopping, but less so when it comes to a perhaps less routine and planned activity of consuming fast food. It has been argued that consumption *"is about convenience, habit, practice, and individual responses to social norms and institutional contexts."* (Jackson and Michaelis, 2003: 6; see also Shove, 2003). The links between waste minimisation and sustainable consumption are clear – as well as reuse and repair, in order to prevent waste, one can consume more wisely. This quotation therefore reinforces the findings of this research that convenience, context, and agency are all significant in influencing waste minimisation as well as sustainable consumption practices. This thesis also contends that cost can also be relevant in relation to consumption and (to a lesser extent) disposal practices in line with previous research (Herridge, 2005).

6.3 Transfer Between People

We have seen how individual's waste minimisation practices can be influenced by the context in which they operate due to the variations in products and infrastructure available in different settings. Through a study of the transfer of practice between contexts, it has also been identified that the significance of cost and convenience in influencing an individual can change within a given context. Therefore, individuals are not necessarily consistent in their practices, as in different contexts they will undertake a range of often contradictory behaviours. The previous section considered the role of structure and agency in a given context. This section explores the role of agency further by looking beyond the individual and the setting to the impact of interpersonal influences and community expectations on the individual.

"...the fact that an individual can live up to expectations of several others in different places at different times makes it possible to preserve an inner core, to withhold inner attitudes while conforming to various expectations." (Coser, 1975:241)

Here Coser identifies that individuals can change their practices in a given context in order to conform to the various dominant cultural behaviours that are expected, even if they are contradictory, without threatening their core sense of themselves. As Whiteley (2000) and Fornara *et al* (2011) argue, key individuals (such as the family) can have a strong impact on creating these expectations.

Whilst the transfer of practice between people has strong links with context and agency, it also links with the third C, 'community'. Through analysis of the participants' responses the positive impact that a sense of community can have on an individual has been identified. In addition, through a study of practice, it has recognised a varying sense of responsibility in different settings, i.e. the individual no longer merely relates to social capital in one circumstance: *the individual can operate in several communities of social capital.* The role of communities was also significant based upon the social ties available (or not) and the accepted social norms within a given context. The remainder of this Chapter therefore considers when practice transfer did or did not take place between individuals and/or groups and why, in order to identify potential methods for encouraging the intensification of particular practices.

6.3.1 Practice Transfer in the Workplace

As we have seen when discussing waste practices in the workplace, there was a tendency for participants to discuss recycling practices. Waste minimisation practices were unusual in this context and even recycling practices were frustrated by various factors. Reasons people cited for not recycling as much at work included lack of facilities, different facilities or policies in place in the town in which people live compared with where they work, or even because there were simply different attitudes to waste in work, compared to those at home. However, it was also evident within the context of the workplace that many of the individuals felt that they lacked the agency to change the practices of others. This was demonstrated in section 6.2.3, where Jen had felt able to encourage recycling at home, but not at work. Similarly, despite efforts to do so, Rebecca was unable to encourage practice transfer within her full time place of work:

"Obviously being on the environmental committee we've gotta be seen to be actively doing as much as we possibly can, so I went and bought 2 separate bins – one for paper just with a slit in it for paper to stop people putting other stuff in there, and then a bin, just with a circle in just for all our plastic cups - because that's all we seem to recycle in work is paper, cardboard and plastic cups. They don't seem to recycle much else. If I see people throwing paper in the bins I'll say – 'Oh come on the recycling bins only by there.'...'Oh, don't go on' is all I get 'leave us alone', 'don't go on' you know?" (Rebecca)

Jen, who works with Rebecca, also finds it difficult to encourage those in her workplace to recycle, and has been nicknamed 'Swampy' for her known commitment to trying to get people to recycle (after the eco-warrior of the 1990s who became famous for protest at a range of anti-road campaigns, see Wall, 1999). Vivienne also claims that she has to make an effort to get others in work to recycle:

"I do nag them, I do make sure we always recycle all the paper, although we're meant to be a paperless society, we're not, are we?"

This suggests that there are some contexts where some individuals can assert influence over others, and some where they cannot – perhaps because of their position within the work or social structure, or perhaps because they are not encouraging waste related practices in the right way. It has been argued for example that people are more likely to undertake a behaviour if they are not nagged or preached at (Anderson, 2010; GAP, 2009; Hickman, 2006). Arguably, people are also less likely to be receptive to being 'nagged' in work because there is a slightly different attitude to waste within this context (see above).

A further important insight gained from a study of waste practices in the workplace is that people externalise the responsibility as 'not their problem'. For example, several of the participants expressed the desire to be able to recycle at work (Alan, Rebecca, Jen), each citing lack of facilities in the workplace as the reason why they were prevented from recycling. Only Rebecca actively did anything to challenge this situation, thereby demonstrating the externalisation of responsibility in the workplace. Arguably Rebecca's role on the environmental committee means she is the individual the responsibility has been externalised to in that company. Another example of the transfer of responsibility rather than practice is provided by Jen. She mentions that

there is an environmental committee at her full time place of work which is designed to change practices for the benefit of the company.

"Well we have an environmental committee at work who meet up, monthly I think, they meet up and then they have like meetings about ideas of what they can do and how things can be reduced but one thing is the cost of skipping the paper. Before we used to have to pay for them to come and empty the skip and now we have the compressor we can do probably 3 times as much for the same cost.

And then there are issues like we have a report that goes on the board about how much electricity we use and each month it shows it goes up and down and so therefore when it starts going up they have to remind everyone to turn their monitors off and whoever leaves the building last to turn the lights off and that. We have a security guard as well that goes around at the end of the night and checks everything is turned off."

The above quotation from Jen is interesting because the company has resorted to utilising a security guard to ensure that members of staff are turning off their computer screens and lights. Arguably, it is financially in the companies' interests to reduce usage of electricity for fiscal reasons, but not all have responded positively to the reports on the notice board or to the requests for them to turn off their equipment.

Rebecca, despite her failed attempts to encourage colleagues to recycle at her full time workplace, also explains how she has introduced facilities at the rugby club bar where she works part-time.

"They don't always adhere to it, most of the regulars do, they're pretty good now, they know if I catch em putting the wrong thing I shout at them, and they're pretty good with it. But I've only managed to do it up here, cos I know that if I was to put a recycling bin downstairs, they would just chuck all sorts of rubbish in it. And I can't vet it and I'm not gonna go wading through all the bins, so I do what I can."

This suggests that Rebecca has more autonomy in this place of work, and therefore feels able to challenge the systems in place and also those using them. Indeed, she admits that it works in the upstairs bar as she is there to monitor usage of the recycling bin, yet she cannot manage a recycling bin in the downstairs bar.

Therefore, a study of practice indicates that context is important in influencing the transfer of practice in a number of ways. The correct infrastructure needs to be available in a given context, but it also needs to be convenient for the individual to use. Nevertheless, routinisation of practice relates not just to the infrastructure but also the acceptability of a practice as a norm within that context (linking with research by Shove, 2003 in relation to practice). Furthermore, the agency of an individual within a given setting is important in facilitating the acceptance and reproduction of practices. Whilst managers of an organisation might be driven by cost, individuals within the workplace are more concerned with what is convenient and do not always respond postiviely to being 'nagged'.

6.3.2 Practice Transfer within the Family

Having recruited a variety of household types, it was possible to explore influences between siblings, parents and children, husbands and wives. Interestingly, it was evident that transfer of practice could take place with younger children. Rebecca felt that whilst she lacked influence in the workplace when telling people to recycle, she had influence over her children's practices through her own example:

"We've always been quite conscious about what we're throwing away. I think being brought up to sort of throw away as little as possible, he always says I'm a terrible hoarder, so if I can use it and keep it, but if it's got to be thrown away, then you know, if I can recycle it I will. The kids have always taken that on board, and because in school, they're taught to be more environmentally aware now, they've taken it on quite easily. Because even before they started doing kerbside collections, I used to have a box out in the garden where all the recycling, you know all the paper or bottles or whatever would go, and then once a week we'd take a trip down to the tip and the kids would be putting it all in the boxes you know, so that's pretty pro-active."
(Rebecca)

Here Rebecca mentions the positive influence that both she and the children's school have had upon her children's practices. Indeed, the fact that Rebecca has been able to influence her children, suggests that individuals have differing levels of agency in

different contexts. In addition, her discussion of the role of school education raises the importance of the means through which practices are encouraged.

During discussions with Alan, he mentioned the role of education, but also inadvertently touched upon the importance of the routinisation of practice, as a method for achieving behavioural change:

"I think it's gotta be more carrot than stick, to get people to do it properly and for it to become ingrained. Because I think when you see – especially kids – when they see how it's done, then it becomes normal." (Alan, interview 2)

Here Alan is talking about the importance of seeing a practice undertaken and then replicating it, linking with social learning theory and social norms (Jackson 2005). Alan believes people will perform practices if the performances are seen as the 'norm'. Similarly Jen talks about how she was brought up and how it has influenced her.

"Keeping stuff because yes I mean when I grew up it wasn't the state where you sort of like kids seem to get a lot nowadays. We had to eat what we had and you know make it last so we had that kind of view that made it last...I think there is a change of lifestyle and people are more aware but then there is also the other extreme of people say they are too busy nowadays which is a bit lame really because it doesn't take much more to throw it in one bin than the other bin if we are talking about recycling."

However, what children learn from their parents can be negative as well as positive behaviours:

"I saw a lady with a child in a pram and then another child. The child went to the mum 'I've finished my drink' and she went 'go throw it in the river', so the little kid walked over and came back smiling cos she'd done what mummy said and she did well."(Alan)

I suppose the kids do quite a lot with it in school now, don't they? I think they are a little bit more...encouraged. But then I still think if they go home and their parents aren't buying into it...They are going to sort of think well you know mum and dad don't do it, why should we if they don't?" (Barbara)

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Therefore, it is important that parents and schools are consistent in providing positive messages to children. Nevertheless, it does not automatically follow that parents and teachers can influence children, as other participants talked about how they enjoyed to garden, home compost and grow their own veg, but their children do not:

"My son's garden is a wreck...He said oh don't worry about it; if people look at that they think the house is a tip inside so they won't want to come and rob me so I will leave it as it is. You know don't worry about it." (Ken)

Similarly, Vivienne describes how she has started to change her practices in relation to how much food she wastes, but her son does not necessarily agree with this, let alone consider taking up the practice himself.

"In fact my son was cross with me because I was eating something last week that was about 4 days past its sell by date..."

However, Vivienne's son is not averse to all waste minimisation practices, as she also mentions gifting him new bags of fruit and second-hand pieces of furniture, including items re-purposed by neighbours.

It is also important to note, that similar to Ken and Barbara's children, Vivienne's son is an adult who no longer lives at home, and it appeared that parents of older children found it far more difficult to influence their practices. Similarly, Ben's children are adults and he has encouraged them to grow their own vegetables, with little success, until recently. However, he believes that the change in his children's practices has more to do with gardening becoming a 'trendy' lifestyle choice. Ben mentions that he had heard on the radio that more vegetable seed packets had sold that year than flower packets for the first time for a long time, evidencing the increase in popularity of growing your own.

"It's funny, my daughter in London, and my son in the Isle of Wight, I've always had a garden or an allotment or something, but they've never really shown an interest, but they've suddenly started growing veg and things in their confined spaces as well, so it seems to be catching on." (Ben)

Nevertheless, as discussed in section 6.2.2, whether or not this upsurge in growing vegetables has led to a reduction in waste is difficult to prove, and even doubtful in some cases where people are consuming a number of products such as tools, to produce a very small yield of crops that is unlikely to sustain them.

Therefore, in terms of practice transfer between family members, it is clear that whether or not transfer takes place can depend on a number of factors, such as whether the practice is convenient and fits into the individuals' lifestyle and whether there is a strong influence over the individual. Furthermore, 'nagging' or 'preaching' at people to act in a pro-environmental way is not very positively received (Anderson, 2010; Hickman, 2006; GAP, 2009). In addition, the level of agency an individual has in a given setting can influence the extent that practices transfer from them to others and vice versa.

6.3.3 Practice Transfer within the Community

As discussed in Chapter 5, community norms and ties can facilitate waste related practices. For example, Ken helps his neighbours with composting and gives people vegetables he has grown in his garden. His nominated participant, Alice also provides people with fruit from the plum tree in her garden in order to prevent it from going to waste. Similarly Ben mentions his allotment and the sharing of produce that occurs there. The question is whether such practices transfer to other people. As argued in Chapter 5, community ties can facilitate waste minimisation as people can utilise social ties to redistribute surplus items.

In addition, Chapter 5 provided the example of Denise obtaining recycling bags for her neighbours as a way of the community facilitating recycling practice. Arguably, Denise's practice of obtaining and distributing green bags is ensuring that her commitment to recycling transfers to her neighbours, as she is giving them fewer excuses to not recycle by making it more convenient. Denise's neighbour – Vivienne – discusses how running out of green bag prevents her from recycling.

Is there anything that stops you recycling?

"Running out of green bags: Which was only just recently so no I do, I must recycle an awful lot because my black bin doesn't get much put in it. And we do talk a lot about it, neighbours and so on, recycling and things."

Here Vivienne emphasises the important role that Denise plays in facilitating Vivienne's practices, as if Denise did not obtain bags for Vivienne, she may not bother to make the effort herself. Vivienne also mentions that she and her neighbours discuss recycling, indicating that it is accepted as a social norm in this area. The impact of such a practice being a social norm should not be understated, as it is another important example of how the practices of the community as a whole can impact upon the actions of an individual.

However, making a particular action normative is not straightforward as there needs to be general acceptance of a practice for it to become an everyday habit (Barr *et al*, 2001). As Ben highlights, when he tells people about the fact that he cycles to do his shopping in order to save time and money "*they really think it's a bit freakish*." This demonstrates that where people have to make a change to routine practices in order to undertake pro-environmental behaviour it is not socially accepted as 'normal' behaviour, but rather as an eccentric practice, possibly due to pre-conceptions about 'green' behaviour, but also because the practice is perceived as inconvenient. Such a situation would be very different in Holland for example, where cycling is made more convenient and safe by government policy and culture. This reinforces the importance of having a green infrastructure or an acceptable social norm to encourage practice, rather than leaving individuals feeling that a practice is being forced on them (As discussed in Chapter 3, see also Anderson, 2010b; Horton, 2003).

Nevertheless, even where practices do become a social norm, there can still be those who do not conform: Denise found that her influence over the community was only positive where acquaintances were receptive to what she was trying to promote. In the following example, she is talking about a neighbour who does not wish to separate his food waste for composting by placing it in the white bags and then into the green wheeled bin.

"I mean I did say because the guy next door was saying we pay all this amount in rates [taxes] and then I have got to sort my own rubbish. I said yes but have you thought that if you don't do it your rates will go up even more...I mean he is an educated guy...I mean I shall watch for his green bin to come out and just see whether he eventually does it. I mean some people are quite happy to do it but some aren't." (Denise)

It is clear from discussions with Denise that she has tried quite hard to influence her neighbour, but she feels doubtful that he will change his mind. In a later interview with her, she confirms that he is not participating in the food waste scheme. Similarly, Barbara discusses her frustration with her neighbours who are not participating in the food waste scheme in their area.

"Yes I think it is a very hard road to go down to teach people to be green because I mean we know people, don't we, that aren't doing the food bag system...And you think oooh, and you sort of think oh why can't they do it and then you think the problem is if other people are aware that they are not doing it will they think well why am I doing this? If other people aren't doing theirs why are we bothering, and I don't know?" *(Barbara)*

The above demonstrates the negative impact that a neighbour not participating in the food waste scheme can have on the neighbourhood. Whilst Barbara is frustrated about the situation, she has not approached her neighbours, but she is starting to question her own practice; '*If other people aren't doing theirs, why are we bothering?*' This again demonstrates how important social norms can be in influencing practices, but also how practice transfer between people can be negative as well as positive.

6.3.4 The Media

The media has been highlighted as significant in influencing practices by previous research (Whiteley, 2000:449), and the role of the media was also evident through discussions with participants. In section 6.2.1 above, Vivienne mentioned how the media had made her re-consider her views in relation to packaging *"I read somewhere that, I've got to try and go to the farmers' markets, that's what I was going to try and go to"* and also food consumption *"I saw a programme last week, I think it was on*

TV, about how food waste and how much people, and I realised that I contributed to that so I now I am conscious of trying desperately hard to not overbuy."

Vivienne claimed that she changed her attitude towards out of date food as a result of watching a documentary on television where the presenter made a point of surviving on out of date food. This made her pay less attention to sell-by-dates, and therefore waste less food. Indeed, she talked a great deal during interviews about waste related items she had read in the newspaper or seen on television, demonstrating the significant influence of the media upon her as an individual.

It could be argued that the above examples provided by Vivienne relate to witting and pro-environmental behaviour, it is also possible to contend that Vivienne is keen to conform to social norms, and having read about certain practices, and having these practices reiterated on TV, Vivienne has started to accept them as normal everyday practice. Whilst during the interviews Vivienne provided examples of using out of date food *"I was eating something last week that was about 4 days past its sell by date...",* she did not provide examples of having started to use farmer markets, even though the interviews took place over a year, and she mentioned the idea early on in the research. Therefore, perhaps whilst she found the concept attractive, the practice was not convenient enough, reiterating the significant difference between intent and action. Furthermore, it demonstrates the need for a combination of facilitating factors such as accepted social norms and convenience in order for a change in practice to take place.

As well as practices failing to transfer, it was evident from the interviews that the media does not always have a positive impact, as several participants discussed the negative impact that the media can have on recycling practices.

"But one issue I think it's been on the news, hasn't it, that because some places have stopped for example collecting newspapers and things because the price of...recycled materials has gone down so some councils have cut recycling actually." (Ben)

Here Ben questions the value of recycling paper as a result of negative press in the media. Similarly other participants highlighted that news item in the media had made people think about whether recycling was worthwhile.

"In the media I think most of the stories actively encourage people not to recycle... 'it all ends up on a boat to China'." (Alan)

Certainly, a great number of participants had heard and believed the rumours that either recycling ends up in landfill or on a boat to China, and were keen to seek re-assurance on this point. Nevertheless, those involved in the study were still in the habit of recycling, again reinforcing the significance of routinised practices. As a waste practitioner, the researcher was able to re-assure participants that recyclables collected in Cardiff were not sent to landfill, and interviewees were interested to hear what actually happened to the materials collected for recycling. In particular, the tour of Cardiff's recycling plant and the focus group held afterwards helped to dispel many of the myths that interviewees had heard.

6.3.5 Interviewer and Interviewee Influence

The role of the researcher, and their potential to impact upon the practices of the participants in the research should also be considered. It was evident from discussions with interviewees that as a result of being part of the research they had begun to change some of their practices:

"Well, from seeing you - from the last visit - I have really tried hard not to waste food...I mean if I've got something over I'll give it to the dog if necessary make a meal for her rather than waste it....My shopping habits have changed you know in that respect really. I think about it more - what I'm buying - instead of just picking it up and putting it in, I think about it, am I going to use it? Especially with rising food costs as well you know you need to. The only thing I am still wasting is bread."
(Vivienne)

Here Vivienne explains how her involvement in this research has made her more aware of waste minimisation. It has made her think about what she buys and what she throws away. Therefore the researcher has encouraged some 'witting' practices. Nevertheless, Vivienne mentions that cost is also a significant factor affecting her desire not to buy things she will not consume.

Throughout the course of the interviews, the researcher developed the interviewees knowledge and understanding in relation to waste minimisation and recycling.

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Sometimes, as a result of questions about how to dispose of certain items, the researcher was asked to take items such as electric lamps and bicycle wheels to the household waste recycling centre on the interviewees' behalf. In this way the interviewer to some extent changed the interviewees practices. In addition, the interviewees themselves shaped the research by using their diaries to raise questions and also draw attention to information they had seen in the media, or heard about from another third party. For example, some made notes on practices that they were undertaking, which, prior to the interviews, they had not consciously thought of as waste minimisation – such as giving home grown vegetables to friends and neighbours rather than letting them go to waste. Denise cut out newspaper articles to discuss at interviews, such as one about food waste. Ben made notes surrounding discussions he had initiated with acquaintances relating to recycling where they lived. The diaries therefore provided participants with an opportunity to shape the discussions that took place.

It is therefore clear that the researcher did transfer some practices onto the individual and vice versa, with Ken and Alice gifting the researcher with home grown produce. Through general discussions about shopping, planning meals and so on, some participants began to think about and change their practices. Therefore, practices can transfer between people, but whether or not practices transfer depends on whether the practices can be easily accommodated within an individuals' lifestyle, linking back to the importance of convenience and agency within a given context. For example, recycling a lamp rather than binning it was convenient as it involved the researcher returning to the workplace where the recycling centre was, whereas if the researcher had not facilitated this practice, the items probably would have ended up in landfill as the participants did not want to make a trip to the Household Waste Recycling Centre to recycle one item.

6.4 Reflections upon a Study of Practice Transfer

Through studying practices, it was possible to determine what promotes or prohibits practices from transferring both between contexts and between people. Whilst some of the examples of practice transfer were encouraged or discouraged by the themes of cost and convenience (in particular time and infrastructure), the significance of social

ties and social norms has also been reaffirmed, and the importance of the agency of the individual within a given context identified. Therefore, this Chapter reinforces the role of the Three C's identified in Chapter 5, but also expands the range of influences to include context and agency.

Cost demonstrated itself to be a significant driver when it came to the consumption of groceries, and retailers practices were found to have both a positive and negative effect on an individual's ability to transfer practice. For example, supermarkets can have a negative impact on an individual's practices if the goods that the consumer desires are only available in excess packaging, or where supermarkets offer items buy one get one free instead of half price. Therefore, in the context of grocery shopping, participants faced conflicts between practices such as buying organic goods that are over-packaged and waste reduction, and also between buying what is cost effective or convenient and waste reduction; hence the individual is prevented from transferring practice due to the lack of options available to them in the context of grocery shopping. Nevertheless, shops can also have a positive impact by introducing financial incentives for reuse, such as in the example of carrier bags. As such, cost was a significant factor in influencing not just practice, but practice transfer in the context of grocery shopping. In addition, convenience had some influence in affecting practices and practice transfer. Participants chose to shop wherever was most convenient and their choice of shop shaped both their consumption and disposal practices (as in the examples of Jen and Denise).

Whilst cost was identified as most significant in relation to (grocery) consumption practices, convenience was important in relation to disposal practices. Convenience was significant in influencing recycling practice transfer between the contexts of home, leisure and the workplace. Convenience was also important in relation to reuse practices in the contexts of home and leisure (DIY and gardening). However, as mentioned previously, the Three C's do not necessarily act in isolation, and both cost and community were also found to play a part in the reuse of materials. In relation to this particular research group, the role of cost was limited, but the significance of convenience at the point of divestment was closely linked with the availability of social ties to provide a conduit for items.

The community not only demonstrated itself as a facilitator of practices by making actions more convenient, but also through 'social diffusion', or put another way, through the provision of community norms. In terms of community, rather than representing concern for the community (as indicated by Barr *et al*, 2001), this research suggests that the role of communities is to facilitate practices and ensure that habits recur and become routine through provision of social ties and social norms. For example, in the affluent community of Ken and Alice it was a social norm for neighbours to help each other out with the gardening, to lend/borrow tools and also to exchange fruit and vegetables.

Table 6.1 illustrates how the Three C's affect specific practices in specific contexts. From Table 6.1 it is evident that what influences a particular practice not only varies between contexts, but also between materials. A further complexity to note is that there are always those who will operate outside social norms. Indeed, the agency of an individual within a given setting will also contribute to determining whether an individual conforms to social norms or rebels against them. Furthermore, these results represent the most recurrent themes for the individuals involved in the study at a particular point in time. As Shove (2003), highlights, practices are ever changing and evolving and therefore it is important to be mindful of this. As such, Table 6.1 provides a guideline as to what influences were identified as most significant for the participants in this research in a given context. Whilst these influences are specific to the individuals studied, there are important findings here that are pertinent to future research and policy.

Table 6.1: The Role of the Three C's in Influencing Practices

Context	Practice	Main Driver/Barrier
Home	Recycling	Convenience (Community Norm)
	Reuse left over food	Cost (Social Norm)
	Reuse furniture	Convenience (Community Ties)
	Reuse Books/Bric-a-Brac	Convenience/Rejection
	Reuse electrical items	Convenience
	Reuse/recycle textiles	Convenience (Cost- perceived value)
Leisure	Gardening (gift produce)	Community Norms and Ties
	DIY (borrow tools)	Convenience - Community Norms and Ties
	Shopping	Consumer Culture - Community Norms?[31]
	Holiday (book reuse)	Convenience
	Recycling	Convenience
Grocery Shopping	Avoid buying too much	Cost
	Avoid packaging	Cost
Work	Recycling	Convenience/Consistency

Firstly, the significant influences identified and summarized in Table 6.1 are cost, convenience and communities rather than environmental concern. This does not mean that waste minimisation practices never occur as a result of environmental concern; the table simply reflects the main themes identified through a study of the practices of the research group.

Secondly, this research evidences that waste minimisation practices could, similarly to recycling practices, be normalised. To some extent, this links with the argument that practices are ever changing. For example, as discussed in Chapter 3, arguably recycling was not normative until it became convenient. Through the provision of (convenient) infrastructure, recycling practices have become a social norm. Through understanding what influences a particular material practice in a given context, future research and policy can identify the significant triggers for a broader range of waste related practices in order to encourage their normalisation.

Thirdly, the role of agency in a given context was significant. For example, whilst people were likely to change their practices at home in order to facilitate waste related practices, they often lacked the infrastructure and the agency to do this at work (with

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[31] There are multiple contexts in relation to shopping i.e. shopping for luxury items such as cars, shopping for clothes or hobby related items. Therefore more research is warranted in relation to such contexts in order to draw conclusions relating to consumption in the context of 'leisure'. This research shows that there is a distinction to be drawn between shopping for groceries and other shopping contexts.

the exception of Rebecca in her part time post, where her social ties were arguably stronger at her local rugby club). Similarly lifestyle and leisure contexts displayed different waste minimisation practices to the home as whether a practice was undertaken could depend on whether it 'fit' into the individuals existing lifestyle, habits and routines. As such, it is evident that whether an individual feels constrained or enabled by a social norm can impact upon practice, but whether they can go against the 'norm' in a given context depends upon their level of agency in a given setting. For example, when it came to grocery shopping, many of the participants explained their frustrations from being locked in to unsustainable consumption, but only a couple gave examples of how they had been able to overcome this (such as Vivienne buying her produce elsewhere).

A study of practice transfer between contexts also highlighted the fact that waste minimisation practices in work and leisure contexts are difficult to identify, possibly because they are scarcer than waste minimisation practices associated with grocery shopping and the home. In particular in the context of work, this meant a tendency to focus upon recycling practices in the workplace, which nevertheless generated interesting information relating to the role of structure (convenience) and agency in the workplace.

Agency and convenience were also significant in relation to the transfer of recycling and reuse practices between individuals and groups. Given the significant role of convenience in relation to such practices in all contexts (see Table 6.1), it is apparent that there is a need for a *consistent* approach, which makes recycling and reuse practices *convenient* in all settings in order to ensure that a habit is formed and replicated. This would help to overcome the issue of agency should certain practices become more convenient and therefore the norm. Without this, it is likely that individuals will not strive for waste minimisation consistency in all contexts; or better put, individuals will remain unable to practice even desired waste minimisation due to a lack of agency and infrastructure in different contexts.

Chapter 7 further discusses how the themes identified might be utilised to normalise specific waste minimisation practices. Furthermore, the following chapters consider the implications of this research, not just for policy, but also for future research.

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Chapter 8 summarises the findings of this thesis, highlighting that it has not only contributed to knowledge through a study of practice: this thesis has highlighted the benefits of taking an alternative approach to the arenas of waste and behaviour change.

Chapter 7: Putting the Research into Practice

7.1 Introduction

Having analysed the empirical research in relation to the first two research questions it is necessary to evaluate the research findings to answer the third research question. The three research questions are as follows:

1. What waste minimisation practices take place at the individual and household level (both wittingly and unwittingly), and why?

2. A) To what extent do waste minimisation practices transfer between different contexts? And,

   B) To what extent do waste minimisation practices transfer between people?

3. What are the implications of these results for policy?

Chapter 5 reviewed the empirical data to address the first research question. This chapter demonstrated that by adopting an everyday practice approach it was possible to identify both witting and unwitting waste minimisation practices that take place for reasons other than environmental concern. Furthermore, Chapter 5 identified three alternative themes that had a significant influence on waste minimisation practices: Cost, Convenience and Community. In addition, Chapter 5 identified how the practices of an individual might be different dependent upon the context and the material in question. The question of whether or not practices transfer between people and places was considered in Chapter 6 (as per the second research question). As such, Chapter 6 explored the roles of context and agency. Chapter 6 reiterated the significance of the three C's in influencing the take up and transfer of practices. Furthermore, Chapters 5 and 6 illustrated that individuals divest different materials in various ways, as participants placed different values upon particular items. It has become evident through a review of existing research, as well as the empirical data gathered for this thesis, that practices and the influences upon them can vary. These variations can be dependent on both the individual and the context. (For example, one individual might reuse books via a library, whilst another uses a charity shop to divest books.) Furthermore, waste minimisation is not a single action like recycling, it

comprises multiple possible actions. Therefore, a turn to practice (Warde, 2005) has highlighted the complexity of waste minimisation practices. Future policy interventions need to consider what influences a particular material practice in a particular context.

This Chapter analyses the research findings, including the information generated in Chapters 5 and 6, in order to address the third research question: 'What are the implications of this thesis for policy?' Previous research has been criticised for failing to provide clear guidance as to how the various and complex factors influencing individuals can be used by policy makers to encourage a change in practices (Shove, 2010; see also Chapter 3). As such, this chapter commences with a brief summary of previous policy approaches to 'behaviour' change and argues for the need to adopt a different approach. This chapter highlights that in order to change practices policy will first have to recognise the need for an alternative approach to encouraging 'behaviour' change. Rather than focusing on the why, policies should focus on the how, by making practices as convenient as possible and tailoring services to the needs of communities. In addition, this thesis emphasises the importance of raising awareness of existing facilities that could be used more extensively and by more people than at present. In order to achieve this, the chapter draws on the empirical material from previous chapters to suggest that an approach that focuses on the benefits to the individual or group is more likely to be successful, rather than an abstract approach that 'preaches' good environmental behaviour. The chapter continues by providing guidance as to how the three identified themes - cost, convenience and community - might be harnessed by policy to facilitate a change in waste minimisation practice. As practices can vary dependent upon the item in question, this chapter considers how policy can encourage waste minimisation in relation to specific waste streams, such as food, bulky household items (e.g. furniture), textiles and books.

Given the complex nature of practices, the suggestions detailed below include a range of approaches to encourage them, including regulatory measures and 'green architecture'. It is important to note that the research undertaken for this thesis was never intended to be representative. Therefore, the measures proposed will not change all practices. Indeed, it is hard to imagine a measure that would change all practices

for all people. Nevertheless, the aim of the measures proposed is to shift the balance from 'some households and individuals' (Evans, 2012; Bulkeley and Gregson, 2009) who 'sometimes act' (Barr *et al*, 2001:2034) to establishing waste minimisation practices as a social norm through the intensification and diffusion of these practices (Evans, 2012:1135).

7.2 Policy Approaches to Promoting Practice

As discussed in Chapter 2, whilst policy has begun to recognise that a multitude of factors influence the individual, existing solutions use segmentation models to target particular people with tailored messages (DEFRA, 2006; DEFRA, 2008). Segmentation models are inadequate as they fail to take into account context and the potential for practices to be unwitting and inconsistent (as discussed in Chapter 3; see also Jackson, 2005; Shove, 2010; Hinton, 2010; Hargreaves, 2011). Given that external influences upon individuals can impact upon the consistency of their practices (as discussed in Chapters 3, 5 and 6), this chapter argues that policy needs to play a more active role in facilitating reuse practices. As discussed in Chapter 3, the UK Government has started to consider an alternative approach to behaviour change in the form of nudge theory (Cotterill *et al*, 2012). This Chapter will demonstrate that policy needs to adopt a range of approaches at both a national and local level to encourage more frequent practice of the range of performances that sometimes take place.

This thesis argues that at a national level there is a role for organisations such as WRAP and the Welsh Government to encourage more sustainable consumption practices. However, the majority of implications for policy relate to actions that can be taken by Local Authorities. As detailed in Chapter 2, the aim of this thesis was to identify how individuals might be encouraged to perform waste minimisation practices. Therefore, the bulk of the suggestions provided in this Chapter relate to how waste minimisation practices should be encouraged at a local level, particularly in relation to divestment practices. Nevertheless, Local Authorities cannot encourage waste minimisation by themselves. Local Authorities need to make use of, promote, and develop new and existing infrastructures that enable waste minimisation practices. Participants provided multiple examples of how they have tried to re-purpose items,

evidencing that the desire already exists, but sometimes participants' desires were frustrated by lack of (and awareness of) facilities. Local Authorities need to bridge the gap between the individual disposer and the appropriate end market in order to achieve the intensification, spread and resilience of (waste minimisation) practices (Warde, 2005).

This thesis proposes three key ways in which Local Authorities can encourage waste minimisation practices. Firstly, in order to overcome the shortcomings of previous models (such as AIDA, discussed in Chapter 3), rather than preaching about the environmental benefits of a particular practice, Local Authorities should promote the benefits to the individual in a given context (Horton, 2003; Porritt, 2005; Anderson 2010).

Secondly, there is growing evidence to suggest that rather than encouraging pro-environmental values, research and policy should be focusing on encouraging sustainable performances (Horton, 2003; Shove, 2003; Bulkeley and Gregson, 2009; Anderson, 2010; Hargreaves, 2011). Horton (2003) suggests the creation of a 'new, green architecture' (P.75) which encourages the performance of green practices in various places through provision of materials, time and spaces that facilitate such practices. Similarly, Bulkeley and Gregson (2009:943) emphasise the need to provide the right infrastructure: *"...the challenge is to design and develop services that divert materials from trajectories which still connect easily to the waste stream."* Bulkeley and Gregson provide the practical example of tailoring 'waste' services by providing a reuse service for those moving home. This chapter suggests a number of ways in which Local Authorities should seek to develop existing and new infrastructure in association with non-governmental organisations. Such facilities should be tailored to the needs of the communities that they serve. It is evident that how people divest items depends upon the context (such as the community in which they live) as well as the item in question, thereby adding further complexity to the study and promotion of sustainable practices (see also Evans, 2012). As a consequence, the material targeted and the context in which that material is used need to be taken into account when creating green architecture.

Thirdly, Local Authorities should work with community groups to encourage the intensification of existing waste minimisation practices. Through working with communities, Local Authorities could seek to facilitate the transfer of practice. For example, in a community where the gifting of furniture and home grown produce is already common-place, community groups and Local Authorities could facilitate waste prevention in relation to other items – such as encouraging the anonymous donation of food as suggested by Evans (2012). In areas where such waste minimisation is not already in evidence, for example in neighbourhoods with a high level of transitory populations, local authorities and community groups could undertake advertising campaigns in order to publicise the green architectures (in all forms) that enable personal and community gain through repurposing, selling or gifting unwanted materials.

7.3 Implications of the Research Findings

Chapter 5 provided evidence that multiple waste minimisation practices can take place unwittingly, for reasons other than pro-environmental concern. The empirical data demonstrated that influences over the individual in relation to waste reduction and reuse can be summarised into three themes; cost, convenience and community. In addition, Chapter 5 identified that the drivers for waste minimisation and recycling practices are similar, contradicting some researchers who argue that the drivers for waste minimisation and recycling are very different (Barr, 2006; Tonglet *et al*, 2004). These researchers argue that recycling is a normative behaviour, whereas waste minimisation is not. As discussed in Chapter 3, introduction of widespread recycling facilities made recycling convenient and also a social norm. Similarly, borrowing tools instead of buying new is not only a convenient practice; it is enabled through the acceptance of such a practice as a social norm (in the neighbourhood community where Alice and Ken live, for example). Nevertheless, it does not follow that borrowing things from neighbours is a norm UK wide or even Cardiff wide. What existing research does demonstrate though is that there is potential for this to be the case. Previous researchers have also argued that waste minimisation is more closely linked with environmental values than recycling (Barr *et al,* 2001; Barr, 2006; Tonglet *et al*, 2004). Arguably, previous researchers were comparing a single practice

(recycling), with multiple practices (waste minimisation), and therefore differences could be due to the range of potential practices and contexts involved.

Chapter 6 concentrated on where practices take place and whether they transfer between people and between places. The empirical data demonstrated that whilst the three C's identified in Chapter 5 were again significant in influencing when and where practices transfer, context and agency also have a significant role to play in the transfer of practice. With this in mind, Table 7.1 expands upon Table 6.1 and suggests potential measures to facilitate the intensification of particular practices. Where appropriate in Table 7.1, practices have been listed more than once in order to illustrate the different factors at play in different contexts. The table portrays the complexity of each practice in a simplistic manner, and in isolation is insufficient to provide guidance for changing practices. Indeed, this table reflects the practices uncovered through the empirical research undertaken. As such, the table reflects the practices of the group studied and their motivations for undertaking them. Moreover, these practices are representative of a given point in time and, due to the constant evolution of practices (Shove, 2003), it is possible that other influences will emerge in the future to further change behaviour (such as the dematerialisation of media i.e. people downloading films and music rather than buying hard copies). Nevertheless, the table captures several key elements that are reflected upon in the remainder of this chapter. The table therefore provides a platform on which to build the architecture that is required to encourage the practices listed.

Table 7.1: The Three C's and How they Might be Mobilised

Context	Practice	Main Driver/Barrier	Methods to intensify Practices
Home	Recycling	Convenience (Community Norm)	Provision of convenient facilities
	Reuse left over food	Cost (Social Norm)	Promote cost saving benefits
	Reuse furniture	Convenience (Community Ties)	Provision/promotion of convenient facilities
	Reuse Books/Bric-a-Brac	Convenience/Rejection	Provision/promotion of convenient facilities
	Reuse electrical items	Convenience	Provision/promotion of convenient facilities
	Reuse/recycle textiles	Convenience (Cost-perceived value)	Provision/promotion of convenient facilities
Leisure	Gardening (gift produce)	Community Norms & Ties	Community organisations to promote sharing e.g. Food banks
	DIY (borrow tools)	Convenience - Community Norms & Ties	Provision/promotion of convenient facilities
	Shopping (luxury)	Consumer Culture - Community Norms?*	More research needed in specific contexts
	Holiday (book reuse)	Convenience	Provision/promotion of convenient facilities
	Recycling	Convenience	Provision of convenient facilities
Grocery Shopping	Avoid buying too much	Cost	Work with retailers/legislate to change shops policies
	Avoid packaging	Cost	Work with retailers/legislate to tackle packaging
Work	Recycling	Convenience/Consistency	Provision of convenient and consistent facilities to facilitate as an expected norm.

From Table 7.1 it is evident that convenience is a significant factor that encouraged the reuse and recycling of various materials in the home, but also in other contexts. In the contexts of work and leisure, individuals are particularly susceptible to lack of facilities, or restricted choices and concurrently a (perceived) lack of agency to overcome the architectural barriers with which they are faced (be they infrastructural, social or choice architecture). Nevertheless, what is convenient for one individual is

not necessarily so for another. As identified in Chapters 5 and 6, different people divest different materials in different ways. Firstly, whilst one participant may be able to gift or hand down furniture through their community network, another might have to seek an alternative conduit for such materials, demonstrating the impact of context and community upon practice.

Secondly, there were variations between an individual's own material practices. Participants provided examples of handing down items of furniture and large electrical items through social networks, but there was no such tendency to pass on surplus food, textiles or small household items (e.g. books and bric-a-brac). It appears that whilst it is an accepted social norm to hand down furniture, this is not the case for other items, again reiterating the role of community.

Thirdly, whether or not participants actively sought to re-purpose an item depended upon whether they felt that the item had sufficient value. For example, most chose to dispose of textiles or clothes that were 'good enough' via charity shops or textile banks. Items that were not perceived as good enough for reuse went into the dustbin. Interestingly, there was not a tendency to 'gift' clothes within the participant groups studied. Most people said that items were donated to charity or put in the dustbin rather than being repaired or gifted. Jen did mention that she received 'hand-me-downs' when she was younger, as did Ben. Denise also mentioned the need to 'make-do-and-mend', but generally people did not talk about gifting or consuming second hand clothes. The fact that people did not mention passing on clothes could link with an interesting waste management phenomena labelled as the 'Primark effect' (Knapton, 2013). The Primark effect refers to the fact that a higher quantity of low quality garments are being disposed of (via charities) than before as a result of the budget clothing available on the high street. Perhaps, then, due to the low quality of the garments, they are not perceived to be of sufficient value to pass on, as similarly to food, people fear being judged by the quality of their discards (Evans, 2012).

Fourthly, different people were aware of different methods of disposing of certain items: whilst some tried (and failed) to re-purpose books via second hand book shops, others successfully donated books to libraries or book swap facilities. It was evident that whilst some thought book shops were appropriate places to donate books for

reuse, there was not necessarily demand for these items. In order to ensure individuals are able to divest items, there is a need to connect them to the end market for these items. The example of libraries demonstrates that facilities already exist. However, whilst provision of facilities can enable practice, there is also a need to promote such facilities in order to ensure people are aware of how to divest particular items. As mentioned in section 7.2, such promotions should focus upon the benefits to the individual, including the convenience and (if applicable) the financial benefits of a particular practice.

The Waste Prevention Programme for Wales makes some suggestions as to how to target specific materials for reuse. With regards to promoting the reuse of electricals, furniture and Clothing, the focus, respectively, is upon promoting donation of electricals, placing responsibility back on the producer for furniture and encouraging people to buy clothes. However, in relation to electrical reuse, there is a far more significant role for Welsh Government to play. Given the drive for a zero waste Wales, Welsh Government need to support Local Authorities to achieve this aim by ensuring that end markets are available for electrical items so that these can be promoted. It would also be beneficial to ensure that methods of donation are convenient and free for individuals. In terms of furniture, again, whilst some responsibility can be placed on the producer, unless there is a legal or financial incentive for the producer to act, they are unlikely to do so. The Prevention Programme makes clear that attempts to tackle the supply chain will be based upon voluntary agreements, and therefore there is little incentive for producers and suppliers to support waste minimisation initiatives. Lastly, with regards to clothing, the Programme suggests encouraging people to buy clothes, even though demand already outstrips supply (Welsh Government, 2013). Therefore, rather than encouraging demand, there needs to be greater consideration of the infrastructures available to donate clothes and promotion of such infrastructures. For instance, this could include coordinating the multiple doorstep collections taking place of current, to ensure a regular kerbside collection service is established.

A further concern regarding the Prevention Programme is that it is based upon the 4 E's model for behaviour change. This is an issue because the model 1) focuses on changing behaviour; 2) does not take into account context and agency 3) does not

address the fact that people do not like to be 'preached' at in relation to their values and practices (Chapter 3). The Programme does highlight the costs of food waste and suggests promoting this to the individual. However, when it comes to other items, such as WEEE and clothes, the programme merely states the need to encourage donation of some materials and encourage purchase of others, but does not detail how. This thesis argues that understanding and outlining how such practices can be encouraged is vital. The material nature of practices means that promotional campaigns need to be informed by an understanding of how people currently divest such items and why. If individuals perceive there is no value to an item, then campaigns need to focus on changing this perception. The Waste Prevention Programme does mention the need for 'cultural change' in order that certain materials (textiles and electronics) can be seen as valuable, but this concept is not embedded across all 'workstreams', which include food, textiles, electronic equipment, junk mail, home composting and real nappies. Furthermore, the focus of each workstream is again very much upon behaviour change and preaching pro-environmental messages, rather than promoting practices.

This thesis argues that instead of focussing upon the environmental benefits of real nappies and saying no to junk mail, promotions should give people the opportunity to sign up there and then, making it as convenient as possible. A significant thrust of the campaigns proposed seem to be the provision of information, something that has already been achieved through other activities. A key challenge is changing what the information is and how it is provided in order for practices to be altered. Otherwise, all that is being advocated is a return to the AIDA model of behaviour change, a model that has proven to be ineffective (Jackson, 2005; Shove, 2010).

Therefore, a consideration of the material specific nature of practices reiterates the need to use a variety of methods in order to promote waste minimisation practices. The following sections provide examples of how the three C's can be used to plan the provision and promotion of architecture that will facilitate particular material practices. This (green) architecture will help to intensify and normalise sustainable waste practices. Nevertheless, it does not follow that such practices will become uniform. Indeed, some materials will always need to be divested in different ways,

and as such, policy needs to bear this in mind when tailoring the delivery and promotion of services.

7.4 Cost

When reviewing the role of cost in Chapter 3, it was suggested that financial incentives could be significant in relation to 'unwitting' waste minimisation practices. For example, an individual might sell an item via an auction in order to regain value from it, rather than put it in the dustbin. In such scenarios, it has been argued that the individual's primary intention is not to reduce waste but to make money (Herridge, 2005; Padel and Foster, 2005; Tucker and Douglas, 2006; Bonini and Oppenheim, 2008). Through analysis of the empirical data in Chapters 5 and 6, it was evident that cost influenced individuals both at the point of consumption (in the context of grocery shopping), and, to a lesser extent, at the point of disposal. The following sections illustrate the barriers identified in relation to waste minimisation practices and how these barriers might be overcome through national and local policy measures.

7.4.1 Cost, Consumption and Avoidance

From Chapter 6 it was identified that financial incentives and penalties were most significant in the context of grocery shopping. For example, people claimed to reuse bags largely to avoid paying for them. Point of purchase cost was also significant for food items, with Ben providing the example of avoiding packaging because buying mushrooms loose was cheaper than buying them in a container. Indeed, a number of participants were frustrated by excess packaging and 'buy one get one free' offers, with some suggesting that half price offers would be better. Examples from Vivienne, Jen, Denise and others relating to the purchase of bulk or 2-4-1 items demonstrated that consumer 'lock in' (Jackson, 2005) can be a significant factor affecting individuals' ability to practice sustainable consumption. Participants felt that they lacked agency to choose alternatives because they were restricted by what is available in the shops.

Given the national scale of the problem of excess packaging, there is a need for national organisations to work with supermarkets to help reduce the issue of consumers being locked-in to unsustainable consumption patterns. A change in

practice can be facilitated by providing consumers with better, more sustainable choices. WRAP has already worked with retailers to encourage the light-weighting of packaging (DEFRA, 2004). However, several examples of excess packaging and excess portions provided in Chapters 5 and 6 demonstrate that more can be done to address packaging and the availability of smaller portions at an affordable price. As mentioned in Chapter 2, legislation exists in relation to packaging in order to encourage suppliers to ensure packaging is minimised, non-hazardous and recyclable. However, if excess packaging is still in existence, there is clearly a failure to enforce the legislation. In addition to working with retailers to light-weight packaging, there is perhaps a need for organisations such as WRAP to identify instances of excess packaging, and where retailers fail to address the matter, there is a need to enforce the legislation. Figures 7.1 and 7.2 below provide two examples of packaging. Figure 7.1 demonstrates steps that one producer has taken to reduce their packaging. Figure 7.2 provides an example of what might be considered excess packaging.

Figure 7.1: Reduced Packaging

Figure 7.2: Excess Packaging

In addition to discussing frustrations with the packaging of products, many of the participants felt frustrated by BOGOF's and 2-4-1 offers. Whilst light-weighting packaging has saved companies money both in terms of raw materials and transportation, tackling marketing strategies is a little more contentious. Retail strategies such as BOGOF's aim to increase revenue or get rid of excess produce, but can also be of benefit to some consumers. When DEFRA issued a report suggesting that BOGOF's may be banned, they received a great deal of criticism from the Institute of Sales Promotion (ISP) and from the National Consumer Council (NCC). Concerns surrounding the prevention of BOGOF's centred on the impact upon large families who rely on discounts to bring down the cost of their weekly shop (Telegraph online, July 2008). Nevertheless, Waitrose and Morrison's claim that they only use BOGOF deals on long life goods (Marketing Week, August 2009). If other retailers adopted a similar approach to BOGOFs it would ensure that items such as fruit and vegetables would be less likely to be wasted, whilst also benefitting the consumer. In addition, Asda has introduced a policy stating that they will not use BOGOF deals as they believe it is a false economy, instead they have said that they will bring down the cost of goods by providing offers such as 2 items for £1 (Marketing Week, August 2009). Arguably this particular policy could still encourage over consumption. In European countries such as France and Germany there is legislation which prevents BOGOF's. However, in these countries, the driver is not waste minimisation but the prevention of unfair competition. In France, vendors cannot give away something that is worth more than 7% of the value of the item they are selling (Out-Law, 2013). As such, the ban of BOGOF's is unlikely at this point in time. Instead, DEFRA and WRAP continue to promote and support a voluntary agreement with the retail sector, entitled the Courtauld Commitment. The Commitment only applies to those who have signed up to it and the targets set are not mandatory (Saint, 2008). In order to ensure that all supermarkets introduce beneficial and consistent measures that will combat over-consumption, organisations such as WRAP and DEFRA now need to monitor the success of the voluntary agreement in place. Already, there is press covering the extent to which different supermarkets are taking their responsibilities seriously, which should help to encourage competition to meet the targets set (Smithers, 2013).

Whilst it was evident from discussions with research participants that supermarkets sometimes inhibited waste minimisation practices, it was also identified that

supermarkets could have a positive impact on practices. For example, the empirical data for this thesis was gathered prior to the introduction of the carrier bag levy in Wales. The research suggested that participants were more likely to reuse bags in supermarkets where this action was encouraged through a financial incentive (or penalty). Nevertheless, as discussed in Chapter 6, even though a carrier bag levy has now been introduced in all contexts, the practice is not still wholly transferring from one context to another. Notwithstanding, there has been a drop in the demand for carrier bags in all contexts (Mail Online, July 12), demonstrating how a legislative tax can have a positive impact on practice. The levy will be in place across the UK by 2015. The Scottish Government has announced plans to introduce a levy in 2014, with England announcing that a levy will be introduced in England in 2015 (BBC News, 2013).

Therefore, in the context of grocery shopping, it appears that there is a requirement for national bodies to tackle the issues of consumer lock-in such as excess packaging and wasteful promotions. A range of approaches have already been adopted in order to try and reduce waste in the context of shopping. Firstly, WRAP has worked with producers in order to light-weight packaging, and secondly, a carrier bag levy has been introduced in order to encourage bag reuse and reduce demand for single-use carrier bags. Arguably, both of these approaches have been policy led, market based incentives – in other words, driven by financial factors – thus reiterating the importance of cost in this context. Rather than a nudge or choice architecture approach, consumption practices in the context of shopping appear sensitive to market based incentives.

A further implication of this research is that rather than focusing on the promotion of pro-environmental values, future waste 'education' strategies should focus on what is significant to individuals or groups within a given context. Rather than being a 'preaching' message about environmentalism, positive messages about how individuals can save money are likely to be better received (Shellenberger and Nordhaus, 2004; Anderson, 2010). For example, in the context of grocery shopping, as cost was identified as significant to most individuals, campaigns should promote what people can save by 'shopping smart'. In a report on Food Waste, WRAP (2004) highlight that each week a typical household throws away food that could have been

eaten, this food is worth between £4.80 and £7.70 and costs the householder between £250 and £400 a year or £15,000-£24,000 in a lifetime.[32] Coupled with suggestions on how individuals can save money, rather than how they can save waste, such figures could strongly encourage a change in practice.

Instead of promoting general concepts such as environmentalism or waste minimisation, campaigns to change practices should be broken down into realisable everyday actions, such as using up left-over food. Indeed, there are already web-sites established (www.bbc.co.uk/food/ingredients; www.lovefoodhatewaste.com) that provide advice on how to use up certain ingredients, and these could be promoted both nationally and locally (by organisations such as WRAP and WAW) in order to ensure a consistent infrastructure and message across the UK. In order to ensure maximum success, it is important that policy promotes waste minimisation by raising awareness of how individuals can save money (in the context of grocery shopping), rather than preaching at individuals about saving waste (Porritt, 2005; Anderson, 2010b).

It is therefore clear that retailers and policy makers can have a large part to play in influencing practice. Through the design and regulation of reduced packaging (or no packaging at all), by curtailing strategies that encourage the production of waste, and by providing consistent financial penalties or incentives, retailers and policies can strongly influence the amount of waste that an individual produces. Furthermore, both locally and nationally, there is a need for an alternative approach to the promotion of waste related practices. Rather than generally encouraging 'pro-environmental' behaviour for the benefit of the environment, messages should focus upon specific examples of waste minimisation practices and promote the benefits of such practices to individuals. This approach differs from the segmentation model as rather than targeting different messages at different individuals or groups, it targets specific material practices by using the hooks that have been identified as important to the majority of participants.

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[32] Exodus Diary Research: Kitchen Diary Top Line Results Based on 284 Diaries and analysis by WRAP based on Defra's Expenditure & Food Survey 2004 / 5. Further detail is available from WRAP on request.

7.4.2 Cost and Reuse Practices

In addition to the role of cost in relation to grocery shopping, the second context in which financial matters were significant was in the home at the point of disposal. It was evident through discussions with participants that they placed a higher value on some commodities than others. For example, Ken mentioned that if clothes were of sufficient quality he would donate them to a charity shop. If they were of a lower quality, he would place them in a clothes bank at a supermarket, illustrating that the perceived quality or value of a product affected how Ken chose to dispose of it. In addition, Ken mentioned he had helped his neighbour dismantle an aluminium greenhouse, and that he had been frustrated when the Council would not collect it. In Ken's opinion the greenhouse had a monetary value, as well as offering the opportunity for the council to recycle. Rather than taking the item to a local Household Waste Recycling Centre, he therefore sought a scrap dealer to purchase the item.

Similarly, other discussions about disposal of household furniture and bric-a-brac produced discussions about either how much money was received, or how much it cost to dispose of something. The examples provided in Chapter 5 illustrated some of the complexities involved in deciding how best to dispose of an item. When divesting furniture and bric-a-brac, participants and their neighbours had to consider whether they had the time and transport required to re-purpose items, as well as what was most cost-effective.

In relation to facilitating reuse, the implication for policy is that the practice of reuse needs to be convenient and cost effective for the individual. Through providing a convenient and cost effective collection service for bulky household items, the Council can encourage sustainable performances. Therefore, there is a need for the development and promotion of free collection services for such unwanted items. Through working with existing charities such as Track 2000 and the British Heart Foundation, Local Authorities could ensure that such items are collected and re-purposed. By establishing what items are collected free and promoting this to residents the Council could encourage the intensification of such practices. Moreover, if Track 2000 charge for the collection of certain items in certain areas, it is important to establish why and to see what can be done to overcome this. For example, the

charge may relate to either the collection or the disposal costs of particular items. Local Authorities can work with charitable organisations in order to see if economies of scale can be afforded. Indeed, the Council currently collects 'bulky' items free of charge, but these end up disposed of in landfill. By working in partnership with charitable organisations such as Track 2000 and the British Heart Foundation already in operation in Cardiff, a free service could be set up and promoted to individuals. As such, the Council could facilitate a cost effective and convenient service. The importance of reuse facilities being convenient is considered in greater detail in the following section.

7.5 Convenience

The concept of convenience in relation to this thesis incorporates the perception of practices being quicker or easier, but also links with consistent infrastructure being available in a given context. Convenience was identified in Chapter 6 as significant in all of the contexts studied; at home, work, grocery shopping and leisure. Indeed, the need for appropriate infrastructure in different contexts was clearly evident in terms of both waste minimisation and recycling behaviour. Alice talked about the convenience of being able to borrow tools from her neighbours, and Ken mentioned the ability to use book swap facilities when on holiday. Both examples, similarly to recycling rely upon the provision of infrastructure at a local level. Therefore, it was evident that providing appropriate facilities in different contexts and settings was important, reiterating the findings of previous research in relation to recycling (Barr et al, 2001; Perrin and Barton, 2001; Price, 2001; Jackson, 2005; Bulkeley and Gregson, 2009).

7.5.1 Convenience and Recycling

Chapter 6 highlighted the failure of recycling practices to wholly transfer between work and home. The failure of practice transfer was partly due to inconsistent infrastructure. However, the agency of the individual in different contexts was also a key factor affecting the constancy of practices. For example, whilst Jen felt sufficiently empowered at home to move the recycling bin to encourage her housemates to recycle, she felt that in work people would not respond positively. Rebecca, who works at the same office as Jen also found it a challenge to promote recycling at work, yet she had felt able to introduce facilities at her part time job and

also at home where she influenced her children. It was therefore clear from Chapter 6 that there are barriers to transferring waste related practices such as recycling from home to the workplace. Barriers include lack of autonomy in a given context and inconvenience. In addition, participants believed that individuals felt less responsible for waste at work than they did at home.

A barrier to the practice of recycling in the home was the availability of recycling and food composting bags. Green recycling bags and food waste bags are currently available free for collection at some local shops, as well as at all leisure centres and libraries in Cardiff. In addition, residents can call a helpline or go online to order bags to be delivered to their home. However, the Local Authority is under huge pressure to make savings, and as a result is considering ceasing to provide bags to local shops. The quantity of recycling bags the council is distributing is greater than the number it is collecting. There are a number of possible reasons for this, such as the bags being used for other purposes or by residents from neighbouring authorities (where bags are charged for). Regardless of the reason, there are proposals to remove bags from shops and only have a ring and request service. Many of the research participants detailed how difficulty obtaining green bags prevented them from recycling, suggesting that this would not be a beneficial approach for the Council to take.

In Chapter 6, Vivienne admitted that she stopped recycling if she ran out of green bags. In her case she is lucky that her neighbour (Denise) is so keen on recycling that she will get bags for them both. Whilst at the time of the interview Vivienne could have rung and requested green bags to be delivered to her door, it was evident that she did not play a pro-active role in sustaining her practice of recycling. Social ties proved essential in ensuring that Vivienne and her neighbours continued to recycle and compost food waste.

"I mean people do it but I mean I'm still for a couple of people up here I've volunteered to get their recycling food bags because they can't be bothered to go and get it from the library. They probably don't know where the library is." (Denise)

Here Denise clearly facilitates recycling and composting practices in her community. Vivienne admits that if she did not have easy access to green bags she would not recycle. Therefore, if a policy decision is made to remove bags from shops, Denise

will be unable to continue to facilitate recycling practices in her community. Denise's neighbours would have to ring and request bags, but from discussions with Vivienne and Denise, it appears unlikely that they would do so.

Denise suggests that the 'orange sticker system' might be a solution to the issue. *"I mean the system with the green bag seems to work because people do put out the orange stickers. So maybe a system where they put a label on their green bin, or a sign on their green bin, saying they need caddy liners."* (Denise)

The orange sticker system is currently only used for the distribution of green recycling bags. Each roll of green bags has an orange sticker within it. When the householder is running low on green bags, they can place an orange sticker on one of their full green bags. Then, when the householder places the green bag and orange sticker out for collection, the collection crew should see the sticker and deliver a new roll of bags. In practice there are multiple issues with the sticker system. Sometimes crews do not see the stickers and other times crews run out of rolls of bags due to lack of space on the vehicles to store sufficient supply for a whole area. An alternative option would be to provide regular deliveries of green recycling bags as well as the food waste bags in order to encourage participation, but this system would be costly, and also risks people either not using or misusing recycling bags. One option to ensure that the bags are being used correctly would be for recycling collectors to replace full bags with empty ones each time the resident places them out for collection. However, this could seriously delay collections operations. In order to ensure bags are not being used by residents from other areas, the number of places that stock them could be limited, and residents could have to present proof of address in order to receive the bags. Nevertheless, this still does not guarantee the bags will be used appropriately. Whichever option the Local Authority chooses, it is evident from this research that policy needs to make recycling as convenient as possible. Through ceasing delivery of recycling bags to shops, the council risks a change in recycling practices and therefore a reduction in recycling performance. In the long term, this could cost the Local Authority more by incurring fines for failure to meet recycling targets. Therefore, alternative solutions need to be tried and tested.

7.5.2 Convenience and Reuse

The above examples of recycling practices demonstrate the need for convenient facilities. Similarly, convenience proved significant in relation to a range of reuse practices, including the donation of textiles, book reuse, furniture reuse and bag reuse. For example, several participants mentioned how lack of transport meant that they had fridge-freezers, bookcases and other items accumulating in 'spaces of abeyance' (Gregson *et al*, 2007) awaiting repurposing or disposal. This demonstrates how inconvenience can impact upon disposal practices.

Indeed, several participants mentioned how issues of 'rejection' had prevented them from re-purposing items. Vivienne mentioned that her local charity shop was not accepting items as it did not have capacity; Ben mentioned that his books had been rejected by a second hand book shop, and so on. The issue of rejection emphasised the importance of 'closing the loop' in terms of their being a demand for second-hand items (Tucker and Douglas, 2006b). Local Authorities need to identify existing end markets and promote these as convenient, cost effective ways for people to divest unwanted items.

In relation to textiles, participants provided examples of donating clothes to charity, and stated their preferred methods for donating textiles were via kerbside collection and charity shops. However, there were a couple of issues with using these services. Firstly, there was a lack of predictability in relation to when kerbside collections would take place and whether that would coincide with residents having a 'clear out'. As a result, most people bagged things and took them straight to charity shops or textile banks rather than waiting for a kerbside collection. Secondly, as we have seen, there was the issue of charity shops being 'full' and therefore not taking further items.

Local Authorities could help to overcome these barriers by making the donation of clothes easier and thereby intensify this practice. Local Authorities could facilitate clothes donation (and indeed donation of other items) by promoting which charity shops are currently accepting which items, where they collect them (i.e. shop, kerbside, textile bank) and when, thereby overcoming issues of rejection or not knowing when the next kerbside collection is taking place. Explaining which charities take which items is of particular importance in order to help overcome issues of

rejection that some participants faced in relation to items such as books. In addition, an online post-code search facility to enable people to find the closest facility to where they live or work could ease the search for material transfer.

Some participants had also attempted to repurpose items of furniture via social enterprises such as Track 2000, but again faced issues of rejection. Where items were rejected, individuals either had to find alternative method of disposal, or leave the items in 'spaces of abeyance', until such time as a 'practice-changing' event occurred. Transport also proved to be a significant barrier to the re-distribution of large household items, with participants highlighting that they could not transport items to reuse facilities. As such, a convenient and free option would be to call the Council to arrange a bulky collection, but this would mean that the item was not re-purposed. Therefore whilst the convenience of social ties can be a significant factor in encouraging furniture reuse practices in the home, inconvenience can be a huge barrier to practice transfer.

In addition, participants mentioned how they had been fortunate enough to be in the right situation at the right time to allow for the divestment of certain items. For example, Ken and his dresser were able to go to the auction as he happened to have access to a van at the same time as he needed to dispose of it. Likewise, Ben was able to help to redistribute his neighbours' furniture as his daughter was in the process of moving house at the time when a neighbour was undertaking a house clearance. However, timing is not always so fortuitous. For example, Ken and Barbara provided the example of assisting a friend with a house clearance. The house contained such a large volume and variety of items that they could not 'gift' everything. Given that the volumes of waste exceeded the appetite of social ties, much of the items ended up at a local HWRC and therefore in the landfill.

The above examples illustrate how context – not just infrastructure, but time and space – can have an impact on convenience and on practices. In addition, it was frequently evident that where it was not easy to dispose of items, they were stored in 'spaces of abeyance' (Gregson et al, 2007) awaiting a practice changing event (Bulkeley and Gregson, 2009) to instigate their divestment. Whilst it is in Local Authorities interests not to increase waste arisings by capturing materials that are

stored in people's garages and lofts, ultimately, an event will occur that will force the residents to dispose of these items in some way. The likelihood is that the event that occurs – such as a house move – will also place other pressures on the individual. Therefore, it would in fact be beneficial for Councils to encourage and enable residents to repurpose items in advance of such a practice changing event.

Other practice changing events can also take place, and although it is not possible to predict all such, especially where they are specific to the individual (such as having visitors), there are other events that affect particular groups that could be anticipated. Through identification of such practice changing events, Local Authorities could plan services to ensure waste minimisation practices are encouraged. A review of waste quantities and types would enable identification of predictable seasonal variations in waste. For example, following Christmas and Easter there is likely to be an increase in waste volumes (Harris, 2011).

Rather than requiring regulation the theme of convenience requires a 'green architecture' approach, but more than this, it necessitates promotion of that green architecture. There is a need to bridge the gap between those disposing of items and the demand for those items. Firstly, the Local Authority can itself take steps to improve its services. At present, items of furniture taken to any HWRC are sent to landfill. Instead, Cardiff could do as other Local Authorities have done and have an area at their HWRC's for items suitable for reuse/repair. Such facilities can be of social, economic and environmental benefit (Curran et al, 2007; Ajadi and Read, 2013).

In addition, at a community level, rather than solely relying on community ties, local authorities and community groups can provide a broader network of ties, connecting those who are moving on with those who are moving in. Furthermore, other local companies could facilitate by promoting the available facilities – such as Universities (who attract large numbers of migratory residents to Cardiff) and estate agents[33].

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[33] Links are already established between letting/estate agents, the University and the Council as these organisations work together to promote the student 'Get it Out for Cardiff' Campaign each summer (see below).

As discussed in section 7.4.2, the Council could improve its current bulky waste collection service by working with the community sector to try to repurpose some of the items that are collected. The Council could act as a 'one stop shop' through providing individuals with one point of contact that can arrange free collection at a time convenient to the individual. Behind the scenes, the Council could coordinate the appropriate conduits of disposal, thereby removing a number of barriers to reuse; for example, the issues of rejection, charging and lack of transport. Indeed, convenience is not just about the provision of facilities; it is about bridging the gap between the disposer and the most sustainable methods of disposal. There are a number of potential partners already established in Cardiff that the Local Authority could draw upon, such as the British Heart Foundation Furniture Reuse store and Track 2000.

The concept of collaborating with private and third sector partners to deliver community reuse facilities is becoming more popular with Local Authorities in the UK due to the economic challenges faced (Lock, 2011). Whilst many Local Authorities are unsure how to plan and deliver such partnerships, examples of successful partnerships can be found (Ajadi and Read, 2013). For example, alongside this research a trial was commenced to encourage reuse in student areas of Cardiff. Given that moving house has been highlighted as a practice changing event, students were targeted at the end of each academic year when they are known to move house and generate additional waste. A system was already in place to provide additional collections at the end of the academic year in order to ensure that waste was not left in house frontages and on the streets of Cardiff. However, most of this waste was sent to landfill. Over a number of years recycling was targeted to increase recycling levels, but it was evident that large quantities of usable textiles, bric-a-brac and unopened food (e.g. tins and jars) were being sent to landfill. Therefore, the researcher forged partnerships with Salvation Army and Fairshare Cymru to arrange the collection and reuse of these materials.

Table 7.2: Tonnages Reused via the Annual Cardiff Student Campaign

Year	Materials Collected	Tonnage Reused
2009	Food and Textiles	2
2010	Food and Textiles	4.6
2011	Electrical Items, Food and Textiles	8.9
2012	Food, Textiles, Bric-a-Brac, Multimedia and Books, Electrical Items	12.5
2013	Food, Textiles, Bric-a-Brac, Multimedia and Books, Electrical Items	14.1

As can be seen from Table 7.2, the tonnages have increased annually as the scheme has been improved each year through various means. For example, initially collection points for textiles and unused food were only available in the student halls. In subsequent years, collection points were also made available at the students union for those students not in halls of residence. In addition the range of materials collected expanded to include waste electronic items (WEEE) and bric-a-brac. The campaign has run for a number of years now at no extra cost to the Local Authority. Indeed, in 2013, the additional collections of waste were stopped, delivering a saving. The student campaign therefore demonstrates the benefits of introducing facilities tailored to the community. Lessons can be learned from the student example. It was successful for a number of reasons, including the convenience for the participants, but also their awareness of the services. Whilst students are a largely transient population, similar facilities could be of use in other areas where populations are transient. As mentioned earlier, there is potential for the introduction of 'one stop shops' where items can be deposited and consumed in areas with transient populations. Moreover, links could be established with partners – not just in terms of the charities who might benefit from

the items collected, but in terms of property management companies who may have surplus items left in their properties at the end of the rental agreement. The benefits are social as well as economic and environmental. The following section looks at the role of the third C, Community, in more detail.

7.6 Communities

In addition to cost and convenience, communities proved to be a significant facilitator of reuse and recycling practices. The role of the community is two-fold; Firstly, the social norm within a given community could, to some extent, impact upon an individuals' practice. Secondly, the strength of social ties within a given context could also enhance an individuals' ability to perform and/or promote reuse and recycling practices. As discussed in Chapter 6, the individual can belong to several communities – such as at home, at work, and leisure (e.g. at an allotment) – and each of these communities could afford different social ties and social norms. In addition, the agency which an individual has in a given context can inhibit the transfer of waste minimisation practices between contexts. In other words, modern lifestyles place individuals in a broad range of contexts and communities and the individuals' practices can vary in each (Coser, 1975; Jackson, 2005).

7.6.1 Communities and Social Norms

The concept of social norms links with the analysis undertaken in Chapter 6 relating to the spill-over of practices between people. Whilst recycling is now widely recognised as a social norm, waste minimisation behaviour has been distinguished from recycling as it consists of those who sometimes act (Barr et al, 2001; Bulkeley and Gregson, 2009). Nevertheless, through a study of the practices that 'sometimes' take place, this thesis, similarly to other research, seeks to intensify what some households are doing and diffuse these practices (Evans, 2012; Bulkeley and Gregson, 2009).

Through the research interviews it was evident that, although recycling is largely accepted as a social norm, there were a number of individuals who did not undertake the practice in the context of work and leisure. Lack of facilities was the main reason provided for this failure of practices to spill-over. Some research participants also

mentioned their disappointment in relation to neighbours who did not recycle in the context of the home. Arguably, these examples demonstrate that even where a practice becomes a 'social norm', there are still individuals who will not undertake a particular practice, even though failure to take up the practice is not 'socially acceptable' within their home community.

The gifting of fresh fruit and vegetables was also identified as an accepted social norm in some for some of the individuals and groups studied. The practice of gifting produce was particularly interesting because people seemed to find gifting home grown fruit and vegetables perfectly normal and acceptable, but would not have gifted other unwanted or surplus food. Vivienne was the only person to mention gifting half of a 'BOGOF' to her son. Some participants said that they avoided such offers unless it was something they could use up (Sue, Alan, Ken, Denise). Whereas a couple of participants stated that they continued to buy more than they needed because it was cheaper, but felt that they had no other option (Jen, Vivienne in relation to bread).

Section 7.5 highlighted that there is scope to promote food waste minimisation, but rather than doing so using 'preaching' methods that focus on the environmental benefits, those seeking to encourage waste minimisation practices should focus on the cost benefits to the individual or group being targeted. Local Authorities can seek to intensify practices that already exist by promoting the economic benefits of freezing left-over's and shopping smart. In addition, Local Authorities could seek to encourage the transfer of practice from those who gift home grown produce to those who gift surplus food. To shift the culture of divestment of food could be quite challenging, as according to Evans (2012), people tend not to pass on surplus food as they are concerned that they will be subject to scrutiny. Evans also explained that the one example of passing on surplus food he identified was 'shaped by contextual factors' such as a 'well-established network of mothers' (p.1127). Nevertheless, Local Authorities could link in with existing Food Bank[34] schemes, whereby people can anonymously donate unwanted foods that are still packaged. Anonymity of donation would overcome issues of individuals worrying about being judged regarding what they are giving away (Evans, 2012).

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[34] Food Banks redistribute food to those in need in the local community. See
http://cardiff.foodbank.org.uk for more information.

7.6.2 Communities and Social Ties

Ken and Alice provided a number of examples of social norms in their neighbourhood, such as the borrowing and lending of tools and services. Ken regularly helped neighbours with the gardening or the shopping demonstrating the significance of not just social norms, but also of social ties. Social ties were also identified as significant beyond the neighbourhood within which people lived. Vivienne gave the example of giving a dining table and chairs to her son. Similarly Ben mentioned passing things onto his daughter illustrating the significance of 'family ties'. Goods were also exchanged between friends or acquaintances – such as the gifting of food via allotments.

Arguably, where social ties are stronger, it is easier to facilitate practices such as reuse – for example, because neighbours are able to ask to borrow tools or to offer neighbours unwanted furniture. This links back to discussions in Chapter 3 regarding Granovetter's theory (1983) on the strength of weak ties, and whether it is possible that such ties can also be utilised to enhance waste minimisation practices. From the empirical findings of this thesis it is evident that community ties can facilitate such practices. Even where social ties exist, the timing has to be right; one person's surplus must meet another individual's needs. In other areas, where there is a lack of community ties, there is again an issue of supply and demand. Whilst community links were strong in suburban, affluent areas, there was less sense of community in inner city areas, where participants were less likely to garden, let alone help neighbours with gardening, give each other fruit and vegetables, or borrow tools instead of buying them.

"...there are a lot of people moving through, people aren't that committed to their area, if you know what I mean, people passing through so they don't care about what they do with rubbish." (Alan – talking about Riverside)

Yet again, the evidence suggests that strategies seeking to minimise waste should aim to bridge the gap between the surplus and the demand through the provision of infrastructure at a local level. In order to bridge the gap, there is a need to consider which waste minimisation practices should be targeted and in which areas there is greatest need (i.e. where community ties can be strengthened), thus removing the onus from the agency of individuals. For example, in areas such as Roath and Riverside

where there are transient populations it was evident whilst undertaking the research that high turn-over of residents meant that there was frequently some form of DIY or refurbishment taking place in several houses on the streets where participants lived. Placing a 'swap shop' in the heart of the area may enable people to donate and receive useful items such as kitchen utensils, music, small electrical items and furniture. During the time that this research has taken place, the British Heart Foundation has established a second hand furniture shop in Cathays (an area heavily populated by students). As such, the provision of a local furniture reuse shop has already proven to be of social, economic and environmental benefit. Therefore, there is scope for charities and community groups to facilitate the development of similar facilities (a tool hire shop, a paint reuse shop, or other furniture reuse shops) in other areas where there is demand.

Understanding the needs of different communities is important. Therefore, as well as targeting areas where facilities are lacking the most, local policies also need to identify where facilities already exist and work with service providers to promote them. Whilst some communities had strong social ties for repurposing items such as furniture, there were other materials that were not re-purposed in this way. For example, clothes and books. Charity shops seemed to be the most popular first choice for books and clothes, although some of the interviewees had experienced rejection when trying to divest these items in this way. By collating and distributing a list of which charity shops take books, which take clothes and which take other items, Local Authorities could reduce the risk of rejection.

In addition, although library services exist in many communities, a number of the participants mentioned that they felt that they did not meet their needs as they were only open during working hours. Perhaps then, Local Authorities would be better off supporting community initiatives such as book swap facilities at Local Coffee Shops, or turning libraries into community coffee shops. Indeed, at present the Council is under pressure to reduce expenditure, with some departments, such as leisure having had their budgets halved. Whilst one option is to remove certain services, another is to make existing services more economically viable. One option might be to work with existing coffee shops to re-distribute books through existing networks. This could be achieved in a number of ways. Council's could place PC's in coffee shops so that

customers can order books and collect them at a later date; or better still books could be available to download, rather than coffee shops having to stock hundreds of books. Another option would be to redesign existing library facilities to offer additional chargeable services, such as those found in local coffee shops (tea, coffee, food). Either way, it is evident that perhaps the ways in which people engage with literature have changed. Not only did participants claim that the libraries were open at the wrong time; books and music can now be downloaded and transported in more convenient ways. Just as showers changed the ways in which people view cleansing (Shove, 2003), there has been a change in the way in which media can be bought and stored. Therefore, there is a need for the Council to change the services that it provides in line with the changing everyday practices of those using the services.

The general theme is to provide convenient and cheap options for people to both dispose of and consume items in the communities where they are needed. Furniture shops, coffee shop 'libraries' and swap shops are a few examples of such facilities that could help to close the loop on waste minimisation practices (Tucker and Douglas, 2006b). By providing swap shops individuals have an alternative location to place items that they do not want to put in the dustbin, as the bin or the tip are often the last resort for most individuals (Bulkeley and Gregson, 2009).

In practice, policy will want to consider what measures are likely to give the greatest returns (Anderson, 2010b). The focus of future waste minimisation strategies is likely to be on capturing a heavier proportion of the waste stream, such as furniture, textiles or electrical items. Indeed, WRAP is encouraging Local Authorities to focus on these materials as, at present, these materials are felt to be the most socially and economically viable materials to repurpose because there is a demand for them (Ajadi and Read, 2013). Indeed, whilst Cardiff has introduced reuse schemes for bicycles and paint, these materials alone will be insufficient to meet the 1% reuse target set by the Waste Strategy for Wales (Welsh Government, 2010).

The social and economic benefits of reusing certain items highlight the strong links between sustainability and waste minimisation practices. However, in practice, Local Authorities such as Cardiff tend to have sustainability and waste management departments that operate separately with separate agendas and business plans.

Nationally, policy is driving change in Wales with the Municipal Sector Plan proscribing that local authorities should achieve their targets by using the most sustainable options (WAG, 2011). Local policy therefore needs to realign its sustainability and waste agendas – not just in line with National policy - but in order that resources can be combined and a consistent approach identified. Moreover, the example of changing the nature of libraries to make them more user friendly in line with how people wish to use such services today demonstrates the need for a strategy that looks beyond the functions of waste collection and disposal. Waste management is increasingly required to look beyond its historical roots, which focus on disposal, towards the ways in which people consume items.

7.7 Barriers to Change

Whilst the above sections outline a number of practical ways that specific material practices might be encouraged, as outlined in Chapter 1, there are a number of barriers to change in the arena of waste management policy and practice. Given the significance of these barriers, it is important to review the challenges identified in order to contextualise the recommendations. Firstly, it is important to note that waste management departments are going through a transformation from waste to resource management. Previously, waste managers only had to concern themselves with waste collection and disposal, but now they are tasked with ensuring that a certain amount of that waste is recycled, composted and diverted from landfill. This in turn means that Local Authorities are having to explore previously unchartered territories and gain a much greater understanding of what waste they are producing, how much of it could be recycled, how much residents are segregating themselves, which residents are not segregating their waste and why, and so on. Unfortunately, as mentioned in Chapter 4, resources are not limitless, especially in times of financial austerity for the public sector. The timescales within which Local Authorities are expected to make changes (58% recycling by 2015/16), mean that rather than doing the research themselves, many are relying on best practice examples and data sets provided by other Local Authorities or other organisations (such as WRAP).

Furthermore, the Waste Sector plans for Wales have specified that recycling should be collected in line with the Welsh Governments waste collection blueprint (Welsh

Government, 2011). Local Authorities do not have to change their collection methods if they can demonstrate it is cost effective to stay as they are, but they risk losing Welsh Government's financial support. Therefore, the Welsh Government blueprint effectively encourages local authorities to explore kerbside sort collections if they are not already using this collection method. In order to demonstrate whether or not the current collection method used in Cardiff is the most efficient, officers are having to work with Welsh Government and WRAP in order to model a range of collection options including maintaining the current collection system and switching to kerbside sort. Unfortunately, there are a number of issues with the modelling tool advocated by the Welsh Government and WRAP. The Kerbside Analysis Tool (KAT) assumes participation and capture rates will remain the same, in spite of the fact that changing the receptacle in which the recyclables is collected may significantly decrease participation. The research undertaken for this thesis showed that the convenience of Cardiff's bagged co-mingled recycling collection service is very popular with participants. There are a number of other reasons that the KAT model may not actually be reflective of how much the change in service will save (or cost) Cardiff as an authority. For example, the model assumes only one recycling box will be placed out per household, whereas some residents in the suburban areas currently present sufficient recycling per week to fill multiple kerbside boxes. In addition, the model does not take into account recycling facilities for flats. Given that flats account for approximately 25% of Cardiff's housing stock (Cardiff Council 2011), it is unsurprising that the KAT model currently suggests kerbside sort is cheaper than the current collection system. Ultimately, whilst officers are investing a great deal of time in trying to ensure that the right data is collated, input and generated, the focus is again upon recycling and waste collections, rather than making the transition from waste to resource management. Whilst recycling remains the focus of waste management departments, it continues to detract resources from developing systems for encouraging reuse and reduction of waste.

Secondly, as well as policy requiring Local Authorities to focus upon recycling, there has been a tendency for both research and policy to concentrate on how to change pro-environmental attitudes and behaviours. The main guidance Local Authorities have available as to how to promote waste minimisation is, therefore, to focus upon changing behaviours and values (for example DEFRA, 2008; Welsh Government,

2013). As a result, existing approaches to waste management fail to recognise the complex nature of waste minimisation practices (Shove 2010). This thesis highlights that there are factors other than a concern for the environment that can influence waste practices (including cost, convenience and community). Rather than utilising previous approaches to encouraging sustainable citizens, it argues that policy makers and researchers should consider the benefits of an approach that encourages sustainable practices through other means. For example, given the success of encouraging reuse of carrier bags through the introduction of a levy, opportunities for container deposit schemes could be encouraged. Moreover, through the empirical research it was evident that individual's practices varied between different contexts, with factors such as an individual's autonomy in a given setting proving to be significant. In addition, the empirical data demonstrated that different materials have different hierarchies of waste disposal for different people. It is therefore essential that policy moves away from a focus on environmental values and behaviour, and starts to consider how it can encourage specific material practices.

Given the historical approaches to waste management and behaviour change outlined in earlier chapters, it is going to be a huge challenge for Local Authorities to pursue an alternative approach in this arena. Waste policy has previously failed to acknowledge the unique nature of individuals, assuming that members of the public can be categorised into groups using segmentation models (DEFRA, 2008). Segmentation models, whilst acknowledging that not everyone is the same, still assume that there are certain types of people rather than individuals. Assuming that certain groups of people act in a particular way fails to acknowledge that individuals can act differently in different contexts. Indeed, the whole premise of segmentation models is that individuals fall into a particular demographic: such models fail to recognise that individuals may operate in several communities of social capital (Coser, 1975). Moreover, given that people can dispose of different materials in different ways, a segmentation model is clearly far too simplistic an approach. Current policy fails to recognise the individual and changing nature of practices, and also, the contextual nature of practices. However, policy by its very nature requires some form of generalisable model (Shove, 2005). As such this thesis proposes that it adopts a material specific approach to changing practices. The key focus here is not upon

changing individuals, changing values or changing behaviours. The focus must be upon changing individual material practices.

Thirdly, in addition to the policy barriers to change, there are financial barriers to changing current waste management practices. It is projected that between 2014/15 and 2016/17, the budget for the Environment Directorate for Cardiff will reduce by nearly 50%. Other departments within Cardiff face greater cuts, such as Leisure and Economic Development. However, some services, such as Education and Adult Services, continue to be prioritised and therefore face much lower budget reductions, as in previous years. In order to achieve the extent of savings across a range of services, Cardiff Council is looking to alternative operating models as well as alternative collection methods and frequencies. Alternative operating models are increasingly popular with Local Authorities and include joint partnerships with neighbouring authorities, setting up wholly owned companies and contracting out services to private companies, as well as various combinations of the aforementioned models (Zafra-Gomez et al, 2014). For example, joint public management could include consolidation of a service such as waste collections in order that these services are provided jointly across two or more authorities, either 'in house' or by a privately contracted third party. A specific example of such a model in Wales is Prosiect Gwyrdd, a partnership between five Welsh Authorities (including Cardiff). Prosiect Gwyrdd have jointly tendered for a waste disposal contract, the result of which is a significantly reduced gate fee for the disposal of residual waste, providing savings for all authorities involved (Johns, 2014). Private management models are also becoming attractive, as they are believed to deliver efficiencies due to reduced bureaucracy and increased flexibility (Zafra-Gomez et al, 2014).

Whilst longer-term solutions are pursued such as alternative delivery models, there is a need for Authorities to deliver immediate savings. The focus now shifts to what must be provided and results in cuts to services that are non-statutory, or that are perceived as non essential. This can include strategies such a charging for garden waste collections, or simply not providing garden waste collections. However, waste strategies have already been planned around current waste arisings and targets. For example, most Local Authorities have contracts in place for the disposal and treatment of various waste streams (residual, garden waste, food waste etc). Such contracts tend

to set a minimum tonnage, based on what Local Authorities are expecting to collect as a result of waste collection methods. The minimum tonnage threshold means that the customer (i.e. a Local Authority) has to ensure that they provide the contractor with a fixed amount of a given waste stream (for instance garden waste) per month/year until the contract expires. Thresholds are important as contractors are effectively guaranteeing Local Authorities capacity within their plant to manage the waste received. If a Local Authority does not then use that capacity, the Authority still has to pay, because the contractor has foregone taking materials from elsewhere in order to guarantee their customer capacity. Ultimately, such agreements complicate the decision making process for Local Authorities. Whilst it may be beneficial to charge for garden waste or to switch to three weekly residual waste collections in order to meet savings targets, if such changes result in the Local Authority paying for the treatment of the waste anyway, the savings will be reduced. Furthermore, such changes to services are never easy, with multiple hurdles to overcome in terms of operational changes, and attaining political buy-in for such change. In particular, politicians can be reluctant to make changes that will be publicly unpopular in the months prior to an election, impeding the timescales in which Local Authorities are trying to deliver change.

In addition, changes to the waste strategy can put achievement of the recycling targets at risk, and therefore could actually cost Authorities more if they are then fined for failure to meet targets. The conflict between recycling performance and savings also creates tension between different departments within each Local Authority. For instance, currently within Cardiff, there is a tension between the waste strategy department tasked with designing the services to meet the recycling target and the waste collections department tasked with delivering budget reductions of 49% over three years from 2015 to 2018. From an operational perspective, there is a need to reduce the frequency of collections and/or the range of materials collected in order to deliver savings. Charging for garden waste collections has also been a popular choice for some local authorities, and is highlighted as an option in the Waste Prevention Programme. Whilst such measures might reduce the waste collected via the kerbside recycling collection scheme and therefore result in savings for the collections department, there is a risk that such wastes could end up in alternative waste streams (for example, in the residual waste bin or at the Household Waste Recycling Centres).

In addition, there is a danger that reducing the frequency of collection of recyclables or charging for certain collections could seriously impact upon the recycling and waste diversion targets.

On a broader scale, there is conflict between the waste and sustainability departments and those departments tasked with growing Cardiff and its economy, such as the planning and economic development departments. The Waste Prevention Programme for Wales (Welsh Government, 2013) outlines the desire to decouple waste generation from economic growth and ensure a growing economy alongside a decline in waste generation. Whilst at present most Authorities in Wales are meeting the waste minimisation/diversion targets, Wales has been in a period of economic decline, and as such, arguably waste growth has not yet de-coupled from economic growth. Therefore, there is a risk that as the economy recovers, waste arisings will also increase. Moreover, in Cardiff in 2013/14 waste arisings decoupled from economic growth, but not in the desired direction, with a declining economy and an increase in waste generation (National Statistics for Wales, 2014). As Cardiff's population grows, a decrease in waste arisings becomes even more challenging (see 4.3). In addition, the economic downturn has impeded Local Authorities' ability to continue to afford the same level of collection frequency for the same range of materials. Pressures to make savings and meet recycling targets are again drawing Local Authorities away from the most sustainable option of reducing waste. It is therefore essential that guidance is developed that is sensitive to the context in which Local Authorities are operating, in order that practical steps can be taken to enable the transition from waste to resource management.

There are some functions the authority undertakes that could potentially be outsourced to third sector organisations to ensure more sustainable use of materials. For example, bulky waste collections (collection of furniture) are currently undertaken by the Council. This service is undertaken at a cost to the Council. However, if the Authority worked in partnership with an organisation such as the British Heart Foundation, the charity would collect, refurbish and re-purpose these items at no cost to the authority. Whilst this may seem like an obvious and simple solution, the reality is far more complex. Firstly, there is a financial process that would have to be followed. The Authority would have to offer this potential business opportunity on the open market

in order to ensure that they had followed due process and given freedom of competition. Secondly, there will be serious objection to such a proposal from the Trade Unions. Historically, Cardiff has managed many of its operations 'in house', such as having its own landfill site. However, contracting out any services, albeit to a charity, is controversial as ultimately it could mean job losses within the Council. Furthermore, there is a financial risk to the authority. Currently bulky collection services are run efficiently within the Council at a low cost. However, if the Council puts this service out to tender, this will be for a fixed period. Given the volatile nature of markets, there is a risk that even if a contract is awarded and the scheme runs successfully for a number of years, when the contract with the selected third party comes to an end, if the market for second hand furniture has declined, third parties may not want to tender for such a contract. Therefore, the Council would have to either pay a third party to collect the bulky waste for them, or revert to running the operation in house. Either way, this would mean that having given up the money currently used to fund this service in order to meet savings, the Council would in the future be having to run a service for which they no longer have funding.

The above highlights a fifth issue for Local Authorities: fluctuating markets and economies. One of the key factors highlighted by this research is that people place different values on different materials. Unfortunately, on the open market, whether or not a given material does have value largely depends upon demand and supply. As such, whilst it might be beneficial to promote the value of materials for which there is a market, the market for a given material is unlikely to be constant. At present there is a high demand for furniture, textiles and WEEE, thus at present it is important to promote that these items have potential for reuse in order that they can be divested in the most sustainable way. Nevertheless, it is essential that this is continuously reviewed in order to ensure that the right materials are being targeted at the right time. There is also a need to ensure that as well as encouraging people to supply these items, policy also encourages demand for second hand items in order to close the loop of reuse.

Whilst the above review details a number of barriers to change, with the right focus, the budget situation could be an opportunity for much needed change. In Chapter 4 the example of Council's moving to three weekly waste collections was provided.

Moving to three weekly collections is a difficult decision for politicians, yet the budget and target situation have arguably forced Local Authorities to change their practices in order to change those of their residents. Moreover, through making it less convenient for householders to dispose of residual waste and more convenient for residents to dispose of their recyclable waste, Councils are effectively encouraging a change in practice rather than a change in values, attitudes or beliefs.

7.8 Conclusion: Implications of a Turn to Practice

In terms of both policy and research, there is a need to move away from a focus on environmental values, intention, and waste, and instead to focus on everyday material practices. Rather than dismissing the significance of values, the aim is to approach values in a different way by looking at the practices themselves in order to identify what encourages them. Through a study of practices, the research undertaken for this thesis has established themes that can influence both witting and unwitting waste minimisation practices including cost, convenience and communities. In addition, the role of context has proven to be significant, with practices changing dependent upon the material divested and the setting.

In exploring how the research findings impact upon policy, the lack of synergy between waste minimisation and sustainability policies has been highlighted. Therefore, work needs to be undertaken in the policy arena to facilitate a realignment of resources to reflect what both academic literature and national policy have already identified. In the view of this thesis, Local Authorities should be viewed as performing a 'bridging' role to enable waste minimisation. Nevertheless, this is not a function solely for Waste Management departments; links should also be forged with appropriate partners both internally and externally. There is a large network of organisations that can be drawn upon in order to forge conduits between the disposer and the consumer. This includes not only third sector organisations, but also private sector organisations such as supermarkets and property agents.

In order to move waste management further up the waste hierarchy, there is a need for a green architecture that enables waste minimisation practices. This architecture can be provided by various stakeholders, including Local Authorities, Community Groups

and the Private Sector. This chapter argues that service providers (be they community groups, local businesses or local authorities) should seek to understand the needs of individuals within a given context. Some communities may benefit from paint reuse and furniture reuse facilities (due to transient populations and a high volume of furniture and paint generated and consumed), whereas other communities might benefit more from coffee shop style libraries. Indeed, practices are not just affected by context; they are also material specific, as people divest different materials in different ways (Bulkeley and Gregson, 2009). Therefore, it is important to consider how different communities can and will divest of particular materials. Local authorities can then bridge the gap by providing and/or promoting appropriate facilities to enable desired practices.

The three C's framework could be used to develop a local policy and network for encouraging the divestment of items. Firstly, cost was particularly relevant in the context of grocery shopping and the above review outlined ways in which both local and national policy could use this information to their advantage. In relation to consumption, there are steps that can be taken at a local level. This chapter provided the examples of promoting the cost benefits of watching what you buy and using up leftovers, as well as the example of changing the way in which libraries operate. At a national level, recommendations were made for the intensification of policies aimed at retailers.

Secondly, in terms of convenience, a study of material practices has also shown that there is a desire to repurpose items, particularly items that individuals perceive to be of value, but this desire is frustrated by issues of rejection, and in some cases cost. Local Authorities need to bridge the gap between supply of and demand for second-hand items. Any such services that are provided need to be promoted. Again, educational messages should be re-framed to focus on the practical elements of a performance. Campaigns should concentrate on the financial benefits and convenience of undertaking a particular practice, rather than focusing on the waste minimisation or environmental benefit (Anderson, 2010b).

Thirdly, the role of communities varied from one context to another: where there was a strong sense of community, there was a higher propensity to reuse items, reiterating

the fact that practices are highly context specific. Also of significance were the facilities provided and the agency of an individual within a given context. Indeed, there is a strong link between community and convenience; hence there is a need to provide consistent facilities in the various contexts and communities within which an individual might find themselves. By providing appropriate facilities at work, rest and play, individuals are more likely to form and replicate habits in the various contexts and settings. A study of the significance of communities and convenience has highlighted the importance of providing facilities in areas where the community does not automatically provide opportunities to reduce, reuse and recycle. Reuse of furniture, books, tools and other goods was far more likely where there was a strong sense of community. Where this sense of community is lacking, strategies should seek to provide appropriate facilities, in order to encourage the normalisation of practice (Bulkeley and Gregson, 2009). Therefore, across all three C's, it was evident that the appropriate promotion and provision of facilities was important. Whilst this might sound like a costly strategy, there are numerous examples of other Authorities successfully working with community groups in order to deliver appropriate, cost neutral reuse facilities (Ajadi and Read, 2013).

The empirical research has also demonstrated the significance of context and agency in facilitating or inhibiting the transfer of practice. The analysis of the research findings as detailed in this Chapter support the notion that, rather than seeking to change behaviour, policies should seek to encourage practices by tailoring messages in accordance with the themes that have influence in a particular context. Therefore, there is a need for a contextual approach to research and policy in relation to environmental behaviour, as proposed by Dickinson and Dickinson (2006) and Hunter and Shaw (2007). This thesis primarily focussed on the contexts of the home, grocery shopping, leisure and work. Future research can build upon the data gathered by undertaking further research into these arenas, but also by delving deeper into various contexts such as in the case of leisure practices, breaking this down into vacations and other hobbies. Although this thesis has not explored the significance of the themes identified in all contexts and settings, it has started to bridge the gap between intent and actions, as well as providing policy with some tangible ideas to trial.

The role of agency was identified as significant in all contexts, as the level of agency of an individual in a given context impacted upon their ability to transfer practice. For example, whilst individuals found that they had sufficient agency to make recycling more convenient at home, they often lacked the agency to alter facilities at work. Therefore, a factor that might encourage a particular practice in one context might be inhibited in another context, supporting a move away from segmentation models.

This research supports the suggestion by Horton (2003) that policy needs to promote sustainable practices rather than sustainable citizens. However, this thesis goes further by providing practical examples of how green architecture can be established. Furthermore, rather than shoe-horning policy into one conduit this Chapter argues that policy should be open to the various tools at its disposal, including legislative as well as infrastructural measures. In order to ensure that convenient and cost effective facilities are delivered to the communities that need them, there is a need for local government to change its approach to waste management. Historically, Cardiff has managed all operations in house. Nevertheless, there is growing evidence to support the benefits that working with community groups can offer, socially, economically and environmentally (Ajadi and Read, 2013; Cotterill *et al*, 2012; Gilchrist, 2009; Sharp and Lukin, 2006).

There is a need to shift the focus from recycling to waste minimisation. This change in focus is required as there is a risk that the targets for waste diversion and reuse will be overshadowed by a focus on the ambitious statutory recycling target of 70% by 2020 (Welsh Government, 2010). The findings of this thesis have the potential to significantly impact policy, but there is a need for policy to have an appetite for changing the way in which they approach behavioural change (Shove, 2010) and waste management practices. However, policy makers are well grounded in the arena of changing attitudes, and the historical design of Local Authorities is to deal with the waste produced and collected. Therefore, a challenge remains for the researcher in attempting to shift the political and policy focus from changing attitudes to changing practices at both the household and authority level.

Chapter 8: Conclusions and Recommendations

8.1 Introduction

This Chapter reviews and concludes on the contribution of this thesis in relation to theoretical, methodological and policy approaches to understanding waste minimisation behaviour. There are a number of key findings generated by this research that further understanding of waste minimisation and practice. As well as highlighting the benefits of the epistemological and methodological techniques adopted and how they have enabled access to a rich quality of data, this Chapter reviews the contribution of this thesis to providing a framework for future research and policy. The review includes consideration as to how future policy and research can further develop the findings of this research.

8.2 A Turn to Practice

This thesis has developed a more critical understanding of waste minimisation practice. Despite increasing pressure from policy and regulation to promote waste minimisation, historically, there has been a lack of guidance as to how to achieve this. Previous research in the waste arena has tended to centre on recycling as a result of legislative targets and policy (Cialdini, 2008; Davis *et al* 2006; Martin *et al*, 2006; see also Chapter 2). As the focus of policy has progressed to waste minimisation, research has also begun to evolve in this field. Nevertheless, this research has been limited by a focus upon intention and values, and an assumption that practices are the result of logical linear decision making processes (Jackson, 2005; Hinton, 2010).

Initially, research into waste minimisation was synonymous with values and intent as researchers turned to social psychological models of behaviour to try to develop understanding. It is clear from a review of current literature (as detailed in Chapter 3) that an intention based approach is flawed for two key reasons. Firstly, by focusing on *intended* waste minimisation practices, previous research has failed to identify *what* practices actually take place. Researchers have relied upon reported behaviours, concentrating on values and intention to perform waste related practices. However, as Chapter 5 highlighted, there are a number of practices that individuals undertake on a day to day basis 'unwittingly', for reasons other than a desire to reduce waste. These

findings are supported by a growing body of research suggesting that people can perform pro-environmental actions for non pro-environmental reasons (Perrin and Barton, 2001; Herridge, 2005; Tucker and Douglas, 2006; Bulkeley and Gregson, 2009; Cox *et al*, 2010), and that therefore people do not always realise (and therefore report) that what they are doing constitutes waste minimisation (Obara, 2005). An intention or value action model assumes that behaviour is linear and that actions are preceded by a conscious decision making process. However, practices can evolve as a result of habits and routines formed over time, and therefore no longer involve intent (Collins, 2003; Jackson, 2005; Shove and Pantzar, 2005; Shove, 2010).

Secondly, through focusing on environmental values and intent, previous research has failed to identify the full range of factors that influence waste minimisation practice. As discussed in Chapter 3 and evidenced in Chapter 5, people do not always know why they do things the way they do (Thrift, 2004; Lorimer, 2005; Anderson, 2010). As such, a survey based approach that focuses on environmental intentions and reported behaviours is unlikely to uncover non-environmental reasons for practice. Indeed, those investigating pro-environmental behaviour have found a gap between intended behaviour and the actual practices that individuals perform. The gap between intent and action has been labelled the 'value action gap'. This thesis overcomes the gap by looking beyond intentions and values to the practices themselves. Through adopting an everyday practice approach a range of both witting and unwitting practices have been identified. As a result, this research has been able to explore what practices actually take place and why. Therefore, through a practice based approach, an alternative range of influences have been identified which this thesis argues can be used to encourage sustainable performances.

As well as discarding pro-environmental values and intention as a starting point for investigating waste related practices, the literature review undertaken demonstrated the need to take into account both social and structural influences upon the individual (Jackson, 2005; Shove, 2010; Hargreaves, 2011). In particular the review considered the potential for practices to 'spill-over' or transfer between people and between places. In reviewing alternative approaches to understanding behaviour, it was evident that there was a need to access individuals' practices in order to evaluate what

practices were undertaken, when, where and why. A turn to practices was required in required in order to achieve a number of goals.

A turn to practices has allowed consideration of a range of actions including both consumption and disposal practices (Bulkeley and Gregson, 2009; Evans, 2012). Furthermore, a practice-based approach allowed consideration of the impacts of context on practices, including the impact of both people and places, and whether practices can transfer not just within an individuals' own lifestyle, but between individuals. (Reckwitz, 2002; Bulkeley and Askins, 2009; Bulkeley and Gregson, 2009; Hargreaves, 2011; Moore, 2012; Svensson, 2012). In addition, practices were studied through a series of interviews in order to take into account their transient nature and the impact of practice changing events (Tucker and Douglas, 2006; Gregson et al, 2007b; Bulkeley and Gregson, 2009).

The first research question therefore focused upon what waste minimisation practices were taking place at the individual and household level. This included consideration of both witting and unwitting practices. In addition, the first research question also considered why these practices were taking place in order to establish whether there were practices taking place for non-environmental reasons. Secondly, the research questions investigated whether practices transferred between different contexts and different people. This thesis took seriously the importance of context in order to demonstrate the changeable nature of practices, but also to identify how practices could be encouraged and intensified. Thirdly, there was a need to demonstrate that an alternative approach to the arena of waste minimisation would generate practical recommendations to encourage sustainable waste practices. As such, the last research question explored the implications of these results for policy.

8.2.1 Methods of Practice

Given the shortcomings of behaviour based approaches to understanding waste minimisation behaviour (as detailed in Chapters 3 and 4), it was essential that this thesis adopted an alternative approach to methodology in order to take seriously the turn to practice. As detailed in Chapter 4, an inductive, non-positivist approach was employed, which in turn demanded a qualitative method. In addition, the constructivist theoretical nature of the research demanded an approach that would

recognise the influence of both structure and agency on individuals and social groups (as discussed in section 8.5 below). Furthermore, given the shortcomings identified in relation to previous quantitative approaches to the waste problem, it was evident that an approach which enabled in depth study was required.

In order to answer the research questions, a combination of tried and tested methodologies was adopted, including semi-structured interviews, ad hoc diaries and focus groups. A variety of individuals were invited to take part in a series of 3 to 4 interviews over the period of a year. Through interviewing participants intermittently over a period of several months, it was possible for participants to reflect upon their actions and identify further practices that they had previously undertaken unwittingly. In addition, the timescale of the research made it possible to witness when and why practices changed, such as the impact of the introduction of food waste collections (See Chapters 5 and 6). In addition to participating in the semi-structured interviews, participants were asked to keep an ad hoc diary and to nominate a couple of friends, workmates, relatives or neighbours to also be involved in the study. The most significant problem experienced with the chosen methodology was the reluctance of initial participants to nominate acquaintances, and also the commitment of those nominated to the full duration of the research project. Nevertheless, the semi-structured format of the interviews, including general discussions about individuals habits and routines meant that information relating to social and contextual influences on the individual was accessed directly.

The research method adopted proved to be suitable for accessing a wide range of practices, and also a multitude of influences upon individuals' everyday practices. Interviews did not focus on intentions to reduce waste; rather they were more general discussions of habits and routines. Through avoiding a focus on pro-environmental intentions to reduce waste, three alternative factors were identified as affecting a variety of waste minimisation practices; Cost Convenience and Community. In addition, the research identified other external influences upon the individual, including the role of the media, neighbours, families, friends and work colleagues. In short, by using an everyday practice approach, the methodology employed enabled access to data of sufficient quantity and quality to answer the research questions. Quantitative data, such as Cardiff's waste arisings and recycling performance, was

also drawn upon in order to contextualise the study and the complexity of waste management within Cardiff. The quantitative data supported the qualitative data gathered through reinforcing that practices can change over time and can vary between different places and different materials.

This research demonstrates that in order to access waste practices there is a need for researchers to move away from a focus on environmental values, intention, and to some extent waste, and instead to focus on everyday practice. By looking at practices that are undertaken both 'wittingly' and 'unwittingly' it is possible to access a far broader range of practices that occur on a regular basis, which have the effect of reducing waste. This in turn enables access to the wider, relational and more complex range of factors underlying a particular action, rather than relying upon peoples representations of what they do and why. Therefore, this research does not disregard the role of values entirely. Rather, it accesses values through actions as this enables a truer representation of peoples' reasons for undertaking particular actions (as argued by Hinchcliffe, 2000; and Shove and Pantzar, 2005), something which previous quantitative research failed to uncover.

This thesis demonstrates the benefits of utilising qualitative research to understand when, where and why practices take place. A qualitative study of practices proved itself to be beneficial to developing understanding of waste minimisation in a number of ways, whilst some of the contributions of this thesis reach beyond the field of waste minimisation to the study of other practices. Firstly, a turn to practice uncovered both witting and unwitting waste (minimisation practices) that take place at the individual level. Secondly, through discussing everyday habits with participants, it was possible to identify three key themes that influenced sustainable (waste) practices. Thirdly, it was evident that routine practices could change dependent upon the context in which an individual is operating. Fourthly, a study of practice uncovered that different individuals consumed and disposed of different materials in different ways. Each of these findings is considered in greater depth below, before concluding upon the implications of these findings for future policy. However, it is first important to consider the implications of this thesis for future research.

Whilst the qualitative nature of this research has enabled a greater understanding of waste minimisation, as noted in Chapter 4, the research cannot be seen as representative. Indeed, the fact that the research was undertaken in pursuit of a PhD meant that it had to be controlled in terms of both time and scope in order to ensure specific, achievable results could be generated in the required timescales. Therefore, there are a number of positive ways in which this thesis could be adapted and built upon by future research. This thesis demonstrates that there are benefits to an approach that looks at what practices occur and what encourages them to occur. Future research should use the theoretical and methodological approaches adopted by this thesis to research the practices of a greater number of participants. In addition, informed by the approach of this thesis, future research should explore a wider variety of contexts. For example, this research has identified influences over the individual at work, and in the context of grocery shopping. Future research could consider whether influences are the same in different shopping contexts (i.e. for luxury items) or more closely examine the transfer of practice in a particular place of leisure or work, such as at a hotel or council office.

Furthermore, given that this research has highlighted the different ways in which different people divest materials, it is evident that there is a need for future researchers to be mindful of this significant finding. Moreover, future research could explore how people think about materials and the values that they place upon them at a given point in time. Through consideration of how different people divest different materials in different contexts, further ideas surrounding the provision of green architecture can be developed.

8.3 Witting and Unwitting Practices

Chapter 5 provided multiple examples of people 'unwittingly' undertaking waste minimisation practices. Through discussions with various participants, it was evident that although they could not provide examples of waste minimisation when asked to do so, they nevertheless undertook a broad range of waste minimisation practices. The evidence provided by this thesis therefore not only confirms that unwitting practices take place; it also verifies assertions that people do not always recognise that what

they are doing constitutes waste minimisation (Herridge, 2005; Obara, 2005; Tucker and Douglas, 2006; Middlemiss, 2011).

Whilst it could be argued that simply asking participants whether they undertake a particular practice could prompt them to recognise a practice undertaken for non-environmental reasons, this is not always the case due to the complex and changing nature of practices. As discussed in Chapter 5 even though participants were asked what they did with certain materials, some practices were only uncovered through discussion of what participants did in their spare time, such as gardening or going on holiday. Through these discussions the (waste minimisation) practices of gifting home-grown produce and swapping of books were identified. These findings are significant not only because they have uncovered unwitting practices, but because they demonstrate that people undertake different practices with different materials and in different contexts. Through focusing on intent, previous research has only identified some of the waste minimisation practices that take place. Therefore, as discussed in section 8.2, future research should focus upon practices not environmental values in order to understand practice.

A practice-based approach overcomes the issue of a focus upon intent, enabling access to practices that take place 'unwittingly', or for reasons other than environmental concern. An exploration of unwitting practices has in turn facilitated identification of a broader range of influences upon (waste minimisation) practices; Cost, Convenience and Community.

8.4 The Three C's

A turn to practice was significant in uncovering three recurrent themes that both positively and negatively influence waste minimisation practices. Through interviewing participants using a combination of semi-structured interviews and ad hoc diaries, data was generated indicating that both witting and unwitting waste minimisation practices were primarily motivated by cost, convenience and the community. Cost relates to the cost of an item at the point of purchase, its value at the point of disposal and the cost to dispose of an item. Convenience relates to the infrastructure available in a given context, as well as the availability of 'sustainable'

options. The community was significant in terms of the social ties that it provides in order to facilitate reuse behaviour, but also in terms of what is the social norm i.e. whether social responsibility for waste is commonplace in a given community or not. In addition to the 'Three C's', environmental concern was also evident in relation to some practices. Nevertheless, the constancy of these practices was impacted by the perceived cost and convenience of a given practice. Indeed, perception was very important as what was perceived as convenient or valuable by one participant, was not necessarily viewed in the same way by another.

The three C's are important because they allow an understanding of why particular practices take place in a given setting. As demonstrated in Chapter 7, such information can be used to help overcome the value-action gap that has historically plagued the arena of pro-environmental behaviour. Whilst the Three C's were identified in Chapter 5, it was evident that understanding how these factors interact was also crucial in order to identify how they might be used to promote sustainable waste minimisation practices. Central to this understanding was an exploration of the various contexts within which the various material practices could take place. As chapter 6 demonstrated, what is convenient in one context, might not be in another.

8.5 Context and the Transfer of Practice

A study of context revealed that whilst an individual might undertake a particular practice in one context, this practice was not necessarily replicated in another. There were a number of reasons for this. Firstly, there were issues with appropriate infrastructure being available in a given setting. Appropriate infrastructure includes not only facilities, but also availability of social ties (linking with the themes of convenience and community). Secondly, the social norm within a given setting was important. The level of autonomy an individual has in a given setting can impact upon practice as it will affect the extent to which an individual feels able to change the infrastructure or challenge the accepted norms in a given context. In the work context in particular, it was evident that individuals lacked sufficient autonomy to shape or go against accepted social norms. In the context of shopping and consumption practices, it was evident that individuals found themselves 'locked-in' to unsustainable consumption practices.

Through a study of practice transfer between contexts, the themes of cost, convenience and community again demonstrated their significance in influencing practices, with the additional influence of agency. Indeed, the role of agency was also important in relation to the transfer of practices between people. The impact of people on practice was a focus of the second research question. As detailed in Chapter 6, the extent to which other people influence individuals' practices can vary dependent on the autonomy of the individual in a given setting as well as the social ties available to them. Through discussing everyday practices with participants, it was evident that the media, friends, family and neighbours could influence practices. The extent to which individuals could influence others practices and vice versa depended upon their autonomy in a given context. Therefore, a study of practice transfer revealed that the individuals level of agency to challenge social norms was significant in affecting the transfer of practice both between contexts and between people (Schatzki *et al*, 2001; Shove, 2010; Hargreaves, 2011). The significance of social norms in affecting practices demonstrates that norms can play a significant part in the routinisation or normalisation of waste minimisation as well as recycling practices. As such, waste minimisation practices can be normalised through facilitation, thereby changing the nature of waste minimisation practices from those who sometimes act to those who regularly engage in such practices.

A study of practice transfer illustrated the importance of having the appropriate infrastructure (not necessarily the same infrastructure) in the appropriate place at the appropriate time (at point of consumption or divestment). Furthermore, a study of practice transfer reiterated that practices are not stagnant or static, they are constantly emerging (Shove, 2003; Shove and Pantzar, 2005; Anderson, 2010b). As such, the research undertaken for this thesis is reflective of the contexts within which the participants were operating at a given point in time. New de-materialised ways of engaging with media are emerging, which in turn, are leading to changes in practice. Using the example of books, whilst none of the participants used an electronic device to download and read books, this method of accessing literature, music and other media is gaining popularity. Therefore, just as records and video tapes became the discards of an earlier generation, so might be the case for books, CD's and so on. Indeed, whilst vinyl has to some extent become collectable and synonymous with

nostalgia (Shuker, 2010), there is presumably a limitation as to which items retain some value through customer demand.

As discussed in Chapter 3, those divesting materials may wish to keep certain items in circulation as they perceive them to have value, yet it does not follow that there is a market demand for such items. The Local Authority therefore can only advise the most sustainable option for disposal. In the case of video tapes, an infrastructure is now in place to collect them for recycling. Smart governance would incorporate monitoring technological developments in order to anticipate 'lumpiness' (Bulkeley and Gregson, 2009) in the generation of particular material streams. Such an approach would ensure that a market is available for items when they become obsolete.

Furthermore, this thesis highlights the significance of investigating the context specific nature of practices. As such, there are important implications here for future research. Whilst this thesis discussed the everyday practices that people undertook, both inside and outside of the home, there is potential for contexts outside of the home to be explored in far greater depth. In order to generate the quality and depth of data required, such studies would benefit from a focus upon specific contexts, such as the workplace, holidays, or shopping for luxury items.

8.6 Material Practices

The way in which an item is divested depends not only on the context, but also upon the material divested. A study of practice has identified that waste minimisation practices vary dependent upon the material in question. Moreover, although one individual may divest a particular material in a particular way, the method of divestment can vary from one individual to another. How an individual divests a particular material stream will depend upon their awareness of appropriate facilities, the accepted social norm, their perceived value of a particular item, and their access to an appropriate conduit for divestment. Again, the themes of cost, convenience and the community are apparent in influencing material practices. However, a further factor is evident: the role of awareness. The implications of this finding are of great import to both research and policy. In terms of research there would be benefits to undertaking an in-depth study surrounding the perceived value of specific materials. A further

study could include a review of the evolution of practices alongside technology developments, such as the Kindle, that enable the 'de-materialisation' of practice. However, from a policy perspective, there is a need for policy makers and Local Authorities to understand the unique nature of material practices. In order to facilitate the normalisation of practices, future waste strategies need to overcome perceptions and accepted norms that negatively impact upon practice. Policy makers need to appreciate that different materials require different strategies and target practices accordingly. Whilst in some cases the role for Local Authorities may be to promote the existence and convenience of facilities, in other cases it may be provision of infrastructure that is required. Only by understanding how individuals divest specific materials and why they dispose of them in a particular way (e.g. convenience, perceived value), can policy makers then seek to promote the benefits to the individual, thereby encouraging such practices to become normalised, routine habits.

When asking interviewees how they disposed of different items, it was evident that they did give some thought to the disposal of some items (such as furniture, books and textiles), but that the process of divestment is far from straightforward. Whilst at one point in time an individual may be able to gift or sell an item, at another they may not have access to appropriate social ties or transport to facilitate the gifting or sale of an item. This demonstrates the importance of having the right facilities available at the right time. In addition, material practices are influenced by accepted community norms. Although it may be an accepted norm to gift one material stream, this is not necessarily the case for another. Furthermore, perceived value of an item can affect whether or not individuals seek to divest an item for reuse of simply place it in the rubbish bin. Lastly, how an individual divests a particular material will depend upon their awareness of the facilities available to them. Hence, as discussed in Chapter 7, there is a need for Local Authorities to enable and encourage practices not only through provision of facilities, but through raising awareness of the facilities and the demand for certain materials.

8.7 Implications for Policy

There is a need to change the views of policy makers. Despite increasing evidence to suggest that a focus on values, intent and information is flawed, there is still an

overwhelming focus on behaviour change. In addition, the Welsh Government and other governmental bodies are centred upon the concept of segmentation models and their suitability for tailoring national and local campaigns for producing sustainable citizens. Indeed, to adopt a practice based analogy, it is necessary to identify how these practices can be broken and remade as a focus on behaviour change seems to have become embedded as a cornerstone in waste policy. Nevertheless, it is clear that current academic and policy approaches are not working. Previous academic approaches have found a gap between values or intent and actions. The implication being that even if the Welsh Government, WRAP and WAW manage to succeed in changing values, it does not follow that behaviour will change. Whilst it is surprising that, in spite of all the evidence to the contrary, policy makers are still assuming that awareness and information will lead to a change in action, regrettably, from recent discussions and conferences held by the Welsh Government it is clear that they are not yet ready for a turn to practices.

In order to demonstrate the benefits of a turn to practice, it is proposed that further trials take place in Cardiff, similar to the student campaign detailed in Chapter 7. Through demonstrating the effectiveness of convenient, cost effective schemes within the community, it will be possible to strengthen the argument for change. However, there will doubtless be a number of obstacles to overcome in order to establish such trials. Aside from financial and operational considerations, any new trials will have to be approved by senior officers and also by Councillors. This thesis recognises that Local Authorities face multiple barriers to changing their own practices as well as the practices of their residents. However, it also highlights that Local Authorities have an opportunity to make radical changes in order to change the focus of their operations from waste to resource management. Moreover, it provides some practical examples as to how Local Authorities can better support waste minimisation practices, thereby helping to overcome the identified gap between policy objectives and practice (Deutz and Frostick, 2009). Whether the findings of this thesis alone will be sufficient to persuade them to 'swim against the tide' of Welsh Government policy remains to be seen. Indeed, the importance of getting governmental bodies on board should not be underestimated as, in Wales in particular, governmental bodies are dictating *what* Local Authorities should be doing, and increasingly through the use of Sector plans, *how* they should be doing it.

In order to demonstrate how this research can be used by policy to promote practices rather than values, Chapter 7 provided examples of how national and local organisations could shape consumption and disposal practices. The measures detailed in Chapter 7 can be broken down into four main categories:

1) Actions to be taken by national organisations to prevent waste; including regulatory and legislative change. As well as a role for national organisations such as WRAP and DEFRA, there is a role for industry.

2) Local Authority led promotional campaigns which encourage practices by emphasising the (cost/convenience) benefits to individuals as opposed to the environment.

3) Local Authority led development of new and existing facilities in association with non-governmental organisations.

4) Local Authorities working with community groups to develop and intensify those practices facilitated by community ties and norms.

Firstly, there are a number of steps that can be taken by industry in order to facilitate a change in practice at the point of consumption. Whilst some of these measures could prove financially beneficial to producers – industry is likely to have less of an appetite for measures that will decrease consumption and revenue. As such, there is a need for national governments to instigate changes through regulation of industry, but also through ensuring consistency of green taxes that are introduced. For example, the carrier bag levy was introduced to all retail outlets, and, as discussed in Chapter 6, has ensured that, to some extent, reduction and reuse practices have transferred from the context of grocery shops to the purchase of other commodities.

Secondly, there is a role for Local Authorities to promote practices by focussing upon the (non-environmental) benefits for the individual. For example, Local Authorities could promote the cost benefits of avoiding overconsumption. Local Authorities could make use of existing communication methods (such as radio adverts and face to face interaction with residents at supermarket road-shows) to encourage individuals to plan food shopping, and use up left over's in order to save money.

Thirdly, Local Authorities need to connect those who wish to dispose of items with 'second-hand' consumers through improvement of existing infrastructure. Whilst many of the participants demonstrated that they had attempted to re-purpose materials, some faced issues of rejection. Local Authorities have the ability to change waste minimisation practices through improving and developing current facilities in partnership with non-governmental organisations. Local Authorities should then promote these facilities in line with point two above.

Fourthly, Local Authorities need to work with the community in order to develop and intensify existing practices. It was evident that whilst people found it acceptable to gift furniture, they did not seem to consider the possibility of gifting other items such as food to acquaintances, unless the produce was home grown. There is a need for a cultural shift in the ways in which communities perceive and deal with particular items. Local Authorities can to some extent assist this cultural change by providing and promoting convenient and cost effective reuse facilities. However, there remains a role for the community in facilitating and embracing alternative forms of waste minimisation such as the gifting of surplus food. In addition, where waste minimisation practices are not commonplace, there is a need to promote such practices.

8.8 Conclusion

What has been seen from this thesis is that if you take an academically novel approach to a policy problem, a number of positive results are generated. In addition to providing a framework for future policy, this research has illustrated the benefits of adopting alternative theoretical and methodological approaches to 'behaviour change'. A focus upon practice allows researchers to take into account various influences upon the individual. Moreover, a study of the transfer of practice highlights the importance of both context and agency in affecting the take up, transfer and intensification of practices. As such, future research should be wary of a focus upon reported and intended behaviour if the aim is to in fact encourage desired performances. Moreover, in order to inform how best to shape such performances, researchers need to consider the various contexts in which such practices take place.

Whilst policy and research often seek to rationalise and generalise behaviour in order to develop models for behavioural change, the benefits of an individual approach to behavioural change should not be underestimated. The ways in which individuals divested different materials varied, but through focussing upon why individuals divested different materials in different ways, it was possible to identify three key themes that influenced practice; cost, convenience and community. Through analysing the data generated, this thesis has begun to paint a picture of what the green architecture suggested by previous researchers (Horton, 2003; Anderson, 2010) might look like. Furthermore, this thesis highlights that provision of such architecture alone is not sufficient to mobilise practices. There is still a role for educational campaigns. However, such campaigns need to take a different approach. Rather than 'preaching' there is a need to raise awareness of facilities by promoting the (non-environmental) benefits to the individual in order to generate sustainable performances. If such suggestions are adopted, there would be greater likelihood of waste minimisation being an accepted form of behaviour within society, thereby taking a step closer to waste minimisation becoming a social norm.

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Appendices

Appendix 1: Invitation to Participate in Research

CARDIFF CITIZENS PANEL – INVITATION TO TAKE PART IN A WASTE MANAGEMENT STUDY

The Council's Recycling Team is about to undertake an important and innovative study, and has requested members of the Citizens Panel to get involved. The aim of the study is to provide information as well as to gain an understanding of what encourages you to reduce and recycle your waste.

The main aspects of the study will involve observation of waste attitudes and consumption behaviour via:

- 4 Interviews with a member of the household over the course of the study (approximately 12 months) discussing shopping habits, waste behaviour and so on.
- Very informal 'Diaries' written by participants. There is no need for these to be daily or even weekly, just notes made if something significant arises.
- Contact with other persons that you nominate to take part in the study with your consent: This is so that we can assess the impact of the recycling habits of friends/relatives/neighbours on a social network or group of friends.

The study will only necessitate a maximum of 5 informal meetings with each individual/household throughout the course of the study. Each meeting will be arranged at your convenience and discussions should last for a maximum of 1 hour.

All data will be anonymised. There is no obligation for you to participate in any aspect of the study that you do not wish to. However, the Team has requested that you carefully consider how fully you wish to be involved before agreeing to participate in the study, as it is important for them to be able to gather the information required.

If you would like to get involved in the study, or require further information, please contact Claire Cutforth, Waste Minimisation & Education Officer on █████████, via email at █████████, or via post at Lamby Way Depot, Rumney, Cardiff CF3 2HP.

Yours sincerely,

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Citizens' Panel Co-ordinator

Appendix 2: Framework for First Interview

<u>Meeting 1 – Framework</u>

Outline of research for participants:

I am looking at roles and responsibilities in the household in relation to waste. I am also interested in the networks surrounding the household and the external influences on the householder, as well as the role of hobbies, interests and lifestyle.

Participation is voluntary throughout the duration and you reserve the right to withdraw at any time. All information gathered will be anonymised prior to publication.

Overview of Structure: Approx 4 interviews/meetings; access to a couple of households from your social network; discussion of your shopping habits; discussion of your household waste management; confidentially discuss potential network contacts and their waste habits; keeping an ad hoc diary.

Are you happy for me to record our conversations using a Dictaphone?

Themes/Questions:

How long have you lived here?

Who lives here?

Do you have any pets?

What do you like to do in your spare time?

Garden – Interested in free home compost bin?
Do you grow your own fruit and vegetables?

Watch TV – Which programmes – cooking, sport?

Watch films – what type?

Eating Habits
Do you use the kitchen much? Do you do a lot of cooking? (together)

Do you eat together?

Do you always do this in this way ? (i.e. are there things that impact upon their routine)

Do you plan meals i.e. menu? Do you have a set time for eating?

How often do you have take-away or fast food?

How often do you visit restaurants?

Waste Habits
Do you find you have lots of food left-over – what you do with it?

What happens to any left-over food waste? Do you have a home compost bin? Do you feed it to pets?

Who is responsible for managing waste in your household? Putting black bins out, managing recycling, managing green waste?

What affects how much you do/do not recycle?

Shopping
Who is responsible for the food shopping in the house?

Do you plan your shopping? i.e. check the fridge/write a list?

How frequently do you go food shopping? What affects the way you shop: Transport, cost, time etc?

What affects what you buy (offers etc)?

Influences
Has anything that has happened recently made you think more about how you shop, the way you eat or how you deal with waste?

What do you think of waste services in Cardiff?

Have you received information on recycling services?

Do you think it is worth trying to change peoples' habits to benefit the environment?

Do you think more people are being sustainable now?

Why do you think people do or do not change their behaviour?

Diary
After the next meeting I'd like you to note down anything that springs to mind about waste throughout the duration of the study that you feel is significant in an informal diary.

Appendix 3: Framework for Second Interview

<u>Meeting 2</u>

Any questions/notes in your diary?

Discuss new food waste collections – are they taking part and how are they finding it? Why

Discuss meeting with network participants; why nominated, do they talk about waste much etc.

Show me your Rubbish: Please can you tell me what you do with the following materials:

Cellophane
Clothes
Shoes
Other textiles
Crisp Packets
Sweet Wrapper
Food Trays
Yoghurt pots
Margarine tubs
Cardboard
Thin Card
Plastic bottle
Cans
Food tins
Paper
Envelope
Vitamin bottle
Broken glass
Glass bottle
Jars
Tissue/kitchen roll
Cardboard toilet roll
Take away wrappers
Candles
Bones
Meat
Fish
Bread
Pasta
Electrical items

Wine bottle
Flowers
Tea bag

What are they not recycling and why – shampoo bottles, bedroom/bathroom waste due to separate bins etc?

Do you know what happens to the materials collected – where do they go and what they are turned into?

Are you aware of national adverts? Discuss their thoughts on the role of the media – TV, newspapers etc. Target achievements – Local Table: National Table – Cardiff bottom of league

What do you understand by the term waste minimisation?

Where did you get this information/definition?

Do you minimise waste in any way that you can think of? NB: What is the incentive?

Have you ever used a site such as e-bay to buy or sell items? Which? What? Why?

Have you ever been to a car boot sale?

Have you ever donated items to a charity shop/textile bank?

Do you ever reuse plastic bottles?

Do you use library services?

Have you ever hired/borrowed instead of buying?

Have you ever heard of free-cycle? If yes, do use it? If not, would you use it?

Are you signed up to the Mailing Preference Service for no Junk Mail?

Do you reuse bags? Why? Media/ cost/ bonus points/ environmental conscience?

Do you plan shopping? Do you check fridge freezer before you go? Are your cupboards always full? Do you go for BOGOF's/3 for 3's? Does this affect how much you throw away?

What restricts how much you buy? Transport, storage space etc. Or do you need to buy lots to prevent multiple trips?

Discuss attitudes to waste in different places:
Do you recycle at work?

Discuss other habits routines they have and whether these occur in work

Discuss hobbies/shopping - Do you recycle when out and about – or when on holiday?

Appendix 4: Framework for Third Interview

<u>Meeting 3</u>

Discuss whether they have made diary entries

Discuss notes from a review of previous meetings: explore interesting topics raised/changes inconsistencies.

Discuss themes from previous interview: Activities at work; shopping; holidays etc. For example, you said you do not recycle at work/on holiday – why not?

Discuss any themes arising from network discussions. For example, x mentioned you swap fruit and vegetables/you mow her lawn etc. Do you talk about waste much now and did you before the study?

Discuss new food waste collections – are they taking part and how are they finding it? (If not covered at Meeting 2)

Has the scheme made you think more about food waste? In what way?

Has it affected how you shop?

What (else) restricts how much you buy? Transport, storage space etc.

Do you reuse bags? When/Where? Why?

Do you read much – what do you do with used books?

What do you think of when you think about waste minimisation? (compare with previous examples)

Discuss their thoughts on the role of the media – TV, newspapers etc.

Discuss role of supermarkets, producers – packaging – aware of adverts – brand recognition?

Appendix 5: Framework for Focus Group

<u>Focus Group</u>

Feeder Questions:

What did you think of the MRF?

What do you think to this approach to recycling?

Has it made you reflect on anything that you do?

Discuss what encourages/discourages recycling/waste minimisation.

How could the Council do more to encourage recycling/waste minimisation behaviour?

Do people find recycling easier to understand and/or carry out? If so, why?