THE UNIVERSITY *of* EDINBURGH

Scotland's Rubbish: Domestic Recycling, Policy and Practice in Everyday Life

Fraser Andrew Stewart

PhD

The University of Edinburgh

2011

Declaration

In accordance with University regulations, I hereby declare that this thesis has been composed solely by myself, that the work contained herein is my own except where explicitly stated otherwise in the text, and that this work has not been submitted for any other degree or personal qualification.

Fraser Andrew Stewart
October 2011

Abstract

This thesis examines the relationships people have with rubbish in everyday life. Focusing on domestic recycling policy and practice, environmental concern and action is explored as a sociological problem in a way that moves beyond the individualising paradigms that dominate environmental discourse for behavioural change. In its place, this thesis argues that better explanation may reside in the social context of embedded practices, and how they get enacted in daily life. Beginning with a historical overview and evaluation of current policy, this thesis re-imagines domestic recycling as a complex socio-technical system involving the engagement of different actors. Conducted at the boundaries of sociology, this thesis draws on empirical and theoretical ideas that extend across disciplines. Methodologically the research has been grounded on a principle of *mixed methods pragmatism*, exploiting the Sequential Explanatory mixed methods research design. Conducted across two phases, Phase One involved the secondary analysis of the Scottish Household Survey and Phase Two the collection and analysis of qualitative data using the Diary-Interview method. The first phase was a macro- analysis of recycling practices in Scotland. The main results of this analysis are presented in Chapter 4, which built a Binary Logistic Regression model, using the Scottish Household Survey, to predict the characteristics of Scottish households likely to engage in recycling behaviour. In addition to identifying the social and structural dimensions of recycling in Scotland, this analysis also enabled a research site to be selected for Phase Two of the study. Chapters 5 and 6 respond to the macro- analysis by accounting for the micro- aspects of recycling practices by looking at the problem inductively. Using qualitative data analysed in Phase Two, these two chapters are based on the idea that how people value the environment is relevant for understanding contemporary recycling practices. Chapter 5 considers the explanatory usefulness of environmental ethics, values and citizenship for explaining why some households engage in environmental behaviour, but others do not. In Chapter 6 these arguments are developed further with a more detailed discussion about how household recycling practices get enacted in everyday life. Using evidence from the data, this chapter considers why commitment to 'doing' recycling varies between people and examines recycling as

formed, cultivated and maintained habitual behaviour. Taken together the three data chapters try to show that, rather than be an inconsequential feature of normal domestic life, recycling is a practice deeply-rooted in wider social patterns and structural forces. In the final chapter, all of the micro- and macro- findings are integrated together and concluded, along with some reflections on the multidimensionality of contemporary recycling practices in the home, and what this might mean for policy and future research.

Acknowledgements

Completing this thesis would not have been possible without the help and support of a great many people. First and foremost I am grateful to my research participants for agreeing to take part in the research and making fieldwork such an enjoyable experience. In particular thanks are due to Howard Wollman, formerly of Edinburgh Napier University, for introducing me properly to sociology; a subject I have since developed a passion for. Also to Will Dinan at the University of Strathclyde for supervising my Masters dissertation and instilling in me the belief I can actually do social research. I am grateful to everyone in Edinburgh Sociology, where I am pleased to say collegiality is alive and well. Special mention is due to Hugo Gorringe for his early advice on my outline research proposal and applying for funding, something that remains a mystery to me to this day; Kate Orton-Johnson for her on-going encouragement whenever I doubted myself; and Sue Renton for being helpful and supportive with many administrative tasks over the last few years. To everyone who has advised me throughout my degree I am truly grateful. This includes Claire Haggett and Stewart Russell for their valuable suggestions in my first year review and progression panel, advice that stuck with me until the end; and Alison Koslowski for her useful assistance when pondering 'missing' data. Most notable thanks are reserved for my supervision team, Steve Yearley and Michael Rosie, for their patience, advice and encouragement that made my experience as intellectually stimulating as it was challenging. Sharing my fondness for Swedish coffee and baked goods made our supervision meetings something to look forward to socially as well as professionally. I am grateful to the Economic and Social Research Council for funding the research and to Elizabeth Shove and Donald Mackenzie, both of whose work I admire greatly, for taking the time to examine the thesis and for being so supportive and engaged in my viva.

On a more personal note, I would like to thank all of my office mates over the years, for putting up with my idiosyncrasies as I beavered away in my corner by the window. In particular, Tracy Ostertag and Eric Chen need thanked for being a constant source of support and laughter; and Carrie Purcell and Paul Whybrow for

sharing with me the odd bottle of red on a Wednesday evening (before the thesis became all consuming). For listening to my grumbles and offering me advice and support when things didn't always go to plan, I could acknowledge many people but special mention is reserved for Miriam Snellgrove, Jennifer Peet, Heather Blenkinsop, Amy Chandler and Andrea Salter. To my family and friends, when they weren't always sure exactly what it was I was doing, I am eternally indebted; so too to Pepsi and Penny, for keeping me company on many a *dreich* Scottish morning, which made 'working from home' a necessity if not a requirement. But above all, I thank my partner Liam Sinclair for his love, support and encouragement over the last ten years, and resigning himself to many nights of disturbed sleep in the latter stages of writing.

Table of Contents

Lists of Figures and Tables

List of Figures

List of Tables

List of Abbreviations

CIWM	Chartered Institute of Wastes Management
CO_2	Carbon Dioxide
Defra	Department for Environment, Food and Rural Affairs
ESRC	Economic and Social Research Council
EU	European Union
GROS	General Register Office for Scotland
HEP	Human Exemptionalism Paradigm
NEP	New Ecological Paradigm
NGO	Non-Governmental Organisation
OECD	Organisation for Economic Co-operation and Development
SEPA	Scottish Environmental Protection Agency
SHS	Scottish Household Survey
SPSS	Statistical Package for the Social Sciences (version 14)
SWAG	Scottish Waste Aware Group
UK	United Kingdom
US	United States
VIF	Variance Inflation Factor
WCED	World Commission on Environment and Development

Transcription Guide

All quotes from participants are indented and *italicised*

"[…]" indicates text has been cut from the quote

"….." indicates a pause in talk

"hahaha" indicates laughter

Chapter 1 Recycling in Scotland, an Introduction

> *'Although there is a political consensus over the need to promote recycling this does not extend to the precise objectives of policy or over the most appropriate means of promoting recycling and sustainable waste management strategies'.*
>
> Matthew Gandy (1994: 14)

1.0 Introduction

This thesis starts from an observation that consumption, described as *'the vanguard of history'* (Miller 1995: 1), results in the generation of excessive waste in modern industrial society. Often overlooked as a social, political and environmental concern, waste and its disposal has consequences for society that policy actors have failed to agree how best to tackle. This thesis is an attempt to understand municipal solid waste as a 'typical' everyday practice that is so taken for granted that it usually gets treated as an immaterial or inconsequential feature of social life. This does not just happen in public discourse however; it is something that happens in social sciences too. In particular, mainstream sociology has failed to address waste and its disposal because of a preoccupation with social relations and problems being reduced to 'social facts' in a Durkheimian sense (Dunlap & Catton 1979; Woodgate 2010). This has resulted in socio-environmental concerns often receiving less attention than they might otherwise deserve.

Over the last thirty years or so, environmental sociologists have been challenging this dominant worldview, advocating a sociology that accords 'ecological' facts the same status as 'social' ones. Developed into a distinctive sub-discipline, environmental sociology aims to explain better the complex relationship between people and their natural and built environments. This is done through the conduct of empirical investigations and engaging in theoretical debate that reflects increasingly complex global concerns about the relationship between people and planet. In relation to waste and its disposal concern is expressed at the volumes of rubbish being generated

by societies, which in Western Europe is considered particularly problematic because as societies have got wealthier and consumed more material goods, the sheer volumes of waste have increased too (European Commission 2011). Indeed by 2008, it was estimated that European citizens were generating on average around 444 kilograms per person each year (European Commission 2010). This research is a direct response to this, exploring waste and recycling practices in one particular industrialised nation: Scotland. Focusing mostly on domestic recycling practice as an example of a commonly understood pro-environmental behaviour, how discourses of sustainability and environmental values interact in daily life is outlined to show that rather than be an inconsequential feature of everyday life, waste and its disposal are embedded within a wider social and political context. The rest of this introductory chapter provides: the rationale for the research and the context of the thesis; the main aims and objectives of the research; and an overview of the thesis structure.

1.1 Rationale and Research Context

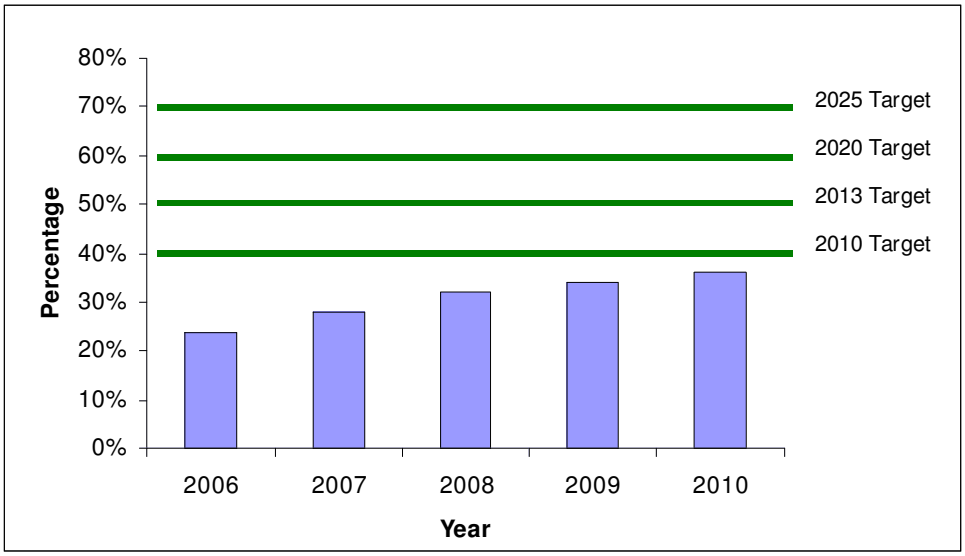
In this section the intellectual rationale for the research is outlined, by considering recycling as a particular social, political and ecological problem that occurs in local and global contexts. The main driver for change in the management of waste in the United Kingdom has been domestic and European Union legislation and policy initiatives. The legislative and regulatory regime that operates in Scotland details: the statutory obligations of various authorities; the conditions under which waste will be collected, processed and disposed of; and the minimal environmental standards to be met by EU Member States. This includes waste recovery, treatment and disposal.

Operating within a devolved governance framework, responsibility for the management of waste and recycling in Scotland resides with the Scottish Government, which in turn is answerable to the Scottish Parliament. The *Waste Management Strategy* (1999) and *National Waste Plan* (2003) set out a strategy and plan for Scotland to achieve targets on the amounts of waste being sent to landfill and recovered for recycling. Having traditionally relied upon unsustainable waste disposal options, like landfill, Scottish policy actors and key stakeholders have

increasingly called for action to reduce the amount of waste being generated in Scotland and to increase re-use and recycling behaviour among the general population. With the election of the Scottish National Party to the Scottish Government in 2007, this has since been reformulated as an ambition to work toward being a *zero waste society*, to: *'[…] ensure that Scotland conserves and utilises valuable resources properly and reduce[s] traditional reliance on disposing of waste in landfill'* (The Scottish Government 2010b). This reformulation of strategy involved revising the landfill and recycling targets so that they now go well beyond the minimum statutory obligations stipulated in the EU Landfill Directive.

The recycling and composting rate achieved in Scotland from 2006 to 2010 and the revised Scottish Government targets from 2010 to 2025 are summarised in Figure 1.1:

Figure 1.1 Recycling Rates 2006-2010 & Targets 2010-2025



Source: Scottish Environmental Protection Agency

As can be seen in Figure 1.1, the future targets are ambitious with modest progress being made up to 2010. However setting targets is one thing, realising them is quite another. Policymakers increasingly see ordinary citizens and their families as partners in the delivery of policy objectives, including the new zero waste ambition

(The Scottish Government 2010b, 2010c). Official statistics suggest a change has been occurring in Scottish household recycling behaviour, with self-reported participation in recycling increasing substantially in recent years. As will be shown in later chapters, surveys reveal that in 2006 around eighty percent of the Scottish population was claiming to be recycling. If true, it would not be unreasonable to expect the national recycling and composting rate to be higher than the twenty-four percent reported in the same year. Reasons for this apparent 'gap' between what people say they do and what they actually do is discussed further in Chapter 4, where a number of external and internal factors are identified as relevant. These include: differences in the waste management strategy in different local authorities; not all recyclable material presented by households ends up being recycled; and some households claim to recycle when actually they do not. For reasons like these, householder engagement in recycling has emerged as a key concern for policymakers.

Waste and recycling are not, however, just a local concern in Scotland; globally interest in the unsustainable nature of industrialisation and modernisation has been apparent ever since the 1970s and the publication of *The Limits to Growth* (Meadows et al. 1972), and the *Brundtland Commission* on environment and development recommendations on sustainable development in the 1980s. Sustainable development will be described further in Chapter 2, but for now it is simply defined as: *'[…] meeting the needs of the present without compromising the ability of future generations to meet their own needs'* (WCED 1987: 8). Entrenched in environmental policy discourses around the world, in relation to waste, sustainable development is a central element of *the waste hierarchy*, a tool that ranks the options available for the disposal of waste in terms of environmental impact, or a principle of *Best Possible Environmental Outcome*. Educational tools like the waste hierarchy encourage people to make environmentally informed decisions about their environmental behaviour and lifestyle choices, which have resulted in policymakers and environment campaign stakeholders embracing them. This is because framing environmental problems as *caused* by how people act in the home makes it easy to create policy interventions that have specific and measurable outcomes. However,

this thesis shares in a view that this individualising tendency represents a dominant paradigm in environmental policymaking (Hawkins 2006). Based on propositions put forward in the disciplines of social or cognitive psychology and behavioural economics, this paradigm views environmental problems as being caused by individuals' action or inaction, and should therefore be solved at the site of individual choice. This thesis finds this problematic because in addition to concealing hidden or vested interests that extend beyond individuals, it also fails to account for the social embeddedness of (un)sustainable practices.

Evident in numerous governmental and non-governmental statements aimed at encouraging behavioural change to reduce the amounts of domestic waste being landfilled, most policy initiatives and projects are aimed toward individuals and their domestic waste. This has important consequences for assessing the policy response to Scotland's apparent waste 'burden', because compared to commercial waste, domestic waste accounts for only around thirteen percent of the overall amount generated each year (SEPA 2007). Critiquing the central message that waste is an individual problem, to be solved at the point of individual's consumption and disposal decisions, frames this entire thesis. Because normal policy approaches fail to consider the social context within which embedded practices form and fade, it is not clear how the social patterns and structural trends that lead to unsustainable waste practices being adopted in the first place will be overcome; this is evidenced by the volumes of domestic and commercial waste continuing to increase in many industrialised nations and recycling rates appearing stagnant.

1.2 Thesis Aims and Objectives

The rationale for this study places the research within a broader institutional and policy context that directly inform the aims and objectives of the research. At its most basic, this thesis is concerned with the relationship between people and the waste they both generate and need to dispose of in everyday life. Reflecting its interdisciplinary nature, the thesis draws on a number of overlapping theoretical and empirical constructs from within and beyond the confines of sociology. The research

shows that despite being an inevitable consequence of the social organisation of people that is usually ignored, domestic waste and recycling are socially situated practices implicated in the routines and interactions of social actors. By moving away from the dominant paradigm introduced above that emphasises individuals and permeates environmental policymaking in the UK, this thesis provides further evidence that better explanation resides in the social context of embedded practices and how they are enacted in daily life.

This involves considering an overarching research question: *how best can we explain household recycling practices in the twenty-first century?* As will be demonstrated, this is something that usually gets reduced to cognitive decision-making or the rational choices of individuals. Using a mixture of types of empirical evidence, this thesis makes the case for recycling as a socially formed pro-environmental behaviour that is dependent upon structural and situational factors. These factors converge in daily life, to influence environmental concern and action. Emphasising a transitions and practices approach, this research considers the effectiveness of policy strategies and initiatives designed to encourage 'green' behavioural change. Moving beyond shallow explanations of propensity to take pro-environmental action, explaining twenty-first century recycling practices in this study involves answering three further research sub-questions:

1 What is it about modern families and households that results in some being more likely than others to engage in recycling activities?

2 What is the role of ethics, values and citizenship in influencing environmental concern and action?

3 To what extent can everyday recycling practices be explained as habitual and ritualised?

Answering these additional sub-questions involves exploiting not only the interdisciplinary analytical framework hinted at above, but also a sequential mixed methods research design. Conducted across two phases, this mixed methods research aimed to identify and explain the socially structured characteristics of households in

Scotland in relation to their domestic recycling activity, exploring how these help shape the recycling experience of socially situated actors.

This research aimed to first demonstrate the role of socio-demographic variables one might expect to be associated with recycling behaviour. In the chapters that follow, it will be shown that different structural and situational factors converge to help explain recycling behaviour in Scotland. However, it will also be shown that these are inadequate alone to fully explain contemporary recycling practice. In response to this, the second phase of the research design builds on the first by suggesting that environmental action is about more than just identifiable and measurable factors. Also relevant is the subjective experience of actors, who respond out of their social situatedness. It will be illustrated here that while respondents often report an acute awareness and concern for environmental issues, this occurs on a sliding scale. For some people this is a superficial interest or commitment: for others it exemplifies a broader environmental altruism. Clearly recycling is only one part of this, linked to lifestyle choices and wanting to live a 'better life'. But this always occurs within limits, with some behaviour being non-negotiable, reflecting a conflict between the pursuit of objectives and the rationalisation of values. While external motivators have an important role to play in this, the idea that *lifestyles matter* is more about the role of status and values in determining what practices get prioritised and committed to in daily life. In this thesis it is argued that it is not enough to simply furnish the population with standardised information or service provision and expect them to just 'get on with it'. If, as this thesis suggests, pro-environmental behaviour is implicated in the duality of social structure and agency it is no wonder policy interventions and reform measures alone, aimed at individuals and their everyday choices, have had limited success at encouraging widespread behavioural change beyond those who are already doing it.

1.3 Structure of the Thesis

This thesis explores further why households engage in recycling practices differently. It contains six further chapters that frame domestic waste and recycling as often-

misunderstood problems for society. In this first chapter the intellectual rationale for the study has been introduced along with the general aims and objectives of the thesis.

In Chapter 2 the main aims and objectives of the thesis are elaborated further. Here the research questions being investigated are discussed by placing the study within its broader historical and institutional context of waste and recycling policy and practice in Scotland. The latter part of this chapter evaluates relevant empirical and theoretical literature that has informed the design and execution of the research. Reflecting its interdisciplinary nature, material addressing: the social shaping of environmental problems; environmental ethics, values and citizenship; the turn to social practices; and transitions in socio-technical systems, are evaluated for their intellectual usefulness in helping explain contemporary domestic recycling practice. In doing so, Chapter 2 clearly marks out where, and how, this thesis makes a unique contribution to knowledge within and beyond the boundaries of sociology.

Guided by the preceding empirical and theoretical framework discussion Chapter 3 presents the methodology and research design of the study. This details the epistemological, ontological, axiological and methodological assumptions of the research process; detailing what was done, how it was done, and why it was done. Situated within a tradition of mixed methods research, the choice of research design stemmed from a personal dissatisfaction at the prospect of choosing between the quantitative-qualitative dichotomy. This study was designed to exploit the best, and minimise the worst, of different research methods and strategies. The opportunities and payoffs gained from implementing an explanatory mixed method design are discussed. Here the methodological challenges of doing 'real-world' research are outlined, along with comments on the utility of approaching research based on *methodological pragmatism*. This places the research question at the heart of the research endeavour, using both inductive and deductive forms of knowledge to arrive at holistic understandings of social problems.

Reflecting the two-phased research design, Chapter 4 presents the main findings to emerge from Phase One. It begins by outlining the relationship between claimed and reported recycling behaviour in Scotland, which helps account for why recycling is treated as important. Also discussed in this chapter are some descriptive analyses of the Scottish Household Survey, used to screen and describe the data and prepare the data for inclusion in a binary logistic regression model. This model predicts the factors associated with Scottish households' propensity to claim to recycle. Included is a description of the model building strategy and variable selection procedures followed. The full results of a best-fitting model are also presented, along with model diagnostics, indicating how well the data fits the constructed model. The implications of the model for the thesis and recycling policy in general are discussed, as is how recycling practice varies in different parts of Scotland – the purpose being to identify a suitable research site for Phase Two of the study.

Responding to the quantitative analyses performed in Phase One, Chapters 5 and 6 are dedicated to discussing the findings to emerge in Phase Two of the research design. Both are based on a proposition that it is the social situatedness of people, acting within the structural constraints of society that determines how practices get enacted. Using collected narratives as evidence, these are assumed to not just be a collection of peoples' stories; rather they are held to be systematic accounts that reflect social processes and structures, which in turn influence behavioural outcomes. Chapter 5 is dedicated to exploring the role of ethics, values and environmental citizenship as influencing recycling activity. To do this ethics and values are problematised and considered as motivating environmental action. Environmental citizenship is explored as a normative concept, grounded in a person's ecological awareness and commitment that can influence lifestyle choices. Chapter 6 builds on this ethic and values discussion to show how recycling routines get formed, cultivated and maintained as habitual in the context of everyday life. In identifying domestic recycling as 'practice-in-talk' and 'practice-in-performance', this final qualitative chapter examines how recycling gets talked about and ritualised in the home as part of normal daily life.

The thesis is concluded in Chapter 7. Here the research is assessed for what it has revealed about domestic recycling, policy and practice in everyday life. It is concluded that rather than look to individual's and their family's behavioural choices for explaining environmental action (or inaction), better explanation lies in the social context of embedded practices and how they get enacted in daily life. Responding sociologically, this research examined the effectiveness of different policy strategies and initiatives designed to encourage behavioural change. In the final chapter the extent to which the aims and objectives of the research were met is considered, alongside a discussion of the main research findings. In addition to answering the research questions and evaluating the research process, some speculative comments are offered on future directions of the research and the implications the research has for theory and policy.

Chapter 2 Background and Literature Review

> *'The centrality of waste to contemporary society is visible everywhere and everyday. In my daily life I can walk nowhere, sit nowhere, be nowhere without detritus cluttering up my every horizon.*'
>
> Martin O'Brien (2008: 1)

2.0 Introduction

Waste is an inevitable consequence of social organisation of people, yet more often than not it is taken for granted and ignored (Scanlan 2005; O'Brien 2008). People only pay attention when it is not where it should be, *'matter out of place'* (Douglas 2003: 36), impacting the spaces people occupy. It is easy to imagine why ordinary people do not pay attention to unpleasant, unwanted and discarded objects of everyday life. But even within social science there has been a reluctance to fully engage with waste. With some notable exceptions (Redclift 1996; Barr 2002; Fagan 2002; O'Brien 2008; Davies 2008), a tendency in social science has been to focus on production and consumption. This thesis argues that wasting and recycling are socially implicated practices linked to the negotiation and operation of socio-technical systems and infrastructures within and between global societies. Moving beyond engineering or scientific accounts (Davies 2008), waste disposal practices are considered as being about the interactions of actors. At a macro-level these include vested interests, political decisions and international agreements; but at a micro-level they include non-state actors who are increasingly involved in debate and discourse about how waste should be managed, for and on behalf of communities. It is at this juncture that this research is located, emerging from a concern about how municipal solid waste is governed and experienced in contemporary industrialised society. Taking domestic recycling as the main unit of analysis, this study aims to critically evaluate how agents are implicated and engaged with their social and natural environments.

In this chapter, the intellectual rationale for the research is further elaborated by placing the study within a broader context of waste and recycling practice and policy in Scotland. This is achieved in two ways. The first considers the historical and legislative development of waste and recycling practices in Scotland, which operate within a broader institutional and legal context of the UK and EU. In addition, this part of the discussion also provides a technical overview of the Scottish waste management system, which is re-imagined as a complex socio-technical system. The second part of the chapter evaluates further relevant literature informing the research. This latter part offers a critical assessment of waste and recycling as the focus of academic attention. Here the intellectual contribution of other disciplines are evaluated and juxtaposed alongside a sociological perspective, which I suggest is essential for understanding these practices as fundamentally *social*. This part of the review is divided into four distinct but related discussions, each dealing with literature that helps account for: (1) the social shaping of environmental problems and action; (2) environmental ethics, values and citizenship; (3) the turn to social practices theory; and (4) affordances and transitions in socio-technical systems. By placing the thesis at the intersection where different disciplines overlap, the utility and limitations of different traditions are critically considered. Identifying the strengths and weaknesses of relevant literatures, this review marks out where and how this study makes a unique contribution to knowledge of twenty-first century recycling practices.

2.1 Thesis Aims, Objectives and Research Questions

As introduced in the previous chapter, the main aim of this thesis is to explore the relationship between people and the waste generated and disposed of in daily life. Focusing on household recycling policy and practice, environmental participation and resistance are explored. Moving beyond the individualised explanations that dominate environmental discourse and public policy, this study proposes that better explanation lies in the social context of embedded practices, and how they are enacted in daily life. By emphasising transitions and practices, the research considers the effectiveness of different strategies and initiatives designed to encourage green

behavioural change. More generally the project asks: *how best can we explain household recycling practices in twenty-first century Scotland?* Usually taken for granted, this is more often than not dealt with superficially, explained in terms of the cognitive decision-making or rational choices of individuals. As we have already seen, by moving beyond these shallow explanations, three research sub-questions are addressed and answered:

1 What is it about modern families and households that results in some being more likely than others to engage in recycling activities?

2 What is the role of ethics, values and citizenship in influencing environmental concern and action?

3 To what extent can everyday recycling practices be explained as habitual and ritualised?

Applying empirical evidence to these three sub-questions, this thesis adds to knowledge of how contemporary recycling policy and practice is experienced and engaged with in normal daily life. To place the thesis within a broader intellectual framework, the rest of this background and literature review chapter provides a critical overview of the historical and legislative context to the case and the main empirical and theoretical literature consulted.

2.2 Waste and Recycling as a Sociological Problem

In this section the intellectual rationale for the thesis is outlined. This involves considering waste and recycling as a sociological problem, examining the development of policy and legislation underpinning current practices. Sustainable development is explored for its normative properties, which influences how modern waste and recycling is organised. The discussion also examines waste and recycling as a socio-technical system involving the interactions of institutions and actors who shape them in everyday life. Waste management as an engineering and thermodynamic problem that has social, political and economic consequences is

outlined, as is the specific context of Scotland's contemporary waste management system.

Modern industrialised societies have an uneasy relationship with the waste they produce, resulting in it being ignored and kept out of sight (Yearley 1996; Scanlan 2005). Indeed when societies have been forced to confront waste, tensions emerge, bringing them to the attention of society. For example, the ongoing waste crisis in Naples, when hundreds of thousands of tons of uncollected municipal waste lined the city streets (Povoledo 2008) resulted in protest and burning of uncollected garbage (European Commission 2008). Though extreme, Naples illustrates the complex ways actors and institutions and interest groups are implicated in the legal, financial and political functioning of modern waste management in developed societies.

It has been suggested that the discomfort industrial societies feel about this waste is related to excessive consumption practices, which signals market failure (Hawkins 2006). While waste and recycling has received much less academic attention than production and consumption (Fagan 2002; Hetherington 2004), to ignore them is to fail to fully appreciate the realities of everyday life. Different definitions of what actually constitutes 'waste' abound in the literature (Douglas 1966; Scanlan 2005; Davis 2008). At its most basic, waste can be described as being about the *'discarded, expelled or excess matter'* of society (Hawkins 2006: vii). But simple definitions fail to adequately reflect the complex social and institutional relations that impact the management of waste. Importantly waste is about more than the physical objects that are thrown away. It is also about the wider structuring capacity of culture (Douglas 1966), as well as describing the unwanted and un-useable materials (Davies 2008) of waste streams that emerge out of almost every activity in life (Pellow 2002).

For the purposes of clarity, this study uses Boyle's (2001) definition: *'[...] those materials that are residual to the needs of the individual, household or organization at a particular time and thus need disposed of'* (p.73). But modern waste management is about more than just decisions at home or work, it is also an international concern implicated in the numerous definitions, rules and regulations

employed in and across states (Davies 2008). Here global governance and financial resources emerge as key issues for the control, collection and disposal of the world's waste materials (Fagan 2002). But while waste can increasingly be seen as a global concern (Yearley 1996), local cultures and traditions impact the classification, composition and treatment of waste in different places (Scanlan 2005).

Within capitalist economies in particular, inconsistencies emerge. Waste minimisation is considered evidence of economic efficiency, but that same economy encourages and demands wasteful behaviours, for example through obsolescence (Chappells & Shove 1999). This conspicuous consumption is underwritten by market-forces and a culture of sign-acquisition reinforced by a fashion industry. Commodity culture has developed to play a significant role in the formation of identities, the self and distinction (Belk 1988). Excessive consumption is encouraged and framed as an expression of personal choice, but with it is the freedom to waste too (Hawkins 2006). Consuming material objects and thereby being free to waste are presupposed assumptions of advanced capitalist societies (Fagan 2002). The result is that often waste is framed in terms of the technical, with the political and cultural dimensions rarely mentioned (Hawkins 2006). The consumer is portrayed as the innocent, so that waste is held separate from everyday life, being little more than a logistical concern for municipal authorities (Davies 2008).

Most contemporary discourses on municipal solid waste focus on its minimisation and its efficient management to mitigate the environmental impact (McDonald & Oates 2003). This has been achieved by integrating the waste hierarchy, introduced in the previous chapter, into domestic government policy and regulatory regimes and education programmes (Johnstone & de Tilly 2006). The aim is to empower households with the knowledge to understand their own waste behaviour, such as consuming fewer objects and recycling, composting and re-using more. The trouble with these kinds of approaches to public policy is that they tend to draw on social or cognitive psychology and behavioural economic disciplines for explaining and predicting human behaviour. By stressing the cognitive or rational base of behaviour, the policy landscape has ended up ideologically placing responsibility for

environmental problems at the door of individuals and their families. Countless policy documents on pro-environmental behaviour stress functional behaviours that *ought to be* encouraged or discouraged among the population. Taking the lead from deliberately provocative work by Shove (2010), this thesis shares in the view that, all too often, public policy is part of the system it is trying to change.

Implicit in the dominant individualising paradigm is the view that the underlying drivers of environmental problems and their solutions are individual attitudes, beliefs and desires. The tendency has been to design and make policy interventions by identifying causes of unsustainable behaviour, which enables their solution to be modelled and proposed by so-called 'experts', with little or no recourse to the knowledge base of socially situated lay-actors. It is at this intersection this research is located, which turns an empirical lens on the forces influencing household recycling practice.

2.3 Waste Management in Scotland

Within industrialised nations the management of waste is delegated away from people to some other authority, usually local government (Wilson et al. 2001). This perhaps helps explain the general lack of personal ownership people often feel for waste as they go about their daily lives, because it is something that some other body or authority takes care of. However with negative media stories of collected recyclates being shipped overseas for disposal (Vidal 2004), the increased scepticism toward decision makers, regulators and practitioners that results, hardly seems surprising.

In Scotland responsibility for regulating, promoting and protecting the environment resides with the *Scottish Environmental Protection Agency* (SEPA). In the latter part of the twentieth century, the statutory enforcement of waste regulation in the UK was challenging because of the lack of an all-encompassing waste management law. However with the introduction of the Environmental Protection Act (1990) and the Local Government in Scotland Act (2003), this disjointed approach to environmental

regulation was addressed by centralising the functions of environmental protection agencies. Here Scottish local authorities were charged with responsibility for preparing and implementing an integrated waste management plan and reporting performance figures to SEPA. Though the specifics of how waste and recycling is organised varies considerably across Scotland, each of thirty-two local authorities is statutorily obliged to provide waste services and meet key targets on waste collection and processing. SEPA's role is to protect the Scottish environment and human health from the effects of poor waste management and disposal. This involves waste data reporting, enforcing European compliance schemes, as well as supporting the Scottish Government and other organisations in delivering the National Waste Plan and National Waste Strategy in Scotland.

Certainly Scotland's relationship with municipal solid waste has come a long way. The amount of waste recycled or composted in Scotland increased from under five percent in 2000/2001 (SEPA 2002) to just under thirty percent in 2006/2007 (SEPA 2008). But performance varies considerably across the country. Like most other developed nations the waste hierarchy forms the centrepiece of Scotland's waste management strategy. As we have already seen, the hierarchy is based on a principle of best possible environmental outcome and it attempts to extract maximum resources from commodities and generate minimum waste. This has recently been added to by the Scottish Government's (2010b, 2010c) commitment to work toward becoming a *zero waste society*.

As introduced in the previous chapter, the main driving force for change in the management of waste in the UK has been statutory obligations to the European Union. Here legislation[1] defines waste for the whole of Europe and details the amounts of waste that can be landfilled by member states. Responsibility for meeting obligations resides with individual states. As Scotland operates within a system of devolved government, responsibility for ensuring that Scotland's share of UK targets is met rests with the Scottish Government. Failure to meet the statutory obligations will result in financial penalties for local authorities of up to £350,000 per day (Audit

[1] The main EU legislation was the 1975 Waste Framework Directive (75/442/EEC) and the 1999 Landfill Directive (99/31/EC).

Scotland 2005). While the Scottish Government sets the general waste strategy, the administration and collection of municipal waste is devolved to Scotland's councils. So in effect there are thirty-two separate waste and recycling systems operating. These are all regulated by SEPA, reporting to the Scottish Minister for the Environment who in turn is answerable to the Scottish Parliament.

To support the ambition to be a zero waste society, a Zero Waste Think Tank was established, consisting of experts making recommendations to Scottish Ministers on the environmental, social and economic implications of zero waste policies. A Waste Summit was held in 2007, to: *'seek views on the future strategic direction for waste policy in Scotland and on the options available for moving towards a zero waste society'*. Here stakeholders were brought together with civil servants and government ministers to discuss the future of the waste and recycling strategy in Scotland. This demonstrates the central role waste and recycling continues to occupy on the Scottish political agenda. However, it is far from clear if generating zero waste can ever be truly achievable (Gandy 1994). In the sections that follow the intellectual rationale for the rest of this thesis is outlined. This first involves detailing the historical, legislative and policy developments of waste management, alongside the dominant discourses that underpin current practices. In the literature review section in the latter part of the chapter, the main empirical and theoretical works drawn on to frame and guide the conduct of the research are discussed.

2.4 The Historical Context

The options available for the disposal of waste can be viewed as an inevitable consequence of social organisation (Pellow 2002). This is because human survival depends upon subsistence and communal living, resulting in unwanted by-products. As humans have become more knowledgeable and production and consumption have become more sophisticated, the volume of unwanted matter has also increased (Waste Online 2004). In times of simple social organisation, waste could be dealt with locally because populations were dispersed. But as social relations and production processes have become more complex and populations have expanded, so

too has the volume and content of waste streams. This has made the disposal of unwanted and discarded objects a relatively recent social and political concern (Davies 2008).

Though waste is a problem for all societies at all times, the early control of rubbish in the UK can be traced back to the thirteenth century. But it was the industrial revolution and the subsequent urbanisation and concentration of the population that attention was increasingly drawn to poor waste disposal practices (Petts & Eduljee 1994). Much early focus was on the impact waste of environmental hazards for public health (Grisham 1986). Waste did not become a mainstream political issue in the UK until the mid-nineteenth century and the Public Health Acts of 1848, 1875 and 1936. The passing of each Act included ever more statutory regulation over the dumping of waste and the rules for the management of landfill sites. After 1945 refuse tips grew up around cities, where burning waste that negatively impacted public health increased pollution. With post-War Britain turning to landfill as a cheap and easy solution that would dominate waste management for the rest of the twentieth century (Waste Online 2004), this trend only started to be countered when the dual-threats to public health and the natural environment began to be realised. For example, water pollution from ground contamination and air pollution from escaping methane gas.

A popular view often put forward to explain the UK's reliance on unsustainable waste disposal practices is the expansion of the so-called *consumer society* during the economic boom following the War; fuelled by the combined effects of government economic policy, increased consumer confidence and expanded production. By the mid-1950s, environmental concern had emerged as a distinct discourse that was reaching the mainstream. With the Clean Air Act 1956, the environment was no longer seen as a 'free' resource. Attitudes to waste in the UK had traditionally seen it as: *'unwanted, "useless" materials with no intrinsic value'* (Petts & Eduljee 1994: 3). Until the 1960s, waste disposal was, on the whole, guided by the principle of *out of sight, out of mind* (Coleman 1985). Economic considerations determined preferred disposal solutions, which included the legal disposal of waste on land, in rivers and

in seas. With the establishment of the Royal Commission on Environmental Pollution in the 1960s, national and international matters concerning the pollution of the environment were being better understood, and by the 1970s public environmental awareness was firmly established. At this time the first dedicated European and UK legislation about waste emerged. Throughout the latter part of the twentieth century ever more policy and legislation was being introduced that influenced municipal waste practices. As the century came to a close, society was increasingly being defined by a 'throwaway culture', as convenience items and plastics came to dominate most durables and packaging.

2.4.1 The Discourse of Sustainable Development

The legislation and policy response to municipal waste management has largely been informed by the discourse of sustainable development as consumption and waste has increased. A central concept to emerge from the Brundtland Commission in the 1980s, sustainable development aims to find alternative ways of living for current and future generations. Also known as the World Commission on Environment and Development (WCED), we saw in the introductory chapter that the WCED defined sustainable development as: *'[...] development that meets the needs of the present without compromising the ability of future generations to meet their own needs'* (WCED 1987: 19). It seeks to promote development and forms of social change that fulfils human needs and builds technical capacity. This is based on an assumption that the Earth's natural resources are valued, and all life forms should be protected in a way that enables economic activity to continue and be reconciled with progress (Baker 2006).

The result has been for sustainable development declarations to be made by different governance actors and institutions, in ways that cut across public policy areas (Sutton 2004). At an ecological level, sustainable development discourse has been able to re-define environmental issues and the relationship between humans and nature. However, not everyone agrees. Some commentators have argued that sustainable development is little more than a: *'[…] vague and complex theoretical category […]*

partly scientific and partly ideological […]' (Vaillencourt 1995: 221), creating the conditions for what has generally come to be known as *'green-washing'* (Windsor 2010: 12). In Scotland and the UK, sustainability was incorporated into government policy as a guiding principle with the publication of *One Future – Different Paths*, a shared framework for sustainable development across the UK (Defra 2005). Until 2011, monitoring of sustainable development in the UK was the responsibility of the Sustainable Development Commission, with separate operations for the UK and Scotland. Both bodies ceased operations on 31st March 2011 (Day & Lee 2011) due to the UK Government's public sector deficit reduction plan and the mainstreaming of sustainable development in to the operations of government (Defra 2011; The Scottish Government 2010a).

Where the idea of sustainable development has been particularly influential is in re-framing understandings of consumption, because as the economy expands and people consume more, waste generated increases (Hawkins 2006). The relationship between sustainability and consumption has been explored at length by Tim Jackson (2004), who is concerned with how policy can be developed that can encourage and induce changes in people's consumption behaviours. Stressing the role of the individual, for Jackson, consumption fulfils a number of functional roles in society, such as defining well-being, needs, desires, identity, symbolism, meaning, and so on. He rejects the idea of consumption being a free choice, asserting instead that consumers are 'locked' into unsustainable practices, emerging out of:

> *'[…] economic constraints, institutional barriers, inequalities of access and restricted choice. But it also flows from habits, routines, social norms and expectations and dominant cultural values'* (Jackson 2004: xi).

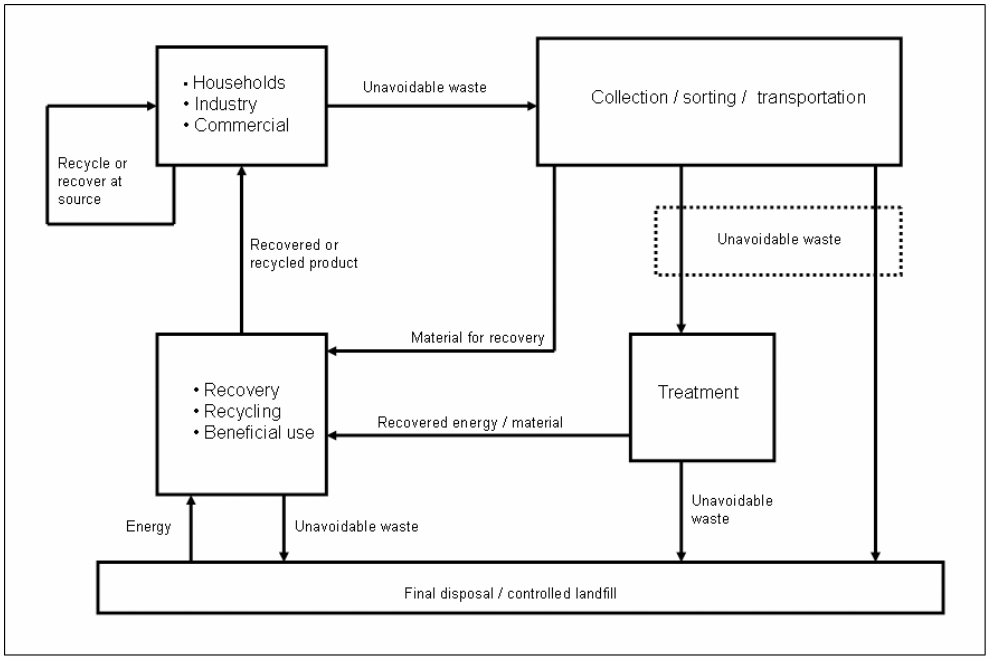
This is important because, in Jackson's view, this suggests that the social sciences are well positioned to identify the policy interventions that may be most appropriate for inducing changes in people's consumption patterns. But as others have pointed out in far stronger terms, the fact that citizen consumers have little choice but to participate in established practices that are inextricably linked to wider forces, locking them into unsustainable behaviour remains unresolved by focussing on

individuals and their behavioural choices (Southerton et al. 2004; Shove 2010; Spaargaren & Oosterveer 2010). This is a theme that recurs throughout this thesis.

2.4.2 Managing Waste in a Complex Socio-Technical System

As we saw previously, the management of waste in most industrial societies is based on the waste hierarchy. Informed by principles of sustainability, the aim of the hierarchy is to help people choose how to deal with their generated waste in a way that maximises best environmental outcome. This involves waste minimisation, re-use, recycling and energy recovery as preferable to the responsible disposal of unavoidable waste. An important element of the hierarchy is that individual actors are brought to the centre of the waste management system because they are expected to take responsibility for the everyday waste they generate and dispose of. However, the management of waste in industrialised societies is not linear. As can be seen in Figure 2.1, it represents a complex web of different actors, interests and socio-technical processes:

Figure 2.1 The Waste Management Cycle



Reproduced from Petts & Edulgee (1994)

While waste management has become an increasingly important policy issue, engineers too have been implicated in efforts to create sustainable systems for managing waste (Mortensen & Sam 1997). The problem with traditional approaches to waste management arise from environmental concerns, such as soil and groundwater contamination at landfill sites, as well as problems with odour, litter, scavengers, vermin, and so on. Incineration causes problems with odour and air pollution; and composting has difficulties with odour, heavy metals and slow compost sales. But despite its negative features being well known, landfill remains the dominant form of waste disposal in the UK.

Integrated solid waste management is defined as: *'[…] the selection and application of suitable techniques, technologies and management programmes to achieve specific waste management objectives and goals'* (Mortensen & Sam 1997: 628). It is here than recycling is located, which has only been taken seriously by industry relatively recently. However while new technologies are finding new ways of dealing with waste it is generally accepted by engineers – if not policymakers – that landfilling 'some' waste will always be required. There are generally three options for separating waste for recycling: at source, at a transfer station, or at the final destination, where mechanical separation is possible (Mortensen & Sam 1997). Source separation in the home is the most common type used in Scotland, eliminating the need for manual or mechanical sorting. Source separation results in the cleanest and most well defined categories of waste suitable for recycling or re-use. However it has the highest infrastructure needs and costs, including: kerbside collections, community drop-off centres, public drop-off centres for bulky and/or hazardous materials, and a knowledgeable public able to participate. Engineers are involved by designing waste management systems. Traditionally, engineers have focused on the technology or economics of their projects and paid little attention to ethics, leaving the rights or wrongs for the client to consider (Kiely 1997: 7). Recently this has been countered with the introduction of environmental impact surveys, based on environmental ethics (Vesilind et al. 1994). However, environmental engineers generally remain unaware (or perhaps untrained) on the ethics of what they do.

Related to engineering is the branch of physics known as thermodynamics[2]. The laws of thermodynamics tell us that embodied energy cannot be created or destroyed; it can only be changed (Jackson 1996). In relation to waste and recycling, the Laws of Thermodynamics tell us that waste must: *'[…] be recycled, re-used, or dissipated into the environment'* (Redclift 1996: 44). It is the First and Second Laws that are most relevant because they account for the restoration and loss of resources. If discarded objects end up being buried in landfill, the embodied energy they contain is lost. Recycling is a way of extracting that energy, but within the limits set by entropy. It is claimed a thermodynamics approach can help answer important questions about what gets recycled, lost and saved and how systems can be improved (Gutowski 2008).

It is usually accepted that recycling is the best and most environmentally friendly solution to dealing with the waste generated in society. This view, popularised by government, media, industry and the environmental movement, assumes that making new products out of old ones can lessen the burden on raw materials. However, the laws of thermodynamics make clear that: *'[…] attempts to clean up environmental damage 'after the fact' is itself a dissipative process, emitting its own inventory of pollutants, and sometimes doing no more than pushing pollution from one place to another'* (Jackson 1996: 20). This view accounts for the negative environmental impacts caused by the collection, sorting and processing of discarded materials into new things, which Life-Cycle Assessments can reveal. Recycling materials into new objects can result in negative environmental impacts and energy use that reduces the benefits people are trying to achieve by recycling their waste. Though logically, the

[2] Thermodynamics is the branch of physics that looks at the movement and flow of heat and energy (McCarthy 2005). There are said to be four Laws of Thermodynamics: *The First Law* - energy can be neither created nor destroyed, it can only change forms. In any process in an isolated system, the total energy remains constant; *The Second Law* - There exists for every thermodynamic system in equilibrium a property called the entropy. The entropy of a thermally insulated system cannot decrease and is constant if and only if all processes are reversible; *The Third Law* - A statistical law of nature concerning entropy and the impossibility of reaching absolute zero of temperature, and which implies that it is impossible to cool a system all the way to absolute zero; *The Zeroth Law* - there exists for every thermodynamic system in equilibrium a property called temperature. Equality of temperature is a necessary and sufficient condition for thermal equilibrium.

opposite will also be true when recycling uses less energy than manufacturing new items from raw materials.

Nevertheless despite also being an engineering or thermodynamic problem, the main tendency of policy stakeholders has been to focus most attention on the hierarchal nature of waste disposal options, which reflects the ways policy discourse individualises ecological problems. By laying responsibility for the generation and disposal of waste with individuals and their families, the message conveyed is that waste is a problem to be solved at the site of individuals. The sociological difficulty with this is that it fails to address the ways that people unwittingly get locked into unsustainable practices. In fact when this is coupled with poor service provision and infrastructure, unstable markets for the trade of recyclates and inaccurate media reports, the goal of being a zero waste society seems as far away as ever.

2.5 Literature Review

Here I consider academic literature that frames and guides the research. There are two purposes to this. The first critically reviews current understandings of waste and recycling as a social and ecological problem. This involves highlighting important contributions as well as some of the limitations of existing knowledge. The second introduces some key theoretical perspectives, which I argue are central to providing a thorough understanding of contemporary environmental practices. The review begins by assessing contributions that seek to explain the role of waste and recycling in everyday life. This is an area dominated by academic disciplines that individualise environmental problems, such as social or cognitive psychology and behavioural economics. In discussing this literature, the main limitations are outlined and contrasted with the utility of taking a sociological approach. The latter part of the chapter is devoted to the main theoretical contributions consulted. Here I argue that being theoretically restrained is inadequate for providing a thorough understanding of contemporary environmental practices.

2.5.1 Waste and Recycling: The Need for a Sociological Imagination

Modern waste management in advanced industrial societies has developed in tandem with industrial and economic expansion (Davies 2008: 9). While the political will to make changes to Scotland's municipal waste and recycling practices is contemporarily evident, this was originally motivated by public health concerns, as waste needed to be removed from the location of the population. The institutionalisation of waste began in early twentieth-century, when landfilling and incineration emerged as a preferred solution for the disposal of waste. While these were certainly the cheapest options, they are now recognised as being unsustainable, with significant social and ecological impacts (Redclift 1996). As waste management has become increasingly technical and professionalized, and societies evermore complex and ecologically aware, the negative effects of poor environmental standards have become better understood and recognised (Yearley 1996). Waste as hazardous initially came to the attention of academics in the 1970s, when the University of Arizona took an interest that went beyond the technical aspects of waste to consider the composition of waste streams (Davies 2008). As research increasingly informed public policy and regulatory regimes, the emerging green social movement was able to capture the attention of the general public in a way that political movements had failed to do (Yearley 2005).

Empirical social research on waste and recycling has been around since the late 1960s and early 1970s, particularly in the United States (Breidenbach & Eldredge 1969; Havlick et al. 1969; Lieber 1970). This reflects the environmental concerns of the day as well as the dominance of US scholarship in this field, a trend that continued until relatively recently. Much of the empirical work has been dominated by disciplines that focus on the cognitive or rational base of behaviour. Recognising the limited ability of these to evoke real or lasting social change, this thesis is approached sociologically; in the belief that better explanation resides in the ways embedded practices are shaped by local context and how they are enacted in everyday life.

2.5.2 Waste & Recycling: A Global and Local Problem

Since the 1992 UN Conference on Environment and Development, governments have sought to reduce reliance on landfill by increasing recycling rates. The OECD has been interested in these issues for some time. Research initiated by its Environment Directorate in 2005 aimed to improve understanding of household consumption patterns and responses to environmental policies. Conducted in two phases the survey results were released in 2011. The findings suggested that a mix of instruments is important for encouraging 'green' household behaviour (OECD 2011). Like the OECD, the European Union has also taken an interest in member states' management of waste, often setting minimum legal requirements and regulatory standards. The EU has contributed to knowledge through commissioning and conducting research in the European Waste Management Cluster, which aimed to support the EU's policy of reducing and recycling waste (European Commission, no date). Other international research into waste and recycling includes Yi et al.'s (1999) examination of survey data from the UK, Italy and the Netherlands. They considered the cultural values, accessibility of recycling facilities and the household characteristics that impact household environmental decision-making. It was especially useful for highlighting the difficulties of comparisons due to cultural norms, attitudes and beliefs differing across countries (p.159). We can see therefore that there is burgeoning interest in waste and recycling in and across different countries and governance institutions. While international studies add a vital comparative element to our knowledge of environmental problems, it is also important that they avoid being too specific to the different societies they refer to, thus rendering comparison pointless. In addition, it is essential that international studies avoid over-generalising and do not ignore the social and cultural specificity of the society being investigated.

In the UK and Scotland, various bodies including, government departments and agencies, NGOs and academia have carried out research into waste and recycling. In terms of government research the UK Government's *Department for Environment, Food and Rural Affairs* (Defra), and the Scottish Government's *Rural and*

Environment Directorate has conducted or commissioned most research. Reflecting a 'political economy' (O'Brien 1999b; Boyle 2002), waste and its management is a central area of government environmental policy in most industrialised nations. Tucker and Douglas' (2006) Defra-funded research attempted to develop a scientific understanding of the role and impact of demand-side measures on household waste prevention, and how behaviours might be stimulated to fulfil policy objectives. Reflecting a strong-quantitative approach, this work illustrates the preference for research that can simulate scenarios that could make predictions and recommendations to planners, decision-makers and campaigners. But other stakeholders, including charities and NGOs (like the Scottish Waste Awareness Group, Friends of the Earth Scotland and WWF Scotland, among others) committed to raising environmental awareness, also actively research different aspects of waste and recycling.

2.5.3 The 'Individual' as Dominant Paradigm

As already intimated, there has been a tendency when it comes to explaining and predicting human behaviour to meet policy objectives to focus on *the individual* as the main unit of analysis, stemming from the continued dominance of social and cognitive psychology and behavioural economics on public policy. Within psychology the main focus has been on individuals' attitudes, intentions and motivations. Definitions of attitudes vary, but Marshall (1998) has defined them as an: *'[…] orientation towards a person, situation, institution or social process that is indicative of an underlying value or belief*' (p.1); and Rokeach (1973) sees them as: *'[…] an organization of several beliefs around a specific object or situation'* (p.18). On a practical level, attitudes are useful for helping explain everyday life because they provide people with an efficient way of assessing the world quickly (Myers 2002: 130). The result being that many social psychologists (and some sociologists), have dedicated much effort to measuring attitudes, opinions and views on relationships, events and social values. However, it is generally accepted that attitudes are insufficient alone to entirely explain behaviour (Ajzen & Fishbein 1977, 1980). Other factors are also relevant, but there is less agreement on what those

might be. The relationship between attitudes and behaviour is a complex one concerning how external actions are related to internal beliefs (Myers 2002). This approach has been dominant within environmental policymaking because it is assumed that if attitudes can influence behaviour, being able to influence attitudes might make it possible to change how people live their lives. Waste and recycling, researched from a psychological perspective at least, has in common a commitment to uncover the factors that motivate individuals to behave in certain ways (for example, Webster 1975; Gamba & Oskamp 1994; Bryce et al. 1997; Lindbeck 1997; Knussen et al. 2004; among others).

Economics has also been influential on waste and recycling policy and governance. Environmental economics attempts to shed light on how the environment gets valued and people act toward it (Tietenberg 2001). The idea here being that the economy is not separate from the environment, but rather there is a fundamental interdependence between them (Pearce, Markandya & Barbier 1989). This recognises the impact externalities can have on the environment and economy resulting from everyday decisions. Ecological problems emerge from environmental capacity being 'free', which the theory of supply and demand suggests is due to the lack of a positive price being attached. Environmental economists address this by extending the market and attaching costs to environmental functions that may induce behavioural change (Field 1994).

In relation to nature, environmental economics attempts to encourage resource efficiency by matching supply and demand, but markets will not achieve sustainable outcomes alone, due to gaps in equity, futurity and valuing the environment through externalities (Hodge 1995). Economic instruments are a means of using the price mechanism to implement environmental policies in the sense that they have the effect of internalising external costs through measures such as making the polluter pay the cost of environmental damage. By bring externalities into the cost of a product though taxation shifts the supply curve, resulting in lower overall quantities once a new equilibrium is established based on social rather than just internal costs. Objections to the *polluter pays principle* is that it is distasteful to trade in environmental damage and to allow those who can afford to damage the environment

freedom to pollute the environment of others (Pepper 1996). However, valuing the environment in this way is contentious. At stake are both technical and ethical issues about intrinsic and extrinsic values. In relation to waste and recycling, environmental economics has helped highlight the social costs of inefficient waste management practices and policies (Highfill & McAsey 2001). Indeed it has been shown that arbitrarily setting uninformed waste and recycling targets is an inefficient use of scarce resources, which should be replaced by a fully integrated waste strategy that maximises costs and benefits (Pearce 1993) by valuing human life and uses mechanisms for the treatment of risk and uncertainty (Aldred 2009).

Underpinning economic models of behaviour is the idea of *homo economicus* (Rodriguez-Sickert 2009). Intrinsic to this is an assumption that human beings are rational self-interested actors, making judgments about behavioural choices based on subjectively defined ends. Here people aim to satisfy pre-determined goals by maximising the available information with the least possible cost or effort. When applied to human behaviour, this *rational choice* perspective assumes that individuals evaluate the personal costs and benefits of participating in a particular activity. If the outcome is evaluated as desirable then goals are set and pursued with as little effort as possible. Sociologically there are clearly problems with this argument. Viewing human beings as rational self-interested actors fails to account for differences between groups in the sense that not everyone pursues the same goals; but it also fails to account for the social embeddedness of human action.

It is not my intention to exclude psychology and economic explanations from debate about environmental behaviour; in fact I hope to be fair to them when they do offer useful insights into the nature of phenomena and the environmental consequences of people and their relationships. It would be unwise to not be open to the idea that these traditions can be helpful in explaining the problems facing society and make recommendations for their solution. However, reducing environmental problems to *the individual* is done so at the expense of *the social*. If we can accept that action is created and reproduced through social context, interaction and experience with the world, then I remain sympathetic to scholars' arguments (Shove 2003; Southerton et

al. 2004; Shove 2010; Spaargaren 2011), that the individualising paradigm has limited ability to evoke any lasting behavioural change for sustainability.

2.5.4 The Rubbish Society: Bringing Sociology In

Given criticisms of the dominant paradigm, does it mean that a sociological perspective can help understand better environmental action and inaction? Generally environmental issues have been receiving greater attention from sociologists, though the issues surrounding waste and its disposal have failed to attract the same level of interest. It has been suggested this is because waste is invisible, unproductive, uninteresting (Fagan 2002: 5), and immaterial (O'Brien 1999b: 270). But by ignoring waste and focusing most attention on processes of production and patterns of consumption, studies of society arguably fail to 'close-the-loop', and examine the forces impacting the disposal of goods and services too. Some scholars have responded to this (Thompson 1979; O'Brien 1999a, 1008; Strasser 1999), suggesting that Industrialised society has developed in such a way that it might be more accurate to describe it as *a rubbish society*. Here it is asserted that it is the waste generated by a society that helps account for the complexity of modern social organisation. This involves waste being seen as part of a 'moral economy' (Scanlan 2005; Silverstone et al. 1992) that is transactional, moving between public and private spheres to reveal the most intimate of social relationships (Collins et al. 2006). But as we have already seen thus far in this research, waste also operates as a 'political economy' (O'Brien 1999b; Boyle 2002), where policy discourses conceals hidden power relationships and vested interests. Ordinary people are implicated in this by unwittingly performing the unpaid labour required by the waste industry in its pursuit of profit, dutifully cleaning and sorting their recycling each week, ready for collection and processing. The point being that rather than inconsequential or benign, how waste is managed and networked is significant for understanding how society is constituted and constructed, which this thesis argues can best be illuminated through a sociological perspective.

Having said that however, the rubbish society thesis is not unique in thinking sociologically about 'waste' and the mundane consequences of the social organisation of people. Sociological interest on the implications of waste and recycling has been (modestly) increasing. For example, Oates and McDonald's (2006) study into recycling and the gendered division of domestic labour sought to explore whether the traditional model of a distinctly separate division of labour between husband and wife has moved towards a more egalitarian arrangement as Pilcher (2000) described in light of technological, employment and consumer changes. The authors concluded that *'recycling is more pink than blue'* (p.427), which they suggested indicates that 'green' activities are following a similar pattern to more established household chores, where women take responsibility for such tasks (Sullivan 2000). Though as will become apparent later in this thesis, the relationship between gender and recycling is not as clear-cut as these authors suggest. Similarly, Derksen and Gartrell's (1993) study of the social context of recycling sought to respond to the limited success of sociologists to explain attitudes toward the environment and the adoption of pro-environment behaviours, like recycling. They examined the role of social context as the link between attitudes about the environment and recycling behaviour by comparing communities that vary in their access to recycling services in the United States. The findings suggested that access to a structured recycling programme is important for participation and that individual attitudes toward the environment only affect recycling behaviour when there is easy access to a service. They concluded that individual concern about the environment only enhances the effect of recycling, but it does not overcome the barriers presented by lack of access. Indeed just these few examples show that, throughout the latter part of the last century and first part of the twenty-first, there has been a growing body of sociological literature on waste and recycling that this thesis aims to contribute to.

2.5.5 Working at Boundaries: the Case for an Interdisciplinary Approach

It is important to recognise that academic disciplines other than sociology have also increasingly taken *the environment* as the foci of their empirical investigations and, though less prevalent, this interest has been extended to studies of waste and

recycling too. As a result, this research has been designed to view this particular social and ecological problem through interdisciplinary lenses, so that its multidimensionality can be properly understood. Support for an interdisciplinary approach has come from Barr (2008) and his attempt to bring together contributions from sociology, social geography and social psychology. Here environmental behaviours are seen as being influenced by values, as well as situational and psychological variables. For this thesis, it is his discussion of situational variables (p.438) is most interesting and relevant for understanding participation in contemporary waste management.

Barr's (2008) situational variables fall into three explanatory categories: *behavioural context, socio-demographic characteristics,* and *environmental knowledge*. The first category, behavioural context, relates to how service provision affects participation. Studies across disciplines have shown how ease of access to waste and recycling services is crucial to successful participation (Ball & Lawson 1990; Derksen & Gartrell 1993; Guagnano, Dietz & Stern 1994). Other space/place issues are relevant, such as where people live in terms of housing (Crofts et al. 2004) and urban/rural location (Collins et al. 2006). The second analytical category, related to socio-demographic characteristics, help account for the relationship between social differences and participation in waste management practices. These have been identified extensively elsewhere, particularly in the sociology of the family (Morgan 1996; Chambers et al. 2009; Finch & Mason 1993), social class/incomes (Greenbaum 1995; Iyer & Kashyap 2007), age (Jones & Dunlap 1992; Inglehart 1977), ethnicity (Kellert 1984; Wallendorf & Reilly 1983), gender (Oakley 1976; Oates & McDonald 2006), and education (Iyer & Kashyap 2007; Van Liere & Dunlap 1981).

The final set of situational variables relate to environmental knowledge, which are considered pre-requisite for environmental action. This knowledge can be *abstract* or *concrete*; though concrete knowledge has been identified as the most likely to result in action (Schahn & Holzer 1990). The extensive literature on the media and its control of flows of information (Stein 1972; Hall 1973; Hannigan 1995; Dispensa &

Brulle 2003; Lester 2010; Webb 2010) helps account for how knowledge gets acquired. So too does personal experience, which has been identified elsewhere as a significant predictor of waste management behaviour (Kallgren & Wood 1986). Therefore though this thesis is located primarily within sociology, it is located at the boundaries of the discipline. Adopting a pragmatic approach, useful elements from different academic traditions are drawn on to explain and understand engagement with the environment and participation in everyday recycling practice.

Thus far I have outlined the main academic literature used to frame and guide the conduct of the research. This involved critically appraising literature on waste and recycling as both a social and ecological problem. Here I have attempted to highlight important contributions that have traditionally been dominated by an individualising paradigm, based on psychological and economic assumptions. In discussing the limitations of these approaches, the utility of a sociological approach to understanding environmental problems was reviewed. In the next section the main theoretical ideas used in the conduct of this research are outlined.

2.6 The Theoretical Challenge of Environmental Action

The remainder of this chapter introduces the main theoretical perspectives which, I argue, are central to providing a thorough understanding of contemporary environmental practices. Reflecting the inter-disciplinary approach the previous section made the case for, these ideas and contributions include material from within and beyond sociology, in four key areas: (1) the social shaping of environmental problems; (2) ethics, values and environmental citizenship; (3) social practices theory; (4) and affordances and socio-technical transitions.

2.6.1 The Social Shaping of Environmental Problems

Crucial here is an ontological objection to the idea that an individual's attitudes are sufficient to explain and account their pro-environmental behaviour. Here I look

beyond the individual in offering explanation of how householders negotiate mundane practices in everyday life. I have sympathy with the idea that it is through recourse to both social and ecological facts that environmental problems can be better understood and resolved. Theoretically this has involved drawing on work that accounts for how the environment gets experienced and acted upon out of its social context.

As we have already seen, it was only in the latter part of the twentieth century that sociologists began to engage properly with environmental issues (Sutton 2004: 56). However as the consequences of environmental change have been better understood, mainstream sociology has generally remained reluctant to get involved in ecological problems (Woodgate 2010). This unwillingness to incorporate ecological knowledge from the natural sciences into sociological theorising led from what has been termed the *Human Exemptionalism Paradigm* (HEP) (Dunlap et al. 2002). For Dunlap and Catton, sociology operating within the HEP was: *'anthropocentric, technologically optimistic and profoundly unecological'* (Dunlap 2010: 93). This involved sociologists claiming to treat a domain of issues in which humans were exempt (for instances, culture or work). Humanity was thus seen as separate and above the rest of nature, thus justifying the pursuit of progress, innovation and the exploitation of natural resources. For scholars increasingly concerned about ecological problems, this human exemption was misguided and in its place, a *New Ecological Paradigm* (NEP) proposed (Dunlap et al. 2002).

The NEP is based on an idea that proposed that structure and agency could be influenced by *ecological* as well as *social* facts (Tindall 1995). Since humans are dependent upon functioning ecosystems, scholars needed to re-evaluate the basic assumptions of their discipline. This allowed an *environmental* sociology to emerge that would not necessarily replace existing theories, but could at least reassess them from the perspective of the NEP (Sutton 2004: 91). However the HEP/NEP distinction remains controversial, with some scholars not considering it to be as important as other theoretical concepts, like 'order' and 'conflict' (Buttel 1978 cited in Dunlap 2002: 337).

Nevertheless most commentators accept the view that this early work on the HEP/NEP distinction paved the way for a distinctly environmental sociology, where societal-environmental interactions are placed at its heart (Dunlap & Catton 1979). Environmental sociology is not however a united collection of scholars, in theoretical or methodological agreement. While broad consensus exists that moving beyond a realist-constructivist dichotomy is desirable, and ecological problems can be known through social processes despite their material basis, debate persists when it comes to explaining the complexity of social-environmental relationships. Here contributions that go beyond the HEP-NEP distinction dominate. These include the *Treadmill of Production* (Schnaiberg 1980), stressing the conflict and contradictions inherent in human-environmental relations under capitalism; as well as *Ecological Modernisation Theory* (Mol & Sonnenfeld 2000), a structurally oriented social theory of environmental reform. Schnaiberg's position is based on a paradox that capitalist economic growth is desirable but leads to environmental degradation, which in turn disrupts long-term economic expansion. Ecological Modernisation is based on the opposite, seeking to move beyond apportioning blame for environmental problems by looking to the structures of environmental governance that causes them in the first place. Here different mechanisms for environmental improvement can be implemented, such as eco-labelling or providing information to consumers that can lead to environmental improvement. Despite recent revisions (Mol 2010), Ecological Modernisation has been critiqued: on epistemological and methodological grounds (York et al. 2010); for its Euro-centric tendency (Blowers 1997); and also for its failure to adequately address the poor ecological standards inherent within capitalism. Indeed some scholars have gone as far to suggest Ecological Modernisation is little more than *'green capitalism'* (Adams 2001: 112).

But regardless of theoretical positioning, what these few examples highlight is the way that environmental sociology provides a theoretical framework and the methodological tools for investigating distinctly socio-ecological problems. For example, the NEP was evidenced methodologically through the creation of an NEP-scale that helped measure environmental attitudes and values though survey questions; and processes of Ecological Modernisation have helped account for the widespread availability of sustainable products, services and technologies in

industrialised nations (Mol et al. 2009; Spaargaren 2011), so that a lack of services or infrastructure can no longer be posited as adequate explanation for unsustainable practices continuing. But in looking for more sophisticated answers, a number of scholars have increasingly turned to social practices to motivate sustainable behaviour (for example, Spaargaren 2003; Southerton et al. 2004; Hinton & Goodman 2010) – something I remain theoretically sympathetic to and which I shall return to shortly.

2.6.2 Ethics, Values and Environmental Citizenship

In this section environmental ethics, values and citizenship are considered for their usefulness in explaining pro-environmental behaviour. The discussion begins by defining ethics and values, and considers how they can be useful or limiting. Having identified some of the problems with explaining action through recourse to ethics and values, the discussion turns to the related concept environmental citizenship, and considers this as an alternative tool for explaining environmental commitment and action. Originally rooted in philosophy, ethics and values are unavoidable questions about moral standing that scholars attempt to resolve. Schwartz and Bilsky (1990: 878) have defined values as:

> *'[…] concepts or beliefs about end states or behaviours that transcend specific situations, guide selection or evaluation of behaviours and events, and are ordered by relative importance'.*

Ethics is the realisation of values by considering the moral standing of entities and the morality of public and private behaviour. This involves re-conceptualising actors as both the subject and object of action. Taken together, ethics and values dictate whether a given behaviour is considered morally right or wrong in both public and private realms (Curry 2006). In relation to nature, environmental values are the underlying orientations people hold toward the natural environment (Barr 2008). According to Benson (2000: 11), ecological ethics is about taking:

> *'[…] full account of the fact that an individual organism, of whatever kind, is embedded in its environment, and gives full weight to this in deliberating about actions that are likely to affect the organism'.*

Environmental values do not, however, occur independently of social values. Together they account for the socio-environmental basis of how nature gets valued and acted upon. But values are abstract, underpinning beliefs in inconsistent and contradictory ways, dependent upon cultural and social context (Lynd 1967; Bellah et al. 1985). Alternative explanations to value-laden models have been put forward. Broadly reflecting a rational choice perspective, the focus here is on goal-oriented forms of action where participation in a given activity is more about satisfying personal goals than value-oriented motivation (Lee & Newby 1983).

Perhaps more than any other discipline, social psychology has embraced values as directly related to behavioural outcomes (Gatersleben et al. 2010). Stemming from Rokeach's (1973) lists of *instrumental* and *terminal* values, the literature on attitude and behavioural change suggests that a person's values are likely to be implicated in shaping their intrinsic motivations (Kollmus & Agyeman 2002). However, this involves more than just an individual's value orientation. Also relevant are the complex interactions of environmental knowledge, awareness, attitudes, emotions, and the prioritising of interests over responsibilities. While social psychology has tried to extend models of values to include things like the *guiding principles of life* (Schwartz 1992), or the intrinsic values underlying environmental concern (Stern & Dietz 1994, Stern et al. 1999), as we have already seen in this thesis, they tend to over-emphasise the individual. At their most social, psychologists consider the effect of group membership, but still lacking in their analyses is the ways that everyday practices result from social interaction.

Though values are hard to pin down and measure (Spates 1983), elementary sociology teaches us that they are of central importance to society, being: *'the standards people have about what is good or bad, which vary from culture to culture'* (Macionis & Plummer 2005: 111). While attitudes and beliefs are changeable, values are conventionally understood as being permanent and necessary

for the functioning of stable society because they influence how surroundings are perceived and form the core of individual's moral worldview (Abercrombie et al. 2000). Importantly, values are not formally taught, but are internalised through socialisation in the institutions of society, such as the family, education, religion, and so on. Methodologically there is little agreement about how values can be measured and understood. Some general attempts have included Parsons in the 1950s and 1960s, Rokeach on General Value Systems in the 1970s and Inglehart on post-material values also in the 1970s. With regard to the environment, ethics and values have been investigated using various tools, including: *typologies* (Sylvan & Bennett 1994, Curry 2006); *the NEP-scale* (Dunlap et al. 2000); and *the ecocentric-technocentric continuum* (O'Riordan 1985). The last two have been particularly useful for turning a sociological lens onto environmental action, by exploring the hierarchical nature of values.

But to what extent can this value-oriented perspective account for a lack of action on pressing environmental issues? Literature suggests that the non-immediacy and gradual nature of ecological problems can make it difficult for some people to engage with what are perceived to be large, complex issues (Preuss 1991, cited in Kollmus & Agyeman 2004). This, it is argued, results in disengaged actors, lacking emotional involvement in ecological concerns, which reinforces a person's external locus of control[3] (Rotter 1966; Chawla 1998). But what about actors who exhibit 'green' values, but fail to make behavioural choices in accordance with those values? The so-called *value-action gap* (Kollmuss & Agyeman 2002; Blake 1999) describes this difficulty. However as Shove (2010) has suggested, the value-action gap is: *'[…] only mystifying if we suppose that values do (or should) translate in to action'* (p.1276). Shove makes a compelling argument for a paradigmatic shift away from the language of motivators and barriers that dominates contemporary policy discourse, and looks to a transitions and practices approach that places members of society within a co-evolving socio-technical system. When understood in this way,

[3] Locus of Control is a central concept in social learning theory developed by Rotter (1966). People with an *internal* locus of control believe that their own actions can effect change and will determine the rewards they receive in life; those with an *external* locus of control believe that their own behavior cannot make any difference, so the rewards in life are generally outside of their control.

values and ethics come to be seen as implicated in the outcome of change, rather than being the driver of it.

However, this does not mean that everyday choices about how to live one's life are irrelevant. The idea of *environmental citizenship* has emerged as an area of (green) political thought that situates people as part of a larger eco-system. Immersed in debates about rights, responsibilities and obligations (Smith & Pangsapa 2008), the discourse of sustainability is central to the notion of environmental citizenship in the sense that humanity's future is seen as dependent upon citizens acting responsibly toward the environment as they go about their daily lives.

Put forward as an alternative to market-based solutions that place the onus on the individual, environmental citizenship offers an alternative route for sustainability to be realised (Dobson & Bell 2006). Terminology like the *environmental contract,* expresses the rights and responsibilities of actors and stakeholders when it comes to the natural environment. Steeped in notions of justice and knowledge, environmental citizenship has been helpful for illuminating the ways that the public *ought to* live better lives. However, it has been critiqued by feminist scholars for reproducing traditional models of citizenship that: *'[…] masks realities of gender (and other forms of) inequality while depending on a division of labor that frees citizens to participate in the public domain'* (MacGregor 2006: 102). This is because the subjectivity of the actor, who experiences phenomena uniquely by virtue of their social networks, norms, values and structures of society, gets sidelined. But two additional points can be made about the notion of environmental citizenship. The first relates to the voluntary nature of citizenship models, which arguably weakens them by underplaying the urgent need for action. But secondly, and perhaps terminally, concern has been raised at neo-liberal 'green-washing' (Wilson 2010) that environmental citizenship discourses can potentially result in. This is because the emphasis on the *'duty of the individual'* to act, is not matched by the polluting practices of manufacturing industries (MacGregor 2006: 116).

Despite these objections, individual values and personal responsibility dominate public policy discourse (Barr 2008). Reflecting this, stakeholders have increasingly

turned to *social cognitive learning theory* and *social marketing techniques* to explain and encourage behavioural change. Social cognitive learning (Bandura 1977) is based on the idea that people can learn through observation, imitation, and reinforcement. It has been influential in the behavioural change literature and while it does bring social context in to the equation, as a psychological perspective, it still emphasises the cognitive thought processes of individuals. Social marketing on the other hand attempts to apply the principles and techniques of marketing as a way of encouraging attitudinal and behavioural change through carefully targeted advertising, education and persuasion (Kotler & Lee 2008). However, despite its widespread appeal, the failure of social marketing to recognise the powerful influence of socialisation and the social embeddedness of everyday lifestyle choices is concerning. Indeed attempting to market human behaviour or lifestyles as though they were a brand, like any other material object, seems wholly inappropriate when dealing with human beings (Robinson 2009), who behave in unpredictable ways depending upon circumstance and their interactions in the world.

2.6.3 The Turn to Social Practices

Embedded in this thesis is a critique of the ways that environmental problems are positioned as being the responsibility of individuals on the one hand, or producers and states on the other (Spaargaren 2011). The first tendency is typical of the individualist paradigm, where policy approaches for encouraging behavioural change include the provision of *soft information* to persuade people to change their behaviour. As we have seen, this over-emphasises the agency of individuals, who are often locked into unsustainable practices. Certainly this approach has increased general awareness of environmental issues; however awareness is only a weak predictor of actual behavioural outcomes (Spaargaren 2011). The second tendency, which is more sociological, stresses laws, regulation and market-based instruments to encourage change at a macro- level. This systemic approach results in behavioural change in citizens who have no option but to participate in ecologically organised infrastructures and industries. Where difficulty with this has been raised is that human agents are usually excluded from debates about sustainability when top-down

approaches are preferred. Responding to these limitations, this thesis draws on practice-approaches that incorporate both structure and agency as being the site of the co-evolution of human agents and technological infrastructures.

Theories of practice are a branch of social theory that look beyond structure-agency dualisms that separate the micro- and macro- realms of social life (Knorr-Cetina & Cicourel 1981), accounting for how collective activities get performed in everyday life (Postill 2010). Despite its influence within social theory, commentators agree that theories of practice have not followed a single, unified trajectory (Shove et al. 2007), being: *'[…] a rather fragmentary body of theory […]'* (Warde 2005: 132). It is perhaps more accurate therefore to talk of a loose grouping of diverse thinkers, identified as generally taking a practice approach. Within social theory, it is the work of Bourdieu (1977, 1984) and Giddens (1986) have made the biggest contribution to the turn to practices. Though Schatzki (1996) also identifies contributors in philosophy (Wittgenstein, Dreyfus, Taylor); cultural theory (Foucault, Lyotard); and science and technology scholars (Latour, Rouse, Pickering).

Theoretically, a practice approach attempts to account for both the structural and interpretive nature of social reality, performed by knowing and willing agents. However, because the emphasis is on *shared routines*, the individual is no longer at the centre of analysis; it is the practices themselves that are important (Spaargaren 2011). Reckwitz (2002: 149) defines 'practice' as:

> *'[…] a routinized type of behaviour which consists of several elements, interconnected to one another: forms of bodily activities, forms of mental activities, 'things' and their use, a background knowledge in the form of understanding, know-how, states of emotion and motivational knowledge.'*

Similarly, Schatzki (1996, 2001) asserts the *'total field of practice'* (p.3) as fundamental to understanding the complexity of human practice, where the maintenance of practice is dependent upon shared embodied know-how and the continued performance of practice. That said, practices are neither individualistic, nor holist. For Schatzki (1996: 12) they represent a:

> *'[…] pluralistic and flexible picture of the constitution social life that generally oppose hypostatized unities, root order in local contexts, and/or successfully accommodate complexities, difference and particularities'.*

Two waves of the practice genus have been identified (Postill 2010). First generation theorists – Bourdieu, de Certeau, Foucault and Giddens – laid the foundations for the approach by building a middle ground between methodological *individualism* and *holism.* Individualism related to social phenomena being explained by individual action; holism that social phenomena can be explained by social structure. These ideas centre on an assumption that people's practical engagement with the social world occurs through the *nexus of the body* (Postill 2010: 7). Consequently, agency is liberated from the confines of structure, enabling humans to act upon and change the world without succumbing to methodological individualism.

Second generation practice contributors – Ortner, Schatzki, Reckwitz, Shove, Warde and Spaargaren – represent contemporary efforts to test out and build extensions to the first generation foundations. Second wave practice theorists embrace the idea that actors are central to social processes and that structures enable and constrain action. For Shove (2010), there are weaker and stronger interpretations of how this occurs. For example, Spaargaren et al. (2006) is cited as an example of a weaker interpretation, where practices are treated as *'[…] sites in and around which consumers and systems of provision interact'* (p.1279). While behaviour gets placed within a social and institutional context, this interpretation does not consider practices themselves as being dynamic entities. Stronger interpretations see practices as *'[…] more than a "domain of study": in effect they constitute the* ***unit of enquiry****'* (Shove 2010: 1279, emphasis in original). In these interpretations, such as that provided by Reckwitz (2002), it is the practice itself that is the focus of attention, so that people and objects come to occupy an almost secondary role as the carrier of practice.

The tendency within classical models of human behaviour has been to focus on social action and order as being explained at either the individual or systemic level.

However for practice theorists, these explanations are inadequate because they do not embrace culture (Reckwitz 2002). The basis of this objection is that acting rationally or following norms pre-supposes human understanding and intelligibility which are both necessary cultural bases for the existence of practices. Theories of practice place greater emphasis on shared understanding and being in the world, which is based on: *'[…] tacit and unconscious forms of knowledge and experience […] through which purposes emerge as desirable, and norms as legitimate'* (Shove et al. 2007: 12). It is the place of *the social* that marks out theories of practice as distinctive, because rather than being the consequence of cognition or interaction, '*the social exists in practice'* (Shove et al. 2007: 12).

But how useful is the social practice approach for understanding environmental problems, and answering my research questions about recycling? As we have seen previously, sociology has often been missing from debates about environmental issues. On one level this is attributable to the human exemptionalist paradigm (Dunlap et al. 2002), though the expansion of environmental sociology has gone someway to redress this. But in tackling the dominance of attitudinal and lifestyle research that stresses the cognitive and rational base of behaviour, a practice approach reveals how socially situated actors get implicated and locked into unsustainable practices. It does this by focusing less on individual's beliefs and attitudes; and more on embedded practices, situated in time and place and shared with other community members.

Turning to social practices implies the end of *the individual* as the main unit of analysis, enabling the relationship between structure and agency to be better understood. This is because these dual processes are no longer treated as external variables, but are brought into the centre of the analysis. It is important to acknowledge however that people are engaged in a *'multiplicity of practices'* (Warde 2005: 141) at any one point in time. Therefore the importance of any one practice – in this instance recycling – should not be overstated. Rather it should be recognised that it is just one of: *'[…] an embodied set of activities humans perform to varying degrees of commitment, competence and flair'* (Postill 2010: 1). This has been

acknowledged by others, for example in Spaargaren's (2011) discussion of consumption it is suggested that the selection of practices to study should be based on relevance to everyday life, and should be explored as sets of *practice domains* (p.3).

In this research, a broad practices approach has been used to understand recycling as an embodied activity performed to varying degrees of commitment and competence. A broad Interactionist – for example, Goffman (1959), Mead (1934) and Blumer (1969) – reading of how recycling is networked and embedded could offer insight into the conflict people experience between the performance of everyday routines and their own priorities. But, if it is *how* practices get enacted that is most relevant, habit and routine seem relevant concepts to unpack.

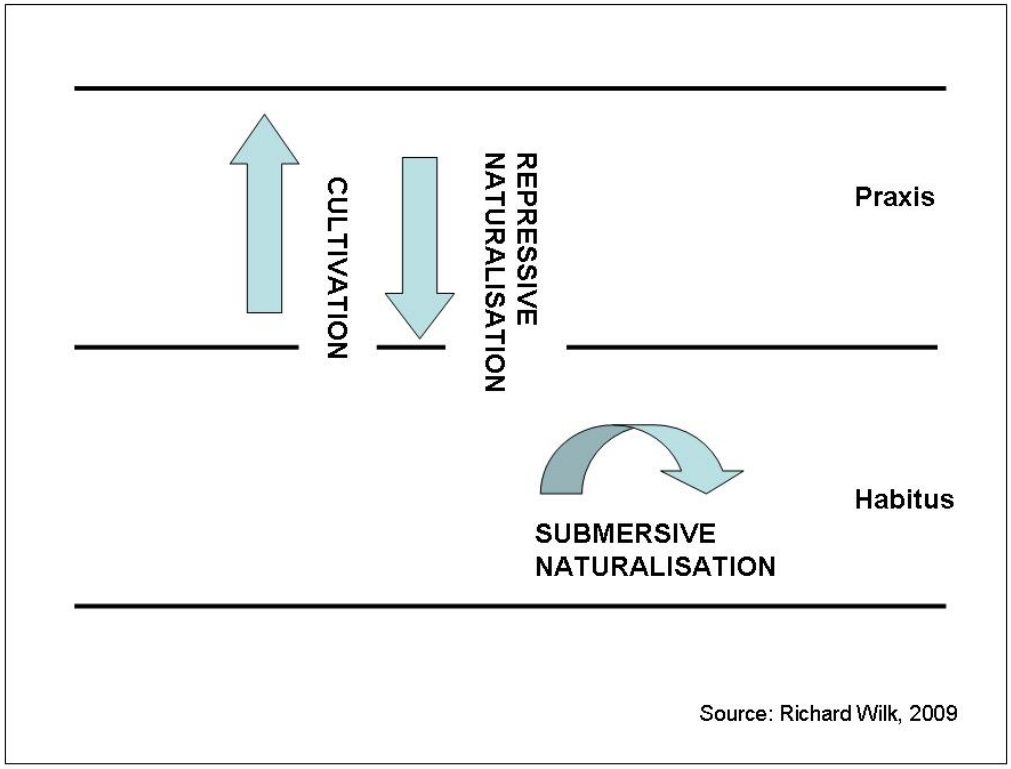
Though definitions of habit and routine vary, most seem to focus on ritual and repetition. However, scholars are far from agreement. Rook (1999) rejects ritual and repetition in favour of the view that habituated behaviour is closely tied to the evolution of humanity and social institutions. Hodgson (2004: 651-652) takes a similar view by claiming that habits:

> *'[…] deal with the uncertainty, complexity and variability of circumstances that have endured over hundreds or thousands of years. Furthermore, habituation is a social mechanism, which typically involves the imitation of others or results from behaviour that is repeatedly constrained by others'.*

Even though this definition is beginning to recognise the role of social influences on habits, it is still based on behaviourist assumptions that habits are formed out of imitation or institutional constraint. Rejecting this dominant paradigm, Shove (2009) makes the case for habits not occurring out of some invisible force or as drivers of behaviour. Rather they emerge out of the social and material context of people. Understood in this way, behaviours get habituated because of the way they are enacted in everyday life, characterised by *'[…] distinctive forms of regularity and persistence'* (Shove 2009: 1). In this sense habits form and fade under different conditions, but not independently of agents, because they are dependent upon agents

to carry, maintain and dismiss them. Helping explain how habits and practices get performed and maintained is Wilk's (2009) model for the movement of practices, as summarised in Figure 2.2:

Figure 2.2 A Model for the Movement of Practices



Helping explain how mundane domestic chores (which for the purposes of this research includes recycling), persist despite not always being in people's control, this Bourdieusian-inspired model helps account for how habits and routines get performed and maintained in everyday life. There are two key processes at work in Wilk's model that help determine whether a given routine will get habituated: *cultivation* and *naturalisation* (p.149) – both draw on Bourdieu's wider nomenclature[4]. Cultivation refers to the ways that unconscious habits and routines are brought from the unconscious (*habitus*) into consciousness (*praxis*).

[4] Embodied in Bourdieu's (1977, 1984) theory of practice is a specific nomenclature that helps account for action. His ideas centre on *habitus*, which is social order internalised in the human body that recognises practice as agents' capacity for invention and improvisation. The *hexis* describes the ways agents carry themselves in the world, which is learned through culture. The *field* is specialist domains of practice, with their own logic that are constitutive of different forms of capital. *Doxa* refers to the internalised presuppositions of society that 'go without saying' and are not negotiable.

Naturalisation is the processes that push conscious practices back into the habitus, or prevents them from emerging in the first place. Naturalisation can be submerged or repressed. Submerged naturalisation (*hexis*), refers to the processes in the habitus that never rise to the consciousness of praxis. Repressed naturalisation, (*orthodoxy*), involves the tactics people use to force things into the background to maintain a specific practice as a habit. It is the tacit rules of daily life that govern how practices are treated before they can become accepted as a habit. Though Bourdieu's analysis of the everyday has been critiqued for being structurally deterministic because the habitus only changes as a result of changing structures (De Certeau 1984), Wilk's uses of the ideas are simple and for the most part convincing. In terms of this research, his suggestion that routines as structures of time should be explored phenomenologically to ask about the nature of the routines themselves (p.147), is particularly relevant. This is because the habitus helps illustrate how 'normal' recycling behaviour is habituated in a way that it rarely needs to be thought about during the performance of the act. Here the everyday 'recycling task' gets performed automatically, submerged in the unconscious, unless something goes wrong making the actor aware of them.

Wilk's model is also reminiscent of some of the central ideas in Giddens' (1986) structuration theory[5], where *agency* occurs in a similar way on two different levels of consciousness: *practical* and *discursive*. Practical consciousness accounts for the ways everyday social practices are performed in routine and habituated ways that provide comfort and familiarity. People do not think about them unless something out of the ordinary happens, when a person moves into discursive consciousness. Discursive consciousness occurs when a person's expectations are confounded and they become aware of the rules of behaviour, which can result in a kind of *anxiety*. *Structure* on the other hand is, for Giddens, the rules and routines of everyday life,

[5] For Giddens (1986) social practice relates to structuration. He argues that practices should form the central intellectual focus of the social sciences because they are: *'ordered across time and space'* (p.2). The central proposition rejects the *object-subject dualism* dominant in social science that asserts that object and subject are exclusive of one another. For Giddens neither is sufficient for explaining social reality. In its place a *duality* of object and subject is proposed that accounts for the structuration of structure and action in society. Structuration theory has been subjected to various critiques, none less so than Archer (1995), who takes issue with the abandonment of the dualism in favour of duality. For Archer, the analytic separation of structure and agency is possible, which she argues reflects better how they appear in the real world.

which produce social reality by being present before and after action. Structure helps shape behaviour because it provides a framework for action to occur that is perceived as objective and legitimate. Action then feeds back into structure, and thus recreates reality by reinforcing the norms and values of culture, which determine how people should behave.

In addition to helping explain the movement of practices, Wilk's (2009) ideas about routine being structures of time are also important. Time has not always been of central sociological interest (Bergmann 1992); however it is relevant to this thesis, because as Giddens (1986) pointed out, all social life occurs within the dimensions of *time and space* (p.132). Indeed according to Elias (1992), it is the collective organisation of time that is an essential aspect of the civilising process. In practical terms, a pessimistic view might help explain how people consent to allocating their free time to the performance of 'mindless' tasks. Lefebvre (2004) suggests that in late-modernity individuals are forced into mundane routines – by the state and institutions – so that their leisure time is occupied and their freedom limited. However, this fails to convince because it does not adequately account for the agency of people who can be seen making choices about what tasks they perform daily (Wilk 2009). While limited leisure time has long been understood as a prevailing feature of industrial societies (Veblen 1899), this is relevant for understanding domestic recycling practices, because performing mundane tasks takes up free time too (Shove 2009).

2.6.4 Affordances and Transitions in Socio-Technical Systems

In the previous section, a practice-based approach was outlined that incorporated structure and agency as the site of the co-evolution of human agents and technological infrastructures. This involved exploring the extent to which practices might be theoretically appropriate for overcoming the dominant paradigm of the individual in public policy on behavioural change. The discussion then considered how mundane routines, conceptualised as structures of time, get habituated in everyday life. In this final part of the literature review I consider the theoretical

utility of affordances and transitions in complex socio-technical systems. Emerging from science, technology and innovation studies; these dual concepts help account for the ways that technology and innovation are implicated in the organisation of everyday life, and how transitions for change may be able to encourage sustainability at a systemic level.

To place this discussion into a wider academic context, the study of science and technology emerged from attempts to show how scientific knowledge is not objective or value-free. Rather scientific knowledge is the accumulation of shared norms, values and agreed practices of agents in a closed community of experts (Sismondo 2004). Technology as the application of science is dependent upon the establishment of apparently unquestionable standards and norms that guide the acquisition of scientific knowledge. The critical study of science and technology has emerged as a field of inquiry that is humanistic, relativistic, reflexive, de-simplifying and normative in its commitment to ethics and values (Spiegel-Rosing 1977, cited in Hackett et al. 2008: 6).

In terms of this research on domestic recycling practices, two concepts are of particular relevance: technological affordances and transitions for change in socio-technical systems. Socio-technical systems (Rotmans et al. 2001; Geels 2002; Smith et al. 2005) can be understood as a:

> *'[…] cluster of elements, including technology, regulations, user practices and markets, cultural meanings, infrastructure, maintenance networks and supply networks* (Geels, Elzen & Green 2004: 3).

These consist of the interlinking elements that make the functioning of a system possible from the interactions of supply-side and demand-side actors that create, maintain and refine the system. Societal level transitions describe the ways that another replaces one socio-technical system. To understand how transitions happen, a multi-level perspective has been proposed (Geels 2002, Geels 2004, Geels & Kemp 2007). Central to this is the view that technology and society co-evolve in a dynamic process involving both user and technological environments. Importantly however,

human agents in socio-technical systems are: *'[…] not entirely free to act as they want. Their perceptions and activities are coordinated (but not determined) by institutions and rules'* (Geels 2004: 902). This conceptual approach to transition and regime change is complex, but nevertheless is useful for explaining how technology, users and institutions are all implicated in the organisation of systems. As a result, transitions to sustainability at a systemic level might be possible through understanding how dynamic regimes are embedded in the routines of everyday life. A transition and practices approach is therefore able to move away from the individualising language of motivators and barriers that dominate contemporary policy discourse and academic disciplines. By looking at recycling *practice* as a unit of analysis in its own right, societal members are considered constitutive of co-evolving socio-technical systems.

When viewed alongside the turn to social practices discussed above, the idea of socio-technical systems and regime transitions help account for how social actors are at the centre of co-evolving systems; where the actor's values and ethics are implicated in the outcome of change, rather than being the drivers of it. Here *affordances* in relation to technology, offer additional explanation for how values get translated in to specific practices. Emerging initially in psychology, affordances have been adopted in technology and innovation studies to describe: *'[…] the perceived and actual properties of the thing, primarily those fundamental properties that determine just how the thing could possibly be used'* (Norman 2002: 9). This involves an actor's goals, values, beliefs and past experiences all converging to act as a conduit through which action occurs. Values are channelled into specific actions through affordances, which the socio-technical system supports and makes possible through the social construction of technical processes, like domestic recycling to use the example in this thesis. This is directly relevant to this research because socio-technical systems are seen as fluid and adaptable and dependent upon the interaction history of technical processes involved. Therefore to end this section and the literature review, it seems that knowing what was done, who did it and why it was done (Ellis 2008) all becomes important for influencing future actions of agents and solving the problems we face in complex socio-technical systems.

2.7 Conclusion

To conclude this background and literature review chapter, the intellectual rationale for the thesis has been outlined. This involved placing the research within a broader historical, legislative and institutional context of waste and recycling practice and policy in Scotland. The discussion began by carefully detailing the aims and objectives of the study and the specific research questions under investigation. The first part of the chapter was a background section devoted to considering the historical context and technical aspects of the case as a way of justifying the study. The literature review in the latter part evaluated the core empirical and theoretical material that has been consulted, which informed the design and execution of the study. The final theoretical section was divided into four discussions: the social shaping of environmental problems; ethics, values and environmental citizenship; the turn to social practices; and affordances and transitions in socio-technical systems.

By extending the arguments underpinned in the four bodies of theoretical knowledge put forward in this chapter, domestic waste and recycling have been re-imagined as socially situated practices implicated in the everyday interactions of users and actors. By rejecting the idea that attitudes and beliefs are sufficient to explain and account for pro-environmental behaviour, this thesis attempts to look beyond 'the individual' when it comes to explaining how people engage and interact with their natural environments in everyday settings. Unresolved, however, are questions related to the commensurability of using different theoretical traditions together at the same time, in the same place.

On the face of it combining different bodies of knowledge together might appear theoretically incoherent. However the notion of 'scale' is relevant here, which refers to three analytical domains, or levels, of understanding: the micro, meso and macro (Applied Soc 2011). Acting as hierarchical lenses though which the evolution of society can be traced, the micro, meso and macro relate to the unit of analysis from which phenomena are to be investigated (Dopfer et al. 2004). Using this notion of

scale to fold together analytically the different theoretical ideas put forward earlier in this chapter provides a clearer view of how different components of theory can fit together within a framework for analysis that can address the uneven and unpredictable nature of phenomena. Common to applied social research, multi-level investigations focus on addressing issues at the different levels of society. In this research, the micro helped theoretically to explain the social shaping of environmental problems by providing an account of the ways everyday actions and interactions of agents occur, in addition to the explanatory usefulness of ethics and values. Importantly, the use of ethics and values in this research has not been used in a way that tries to reproduce the idea of the individual as the cause and solution of environmental problems. Rather, in accepting the normative aspects involved, ethics and values have been held not as determining behaviour, but helping explain the differences between groups. The meso level has helped explain the ways that social practices get carried within and across society. Given that there are stronger and weaker interpretations of this, Schatzki's (1996) differentiation of 'practice as performance' and 'practice as entity' is important for appreciating the ways practices get conducted in society, which is different from the constitutive elements of practice. The final level, the macro, helps explain the ways that society can be analysed at a systemic level. Here the idea of socio-technical transitions is provided for along with the related issue of affordances, where values are seen as being the outcome of change, rather than the driver of it. This talks back to the micro level analyses described above, as well as to weaker interpretations of practice theory, n which agents are seen as being at the centre of co-evolving systems.

But while folding together different theoretical ideas using this scale model is helpful in a practical sense, deeper issues related to *paradigms* (Kuhn 1962), *research programmes* (Lakatos 1970) or *worldviews* (Irzik & Nola 2007) remain unresolved. A concern here is that paradigms and worldviews can result in the bracketing-off of knowledge. Different paradigms are grounded in fundamental assumptions about the existence of social phenomena and the nature of knowledge. By definition different worldviews imply that a single research strategy of theoretical and methodological assumptions be adopted and followed. As will be discussed further in Chapter 3, this

has traditionally been framed in terms of an objectivist-subjectivist dualism. The incommensurability of paradigms has however been questioned by scholars who find taking a narrow view of reality and adhering rigidly to epistemological boundaries problematic (Johnson & Onwuegbuzie 2004). Often framed in terms of methodology, the so-called incompatibility thesis (Howe 1988) is also relevant for thinking about how the theoretical ideas underpinning the thesis have been folded together. To overcome the incommensurability and provincialism of worldviews, and to be able to incorporate together different theoretical traditions, this research approaches theory: *'[…] not as a search for **the** truth, but as more of a search for comprehensiveness stemming from different worldviews'* (Gioia & Pitre 1990: 587, emphasis in original). Leaning toward a multi-paradigm approach, the theoretical grounding of this thesis welcomes the opportunities to be gained from combining together different ontological and epistemological assumptions because they reveal contrasting facets of phenomena, which it will be argued in the next chapter is likely closer to how they appear in the real world anyway (Teddlie & Tashakkori 2009).

But even after taking all of this on board, unresolved questions remain about whether the apparent irreconcilable differences of paradigms can be bridged together. Scholars have been making the case for the boundaries between theoretical paradigms as being permeable (Gioia & Pitre 1990). This is because paradigms are not totally independent or isolated knowledge-generating or theory-building systems. Different perspectives can have a foot in different traditions and can talk to, rather than talk past, one another. For instance reflecting the inter-disciplinary nature of this research, the theory detailed previously in this chapter has drawn on four different theoretical traditions and combined them together to provide a thorough understanding of contemporary environmental practices. But while this thesis makes a case for combining theory, it is important not to collapse paradigms together into a single integrated framework. In a total sense worldviews remain incommensurable, but they may be compatible at the boundaries between ideas and perspectives, which are conceptualised as being fuzzy, rather than rigid domains of knowledge. Importantly the aim is not to reconcile theoretical inconsistencies but to account for the multiple representations of given phenomena. This suggests that a balance needs

to be struck between the practicable bases of theory and making a difference to social problems in the real world (Gioia 1999), resulting in a commitment to philosophical pragmatism to emerge – a theme that the reader will find recurs throughout this thesis.

What this review of literature has been able to demonstrate is that while waste may be an inevitable consequence of the social organisation of people, it is usually taken for granted and ignored. This does not however only occur among ordinary people; within the Academy too there has been a reluctance to engage with the causes and consequences of waste, choosing instead to focus on other complex issues with social consequences like production and consumption. This thesis extends the theoretical arguments introduced in this chapter, namely that domestic waste and recycling are socially situated practices implicated in the interactions of different users and actors. In a broader sense the research is concerned with how municipal solid waste in an advanced industrialised society is governed and engaged with in everyday life. But more specifically it is an exploration of an overarching question that asks: *how best can we explain domestic household recycling practices in the twenty-first century?* As demonstrated in this review, this type of question is usually approached superficially, explained in terms of cognitive decision-making or the rational choices of individuals. This thesis responds by showing how contemporary recycling practice is experienced and engaged with as an embedded feature of everyday life. Building on the ideas introduced in this chapter, the methodology and research design that are discussed next in Chapter 3 have both been influenced by the empirical and theoretical material consulted and outlined in this review. In what follows, the methodology and research design are elaborated further through an ontological and epistemological discussion of mixed methods pragmatism and the sequential explanatory research design.

Chapter 3 Methodology and Research Design

> *'A science is often thought of as being a coherent body of thought about a topic over which there is a broad consensus among its practitioners. However, the actual practice of science shows there are not only different perspectives on a given phenomenon, but also alternative methods of gathering information and analysing the resultant data'.*
>
> Tim May (1993:4)

3.0 Introduction

The previous chapter elaborated the theoretical framework of the thesis. These contributions influenced not only the knowledge claims of the research, but also guided its conduct. In this chapter the methodology and research design are outlined. This involves setting out the underlying assumptions guiding the research process and detailing what was done and why. The scientific tools available for investigating social problems are as numerous as they are varied (May 1993), though each approach to research has its own strengths and weaknesses. Because of the epistemological and ontological assumptions underpinning different methods, their suitability for investigating social problems depends very much upon the research context in question. Reflecting this view, this thesis has been informed by and situated within an emerging tradition of mixed methods research. Stemming from a personal dissatisfaction at the prospect of choosing between a quantitative-qualitative dichotomy, this research welcomes the opportunities and payoffs to be gained from implementing innovative mixed method research designs.

In the discussion that follows the methodological issues and challenges of doing 'real-world' research is outlined, as is the utility of designing research based philosophically on a principle of methodological *pragmatism* (Howe 1988: 14). Pragmatic researchers place at the heart of their endeavours the research question(s) (Johnson & Onwuegbuzie 2004), rather than be pre-occupied with ontological and epistemological debates about truth and reality (Cherryholmes 1992). The first part

of the chapter discusses key elements of the research process, which in this study used a pragmatic mixed methods framework. This section contributes to literature that makes the case for using both inductive and deductive forms of knowledge to arrive at a holistic understanding of social phenomena (Bryman 1998; Tashakkori & Teddlie 2003; Teddlie & Tashakkori 2009; Creswell 2003; Creswell et al. 2003; Johnson & Onwuegbuzie 2004; Creswell & Plano-Clark 2007). In the second part of the chapter, the specific methodological and research design choices made in the conduct of this study are detailed. Building on the earlier methodological discussion, this part outlines the main features of the *Sequential Explanatory Design* that was adapted to meet the needs of this research. The selection of this design over others is briefly explored, along with an evaluation of how the design was executed. Here the data collection and analysis techniques used are discussed, along with some closing comments on the ethics of the study.

3.1 Methodology

This thesis has been situated within a tradition of mixed methods research. This tradition rejects the main assertions of the *incompatibility thesis* (Howe 1988) that claimed different data types and their methods of analysis are not compatible with one another, and should therefore not be used together in the same study. In doing so, this research shares a view that the careful combining together of different data types and analysis techniques can reveal contrasting dimensions of given social phenomena, thereby increasing depth of understanding of it.

Given the increasingly complex nature of contemporary social problems, the responses of investigators have been ever more multifaceted. Researchers are expected to respond to the research context innovatively and use whatever data types and analysis techniques necessary to answer their research questions. The result has been a surge in demand from researchers to be equipped with appropriate skills to conduct any type of research. While mixed methods can be said to be an expanding area of scholarly attention, using different methods together in the same study is not new. Indeed it is possible to trace a long history of answering research questions with

different data types, even if work was not explicitly labelled as 'mixed' at the time (Olsen 2004). What is newer, however, is the explicit and intentional combining of different data types and analysis techniques together as a distinct methodological approach that can complement mono-method approaches to research (Creswell & Plano Clark 2007).

The most obvious benefit of mixed methods research is its potential to overcome at least some of the problems associated with conventional research methods (Creswell & Plano Clark 2007). These include quantitative methods dehumanising the subject matter; or qualitative ones failing to move from the specific to the general. By rejecting the incompatibility of different data types and analysis techniques, researchers are able to exploit the entire available toolkit, rather than be restricted by (questionable) ontological or epistemological boundaries (Creswell 2003; Johnson & Onwuegbuzie 2004; Tashakkori & Teddlie 1998). In the discussion that follows the philosophical grounding of methodology in the social sciences is elaborated, along with the key elements of the research process. This is used to explain and justify the methodological and research design choices made in this research.

3.1.1 Methodology in the Social Sciences

The foundations of all scientific research are underpinned by certain philosophical assumptions about the world. These *paradigms* (Kuhn 1962) or *worldviews* (Creswell 2003) determine the conduct and outcomes of research[6]. In the acquisition of social scientific knowledge two worldviews have usually dominated: *post-positivist* and *constructivist*. These approaches to understanding the social world and the problems it faces are usually deemed irreconcilable with one another because of disagreement over truth claims and how we can acquire knowledge of those truths

[6] The term *paradigm* is a difficult concept to agree a definition on, so commentators have suggested it is perhaps better to think in terms of *worldview* (Creswell & Plano Clark 2007: 22). This is because Kuhnian paradigms imply whole-world ways of thinking, making it difficult to account for how paradigms interact with one another. By replacing the idea of paradigm with worldview, the practice of research is conceptualised in much more fluid terms, where different traditions and forms of knowing can learn from one another cumulatively, which it is suggested is getting closer to the process of 'real world' research.

(Cherryholmes 1992). Commentators attribute this to an early obsession with empiricism in the social sciences, where quantitative methods were *'fetishised'* over qualitative ones (Olsen 2004: 5). Indeed the effects of this are still felt today with many academics, policy specialists and research funding bodies often (perhaps unjustifiably) expressing a preference for quantitative over qualitative research (Unger 2006: 269). It is worth pointing out that the ESRC's (2011) view that UK social science is under-skilled in quantitative methods was reflected in this research by funding it with an enhanced quantitative methods stipend.

Indeed the incompatibility of data types and approaches to their analysis are so engrained in social research (Teddlie & Tashakkori 2003: 6) that they have even been described as the *paradigm wars* (Howe 1988). But as social research matured, dealing with ever more complex problems, alternative research strategies have evolved (Creswell & Plano Clark 2007). These include the *advocacy and participatory* approach, associated with action research; and *pragmatism,* associated with mixed methods research. Both have emerged to offer alternative ways of knowing and doing research that transcends the post-positivist/constructivist dichotomy. These four worldviews and their implications for the practice of social research are summarised across six key philosophical elements in Table 3.1:

Table 3.1 Common Elements of Four Worldviews

	Post-Positivism	**Constructivism**	**Advocacy & participation**	**Pragmatism**
Ontology	Singular reality	Multiple realities	Political reality	Singular &/or multiple realities
Epistemology	Distance & impartiality	Closeness	Collaboration	Practicability
Axiology	Unbiased	Biased	Biased & negotiated	Multiple stances
Methodology	Deductive	Inductive	Participatory	Combining
Methods	Quantitative	Qualitative	Usually qualitative	Quantitative and qualitative
Rhetoric	Formal	Informal	Advocacy & change	Formal or informal

Adapted from: Creswell and Plano Clark (2007: 24)

While each worldview can be conceptualised as being distinct, they should not be viewed as rigid uncompromising categories. Borders between them are fuzzy and negotiable, reflecting the fluid nature of contemporary research practice and the need to move between worldviews as necessary to answer their research questions. However while movement between worldviews is possible, contemporary scholars often seem reluctant to do so, instead specialising in the philosophical assumptions, principles and strategies of one particular approach. Reasons for this vary. Most obviously a broad ontological or epistemological commitment to particular forms of knowledge (Santakos 2005) might be relevant, but so too is the professionalisation of research, where scholars are formally trained and encouraged to specialise, for institutional or historical reasons or the availability of resources (Jackson 1997).

Clearly there is an argument to be made for and against specialisation. In favour is a view that it is unrealistic to expect researchers to be knowledgeable about all of the methodological literature, which is large (Hammersley 2011); similarly specialisation can lead to expertise in particular traditions. However on the flipside, it is also the case that methodological specialisation may also result in one-dimensional or partial insight into complex social phenomena. The pragmatic worldview has emerged as a convincing response to these kinds of arguments, overcoming at least some of the limitations of mono-method approaches to research that enable investigators the opportunity to: *'[…] put together insights and procedures from both approaches to produce a superior product'* (Johnson & Onwuegbuzie 2004: 17). While philosophical debate does not disappear with the pragmatic worldview, it at least offers a middle-way between methodology and philosophy so that 'real-world' research questions get answered (Johnson & Onwuegbuzie 2004). The next section provides an overview of the pragmatic worldview and the research process involved.

3.1.2 The Pragmatic Worldview

The pragmatic worldview puts aside ontological and epistemological debate about what and how we can know the social world. In doing so the pragmatic researcher

recognises the value in using different, but complementary, strategies to answer research questions. Tashakkori and Teddlie (2003: 713) define methodological pragmatism as:

> *'[…] a deconstructive paradigm that debunks concepts such as "truth" and "reality" and focuses instead on "what works" as the truth regarding the research questions under investigation. Pragmatism rejects the either/or choices associated with the paradigm wars, advocates for the use of mixed methods in research, and acknowledges that the values of the researcher play a large role in interpretation of results'.*

Pluralistic in its assumptions, methodological pragmatism involves research design and operational decisions based on 'what works best' when answering the questions being investigated (Creswell & Plano Clark 2007: 23). Drawing on classical philosophical pragmatists, such as Charles Sanders Pierce, William Jones and John Dewey, pragmatic researchers are able to think beyond and counter the dualisms that preoccupy methodological purists (Johnson & Onwuegbuzie 2004: 16). In doing so they attempt to conduct innovative and dynamic research that is flexible and adaptable, responding as research unfolds. The next section outlines the key elements of the pragmatic worldview in practice along with some comments on how they influenced the conduct of this project.

Key Elements of the Pragmatic Worldview

There are six common elements to 'doing' social research: ontology, epistemology, axiology, methodology, research methods and rhetoric. These are philosophically determined, so vary by worldview. Each element plays a role in the design and execution of research because they determine what and how we can know the social world and the problems it faces (Creswell & Plano Clark 2007: 21 & 24). In this part of the discussion each element is described in relation to the research process of this thesis.

The first element is *ontology*, which asks questions about the nature of reality. This is relevant to this thesis in two respects. On the one hand, I agree with objectivism's assertion that there is an independent external reality that can be revealed through

hypothesis testing. But, on the other hand, I also see this as problematic because it is not clear if one explanation of reality can be considered 'better' than any other. This second point is important because it leads one to sympathise with the constructivist's view that the 'truth' about reality cannot be determined. If this is the case, then perhaps all we can look to provide is multiple perspectives of phenomena that taken together account for the subjective experience of socially situated agents (Teddlie & Tashakkori 2009; Cherryholmes 1992). By re-conceptualising ontology in this research in less rigid and negotiable terms, enables something interesting to be said about the practice of recycling in everyday life and social reality that goes beyond contingent beliefs and interests.

If ontology asks questions about the nature of reality, *epistemology* asks different ones about the nature of knowledge. Within the social sciences epistemology has usually been addressed in relation to an epistemological dualism that separates research along objective-subjective lines (Bryman 1998): objectivism being associated with the impartial research of post-positivist approaches; subjectivism with the interpretive research of constructivist ones. In countering this dichotomy, I welcome the pragmatist researcher's efforts to replace epistemology with a principle of *practicality* (Creswell & Plano Clark 2007: 24). This is about collecting, analysing and integrating together whatever forms of data necessary to answer the research questions. As Teddlie and Tashakkori (2009) have suggested, viewing epistemology as operating on a continuum, rather than two opposing sides, is probably closer to how most researchers approach research in the real world anyway.

The third element in the research process is *axiology*, something that often gets glossed over when presenting research findings. This refers to the role of values in shaping research (Creswell & Plano Clark 2007). Axiology is important because, in addition to influencing the whole research process, values also enable meaningful inferences and conclusions to be drawn. Many social researchers remain divided in relation to values. Those operating within the post-positivist tradition have traditionally sought to be unbiased in their research, using checks to eliminate any bias. In contrast, constructivists have usually taken issue with the idea that the

evidence they collect are neutral, viewing it as contingent on the researcher's interpretation. Rather than seeing these as incompatible, this research considers both valid. However, in accepting values as an inevitable part of the research process requires them to be explicitly and reflexively recognised as potential influencing the conduct and outcome of research, and the writing of the results.

In the research process, *methodology* refers to the philosophy underpinning the research and its design. This can be contrasted with *research methods*, which are the specific techniques of data collection and analysis (Creswell & Plano Clark 2007). Social researchers have traditionally treated quantitative and qualitative methods as incompatible at the level of reasoning. Quantitative methodologies and methods are grounded in deductive reasoning, which involves the testing and refining of *a priori* theories. Qualitative methodologies and methods deal with inductive reasoning, which involves generating theory 'bottom-up'. Sharing the pragmatist's view, this research attempts to counter the link between methodology and methods, replacing it with a problem-centred, *plurality of method* (Olsen 2004). The point being that whatever data types and analysis techniques necessary to answer the research questions at hand get used, which it is claimed should lead to holistic answers being generated that are based on multi-dimensional accounts.

The final element of the research process is *rhetoric*, or the language and presentation of research findings (Creswell & Plano Clark 2007). This is important because it establishes how a community of scholars shares and communicates their knowledge, at the same time as setting the boundaries of what is deemed professionally acceptable. The dichotomy that splits all other parts of the research process operates here too. In an effort to emulate the natural sciences, those operating in the post-positivist worldview tend to adopt formal language and use agreed upon definitions when it comes to presenting research findings. Those operating from a constructivist worldview tend to adopt an informal, literary style that attempts to retain the subjective meanings and experiences of the original accounts. This research uses both formal and informal language in the reporting of the findings, in an attempt typical of pragmatic researchers to bridge the gap between worldviews.

Critiques of the Pragmatic Worldview

Attempts to establish mixed methods as a distinct third methodological tradition have come a long way since early attempts at triangulating research findings (Mason 2006a). Moves to ground mixed methods in a philosophical framework, as outlined above, should be commended, particularly as it enables studies to be critically evaluated across the key elements of the research process. But, mixed methods are not without their critics. For methodological purists, combining different methods and data types together remains philosophically incoherent (cited in Johnson & Onwuegbuzie 2004). This is not helped by inconsistencies and disagreement in the mixed methods literature about what is, or is not, valid mixed methods research (Tashakkori & Creswell 2007). Problems for mixed method scholars include lack of agreement on an accepted nomenclature and basic definitions; ongoing debate about the utility of mixed methods and the paradigmatic foundations of the methodology; and unresolved design issues about how we should draw inferences (Teddlie & Tashakkori 2003). These are perhaps not surprising given the general lack of agreement in the methods literature about the best way to 'do' social science. In defence of mixed methods as a distinctive approach to research, many of the criticisms seem related to the infancy of mixed methods as a methodological tradition, so as more mixed methods research is done and done well, this should in time be overcome.

Justification of Methodological Choices

Despite criticisms and the logistical difficulties of the lone researcher doing mixed methods, a strategy that exploits multiple data types offers the best opportunity to answer the research questions being investigated in this thesis. This is based on a view that social research does not operate in isolation from the world it seeks to understand, rather the research process and its outcomes are shaped by the actors, institutions and problems it takes as the main units of analysis. The result is that research endeavours are influenced not only by the social problems and those people we want to research, but also the values and opinions of those doing the

investigations. This is what motivates the methodological and research design choices of this research, which the next section discusses.

3.2 Research Design

In this part of the chapter the research design is elaborated through a discussion of: the aims and motivations of the design; the design process itself; data collection and analysis; access to participants; and closes by outlining the ethical considerations of the project.

3.2.1 Aims and Motivations of the Research Design

As introduced in the first two chapters, the general aim of this thesis was to contribute to sociological knowledge on the relationship between people and environmental problems by answering an overarching research question: *how best can we explain household recycling practices in the twenty-first century?* To answer this, three additional sub-questions are considered:

1 What is it about modern families and households that results in some being more likely than others to engage in recycling activities?

2 What is the role of ethics, values and citizenship in influencing environmental concern and action?

3 To what extent can everyday recycling practices be explained as habitual and ritualised?

In keeping with the principles and assumptions of methodological pragmatism, the research question and sub-questions were placed centre-stage; and ontological and epistemological debate about the status of reality and knowledge metaphorically placed to one side. Given the empirical focus of the study, a view was formed early on that it would be desirable to investigate the topic at both a macro- and micro-level. The intention was that a macro- analysis could provide a broad understanding

of the research problem; and micro- analyses the subjective lived-experience of people within that population.

3.2.2 The Research Design Process

Mixed method designs are not however just the arbitrary collection of both qualitative and quantitative data to see what each tell us about a given social problem. This data triangulation approach lacks logic and makes data integration and inference drawing difficult (Mason 2006a). Effective mixed methods research involves making purposeful and logical decisions about what types of data and analysis techniques will be most appropriate for answering the research questions (Creswell et al. 2003). There are multiple examples in the literature of studies employing innovative designs (for a thorough review see Teddlie & Tashakkori 2003). These are useful not only for establishing methodological legitimacy, but also providing 'best practice' for others to learn from. As mixed methods research has become more prevalent, so too have examples of different designs being implemented. Each design has its own utility, procedures, strengths and weaknesses that are dependent upon the research context, however given the aims and objectives of this thesis, the selected design was an adapted version of the *Sequential Explanatory Design* (Creswell 2003; Creswell et al. 2003; Creswell & Plano Clark (2007).

The Sequential Explanatory Design

The research design adopted in this study is an approach to research that is conducted across two sequential phases. Most emphasis is usually placed on an initial quantitative phase, followed by a second qualitative one. Though there are examples in the literature of the qualitative element taking priority or both phases being treated equally (Creswell 2003). The aim of the sequential explanatory design is to collect and analyse quantitative data to provide a general understanding of the research problem. The findings of this initial phase are then used to inform the conduct of the second phase, which collects and analyses supporting qualitative data to refine,

explain or refute the statistical findings. Full integration of the findings occurs after both phases have been completed.

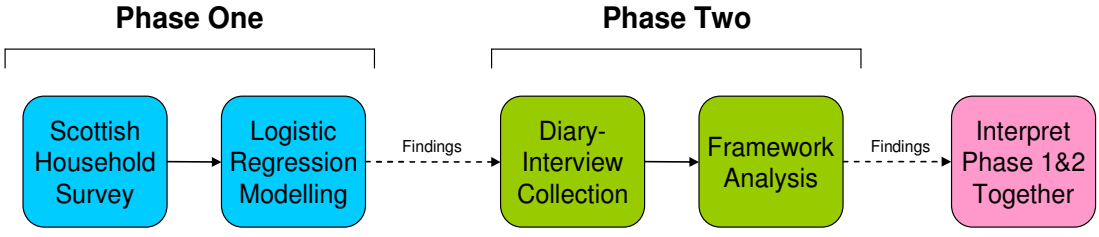
Strengths and Weaknesses of the Research Design

The strengths and weaknesses of this design are broadly in line with those of any sequential design. In their favour, they are the simplest and most straightforward to implement (Creswell 2003; Creswell & Plano Clark 2007). Nevertheless this design does have some inherent difficulties. The first concerns the separation of the two phases (Creswell 2003). Treating each phase as separate and performed sequentially, this design requires allocating extra time and resources that is not always available for small-scale, time-limited research. A second weakness is that Phase Two cannot usually be planned until the initial phase has been completed (Creswell & Plano Clark 2007: 75). This was addressed in the design of this research through early planning and proactively responding to the quantitative findings as they emerged; considering what they might mean for the implementation of Phase Two.

3.2.3 Implementing the Research Design

In keeping with a typical formulation of this kind of design, the research was conducted across two phases: a quantitative Phase One, followed by a qualitative Phase Two. The implementation of the research design of this study is summarised in Figure 3.1:

Figure 3.1 Implementation of the Research Design



Adapted from Creswell et al. (2003)

Two types of data were used to highlight different dimensions of the phenomenon (May 2010). The first phase was designed to explore the statistical features and determinants of claimed recycling behaviour in Scotland, and the second phase designed to examine the everyday recycling experiences of Scottish householders. Equal weighting was given to the two phases, with neither being privileged over the other.

Implementing Phase One

In Phase One, the Scottish Household Survey (SHS) was accessed at the UK Data Archive for secondary data analysis. The purpose of this was to build up a general understanding of the research problem that could be inferred back to the population. The SHS is an annual cross-sectional survey funded by the Scottish Government, which was selected as preferable to other available surveys[7] because in addition to providing a large representative sample (circa. 15,000 households) each year, it asks specific questions at the household unit of analysis[8] level about Scottish householders claimed recycling behaviour. The SHS has carried questions about claimed recycling activity since its launch in 1999 (see Appendix 1). However due to changes in the question wording and the location of the questions moving in the survey, only data from 2003, 2004, 2005 and 2006 was directly comparable[9].

Sampling Strategy of the Survey

The SHS uses a multi-stage stratified sample that includes a mix of clustered and un-clustered sampling (The Scottish Government 2008). The sample is designed to be nationally representative each quarter, representative of larger local authorities every year, and all local authorities every two years. The sampling frame is the expanded Postcode Address File for Scotland. While this can take into account properties with multiple dwellings, there is no provision for institutional addresses to be included. There are no geographic exclusions as the entire country is included, so even remote

[7] Other surveys consulted at the UK Data Archive included: The Scottish Environmental Attitudes & Behaviours Survey (2008); Eurobarometer 62.1 (2004); Scottish Social Attitudes Surveys (2004); Public Attitudes to the Environment Scotland (2002); International Social Survey Programme (2000).

[8] The Scottish Household Survey collects information for the entire household, as well as a randomly selected adult, and when appropriate - a randomly selected child.

[9] The only SHS recycling data that was directly comparable was Quarters 2-4 of 2003, all of 2004, 2005 and 2006. 2006 was the most recent release of SHS data available at the time of the analysis.

rural areas are covered. The response rate for the SHS is around sixty-nine percent over a 2-year sweep, though substantial variation in response rate exists between local authorities. For example, in 2005/2006 the highest response rate was Stirling (80%) and the lowest Glasgow (59%). To take account of disproportionate sampling between local authorities and the variation in response rates, the data is weighted to take account of: local authority sampling variation, household response rate and the probability of a random adult or random schoolchild being selected as a respondent.

Phase One Data Analysis

Accurate data analysis that effectively answers research questions is fundamental for any research. In Phase One, the SHS was analysed with descriptive and inferential statistical techniques using the Statistical Package for the Social Sciences (SPSS) software. Descriptive statistics were used to screen and clean the data and to describe the main characteristics of the sample (Moses & Knutsen 2007). Inferential statistics were also used to draw conclusions about the characteristics of the population from which the sample is drawn (Brase & Brase 1987). This allowed predictions and explanations to be made and hypotheses tested using the SHS data. By exploiting the underlying assumptions of multivariate model building (Hosmer & Lemeshow 1989), Phase One of this research constructed multiple binary logistic regression models that could highlight the nature of the dependence relationship between an outcome variable and a number of predictor variables. The dependent variable included in the model was derived from Question HC7D in the SHS (see Appendix 1) using the data transformation command in SPSS. This outcome variable (*hh_recycle*) is summarised in Table 3.2:

Table 3.2 Recoded Dependent Variable

Variable name	Variable label	Coding	Percentage	*Base*
hh_recycle	Household claims to have recycled at least one thing in last month[1]?	Yes = 1 No = 0	69% 31%	*39,993* *17,680*

[1] Either glass bottles, plastic, metal cans, or newspaper/magazines/paper/cardboard

This dependent variable captured as a dichotomous outcome whether a household claimed to have recycled at least one type of waste in the last month. Just over two thirds of the entire sample (69%) claimed they had recycled at least one of the things in the list in the last month, so just under a third (31%) claimed they had not.

Based on the literature review discussed in Chapter 2, and a review of the items available in the SHS, nineteen potential independent variables were identified or derived from other survey items. Summarised in Table 3.3, these predictor variables were grouped into three analytical categories: characteristics of the household; characteristics of the household reference person; and indicators of recycling service provision/geographic location.

Table 3.3 Potential Independent Variables

Analytical category	Variable name	Variable label	Comments
Household Characteristics	*size*	Household size	Simplified from *hh_size*
	hhtype	Household type	-
	hh_work	Working status	-
	new_property	Property type	Simplified from *proptype*
	new_tenure	Housing tenure	Simplified from *tenure*
	income_bands	Income band	Derived from *annetinc*
	children	Children	Derived from *totkids*
	mean_age_grp	Children's mean age group	Derived from *ha5_1* to *ha5_10*
	car	Access to private car	-
Household Reference Person	*new_age*	Age group	Derived from *hihage*
	hihsex	Sex	-
	new_ethnicity	Ethnicity	Simplified from *hih_eth1*
	new_econ	Economic status	Simplified from *hih_econ*
	new_hedqual	Education	Simplified from *hedqual*
	h_nssec2	Occupational class	-
Service Provision or Geography	*provision_all*	Recycling service	Derived from SEPA [1] data
	new_urbanrural	Urban/rural indicator	Derived from *shs_6cla*
	local_auth	Local authority	-
	area	Local authority region	-

[1] Constructed from Waste Digest Data published by the Scottish Environmental Protection Agency

The predictor variables included in these three analytical categories were either internal or external to the household. They had all been identified *a priori* as being potentially related to the likelihood of a household claiming to participate in

recycling. They were therefore considered for possible inclusion in logistic regression modelling, as discussed further in Chapter 4.

Implementing Phase Two

The second phase of the research design was more labour intensive than the first. There were two main aims to Phase Two: to explore inductively the statistically significant and non-significant results from Phase One; as well as add an interpretive dimension to the project not possible with statistical analyses alone. The main data collection tool exploited in this phase of the research was the diary-interview method (Zimmerman & Wieder 1977). This technique has been used widely in researching health and hard-to-reach groups (Corti 1993). It is a two-stage approach to data collection, where solicited diaries, defined as: *'documents created by an individual who has maintained a regular, personal and contemporaneous record'* (Alaszewski 2006: 1), are placed with participants for real-time completion. The diary (see the examples shown in Appendix 2) acts as a substitute for observation when the researcher is absent, or whose presence could alter the accuracy of the collected data. By treating the diaries as an integral part of the research process, informants become active participants in determining and recording data, and were able to self-reflect on their daily activities closer to the time they occur rather than rely on memory recall *after the fact* (Elliot 1997). The diary provided subject-specific information about the participant's unique experience of waste and recycling practice in their home that helped initiate conversation in an in-depth follow-up interview.

The use of solicited diaries was attractive in this study because they hold the potential to overcome at least some of the commonly known problems associated with social research, such as bias, poor memory recall, lack of information or difficulties of access (Corti 1993). Despite concern over the reliability of the accounts, respondent conditioning, incomplete records and participant fatigue, to minimise any significant problems with the diaries each household diarist was met face-to-face to provide clear instructions on how to complete the diary correctly, and answer any questions or concerns they might have. Each participating household was

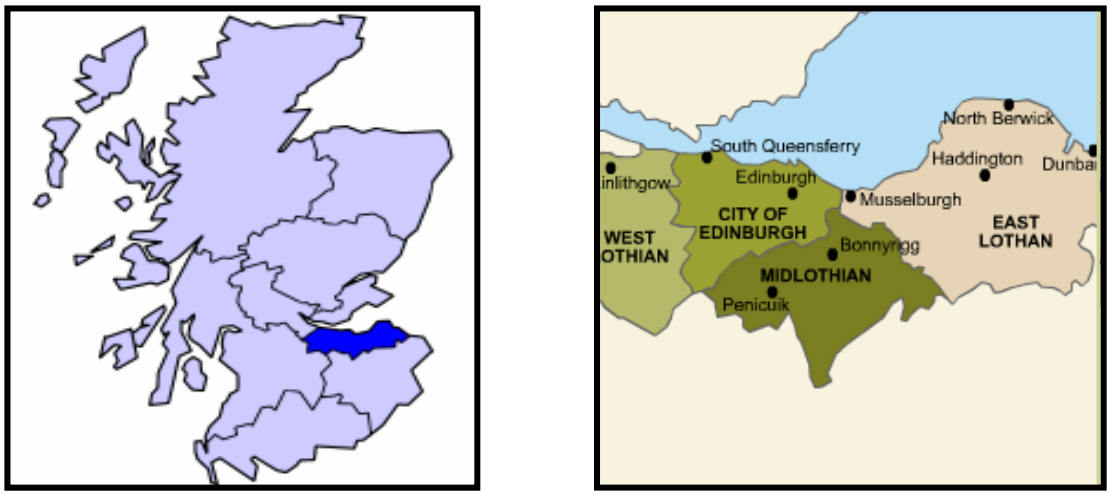
supported during the diary-keeping period by telephone and email to maximising responses and resolving issues as they arose.

Sampling Strategy of Phase Two

The Phase Two sample recruitment and data collection took place from March to May 2010. The main sampling strategy was purposive sampling, using a multiple-entry snowball technique that combined advertising and word-of-mouth approaches to interested participants. The recruitment tools used were: (1) a recruitment poster and information leaflet for potential participants (see Appendix 3); (2) a University of Edinburgh project information webpage (see http://tinyurl.com/35289fy); and (3) a Facebook page (see http://tinyurl.com/yhjfrd5). The Facebook group page was set up to explore the usefulness of new technologies for communicating with research participants. However take-up was poor, with the respondents preferring telephone and email contact. To aid recruitment, the chance to win a £100 shopping voucher in a free prize draw was offered as an incentive to households completing all of the required Phase Two tasks.

The Phase Two respondents were recruited from local authorities in the Lothians region in the east of Scotland (highlighted in dark blue on the left-hand map of).

Figure 3.2 Location of Phase Two Research Site



The participants were all residents of three bordering councils: City of Edinburgh, East Lothian and Midlothian (shown on the right-hand map of Figure 3.2). The research was restricted to this location of Scotland because as will be discussed in Chapter 4, Phase One indicated only modest geographic variation in predicting recycling in Scotland, so spreading the sample thinly was not necessary. In addition, the logistical benefit of keeping the research local to the investigator was attractive given the limited resources available and time-scales within which to complete the research. The target sample size for Phase Two was twenty households living in Edinburgh, East Lothian or Midlothian. Twenty households were initially recruited, however five failed to participate to completion, despite ongoing telephone and email contact in an effort to retain them in the research. Of the households that dropped out: three withdrew prior to diary placement; one failed to return their diary or be interviewed; and one withdrew after keeping their diary, but before interview. This resulted in fifteen individual households successfully completing both the diary and follow-up interview, representing a household response rate of 75 percent.

Phase Two Data Collection

Implementing the diary-interview method involved three separate tasks: (1) a diary-placement interview; (2) a diary-keeping period; and (3) a follow-up interview. The data collection was staggered across the sample, occurring shortly after recruitment.

Diary-Placement Interview

A 30-minute diary-placement interview was held with the contact person in each recruited household. This was to explain further the background to the study, offer guidance on how to complete the diary, and to collect additional supporting information about the household in two short questionnaires.

The first questionnaire (see Appendix 4) was a revised six-item New Ecological Paradigm (NEP) scale questionnaire. Edited from the full NEP-questionnaire (see Dunlap et al. 2000), this sought to capture the ecological-anthropocentric outlook of the person in the household carrying out most recycling (or household chores if they

did not recycle), across five key facets[10]. The second questionnaire (see Appendix 5) captured socio-demographic information about the household and the household reference person, across a range of indicators and variables. The purpose of this second questionnaire was to describe the Phase Two sample and identify its variation. Most people in the sample were resident in Edinburgh (n=12), but including some households resident in neighbouring council areas enabled subtle differences in service provision to be considered. All of the households in the sample had access to a local recycling service – kerbside, bring-site or both – though only one household admitted to never recycling anything at home. The main waste and recycling characteristics of the sample are summarised below in Table 3.4.

Table 3.4 Waste & Recycling Characteristics of the Sample

Characteristic	Categories	Number[1]
Council	Edinburgh	12
	East Lothian	2
	Midlothian	1
Recycling status	Kerbside	6
	Bring-site	6
	Both	2
	Don't recycle	1
Responsibility for recycling or household chores	Male adult	6
	Female adult	6
	Everyone	3
Waste-scale[2]	High (75-112)	4
	Moderate (55-74)	6
	Low (0-54)	5
NEP-score[3]	Pro-NEP (25-30)	2
	Moderate (19-24)	10
	Anti-NEP (0-18)	3

[1] Only includes the 15 households completing all of the Phase Two tasks
[2] Derived from data in the diary on the amount of waste generated at home
[3] Derived from allocating a score to the NEP-scale answers

The sample was relatively diverse in terms of the gender of the person taking on most responsibility for recycling, or the household chores if they did not recycle; as

[10] The five facets of the 6-item NEP-scale: attitudes to the reality of limits to growth (items one and two); anti-anthropocentrism (item three); the fragility of nature's balance (item four); rejection of exemptionalism (item five); and the possibility of an ecological catastrophe (item six).

well as the amounts of waste generated during the two-week diary-keeping period. This was calculated from data recorded in the diary about the amounts and types of waste generated in the home during data collection. This was then converted into a waste-scale score for each household, out of a potential total of 122. The mean waste-scale score for the sample was 64.07 with a range of 42-92. This indicates that on the whole the sample was *moderate* in the amounts of waste generated during this two-week period. There was less sample diversity in ecological-anthropocentric outlook. As discussed above, the NEP-scale questionnaire captured ecological-anthropocentric attitudes and beliefs of the person doing most recycling (or domestic chores in the home). This was also converted into a score for each household, out of a potential total of 30. The mean NEP-score for the sample was 20.07, with a range of 15-27, indicating that the sample was generally *moderate* in its ecological-anthropocentric outlook.

Further socio-economic and demographic characteristics of the Phase Two sample are summarised below in Table 3.5. The data in this table suggests a number of biases in the sample across a range of indicators. In particular, the sample appeared skewed toward what can be described as predominantly middle-class characteristics. For example, the majority of households included were: headed by someone educated to degree level; were working households; lived in properties owned by the household; and were relatively wealthy with a high median income group. There was also some evidence of bias in relation to other socio-demographic traits: the mean household size was relatively small; the majority were childless households; and most households self-described as being from a 'white' ethnic background. The biases were an inevitable consequence of the purposive/snowball sampling strategy employed. While the Phase Two findings should be viewed with this in mind, it is important to also recognise that purposeful sampling should be judged on the basis of the purpose and rationale of the research and the strategy used to achieve that purpose (Cho & Trent 2006). The validity and meaningfulness of qualitative inquiry is grounded in the unique experiences of the cases included in the analysis, not the size of the sample. Given that the purpose of Phase Two of this research was to explore inductively the statistical findings of the Phase One using high quality, in-

depth data from cases drawn from the same population, the sampling strategy of Phase Two achieved its purpose. The validity of Phase Two was evaluated using Hammersley's (1992) notions of plausibility, credibility and relevance of the research claims. This fits well with the pragmatic methodological framework guiding the thesis because it allows for an external social reality to be explored qualitatively, revealed through *'[…] representations or constructions of that world'* (Bryman 2001: 275). This implies that it is the plausibility and credibility of the *truth claims* that should be the main consideration in evaluating qualitative findings.

Table 3.5 Socio-Demographic Characteristics of the Sample

Characteristic	Categories	Number[1]
Education	Degree	11
	Below degree	4
Working status	Working household	12
	Non-working household	3
Income bands	£7,001-£14,000	1
	£14,001-£21,000	1
	£21,001-£28,000	5
	£28,001-£35,000	1
	£35,001-£45,000	2
	£45,001-£65,000	3
	£65,001+	2
Median income band	£45,001-£65,000	-
Property type	House	9
	Flat	6
Housing tenure	Owned	11
	Rented	4
Mean household size	2.73	-
Children	Yes	3
	No	12
Ethnicity	White background	13
	Non-white/mixed background	2
Sex of reference person	Male	11
	Female	4

[1] Only includes the 15 households completing all of the Phase Two tasks

The Diary

The diary consisted of thirty-six pre-printed pages of single-sided A4 paper (see Appendix 2). On the first day, information about the household's waste and recycling routines or habits was captured. On each normal day the household responded to seven questions or statements about what waste was generated that day in their home and any issues experienced in deciding how to deal with the waste. On the last diary day, the household was able to self-reflect on the research process and consider how it may have impacted their everyday routines.

During the diary-keeping period, participating households were supported by email and telephone. This was to identify and resolve any issues as they arose. After Week One the first part of the diary was returned in a pre-paid envelope. This enabled the diary entries to be transcribed and analysed, and any necessary adjustments made to how the diary was being completed. The second part of the diary was returned at the end of Week Two, which was also transcribed and analysed. In addition to giving insight into the normal waste and recycling routine of each household, the diary entries allowed the general interview schedule to be adjusted to reflect the individual context of each household. The aim of using a bespoke interview schedule (see the example in Appendix 6) was to collect high quality data that was sensitive to the household's unique experience.

The Follow-up Interview

The follow-up interview was semi-structured, qualitative and in-depth. In-depth interviewing has the potential to: *'yield rich sources of data and people's experiences, opinions aspirations and feelings'* (May 1993: 91). In this way, data is generated that allows for immediate follow-up revealing the meanings and interpretations people give to everyday activities (Legard et al. 2003). The longest interview lasted for 118 minutes, the shortest 32 minutes. The variation in length mostly depended on the amount of time the respondent was willing to commit to the interview, though the dynamic between the interviewer and interviewee was also relevant, as was their engagement with the subject matter. Though loosely structured around the interview schedule, the interviews were flexible enough to allow

participants the opportunity to influence the direction and flow of the interview, so long as the key areas identified in advance were covered in the available time.

Each household representative was given the option of being interviewed alone or with other household members: five opted to be interviewed as a couple and ten opted to be alone. This resulted in data being collected from twenty individuals. Research elsewhere (Valentine 1999) has demonstrated the difficulties of interviewing couples together. This can impact data quality if couples do not agree with each other's responses, or if they look to mutually agree a 'household response'. In this research, including couple interviews did offer extra opportunities to gauge how households seem to negotiate their daily household practices. This was revealed through data that illuminated the shared reality of the 'everyday', which is organised and negotiated within a framework of household power relations. In this respect the inclusion of couple interviews seems *post hoc* to have been worthwhile, though if the research was expanded in the future, interviewing people first alone and then together would be preferable to just one joint interview.

All of the in-depth interviews were digitally recorded and transcribed verbatim in preparation for data analysis. Though laborious, transcribing the data in full was useful for screening the data and indicating early the main issues and raised themes. To be true to the original accounts, all pauses, inflections, dialects and colloquial language have been represented as closely as possible to how it was conveyed in the interview. Any interruptions, such as when the telephone was ringing or children needing attention, were included in the transcriptions; as were the full questions put to participants and any interjections made into their answers.

Phase Two Data Analysis

The main data analysis approach in Phase Two was a *Framework* approach. This is a qualitative data analysis technique common in applied policy research (Ritchie & Lewis 2003). Differing from grounded approaches to qualitative data collection and analysis, the Framework technique clearly states the research objectives in advance, based on the project requirements (Pope et al. 2000). In this way it starts deductively,

but ends with the generation of inductive knowledge as it seeks to accurately reflect original accounts and observations. As a result, Framework analysis is highly structured, involving the construction of thematic matrices that systematically analyse data with a view to higher levels of abstraction being achieved.

The five stages of Framework analysis as identified in the literature (Ritchie & Lewis 2003; Swallow et al. 2003), were followed in the conduct of this research. The analysis started with the verbatim transcripts, and through a process of *familiarisation* I became immersed in the data through a close reading the original accounts and listing the ideas and themes that recurred in the data. The second stage was to *identify a thematic framework*. This involved drawing on *a priori* knowledge about waste and recycling practice and the emergent themes, to list broad analytical categories that could be used later to label the data. The analytical categories identified in the thematic framework were then applied to the data through a process of *indexing*. This involved coding the transcripts numerically for each theme; identify the data that was evidence for a particular theme or sub-theme. The indexed framework was then *charted* in a spreadsheet during stage four of the analysis, which involved separating the chunks of data that act as evidence for each theme. The final task involved *mapping and interpretation* of the data. Here the charted data was compared and contrasted, searching out the patterns and connections that offered explanation. The themes identified *a priori* and to emerge from the original accounts during the Framework analysis resulted in ten substantive themes being identified in the data (as shown in Appendix 7) that together help account for waste and recycling in the everyday lives of the participants. In the chapters that follow, these inductive findings are considered alongside the deductive ones of Phase One, which together form the basis of this thesis.

3.3 Ethical Considerations

The latter part of this chapter has been dedicated to discussing the specific data collection and analysis techniques of this research. Given that the topic of this thesis was not overly political or particularly sensitive, no major ethical issues were

expected to arise in its conduct. That said the research was conducted in accordance with the ethical guidance of the University of Edinburgh (2008) and the British Sociological Association (2002). The research had been agreed in advance as Level 1 using The University of Edinburgh's School of Social and Political Science Ethical Audit – *Absence of Reasonable Foreseeable Ethical Risks* – which remained intact throughout the research. The data analysed in Phase One had been anonymised by the Scottish Government prior to public release, so no known ethical issues emerged. In Phase Two of the research, the research participants were allocated an anonymous pseudonym. In addition, informed consent forms (see Appendix 8) were collected from the household members providing primary data. The consent form gave permission to digitally record the follow-up interviews, transcribe them verbatim and use the diary and interview data in the research, the thesis and any future publications. Those households that successfully completed all of the required Phase Two tasks were entered into a free prize draw to win a £100 shopping voucher. No other ethical issues emerged in the conduct of the research.

3.4 Conclusion

In this chapter, the methodology and design of the research were outlined, and situated within a tradition of mixed methods research. This was done in two ways. The first outlined the key elements of the research process that was followed, which was based on a pragmatic methodological framework. The second detailed the specific research design choices made in the execution of the study. Building on the earlier methodological discussion, the research design section focused on the main features of the *Sequential Explanatory Design*, which was adapted to meet the needs of this thesis. This involved examining the data collection and analysis techniques employed across two phases, which get integrated together after both are complete. The chapter closed with some reflexive thoughts on the ethical considerations of the study.

In terms of this thesis, it is the methodology and research design discussed in this chapter that helped show that rather than be an inconsequential feature of

contemporary life, how waste gets generated and disposed of is deeply rooted in forces that shape people's desires for material objects, their consumption and their disposal. People's experience of this varies by virtue of their place in society and their ability to access key services and resources. But as we saw in the literature review, this is something that mainstream sociology has often failed to recognise or thought to address preferring instead to leave it to other disciplines to comment on; even if those other disciplines are less well equipped to deal with the socio-cultural aspects involved. This theoretical and methodological argument is central to this thesis, which will become apparent in the discussions that follow. In the next chapter, a macro- analysis of recycling practice in Scotland is presented, which reports the main findings to emerge in Phase One of the study. Chapter's 5 and 6 build on the statistical analysis by reporting on the qualitative data to emerge in Phase Two. Here qualitative data was collected and analysed, which helped account for recycling practice in everyday life through the exploration of respondents' stories about waste, recycling and the natural environment. In Chapter 7, the macro- and micro- analyses are integrated together to conclude that, recycling is a practice deeply-rooted in wider social patterns and structural forces.

Chapter 4 Understanding Recycling in Scotland

> *'… there is nothing more personal and local and nothing more inadvertently global than an individual's garbage'.*
>
> Anna R. Davies (2008:176)

4.0 Introduction

This chapter presents the main findings from Phase One of the research design. The discussion begins by using data available in the public domain to outline the relationship between claimed and reported recycling in Scotland. This helps account for why different actors, including policymakers, waste sector stakeholders and environmental campaigners, treat recycling as important. Some initial descriptive analyses are presented to screen and describe variables in the Scottish Household Survey (SHS) identified *a priori* as being potentially relevant for understanding domestic recycling. This is followed with binary logistic regression analyses, which examine the internal and external factors associated with a household's propensity to claim to recycle. Included here is a description of the model building strategy and the variable selection procedures, along with the full results of a primary best-fitting model. Model diagnostics and descriptions of the covariates included in this fitted model are discussed along with the implications of the modelling for this thesis. The final substantive section extends the logistic regression analysis to consider how claimed recycling varies in different regions of Scotland, the purpose being to identify a suitable research site for Phase Two of the study.

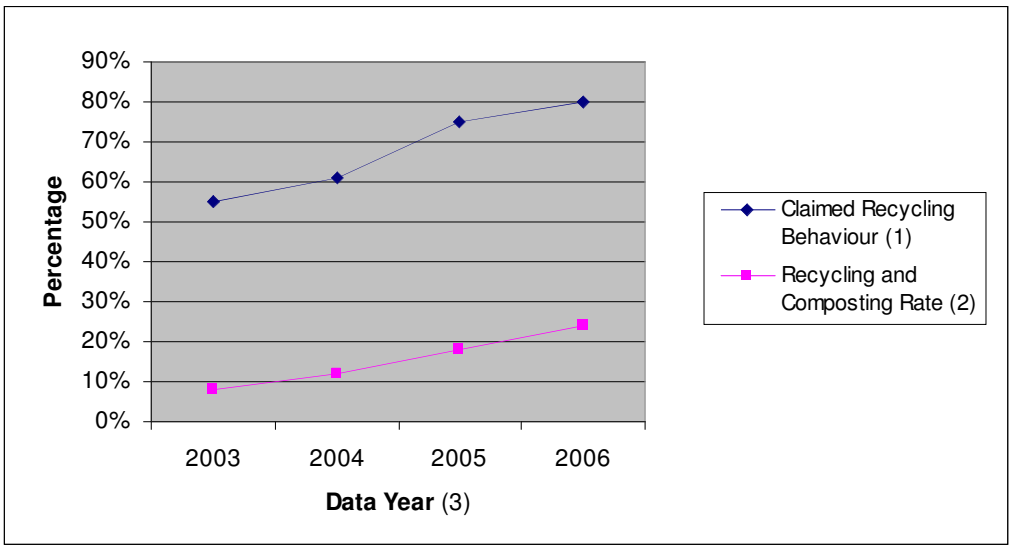
4.1 Claimed and Reported Recycling Behaviour

This thesis is shaped by a broad view that commitment to take environmental action emerges from a person's situation in society, which is influenced by the wider social, cultural, political and economic forces in a complex socio-technical system. This

view was formed from a critical reading of the literature, as discussed in Chapter 2, where it was suggested that various factors converge to influence a person's environmental concern and their willingness to take action on that concern. Exploiting both deductive and inductive forms of knowledge, this thesis is an attempt to highlight different dimensions of recycling activity, which despite its routine and mundane nature, I suggest, is a dynamic social practice implicated in the organisation of everyday life.

Empirically however, this is difficult to research because of a gap between what people 'say' and what they 'actually' do. This is illustrated without much effort using data available in the public domain. Statutory data on the waste and recycling collected by Scotland's local authorities is collated and published by the Scottish Environmental Protection Agency (SEPA). In Figure 4.1, the national recycling and composting rate for Scotland is shown as increasing from around eight percent in the 2002/2003 reporting year (SEPA n.d.), to around twenty percent in 2005/2006 (SEPA 2007); but over the same period, 'claimed' recycling behaviour reported in the SHS increased from around fifty-five to eighty percent.

Figure 4.1 Claimed Vs. Reported Recycling Behaviour



(1) Claimed Household Recycling Behaviour (Scottish Household Survey Data)
(2) Domestic Recycling & Composting Rate for Scotland (SEPA Waste Digest Data)
(3) SEPA reports over a two-year sweep and the SHS reports annually

Speculatively both of these increases are likely related to: changes in government policy, better public awareness and information provision, and more user-friendly and available recycling infrastructure. However, also noticeable in Figure 4.1 is the point made previously in the introductory chapter that, even though both claimed and reported rates of recycling in Scotland have been increasing, if eighty percent of the population in 2006 were genuinely recycling on a regular basis, it would not be unreasonable to expect the national recycling and composting rate to be higher than the rates achieved in recent years. Can this apparent gap between what people say they do and what they actually do be explained? A number of factors seem relevant. The first concerns the governance and management of waste in Scotland. As outlined in Chapter 2, each of Scotland's thirty-two local authorities operates its own local waste management system, within a regulatory framework monitored by SEPA and the policies of the current Scottish Government. This has resulted in thirty-two semi-autonomous approaches to waste management existing, each with its own procedures and frequencies of recycling collections and types of materials accepted for recycling locally. Thus, how local authorities 'count' waste and recycling differs across the country, which should account for at least some of the variation in the regulator's estimates.

A further explanation relates to how households participate in recycling. Not all waste presented for recycling gets recycled. Official data published by SEPA shows that around eleven percent of domestic waste collected for recycling in the 2005/2006 reporting year was rejected as either contaminated or not appropriate for the local recycling service on offer (SEPA 2007). These rejected materials were treated as residual waste and either sent to landfill or incinerated. However, as far as the householder is concerned they have 'participated'. A third point relates to some household's claiming to recycle when actually they do not. While it is undoubtedly the case that many people are not recycling the maximum they possibly could, because for example other events in daily life take priority; there is also a general tendency in survey research for certain questions to be answered in a socially desirable way (Bryman 2001; Field 2005). This can result in answers being provided

that are based on what the respondent thinks is the most socially acceptable answer, rather than their real view or reported behaviour. This is an unwanted but unfortunately unavoidable feature of survey research that can affect the reliability and trustworthiness of findings.

Despite people being more likely to claim to recycle, the net gains for increasing the national recycling and composting rate have, at best, been modest. The difficulties of increasing Scotland's recycling rate have been recognised for some time (Audit Scotland 2010). For instance, while the 2010 EU landfill target was met by Scottish councils, we saw in Figure 1.1 on page 3 that the national recycling target of forty percent was not met, with only thirty-seven percent of Scottish waste being recycled or composted in 2009/10. This has been identified as a concern because if councils have been finding it difficult to meet the forty- percent recycling target, it is not clear how the fifty percent by 2013, sixty percent by 2020 and seventy percent by 2025 recycling and composting targets will be achieved. As a result, householder engagement with material consumption and waste disposal options has emerged as a policy priority for waste stakeholders, decision-makers and campaigners in Scotland. However as discussed in Chapter 2, a key problem with this is that environmental problems in most industrialised nations are usually framed as being caused and best resolved at the level of the individual (Shove 2003; Southerton et al. 2004; Shove 2010; Spaargaren 2011). This self-perpetuating and reproducing dominant paradigm that draws particularly on cognitive psychology and behavioural economics is evident across government policy statements, legislation and published material, as well as the education and campaigning materials of NGOs aiming to reduce the amounts of waste being sent to landfill by promoting recycling. Recent examples of this include the *Zero Waste Strategy* (Scottish Government 2010) and the *Sort It* campaign (Zero Waste Scotland 2011), which both aim to reduce waste and increase recycling through initiatives and projects directed predominantly at the individual in the home.

This tendency for stakeholders to focus most attention on individuals and their families is brought into even sharper focus when the volumes of municipal waste

generated in the country are compared to those of the commercial and industrial sectors. According to SEPA (2007), of the 22 million tonnes of controlled waste arising in 2005/2006, household waste accounted for just thirteen percent (2.89 million tonnes), but commercial, industrial, construction/demolition and agricultural waste accounted for the other eighty-seven percent (19.33 million tonnes). The fact that domestic waste accounts for just over one-seventh of the waste produced in Scotland is relevant when assessing the central message that the waste burden is an individual problem to be solved at the point of individual consumption and disposal options, because the largest generators of waste are generally missing from the debate and thereby free to continue their unsustainable practices. This thesis is a direct response to this point, which also provides the backdrop to the research. In the next section some preliminary descriptive findings to emerge from analysis of the SHS are presented. These are provided to introduce and describe variables in the survey identified as potentially relevant for understanding domestic recycling practice.

4.2 Recycling in Scotland, a Descriptive Beginning

In this section some initial statistical findings to emerge in Phase One of the research design are presented. These descriptive analyses were used to identify variables in the SHS that could be potentially useful for understanding claimed recycling in Scotland. The background material and literature review discussed in Chapter 2 and the review of items available in the survey discussed in Chapter 3 resulted in nineteen variables[11] being identified or derived from other survey items. The analysis presented here involved screening each potential independent variable (summarised in Table 3.3 on page 69) alone, and in relation to a recycling outcome variable (summarised in Table 3.2 on page 68). In addition to helping classify the shape and character of the data in each variable, the descriptive analyses also helped evaluate

[11] Other factors beyond these nineteen variables are also likely to be relevant for understanding environmental behaviour. However an unavoidable limitation of secondary data analysis is that the analyst has no control over the items included in the survey. Phase Two of this study attempts to fill in some of these gaps by exploring additional dimensions of the phenomenon.

the likely usefulness of each independent variable for answering the research questions.

4.2.1 Descriptive Analyses

The initial descriptive analyses involved assessing the relationship between the dependent and independent variables using the frequency and crosstabulation commands in SPSS. Seventeen of the predictor variables were statistically significant ($p = < .001$) using Chi-square tests of independence and were therefore considered to be associated with the outcome[12]. Two of the variables were not statistically significant: *presence of children in the household* (p=.230) and *mean age group of children* (p=.145). Both variables were removed from further statistical analysis[13]. For ease of interpretation and presentation of the findings, the independent variables were grouped into three analytical categories: (1) characteristics of the household; (2) characteristics of a household reference person; and (3) indicators of infrastructure and geographic location. This research assumes that together the variables contained in these three analytic categories will highlight social and structural dimensions of domestic recycling practice in Scotland. The descriptive statistics were tabulated by analytical category. These are presented beginning on page 88 with comments on the main patterns and findings to emerge, as a way of introducing the variables that were considered for inclusion in the multivariate analysis that follows.

Characteristics of the Household

The first analytical category of potential explanatory variables comprised six independent variables (*household size, type, working status, income band, housing*

[12] The local authority independent variable was statistically associated with the outcome ($p = < .001$), however it is not included in the descriptive analyses discussed in this section because it is an overly complex variable with thirty-two separate categories – the local authority region variable is discussed in its place.

[13] It had been hypothesised in this research that having school-aged children in the home would likely to be associated with taking environmental action, given the effort and resources spent on 'greening' children through initiatives like the Eco-Schools programme. However, the statistical non-significance of these two variables seemed to contradict this view. This has implications for green-education if there is little evidence of green-knowledge transferring into the home. But this is speculative and is something that is returned to in Chapter 6 when 'people's talk' of recycling is discussed further.

tenure & access to a private vehicle). These helped account for structural dimensions of households in relation to the outcome variable. The descriptive findings of this category of variables are presented in the first part of Table 4.1 on page 88 and show that whether someone lives alone or with others is relevant for understanding propensity to recycle in Scotland. Those who live alone appear less likely to claim to recycle than those living with other people. The data in this category also indicates that claimed recycling behaviour is differentiated by wealth, with affluent respondents being more likely to claim to recycle, than those at the other end of affluence scales.

Characteristics of the Household Reference Person

The second analytical category contained variables measuring socio-demographic characteristics of the household reference person, which is the highest income householder in the SHS. This analytical category comprised six socio-demographic or situational variables (*age group, educational attainment, sex, ethnicity, economic status & occupational class*). The initial findings of this analytical category are also presented in Table 4.1 and show that across a range of dimensions respondents participate in recycling differently. In particular, households headed by 'older' people appeared to be more likely to claim to recycle than those headed by 'younger' people. In addition, households headed by men were marginally more likely to claim to recycle than those headed by women, a finding that on the face of it seems to contradict Oates and McDonald's (2006) claim that: *'recycling is more pink than blue'* (p.427). Similarly, households crudely identified as having a 'white' ethnic background appeared to be more likely than 'non-white' households to claim the same. The preliminary analysis also indicated the prevalence of social class effects. Across a range of proxies and indicators of social class, households from 'higher' social class categories seemed to be more likely to claim to participate than those in 'lower' categories.

Indicators of Infrastructure and Geographic Location

The final analytical category of potential independent variables helped account for indicators of infrastructure and geographic location. This category comprised four

variables (*property type, service provision, urban/rural indicator & local authority regional indicator*). The findings summarised in the final part of Table 4.1 suggest that infrastructure is an important factor in explaining recycling practice. Here the type of property people live in and access to a good recycling service were identified as relevant; as was where a person lives. Those living in small towns and rural areas seemed to be more likely to claim to recycle than those living in urban areas; a pattern indicated too in the local authority region variable.

Summary of Descriptive Analyses

The discussion of the initial descriptive analyses presented in this sub-section was kept intentionally brief. It was provided merely as an introduction to the variables identified in the survey as potentially being able to reveal the social and structural dimensions of claimed recycling in Scotland. Across the three analytical categories the analysis revealed that households' participation in domestic recycling seems to be implicated in and influenced by a number of factors that are internal and external to the household. The next section considers these factors further by describing and evaluating the variables for their suitability for inclusion in multivariate logistic regression modelling.

Table 4.1 Descriptive Statistics by Analytical Category

	Proportion Claiming to Recycle	***Unweighted Base***
Household Characteristics		
Household size		
One	62%	*18,742*
Two	73%	*20,285*
Three	70%	*8,573*
Four	75%	*7,157*
Five+	67%	*2,916*
Household type		
Single adult	57%	*9,297*
Small adult	71%	*9,749*
Single parent	57%	*3,250*
Small family	72%	*7,865*
Large family	72%	*3,845*

Large adult	75%	*5,442*
Older smaller	79%	*8,780*
Single pensioner	67%	*9,445*
Household working status		
Single working adult	63%	*9,512*
Non-working single	60%	*16,345*
Working couple	76%	*16,495*
Couple, one works	75%	*6,923*
Couple, neither works	76%	*8,398*
Household Income band (net annual)		
£0-£7,000	60%	*6,437*
£7,001-£14,000	64%	*17,383*
£14,001-£21,000	68%	*11,422*
£21,001-£28,000	74%	*8,136*
£28,001-£35,000	77%	*5,779*
£35,001-£45,000	82%	*3,878*
£45,001-£65,000	85%	*1,924*
£65,001+	86%	*609*
Housing tenure		
Owned outright	80%	*16,977*
Mortgaged	75%	*20,965*
Private rent	53%	*14,615*
Social rent	58%	*3,953*
Other	62%	*1,163*
Access to a private car		
Yes	76%	*39,341*
No	55%	*18,331*

Household Reference Person

Age group		
Under-18	36%	*155*
19-29	53%	*5,328*
30-44	67%	*15,782*
45-59	73%	*16,022*
60-74	74%	*12,949*
75+	69%	*7,437*
Educational attainment		
None	60%	*10,308*
O-level/S-grade	63%	*7,105*
A-level/H-grade	68%	*7,988*
HNC/D	71%	*3,767*
Degree/Professional	79%	*9,081*
Sex		
Male	71%	*34,450*
Female	67%	*23,223*
Ethnicity		
White	69%	*56,794*
Non-white	53%	*862*

Economic status		
Working	72%	*31,756*
Retired	72%	*17,445*
Inactive	53%	*7,206*
Education or training	52%	*1,064*
Other	54%	*202*
Occupational Class		
I	83%	*2,984*
II	80%	*9,470*
III	71%	*2,566*
IV	76%	*2,354*
V	73%	*4,118*
VI	66%	*4,047*
VII	67%	*3,801*
VIII	71%	*83*
Infrastructure & Geographic Location		
Property type		
House	77%	*38,818*
Flat or maisonette	54%	*18,631*
Other	58%	*223*
Recycling service provision		
Poor	59%	*13,788*
Fair	*67%*	*15,627*
Good	75%	*28,258*
Urban / rural indicator		
Urban	67%	*37,379*
Small towns	76%	*8564*
Rural	74%	*11,725*
Local authority region		
Edinburgh	71%	*4,813*
Glasgow	50%	*6,080*
Fife	85%	*3,996*
North Lanarkshire	68%	*3,342*
South Lanarkshire	64%	*2,986*
Highlands & Islands	68%	*7,804*
Grampian	72%	*4,611*
Tayside	73%	*4,116*
Central	78%	*3,842*
Dunbartonshire	74%	*1,954*
Renfrewshire & Inverclyde	61%	*3,847*
Ayrshire	71%	*3,772*
Lothian	77%	*3,742*
Southern Scotland	74%	*2,768*

Source: Scottish Household Survey 2003-2006

4.3 Binary Logistic Regression Analysis

In the preceding section, sixteen out of seventeen potential independent variables falling into three analytical categories were described. Each was identified as potentially helping account for the social and structural dimensions of claimed recycling behaviour in Scotland. In this next section the descriptive analyses introduced above are extended, by building a binary logistic regression model that could identify the factors most likely to influence whether a household would claim to participate in recycling. In the discussion that follows, the main principles of binary logistic regression are outlined.

4.3.1 Multivariate Analysis

The purpose of multivariate analysis is to construct a model that can describe the relationship between a single outcome variable and a set of predicting variables (Hosmer & Lemeshow 1989). A number of different techniques are available. However, when a dependent variable has a binary outcome a non-linear response results that violates the assumptions of conventional linear regression (Field 2005). When an outcome has a dichotomous, non-linear response, logistic regression has been proposed as a way of modelling the relationship between an outcome and a set of predicting covariates (Hosmer & Lemeshow 1989). In addition to being able to handle binary outcomes, logistic regression has the added benefit of being able to model predictors with categorical responses (Agresti 2002). This makes it a particularly attractive research technique for social researchers who are often dealing with discrete categories of phenomena rather than absolute numerical values.

The main difference between linear and logistic regression is that the former seeks to predict the *value* of a variable from a set of predicting variables, in a linear relationship; the latter seeks to predict the *probability* of an event occurring given the known values of the covariates (Field 2005: 219-220). Because of logistic regression's ability to deal with non-linearity, the relationship between the dependent

and independent variables is not expressed as a best-fitting straight line; rather it takes an S-shape (Hair et al. 2009). But despite these differences, once the underlying assumptions have been accounted for, the procedures of linear and logistic regression are generally similar. In its simplest form, with only one predictor variable included, the logistic regression equation takes the form in Equation 1:

$$P(Y) = \frac{1}{1 + e^{-(b_0 + b_1 X_1 + \varepsilon_i)}} \qquad \text{(Equation 1)}$$

Where:
- $P(Y)$ = the probability of Y occurring
- e = the base of the natural logarithms
- b_0 = the constant
- X_1 = the predictor variable
- b_1 = the coefficient for the predictor
- ε = the residual term

As with generalised linear regression, the simple logistic regression equation with only one predictor variable included can be extended to include several predictors (Field 2005). This multivariate logistic regression equation takes the form in Equation 2:

$$P(Y) = \frac{1}{1 + e^{-(b_0 + b_1 X_1 + b_2 X_2 + \cdots + b_n X_n + \varepsilon_i)}} \qquad \text{(Equation 2)}$$

To avoid violating the assumption of linearity, the logistic regression equation in Equation 2 expresses the multiple linear regression equation in logarithmic terms. By transforming the data using logarithmic transformations, the form of the relationship is treated as linear whilst leaving the relationship itself non-linear. The form of the equation can be expressed in a number of ways, but the one expressed above is the probability of Y occurring. The benefit of this is that the value resulting from the equation is a probability ranging from 0 to 1. A value close to 0 means Y is very unlikely to occur and a value close to 1 means Y is very likely to occur (Field 2005).

4.3.2 Model Building Strategy

Logistic regression modelling can be used for either confirmatory or exploratory research. Confirmatory approaches try to confirm or refute theoretical propositions, exploratory ones search for clues as to the dependence structure of the relationships between variables (Agresti 2002: 212). Regardless of the research strategy however, when there are many predictors available it is not usually desirable to include them all at the same time in a model. This is because the more variables entered into the equation the greater the estimated standard errors will be and the more the model will depend on the observed data, causing numerically unstable results that are difficult to interpret.

In order to build robust statistical models that fit the data well, in this research detailed guidance in the literature was followed to aid variable selection and the evaluation of the fit of the model to the data (Hosmer & Lemeshow 1989). The aim of regression models is to explain as much of the variability in the outcome as possible, but without over-fitting the data. While Agresti (2002) suggests that it is probably unrealistic for researchers to ever hope to find a 'true' model for a dataset, constructed models should be: *'[…] smoothing rather than over-fitting'* (p.211). This implies a pragmatic approach should be taken to analysis, which is: *'[…] part science, part statistical methods and part experience and common sense'* (Hosmer & Lemeshow (1989: 82). The next section discusses the approach to modelling taken in this research. It begins with the pre-modelling checks carried out to identify a set of scientifically relevant variables for inclusion in the regression equation and ends with a description of the final fitted model.

Pre-modelling Checks

As described previously, the literature review and preliminary descriptive analyses identified seventeen statistically significant independent variables in the SHS as potentially suitable for inclusion in the logistic regression equation. Each individual predictor was screened on its own and in relation to the outcome variable, to check

the shape and character of the data and to ensure that the assumptions of the binary logistic regression procedure would not be violated. Statistical diagnostics revealed: (1) there was a good ratio of cases to variables and because of the large sample size (n=57,903), no categories of the covariates had low cell counts[14]; (2) two of the variables had more than five percent of values missing[15] (*occupational class* (38%) and *educational attainment* (34%)), which was classified as 'non-ignorable' missing data and would need to be investigated further (this is discussed below); (3) univariate analyses[16] revealed one variable (*occupational class*) was not statistically associated with the outcome variable (p=.863), so was removed from analysis; (4) multicollinearity[17] was identified among four variables (*household type, working status, economic status & access to a private vehicle*). All of these were highly associated with other independent variables, so were removed from further analysis. Also removed were three variables (*recycling service provision, local authority & region*) that were near-perfectly associated with one another. As these were acting as proxies for each other, they were removed from the analysis and the *urban/rural indicator* retained to account for any geographic differences between cases (see Appendix 9 for more information on multicollinearity).

On completion of the pre-modelling statistical checks, one dependent variable (*household claims to recycle*); and nine independent variables (*household size, property type, housing tenure, age group, sex, ethnicity, education, income band &*

[14] A good ratio of cases to variables involves making sure there are sufficient cases in each category of the covariates included in the model. While this is not usually a problem when the sample is very large it can be problematic when samples are smaller, causing large parameter estimates and inflated standard errors impacting the reliability of the model. Tabachnick and Fidell (2007) recommend when low frequencies occur in categories of variables, they should be collapsed or deleted; and if this is not possible or does not make sense the entire variable should be considered for exclusion.

[15] Missing data can be problematic for modelling because reduced sample sizes can distort results due to any increased sample bias (Carpenter & Kenward n.d.). Reasons for data being missing vary. Mechanical and systematic error can account for some missing-ness, but if the missing data is following a pattern or some groups are more reluctant to divulge certain information, this is classified as 'non-ignorable' and should be investigated further.

[16] Univariate analysis involved fitting one logistic regression model to the data when it contained only one variable. Any variables with a p-value less than .25 are retained for further analysis. Higher p-values are used for variable selection in regression models because traditional critical levels (.05, .01 or .001) tend to be too stringent and can result in relevant variables being excluded from analysis when in fact they are associated with the outcome (Hosmer & Lemeshow 1989: 86).

[17] Multicollinearity describes correlations or associations between explanatory variables. Multivariate models are sensitive to these because when variables are highly correlated, they do not both need to be included as they are likely measuring the same variability in the outcome.

urban/rural indicator) had been identified as meeting the assumptions of binary logistic regression and therefore retained for further analysis as likely relevant for understanding claimed recycling behaviour in Scotland.

Variable Selection and Analytical Procedure

In this section the variable selection and analytical approach taken to modelling the data are discussed. All nine of the independent variables were categorical. Four had an *ordinal* level of measurement (*household size, age group, education & income bands*), and five had a *nominal* level of measurement (*property type, housing tenure, sex, ethnicity & urban/rural indicator*).

To solve problems of linearity, SPSS automatically creates dummy variables for each category of the independent variables flagged as categorical. These are summarised in Table 4.2. For each dummy variable, whichever first or last category contains most cases is selected as a reference category. The largest category is used because it will usually result in smaller standard errors and confidence intervals being estimated, thereby increasing the precision of the regression coefficients. During the logistic regression analysis, the odds ratio for each category of an independent variable is then compared to this reference group.

Table 4.2 Descriptions of Dummy Variables

Analytical category	Variables	Coding	Category description
Household characteristics	*Household size*	size	One-person household*
		size(1)	Two-person household
		size(2)	Three-person household
		size(3)	Four-person household
		size(4)	Five-person+ household
	Housing tenure	new_property	Owned outright*
		new_property(1)	Mortgaged
		new_property(2)	Private rent
		new_property(3)	Social rent
		new_property(4)	Other
	Income bands	income_bands	£0-£7,000*
		income_bands(1)	£7,001-£14,000
		income_bands(2)	£14,001-£21,000
		income_bands(3)	£21,001-£28,000

		income_bands(4)	£28,001-£35,000
		income_bands(5)	£35,001-£45,000
		income_bands(6)	£45,001-£65,000
		income_bands(7)	£65,001+
Household reference person	*Age group*	new_age	Under-18
		new_age(1)	19-29
		new_age(2)	30-44
		new_age(3)	45-59
		new_age(4)	60-74
		new_age(5)	75+*
	Sex	sex	Male*
		sex(1)	Female
	Ethnicity	ethnicity	White*
		ethnicity(1)	Non-white
	Education	new_hedqual	None*
		new_hedqual(1)	O-level/S-grade
		new_hedqual(2)	A-level/H-grade
		new_hedqual(3)	HNC/D
		new_hedqual(4)	Degree/Professional
Infrastructure & geography	*Property type*	new_property	House*
		new_property(1)	Flat or maisonette
		new_property(2)	Other
	Urban/rural	new_urbanrural	Urban*
		new_urbanrural(1)	Small towns
		new_urbanrural(2)	Rural

Notes:

* Reference category

Multivariate modelling tests the associations between the covariates included in the equation, after accounting for the other variables included in the model. As suggested in the previous section, it is rarely desirable to include all known variables in a model. Therefore to select the 'best' combination of variables in the final model that explains the maximum variation as possible in the outcome, an analytical procedure is needed to aid the selection and rejection of variables. The main procedures are based on different analytic philosophies; these are forced-entry or stepwise (forward/backward) approaches. Deciding on criterion for retaining or rejecting variables in a model depends upon researcher preference and the research purpose. Taking an unsophisticated approach, such as entering all potential variables into a

model regardless of any univariate analyses, is likely to yield numerically unstable models (Hosmer & Lemeshow 1989). Similarly, mechanical stepwise procedures have been shown to be unreliable because they can lead to variables being accepted or rejected from models based on statistical criteria alone. The danger of this is that theoretically implausible models might get constructed that include 'noise variables' – factors that could possibly, but not plausibly, affect the dependent variable (Hosmer & Lemeshow 2000: 96). An alternative approach that yields the most reliable models, are those where the analyst critically scrutinises the model statistics and systematically evaluates the effect of including a variable in the model. As discussed previously, in this research a sub-set of nine scientifically relevant variables had been identified as relevant during univariate analyses. These were simultaneously placed into the logistic regression equation using a forced-entry approach, and the fit of the model assessed after they had all been included.

4.3.3 Multivariate Binary Logistic Regression

Binary logistic regression enables the prediction of which two categories of an outcome variable a case is likely to belong to, given other known information about that case (Field 2005). In this research the analysis sought to identify the likely predictors of one binary outcome: *whether a household in Scotland claimed to recycle* (coded 0=No, 1=Yes). The analysis is presented as a logit – or the natural log of the odds ratio. This is a way of representing the probability that an event does occur to the probability that it does not occur. Odds ratios are useful because they provide an estimate with confidence intervals of the relationship between variables; after all other variables have been entered into the equation. In addition, they are attractive because they remain the same no matter how the data is arranged in a table (Bland & Altman 2000). The odds ratio is interpreted as: increasing the logit (and the odds of the event occurring) when they are greater than 1; decreasing the logit (and the odds of the event occurring) when they are less than 1; and having no effect on the outcome when they are equal to 1.

The Fitted Logistic Regression Model

In this research a baseline model was fitted to the dataset using the BINARY LOGISTIC command in SPSS. The initial model consisted of one binary outcome variable and nine predictor variables. The baseline model is presented below in Table 4.3.

The combined dataset included data from the 2003, 2004, 2005 and 2006 releases of the SHS, giving an overall sample size of 57,903 cases. Thirty-six percent of the sample had missing values on the predictor variables. These cases were automatically deleted by SPSS using listwise deletion, leaving sixty-four percent of the sample available for analysis (n=37,163). The missing data is discussed further below. A test of the full model with all nine covariates included, against a constant-only model was statistically significant (p = < .001). The model statistics indicate that, as a set, the variables included in the equation reliably distinguished between households that did claim to have recycled something in the last month and those that did not. The Hosmer and Lemeshow goodness-of-fit test confirmed improvement in the model fit after the predictors were included because a non-significant goodness-of-fit test shows that the model does not differ significantly from the observed data and is likely to be predicting real-world data fairly well. Classification of cases was less impressive however, with ninety percent of cases that did recycle and thirty percent of cases that did not recycle being correctly classified; giving an overall success rate of seventy-one percent of cases being correctly classified. The variance explained by the predictors in the model was also unimpressive using Cox & Snell and Nagelkerke pseudo-R^2 statistics, accounting for only between ten and fourteen percent of the variance in the outcome. Both of these measures are analogous to R^2 in linear regression, which researchers can use as a rough guide logistic regression to the variance being explained by the predictors included in the model (Field 2005). However Hosmer and Lemeshow (2000: 167) have pointed out that a low value of R^2 is 'the norm' in logistic regression, which is problematic for reporting their values. They recommend instead assessing the fit of the model using goodness-of-fit tests.

Table 4.3 Results of the Logistic Regression Analysis

Baseline Model	*βeta (SE)*	Wald's χ^2	*df*	*p*	95% CI for *Exp(β)* Lower	*Exp(β)* Odds Ratio	Upper
Constant	.493 (.203)	5.872	1	.015		**1.637**	
Household size (reference: one-person)		30.741	4	.000			
Two-person	.140 (.033)	18.305	1	.000	1.079	**1.150**	1.227
Three-person	.139 (.039)	12.793	1	.000	1.065	**1.149**	1.240
Four-person	.215 (.044)	24.148	1	.000	1.138	**1.240**	1.351
Five-person+	.077 (.057)	1.816	1	.178	.966	**1.080**	1.208
Property type (ref: house)		563.386	2	.000			
Flat or maisonette	-.679 (.029)	561.780	1	.000	.480	**.507**	.537
Other property type	-.548 (.223)	6.070	1	.014	.374	**.578**	.894
Housing tenure (ref: owned outright)		234.943	4	.000			
Mortgaged	-.254 (.039)	42.606	1	.000	.719	**.776**	.837
Social rent	-.621 (.042)	217.232	1	.000	.495	**.538**	.584
Private rent	-.376 (.053)	49.549	1	.000	.618	**.687**	.762
Other tenure	-.486 (.091)	28.588	1	.000	.515	**.615**	.735
Age group (ref: 75+ age group)		260.226	5	.000			
<18 age group	-.866 (.258)	11.250	1	.001	.254	**.421**	.698
19-29 age group	-.655 (.181)	13.139	1	.000	.364	**.519**	.740
30-44 age group	-.412 (.179)	5.283	1	.022	.466	**.663**	.941
45-59 age group	-.146 (.179)	.666	1	.414	.609	**.864**	1.227
60-74 age group	.088 (.180)	.240	1	.624	.767	**1.092**	1.556
Sex (ref: male vs. female)	.100 (.026)	15.061	1	.000	1.051	**1.105**	1.163
Ethnicity (ref: white vs. non-white)	.465 (.087)	28.444	1	.000	1.342	**1.592**	1.889
Education (ref: no qualifications)		376.550	4	.000			
O-level/S-grade	.166 (.036)	21.566	1	.000	1.101	**1.180**	1.266
A-level/H-grade	.303 (.036)	72.108	1	.000	1.263	**1.354**	1.453
HNC/HND	.428 (.046)	86.233	1	.000	1.402	**1.534**	1.679
Degree/professional qualifications	.746 (.040)	352.216	1	.000	1.951	**2.109**	2.280
Income band (ref: £0-£7,000)		111.895	7	.000			
£7,001-£14,000	.086 (.044)	3.775	1	.052	.999	**1.090**	1.188
£14,001-£21,000	.188 (.048)	15.540	1	.000	1.099	**1.207**	1.325
£21,001 -£28,000	.295 (.054)	29.939	1	.000	1.209	**1.343**	1.493
£28,001-£35,000	.321 (.059)	29.454	1	.000	1.228	**1.379**	1.549
£35,001-£45,000	.535 (.068)	61.538	1	.000	1.493	**1.707**	1.950
£45,001-£65,000	.686 (.088)	60.783	1	.000	1.671	**1.985**	2.359
£65,001+	.740 (.140)	28.019	1	.000	1.594	**2.097**	2.758
Urban/rural (ref: urban areas)		74.366	2	.000			
Small town	.279 (.037)	55.536	1	.000	1.228	**1.322**	1.423
Rural areas	-.095 (.034)	7.721	1	.005	.851	**.910**	.972

Notes: Scottish Household Survey (2003 to 2006). Overall sample size: 57,903 cases (*unweighted*), cases included in analysis: 37,163 cases (*unweighted*). Model χ^2:3993.315, d.f. 30, p = < .001. Likelihood ratio test: 7986.603. Hosmer & Lemeshow goodness-of-fit test: 13.903, d.f. 8, p=.084. R^2: .102 (Cox & Snell), .143 (Nagelkerke).

The results in Table 4.3 show the estimates of the probability that a case falls into a certain category. This is provided by the regression coefficients (labelled *βeta*), which has an estimated standard error (labelled *SE*). The *βeta* values are used in the logistic regression equation to establish the change in the outcome resulting from a unit change in each predictor or category of a predictor. In logistic regression these represent a change in the probability of the change in the odds, while holding all the other variables constant. While the change in the odds can be difficult to interpret (Bland & Altman 2000), SPSS provides the odds ratio for the probability (labelled *Exp β*), along with a ninety-five percent confidence interval (labelled *95% CI*), which are the confidence limits that we can expect the population value of the odds ratio to lie between. Though there is always a five percent chance that the sample could give a confidence interval that misses the true value. The coefficients included in the fitted model are discussed further below.

Model Diagnostics

In this sub-section the model diagnostics checked after model fit are discussed. These included: residuals to isolate points the model did not fit very well; collinearity between the predictor variables; the missing data; and interactions between the covariates included in the equation.

Residuals and Collinearity

Residuals are the difference between the values the regression model predicts for a case and the value observed in the data (Field 2005). These are used to check how well the final model fits the observed data. In this research, the following basic residuals were consulted: Cook's distance, leverage statistics, standardized residuals and DFBeta values. All four checks were within recommended parameters[18].

The covariates included in the logistic regression model had been assessed for multicollinearity prior to model fit (see Section 4.3.2). This was confirmed post-

[18] Residuals interpretation showed that no value of Cook's distance exceeded 1; none of the leverage statistics exceeded the expected value; less than 5% of cases had absolute standardized residuals values above 2 and no more than 1% had absolute values above 2.5; and none of the DFBeta values for the predictors included in the model had an absolute value greater than 1.

model fit by examining the Tolerance and Variance Inflation Factor (VIF) values generated by SPSS, which showed no issues of collinearity impacting the model.

Missing Data

In Section 4.3.2 the missing data was described. Here it was shown that thirty-six percent of cases had missing values on the predictor variables and were therefore excluded from the analysis using listwise deletion. Each covariate was evaluated to identify any patterns to the missing-ness. This analysis suggested that most of the missing values related to the educational attainment variable, which 'older' people had been less likely to answer in the survey. To assess the effect of the missing data on the model, the model was refitted to the middle seventy-five percent of ages in the survey (the 35-45, 46-55 & 56-63 age groups). The re-fitted model had a reduced sample size (n=25,959) and fourteen percent of cases missing. The model was statistically significant (model Chi-square 2562.725, d.f. 27, p = < .001) and marginally more cases were being correctly classified (73% overall). The variance in the outcome explained was unchanged (10-14%), therefore the gains made from restricting the sample to the middle seventy-five percent of ages were minimal and so the original baseline model retained.

Interaction Effects

The final diagnostic check was related to interaction effects. Regression models assume that there is no interaction between variables included in the model. This means that the effect of each covariate on the outcome is the same regardless of the values of the other variables in the equation (Flom & Strauss 2003). An interaction between two variables implies that the effect of one of the variables is not constant over levels of the other. It was speculated in this research that five interaction terms could potentially be affecting the model: (i) *housing tenure by age group of household reference person*; (ii) *education of household reference person by household income band*; (iii) *household size by property type*; (iv) *age group of household reference person by sex of household reference person*; and (v) *ethnicity of household reference person by urban/rural indicator*. To assess for interaction, the baseline model of main effects was refitted and the five interaction terms included in

the model using a backward stepwise[19] method. Four of the five interaction terms were removed from the model, so not considered to be interacting. One interaction term was not removed: *age group of household reference person by sex of household reference person*. The baseline model was refitted with this interaction term included along with the main effect covariates. However the fit of the model was not improved and the variance explained remained unchanged, so the original baseline model retained.

4.4 Interpreting the Odds Ratios

In Section 4.3.3, the fitted logistic regression model suggested that the nine covariates included in the equation were reliably predicting the outcome. In this section the odds ratios presented in Table 4.3 are interpreted to illustrate the relationship between the outcome and predictor variables included in the model. Using the same analytical categories as introduced previously, this section uses the probability that a household will claim to participate in recycling to infer some general statements about the nature of the relationships we could expect to find in the population based on the research findings. This is then used to inform a general discussion of the implications of the model in Section 4.5.

4.4.1 Household Characteristics

When all nine covariates were entered into the equation, the three household characteristic variables (*household size, housing tenure & income band*) remained overall statistically significant ($p = < .001$). This analytical category attempted to account for structural features of Scottish households. Holding all covariates constant, the household size variable showed that households with multiple occupants were slightly more likely to claim to recycle than one-person households: two-person households were 1.08 times more likely, three-persons 1.07 times more

[19] Backwards stepwise begins with all of the covariates included in the model and using a statistical significance cut-off level ($p = .05$), the software tests whether any of the predictors can be removed from the model without having an effect on how well the model fits the observed data.

likely and four-persons 1.14 times more likely (five-person households were not statistically significant). Households that owned their residential property outright were more likely to claim to recycle than any of the other housing tenure groups: they were 1.28 times more likely than those with a mortgage and 1.62 times more likely than those who rent from a private landlord. More striking however was the finding that those who own their property outright were twice as likely to claim to recycle as those living in social housing. A wealth differential was also evident in relation to income. Most of the household income groups were more likely to claim to recycle than those with the lowest annual household income (the £7,001-£14,000 income group was not statistically significant). This was most evident at the margins of the variable, with the odds of those with the highest household income claiming to recycle being more than twice those of the lowest income category.

4.4.2 Socio-demographic Characteristics

The second analytical category accounted for socio-demographic factors of the household reference person. When all of the variables were entered into the equation, the four variables (*age group, sex, ethnicity & education*) were statistically significant ($p = < .001$). The results indicated age effects are relevant for predicting the outcome. Households headed by 'younger' people were less likely to claim to recycle than those headed by 'older' people. The odds of those in the Over-75 age group claiming to recycle were nearly two and a half times the youngest age group (Under-18), they were 1.35 times the odds of the 19-29 age group and 1.06 times the 30-44 age group (the 45-59 and 60-74 age group were not statistically significant). The other variables in this category were also statistically relevant. The odds of households headed by females claiming to recycle were 1.05 times the odds of households headed by males (though note how this is different to the descriptive finding about sex discussed on page 87); and the odds of 'non-white' households were 1.59 times those of 'white' households.

The final statistically significant measure in this analytical category is educational attainment. All cases where the household reference person holds any formal

qualifications were more likely than those with no qualifications to claim to recycle: those with pre-16 educational qualifications were 1.18 times more likely to claim to recycle, those with post-16 educational qualifications were 1.35 times more likely, and those with a HNC or HND were 1.53 times more likely. The biggest difference however was the odds of households headed by someone with a degree, which were more than twice those of households headed by someone with no formal qualifications.

4.4.3 Infrastructure and Location Factors

The two variables (*property type & urban/rural indicator*) in the final analytical category accounted for infrastructure and geographic location factors. Both were statistically significant ($p = < .001$) after the other variables were entered into the equation. The odds of households living in houses claiming to recycle were twice those of households resident in flats/maisonettes and were 1.73 times those living in 'other' property types. The regression analysis also indicated that where someone lives also matters in predicting claimed recycling in Scotland. Those living in small towns were a third more likely than those living in urban areas to claim to recycle, but those living in urban areas were 1.09 times more likely than those in rural ones to claim the same.

4.5 Discussion

The research findings described in this chapter have identified factors likely to influence Scottish households' propensity to claim to recycle. Building on the dependence relationships and probabilities discussed in the previous section, this section evaluates the implications of the model by considering what the findings might mean for understanding better why some households are more likely than others to participate in recycling activity.

Taken together the covariates included in the regression analysis highlighted various internal and external dimensions of domestic recycling that seem to be stratified across various social and structural categories. In particular the model results give support to the idea that domestic recycling is performed within social contexts. When more than two people are present, the findings point toward recycling being a negotiated and transactional task occurring in shared spaces. As such it can be understood as being part of a 'moral economy' (Scanlan 2005; Silverstone et al. 1992). Related to moral norms, the idea of moral economy re-conceptualises households as: *'[…] part of a transactional system, dynamically involved in the public world of the production and exchange of commodities and meanings'* (Silverstone et al. 1992: 19). Mundane routines, like recycling, are implicated in this by because when two or more persons are present, *'transaction costs'* (Collins et al. 2006: 127) emerge as significant, which need to be negotiated.

This leads to practices that stem directly from their social embeddedness being performed hierarchically in everyday life. However this does not occur in a vacuum. Other dimensions are also relevant for understanding recycling practice. Of particular note in this research was a difference across categories of age. It has been noted elsewhere that 'younger' people seem to be more environmentally concerned than 'older' people (Jones & Dunlap 1992). One reading of why this might be the case is the post-material thesis (Inglehart 1977). This asserts that younger generations, born and brought up in times of economic security, are more likely to have a *post*-material value orientation and therefore more likely to act in environmentally-friendly ways (assuming that recycling is an environmentally-friendly behaviour). The modelling did not however support this view, with older generations being more likely to claim to recycle. Obviously a deficit between reported and actual behaviour might be apparent, or it may be related to 'lifecycle' or 'cohort' effects (Greenbaum 1995: 129). This is about groups of people at different stages of life, or belonging to a certain generation, collectively taking group action. This alternative explanation that the data supported, suggested that older cohorts growing up in more frugal times and perhaps committed to 'waste not, want not' values, seem to be more concerned with

responsible stewardship of the environment and therefore reducing their own waste impact.

The results also gave some support to a view that recycling might be differentiated by gender and ethnicity. Supporting research findings elsewhere (Oates & McDonald 2006), the modelling results seemed to suggest that recycling might be gendered; with female household reference persons being more likely to claim to recycle than males; though a number of points about this can be made. First, we need to think carefully about who the females in the survey are. The SHS uses the highest income householder as the household reference person, which is often reported as 'male' for historical and cultural reasons. Other data in the SHS shows that twenty-seven percent of households headed by women have been widowed, compared to six percent of the households headed by men. Given that older people are more likely to claim to recycle than younger ones, this could account for the finding that households headed by (often older and widowed) women are more likely than men to claim to be recycling by virtue of their age rather than their gender. But what about the households headed by men? We know from feminist literature that women traditionally perform most domestic chores (Oakley 1974; Jackson 1999), so any gender difference in recycling as a household chore should, by definition, follow this same pattern. When it does not, this may have more to do with recycling not being a traditional household chore allocated and performed along normal gender-roles. There was also little reason to expect that the ethnic background of households would affect claimed recycling behaviour. In fact evidence elsewhere has suggested that the link between ethnicity and environmental concern might be *spurious* (Kellert 1984, cited in Greenbaum 1995: 139). However, the results here suggested that the odds of 'non-white' households claiming to recycle were greater than those of 'white' households[20]. Clearly a crude dichotomy like this lacks any cultural sensitivity (and it may be a statistical artefact), but taken on face-value, it does point toward cultural values, expressed through material objects and behaviours

[20] It is worth noting here however that 38% of all the 'non-white' respondents in the SHS sample lived in one local authority area: Glasgow City, traditionally one of the worst councils in Scotland for recycling performance. Interestingly however, ethnicity was not a statistically significant predictor of claimed recycling behaviour when recycling was modelled in Glasgow City alone.

(Wallendorf & Reilly 1983), as being relevant for predicting ethnically differentiated recycling activity.

Other more socially structured aspects of recycling practice seem relevant too. A range of covariates included in the baseline model, acting as indicators or proxies of social class were statistically significant. Literature suggests that taken together indicators of social class may help account for why some people are more likely than other to take pro-environmental behaviour (Iyer & Kashyap 2007; Greenbaum 1995). In this research, the odds of households' in 'higher' social classes participating in recycling were greater than the odds of those in 'lower' social classes, whether measured in terms of wealth, property ownership or educational attainment. The educational attainment predictor in particular stood out. Evidence for a link between education and environmental concern and behaviour has been inconclusive, with different research making the case for (Van Liere & Dunlap 1981) and against (Derksen & Gartrell 1993) environmental concern and behaviour increasing or decreasing with education level. However this model provides evidence in support of the view that recycling increases with educational attainment. Given these social class results, it is not surprising then that recycling participation is perceived as the preserve of the middle-class (Holdsworth 2003). This is something that also emerged as relevant in Phase Two of this research, which gets discussed further in Chapter 6.

The findings did not however only identify internal features of households as relevant to understanding differences in claimed recycling practice. The research also pointed toward external factors as being relevant. In particular, the type of property people live in emerged as relevant. In the UK, the 'house' dominates recycling policy discourse so that recycling has become synonymous with terms such as *'kerbside, doorstep and curtilage'* (Crofts et al. 2004: 4). But while this represents well the housing stock in some parts of the UK (for example only around 1 in 5 of the English population live in flats), this does not represent the Scottish case well, where over a third of the population live in flats or maisonettes (GROS 2011). People living in flats traditionally find it harder to participate in recycling schemes because of a lack of storage and/or kerbside services. It is therefore not surprising that we find in this

research flat-dwellers are less likely to claim to recycle than residents living in houses. This is because 'bring-sites' provided by municipal authorities require more motivation and free time to participate fully. Leading on from this, a further external factor identified as relevant in this research relates to where someone lives. We already know from statutory data published by SEPA that there is considerable variation in the recycling performance across Scottish local authorities. SEPA's data indicates that 'mixed' local authorities (councils that include a mixture of urban, rural and suburban areas) seem to be better at recycling than 'urban' and 'rural' ones. The modelling done here gave support to this view, indicating that residents in 'small towns' are more likely to claim to recycle than 'urban' and 'rural' areas. Indeed of the eight local authorities who met the Scottish Government's target of recycling forty percent of municipal waste by 2010 early: seven were designated 'mixed' (*East Ayrshire, West Lothian, Fife, Moray, Stirling, Clackmannanshire and South Ayrshire*); one was 'urban' (*Falkirk*); and no 'rural' council had met the target early (Audit Scotland 2010). This regional variation in recycling practice in Scotland is interesting and because it had direct implications for the conduct of Phase Two of the research is considered further in the next section.

4.6 Regional Variation in Scottish Recycling Practice

In the previous section the dependence relationships and probabilities of Phase One were discussed. The purpose of this was to consider in general terms the internal and external factors influencing Scottish households' propensity to claim to recycle. This has helped account for why some households are more likely than others to participate in recycling. The evidence presented in this chapter has, up to this point, used nationally representative data to show how recycling practice is socially structured and influenced. To consider how this varies geographically, five additional logistic regression models were also fitted to the SHS data, each one specific to a different local authority or region. These are summarised in Table 4.4:

Table 4.4 Overview of the Regional Models

Model Name	Type[1]	Recycling Performance[2]	Sample Size[3]
Baseline Model (Scotland)	-	*Moderate*	*57,903*
City of Edinburgh	Urban	Moderate	4,840
Glasgow City	Urban	Poor	6,124
Fife	Mixed	Good	4,005
South Lanarkshire	Mixed	Good	3,015
Highlands & Islands Region[4]	Rural	Poor	7,810

Notes:

[1] Classification of local authority type using Audit Scotland's definitions.
[2] Local authority recycling performance identified using data available at SEPA.
[3] Unweighted sample sizes in the Scottish Household Survey.
[4] Because of the small sample sizes in rural local authorities Model 6 combined together data from the local authorities that make up the *Scottish Parliament Highlands & Islands Regional List*: *Eilean Siar, Argyll & Bute, Highland, Moray, Orkney and Shetland.* While there are some pockets of urbanisation in this region (notably Inverness), the area is considered on the whole to be rural.

The local authorities/regions for the additional models were chosen after reviewing various sources of data that included the SHS, Scottish Census, SEPA and Audit Scotland. The models were fitted to the data following the same model building strategy described previously. These are summarised in Table 4.5:

Table 4.5 Significant Effects in the Regional Models

	Scotland	Edinburgh	Glasgow	Fife	South Lanarkshire	Highlands & Islands
Size	✓	✓	✓	×	✓	×
Property type	✓	✓	✓	✓	✓	×
Tenure	✓	✓	✓	✓	✓	✓
Age group	✓	✓	✓	✓	-	✓
Sex	✓	✓	×	×	×	✓
Ethnicity	✓	✓	×	-	-	-
Education	✓	✓	✓	×	✓	✓
Income bands	✓	✓	✓	✓	✓	✓
Urban/rural	✓	×	-	×	✓	-
Council indicator	-	-	-	-	-	✓
Number of covariates	9	9	8	8	7	8

Notes: (✓) statistically significant, (×) not statistically significant, (-) not applicable

When looked at comparatively these findings indicate that rather than recycling being performed and experienced uniformly across the country, subtle differences exist with the factors associated with the outcome varying by location. Reasons for this are likely to vary with some explanation being more obvious than others. For example, recycling in Edinburgh and Glasgow not being predicted by an urban/rural indicator is perhaps easy to understand given they are Scotland's two largest and most urban local authorities. But other associations seem more paradoxical, such as ethnicity only being a statistically significant predictor of claimed recycling in Edinburgh, holding all other variables constant.

But despite the subtle differences in significant effects indicated in Table 4.5, it seems fair to suggest that there was little overwhelming evidence to support a view that claimed recycling in Scotland varies substantially or obviously by local authority or region. The test statistics of the regional models summarised in Table 4.6, show very little disparity across the models in terms of the claimed recycling with the variance explained in the outcome remaining below a quarter in all five additional models.

Table 4.6 Model Statistics in the Regional Models

Model	Test of Model Coefficients				H&L Goodness -of-Fit			Variance Explained		Classification of Cases		
	Model χ^2	*df*	*p*	*G*	χ^2	*df*	*p*	R^2_{CS}	R^2_N	*Don't recycle*	*Do Recycle*	*Overall Correct*
Baseline	*3993.315*	*30*	*.000*	*7986.630*	*13.903*	*8*	*.084*	*.102*	*.143*	*29.5%*	*90.3%*	*70.9%*
Edinburgh	526.373	27	.000	1046.746	8.739	8	.365	.143	.203	31.5%	89.5%	72.0%
Glasgow	881.056	27	.000	1762.112	5.948	8	.653	.182	.242	70.0%	67.2%	68.6%
Fife	245.568	26	.000	491.136	8.667	8	.371	.090	.160	4.2%	99.6%	85.9%
S'th L'shire	177.924	23	.000	355.848	12.471	8	.131	.079	.109	28.3%	88.8%	67.2%
Highlands & Islands	278.707	32	.000	557.414	7.606	8	.473	.079	.111	19.9%	93.1%	69.7%

Notes:

χ^2 = Chi-square statistic, *df* = degrees of freedom, *p* = statistical significance, *G* = likelihood ratio test, H&L Goodness-of-Fit = Hosmer & Lemeshow goodness-of-fit test, R^2_{CS} = Cox & Snell pseudo-R^2, R^2_N = Nagelkerke's adjusted- R^2

Given these findings that the overall pattern of claimed recycling remained the same, regardless of council area it was decided to restrict Phase Two of the research to just one area of the country. As described in Chapter 3, the Lothians region area in the east of Scotland was selected as the preferred site for Phase Two of the research.

4.7 Conclusion

This chapter has presented the main findings to emerge from Phase One of this research. It did this in a number of ways. The discussion first outlined the relationship between claimed and reported recycling in Scotland, using various data sources to explain why different stakeholders are interested in recycling as a problem for society. Next some preliminary descriptive analyses were presented to screen and describe variables identified as relevant in the SHS. The main Phase One research findings to emerge from binary logistic regression analysis were then discussed. The aim of this model was to identify those factors most likely associated with households' propensity to claim to recycle. The final section of the chapter extended the logistic regression model to consider how claimed recycling varies geographically in Scotland, the aim of this being to identify a research site suitable for Phase Two of the study.

In concluding this chapter it seems that as municipal recycling rates get harder to meet and legal obligations result in ever stiffer sanctions, policy actors have become increasingly concerned with understanding better what it is about households that mean some are more likely than others to recycle. This study attempts to provide some answers to this by responding sociologically to the tendency within environmental policy discourse to reproduce a dominant paradigm of the individual. By moving the debate away from cognitive and rational-choice explanations, this thesis shows how social and structural factors converge, making environmental concern and action socially embedded. This first data chapter has reported on the explanatory usefulness of nine independent variables typical of cross-sectional surveys, which one might expect to be associated with having a pro-environmental outlook and hence behaviours. However even after constructing a best-fitting model,

much of the variance in the outcome remained unexplained. So clearly there are unaccounted for aspects about how people value the environment and behave towards it that still needs to be accounted for. Given this observation, the thesis now looks beyond *variables* and search for additional explanation in the subjective experience of *cases* as they go about their daily lives.

Chapter 5 Ethics, Values & Environmental Citizenship

> *'Ecologically considered, it is not primarily our verbal statements that are "true" or "false", but rather the kind of relations that we sustain with the rest of nature. A human community that lives in a mutually beneficial relation with the surrounding earth is a community, we might say, that lives in truth'*
>
> David Abram (1996: 264)

5.0 Introduction

In the previous chapter, claimed recycling in Scotland was accounted for using findings to emerge in Phase One of the research. Using data from the Scottish Household Survey, that chapter identified the characteristics of those households most likely to claim they recycle and those that do not. However, we also saw limits to the explanatory usefulness of the analysis. Particularly problematic was the low variance explained by the fitted model; a further difficulty was the survey's inability to account for the subjective daily experience of recycling. In response to these challenges, this thesis aims to use both deductive and inductive forms of knowledge to arrive at a more holistic understanding of recycling in everyday life. In Phase Two of the research design, supporting qualitative data was examined because it is assumed in this research that how people engage in mundane routines stems from their sociality. As we saw in Chapter 3, ten substantive themes emerged in Phase Two. Taken together these illustrate that rather than be an inconsequential feature of contemporary life, waste and how it is generated and disposed of involves a number of factors that shape how people experience and enact the practices involved.

Chapters 5 and 6 are dedicated to discussing these further. They are both based on a proposition that it is the social situatedness of people, acting within the structural constraints of society that determines how practices get enacted. Since recycling is just one of a number of ecological actions people can engage in, understanding how people generally respond to environmental problems is helpful for explaining how they participate in recycling. But rather than see these as just a collection of peoples'

stories, the data presented in these two chapters suggest that they are in fact systematic accounts that reflect broad social processes and structures, which in turn influence behavioural outcomes. The first qualitative chapter initially explores ethics, values and then environmental citizenship as influencing domestic recycling practice and non-practice. This involves problematising ethics and values as motivators of environmental action, and then environmental citizenship as a normative concept, grounded in a person's ecological awareness and commitment. Chapter 6 builds on this discussion by using extracts from the data to show how recycling routines get formed, cultivated and maintained as habitual. By examining how recycling is talked about and ritualised in the home, this final qualitative chapter considers the influence this has on recycling in everyday life.

5.1 Environmental Ethics and Values

The first part of Chapter 5 critically considers the ecological challenges and motivations people face as they go about their daily lives. The discussion begins with the explanatory role of environmental ethics and values, defining what is meant by these terms and recognising their often contentious and unresolved nature. By focusing on values as holding the potential to lead practice, how people talk about the environment is posited as relevant for understanding how values get acted upon and prioritised in everyday situations. But some values are easier to put into practice than others. This involves exploring how value-informed citizenship shapes intrinsic motivations and where knowledge about ecological problems comes from and gets transformed or ignored into particular lifestyle choices.

5.1.1 Problematising Ethics and Values

The role of citizens in environmental discourses is shown by the increased awareness of environmental problems in society (Barr 2008). This is not surprising given the widespread attention in mainstream media (Stein 1972; Dispensa & Brulle 2003; Lester 2010) and public policy outlets (Roberts 2004; Defra 2005; Johnstone & de

Tilly 2006) give to contemporary environmental problems. It was not unexpected then, that the Phase Two data provided plenty of evidence of environmental awareness extending beyond domestic waste and recycling. The most ecologically concerned participants predictably reported most general awareness of ecological problems, but even in households where commitment to taking environmental action was less well established, there was still evidence of broad environmental knowledge.

As illustrated in Chapter 2, the literature suggests that a person's values are implicated in shaping their intrinsic motivations (Kollmuss & Agyeman 2002; Myers 2002; Ajzen & Fishbien 1977, 1980). But what exactly is meant by values and ethics? Emerging from a philosophical tradition, the study of values – or axiology – deals with unavoidable questions about moral standing (Curry 2006). In the literature review chapter, values were defined as being about concepts or beliefs that extend beyond specific situations to guide and evaluate behaviour or events, which can be ordered by importance (Schwartz & Bilsky 1990: 878). As we also saw in that discussion, within social science interest in values stems most from the work of Rokeach (1973) and his lists of instrumental and terminal values (Gatersleben et al. 2010); though other scholars' work, particularly within social psychology, have attempted to extend models of values. These include identifying the guiding principles of life (Schwartz 1992) and the values underlying environmental concern (Stern & Dietz 1994; Stern et al. 1999). Ethics is the realisation of values, achieved by considering the moral standing of entities and the morality of public and private behaviour (Curry 2006). Environmental ethics is associated with human interactions with nature (Attfield 2003). Here actors are re-conceptualised as both the subjects and objects of action. Indeed, in terms of the environment, ethics is about taking: *'[…] full account of the fact that an individual organism, of whatever kind, is embedded in its environment, and gives full weight to this in deliberating about actions that are likely to affect the organism'* (Benson 2000: 11). This is relevant because in this thesis it is assumed that understanding the relationship between people and environment is an ethical problem about whether given behaviour is morally right or wrong.

However, ethics occur in both public and private realms (Curry 2006). Public ethics are able to constrain behaviour because they are enacted socially for the common good of the community. Anecdotal evidence of this in narratives collected in this research included Robbie, a resident of East Lothian:

> *I think it's gone through the faddish-phase, perhaps 10/15 years ago that was the thing. Everybody wanted to do, you know, environmental consciousness and being green. But now it's kind of embedded and more and more people just see it as part of their routine and what they do, rather than seeing it as, you know, some sort of fad or temporary thing. It's definitely part of the long term.*

Having said that, it would be wrong to assert that how environmental ethics get practised in everyday life is just about the public display of ethically desirable actions. Private ethics also seem relevant, acting as a constraining or mediating force on some people's behaviour, as discussed in this research by Gordon from Edinburgh:

> *Though another motivational factor is that it makes us feel good […] we are proud of the fact that we do recycle and for me that is a motivational factor. I get a kick out of doing this, because it's one of the very small things I can do.*

The qualitative data collected and analysed in this research indicated that ecological ethics and values operate on a sliding scale, or continuum, ranging from the most environmentally concerned actors to the least concerned. In the next section, this continuum is examined more closely and proposed as an ecological typology. Informed and inspired by various scholars' work (Naess 1973; Sylvan & Bennett 1994; Curry 2006; Dobson & Bell 2006), in this discussion typologies are considered for their explanatory usefulness in understanding environmental action. Because they are based on people's 'talk' of nature and environmental problems, it is assumed here that they can help reveal how the environment is understood and interpreted into everyday lifestyle choices.

5.1.2 A Continuum of Ecological Ethics and Values

A reading of the collected narratives in Phase Two of this research indicated support for the idea that people can be loosely categorised by ecological type and plotted onto a continuum of environmental ethics and values. The use of typologies has a long history in sociology, for example: Parsons (1937), Capecchi (1968), Merton (1968), Becker (1950), Inglehart (1977) and Dunlap et al. (2000). In this research, ecological types were methodologically formulated as being akin to 'ideal types' in a Weberian sense (Hekman 1983). Rather than attempt to group people into rigid categories the collected narratives indicated the negotiable and transient nature of environmental ethics and values. The main features and 'typical' traits of each category is summarised in Table 5.1. This ranges from Dark to Mid to Light Green through to Detached orientations. It is common in the literature for environmental types to be limited to a discussion of Dark-Mid-Light Green Types. In my formulation Detached actors are included as a distinct type. These are actors who display obvious disengagement from anthropogenic environmental problems.

Table 5.1 Typical Traits of the Ethics and Values Continuum

Dark Green	Mid Green	Light Green	Detached
Deep, eco-centric ethics	Bio-centric ethics	Shallow, weak anthropocentricism	Strong Anthropocentrism
Intrinsic values	Intermediate values	Instrumental values	Instrumental values
An outlook that is non-anthropocentric and holistic	Somewhere between anthropocentric & eco-centric	Less commitment to environmental citizenship	Environmental problems not anthropogenic
Full consideration of non-humans & eco-systems	Some consideration of non-humans & eco-systems	Indirect consideration of non-humans & eco-systems	No consideration of non-humans & eco-systems
Overt concern for the environment and commitment to action	Environmental concern transactional and negotiated	Goal-oriented forms of action and participation that are convenient	Unable to relate everyday lifestyle choices to eco-concerns

Sources: Naess (1973), Sylvan & Bennett (1994), Curry (2006), Dobson & Bell (2006)

The shared traits and experiences of the collected accounts enabled each participating household to be plotted onto the continuum and comparisons made across cases. Three households were identified as exhibiting typically Dark Green characteristics (Shobna & Robbie, Josh & Gordon, Naomi); eight households were identified as Mid Green (James & Marilyn, Mark & Nancy, Erica, Amy, Sarah, Janet, Jim, Mary); three were identified as Light Green (Archie, Matt, Penny); and one household was identified as Detached (Jack & Louise). The differences and common features of the narratives suggested that the subjectivity of environmental problems does not occur in isolation. However this operates on a sliding scale, allowing actors the freedom to move between and across types without the need for their entire value orientation to be re-organised in response to events in daily life. Understood in this way, the accounts illustrate the ways that 'normal' behaviour varies in response to the challenges faced in everyday life and is not just determined by the rigid categories of a grand typology. Indeed the evidence in the data suggested that while a person's general concern for the environment and propensity to act on those concerns might be grounded in their value orientation, it is an actor's unique social experience that influences how they respond to ecological problems, if at all.

5.1.3 The Utility and Limitations of a 'Ethics and Values' Approach

Being able to characterise people by typical traits has intellectual and practical advantages. The continuum was useful in providing an explanatory framework for unpacking how people talk about nature and environmental problems, understood here to include recycling. However there are methodological issues associated with this, such as avoiding *reifying* (Marshall 1998) the accounts beyond the individual descriptions given by the participants. But rather than conceptualise the narratives as material 'things', in this research the continuum was used as a method of investigation, constructed out of *a priori* reasoning and themes to emerge from the collected narratives.

More than this however, an ethics and values approach also held some practical functionality. Policy actors and decision-makers, who often seek out empirical

evidence to justify decisions and the allocation of resources, have long coveted as desirable, being able to reliably predict behavioural outcomes. Using the language of typologies can help policymakers understand better how different groups of people in society typically act. Problematising values and ethics in this way also assumes that values lead practices, but what about the so-called 'value-action gap'? As we saw in the literature review, this describes instances where people with apparent 'green' values fail to follow through on these into specific actions (Blake 1999; Kollmuss & Agyeman 2002). As Shove (2010) has argued: *'[…] the gap is only mystifying if we suppose that values do (or should) translate in to action'* (p.1276). Advocating a transitions and practices approach, this is a call for a paradigmatic shift away from the language of motivators and barriers dominant in contemporary policy discourse that places most emphasis on the individual. As first introduced in Chapter 2, this thesis responds to this central argument. By accepting transitions and practices as a main unit of analysis, members of society are considered constitutive of co-evolving socio-technical systems, resulting in ethics and values as implicated in the outcome of change, rather than being the drivers of it.

Sociologically, questions about what persons *ought to do* and the *moral standing of entities* is difficult concepts to pin down. This is because values, as abstract principles that underpin beliefs, are often inconsistent and contradictory (Lynd 1967; Bellah et al. 1985) and can vary considerably depending upon the cultural and social context in which they form. Questions also remain unanswered about whether homogenising people by typical behaviour will ever help predict future behaviour. A weak argument against the use of typologies comes from feminist writings, where concern has been raised that typologies may ignore cultural and social diversity (Thiele 1986), rendering invisible certain traits, for instance gender or ethnicity. Here the subjectivity of the actor gets sidelined, who experiences phenomena uniquely by virtue of their social networks, norms, values and structures of society. But despite this type of concern, the evidence in this data gave support to the idea of using ethics and values to frame and explain the different ways people respond to environmental problems.

In this section environmental ethics and values were problematised as being potentially useful for helping explain how concern for the environment and propensity to act on those concerns is structured and experienced in everyday life. This involved critically exploring a proposed typology of environmental ethics and values, which aimed to explain how recycling and other environmental concerns get talked about and experienced in the home. The utility and limitations of such an approach was considered in terms of how values and ethics might lead practices. This point is developed further in the next section through an empirically informed discussion of environmental citizenship, a concept that has been portrayed as being central to encouraging sustainable lifestyles.

5.2 Environmental Citizenship

Ethics and values were discussed in the previous section by considering the role they play in engagement with recycling and other pro-environmental behaviour. In this next one, motivation for performing environmental action is looked at in relation to the concept of environmental citizenship. Defining environmental citizenship as 'normative', involving citizens' rights and obligations toward the environment, this discussion outlines the evidence for what motivates environmental action and inaction. The chapter closes with a discussion of how knowledge about nature and environmental problems gets translated into practices.

Environmental citizenship was defined in Chapter 2. It has been proposed as a helpful concept for illuminating the relationship between people and the rest of nature. Though it is not *a thing* (Dobson & Bell 2006: 4), environmental citizenship nevertheless extends debates about the rights and obligations of people toward the rest of nature (Smith & Pangsapa 2008). Proposed as an alternative to reform or market-based solutions that place the onus on the individual and their behavioural choices, environmental citizenship attempts to provide a different route for achieving sustainability (Dobson & Bell 2006). How this manifests in everyday life is implicated in place, time and social context. In the discussion that follows, how

values and ethics influence motivation for action or a lack of action is discussed further.

5.2.1 Environmental Citizenship as Motivating Action

The data indicated that the motivations lying behind environmental action varied considerably across and between households. Broadly reflecting the typical traits in the ecological ethics and values continuum (see Table 5.1 on page 117), the narratives collected in this research suggested that, in general terms, a person's awareness of environmental problems and their commitment to act on that awareness mirrors their ethics and value orientation. Defined as Dark Green households, Shobna and Robbie, Gordon and Josh and Naomi all demonstrated concern about environmental problems that appeared *prima facie* at least to manifest as a commitment to take personal action. This motivation seemed to stem from a sense of moral responsibility toward nature, translated into specific practices. For example, as Robbie outlined:

> *I think that's probably one of the reasons why we do recycle, and consciously, you know, not using the car more than we have to and using public transport more. But again, yeah, we think as individuals we have an impact and need to assess what it is we are doing and make changes if you can.*

From this extract it would seem that the motivation for action in Robbie's household emerges from an internalised belief that he can alleviate environmental problems by changing everyday routines and practices. This *internal* locus of control (Rotter 1966; Chawla 1998), first introduced in the literature review relates to a belief that one's own actions can effect change and determine rewards in life. In striving to live a more sustainable life, Robbie quite clearly and consciously evaluates his behavioural choices. This is a prime example of why individuals are targeted by policymakers and other stakeholders who try to 'convince' individuals to think about their behavioural choices and make lifestyle changes for the greater environmental-good. Others in this research exhibiting Dark Green values expressed a similar view; though for Naomi there was a definite moral-basis to her environmental action:

> *[…] definitely I want to leave the planet in a better way than it is now and I'll try and do that by educating my children about it and creating a life with them that is just as much fun and full of good things, but without the need for plugging something in or having holidays abroad and stuff […]*

Naomi expresses a particularly dark shade of green that goes further than Robbie, describing her household's environmental action as motivated from a moral response to ecological problems. In searching for a better way of living, not just for her and her children but also future generations, Naomi's account fits with the central principles of the environmental citizen (Dobson & Bell 2006), as well as most universally accepted definitions of sustainable development (WCED 1987). Importantly, being able to comprehend the bigger ecological picture and then relate one's own lifestyle choices to that picture is significant in Naomi's account. Indeed, ecological values shaped by moral stewardship of the environment, expressed through rights and obligations, appear typical of a Dark Green value orientation. For example, as outlined by Josh from Edinburgh, the natural environment is of central importance to his sense of self and identity:

> *There is hardly a day that goes by that I don't think about the environment. And I'm quite a fantasist anyway, I'm always thinking about the end of the world, which you can almost see being a reality; and for me that is very upsetting because we're surrounded by natural beauty that we are slowly killing with our waste and it's not our fault, it's the people that force us to consume.*

There is clearly fatalism in Josh's narrative, demonstrated by the helplessness he expresses at anthropogenic damage to the planet. But also interesting is whom he holds accountable for environmental problems. It is not ordinary people who are to blame for ecological damage because, in Josh's view, they are locked into unsustainable behaviours that have negative consequences for the environment. This is closely tied to the mode of production and consumption in market economies, but without resorting to a Marxist critique of capitalism this part of Josh's narrative seems to suggest that external forces impact how people find their way around consumption and disposal options in a way that does not necessarily 'fit' with the assumptions of material science. However, having said that, evidence elsewhere in

Josh's story suggests that responses to environmental problems might also be to do with their proximity to everyday life. In the extract above we saw that Josh was able to identify global ecological problems with being locked into unsustainable practices. When it came to *local* environmental issues he was much less forgiving of ordinary people:

> *[…] I don't think very many people care about that nowadays. You know, we spent 40 minutes at the weekend clearing up litter in the local park, there was lots of glass and cardboard and I clearly wasn't going to take it to the recycling point, but I did feel it was necessary to clean the mess up […] the most annoying thing though was that I was out walking the dog and there must have been about another 10 dog walkers and they just stared and watched me; not one person offered to help. So I was a little upset because we all use the park but the others didn't care very much about it.*

This alternative extract suggests a contradiction in Josh's evaluation of environmental problems in terms of scale. Josh was able to evaluate humanity as being unavoidably implicated in the ecological crisis; but he is highly critical of those in his immediate community whom he assumes do not care about their shared local environment. These contrasting views illustrate the paradox of values when it comes to predicting attitudes and behaviour because of their inconsistent, contradictory and unstable nature (Lynd 1967; Bellah et al. 1985). Nevertheless, this data suggested that while the overt display of environmental concern by Dark Greens may indicate the moral basis for how ecological problems get assessed, how this forms in everyday life can occur in unexpected ways, depending very much upon the context in which they happen.

The relationship between valuing the environment and motivation for action was evident with other participants too. But the concern and commitment to action of those exhibiting Mid Green values was more transient. While the Mid Greens also value the natural environment, the extent of this varied across the accounts. For some a moral obligation was still evident, for example as described by Janet from Edinburgh:

> *[…] I would hate to do anything I thought was detrimental to the environment. You know, in my own little patch I feel quite environmentally friendly. Yeah that's it.*

Implicit in Janet's talk about the environment is a belief that she is temporary custodian of her 'little patch' on the planet, so careful stewardship of it and avoiding ecological damage in her space is a priority. Midlothian resident Mark was motivated by similar factors:

> *[…] it's about reducing our carbon footprint and making the world just a little bit nicer to live in, that sort of thing. Em, and I know it sounds cheesy, but the more we save on waste; I don't know if you've ever been to Florence but if you go up into the hills there is a yellow filmy air, smog, it just hangs above the city and it's just "urgh". So I don't want to live in an environment like that.*

So for Mark too, the motivation is about wanting to live in a nicer and cleaner world. Supporting his belief system is experiential knowledge of other locales, which he uses to gauge the quality of his own local environment and motivate his own lifestyle choices. Echoing her son's view, Nancy takes a similar position as Mark's, appearing to be motivated to act out of a desire to minimise her own ecological impact, even though she feels constrained by external forces:

> *Em, it's just trying basically not to waste too much stuff that's the thing. But when you are buying things now there is so much packaging on stuff and it's not all environmentally friendly, and I can't see the need for some of the packaging they use. It just seems such a waste.*

Implicit in Mid Green accounts such as those presented above are conflicting assumptions about the freedom of individual actors to make environmental interventions. In both Janet and Mark's narratives, certain assumptions are made about people being able to recognise environmental problems as anthropogenic and that people have the agency to make interventions and alleviate the burden on the environment. In replicating the environmental citizenship model, these views seem to contrast with the core of other Mid Green narratives, such as Nancy's that expresses helplessness and a lack of agency at being able to take action. These differences in view again illustrate the inconsistent nature of values, which vary depending on a

person's unique social experience. But as we have seen so far throughout this thesis, this should not be surprising if citizen consumers have little choice but to participate in established practices inextricable linked to wider social and structural forces (Spaargaren & Oosterveer 2010). An implication of this seems to be that recognising the ways people get locked into unsustainable practices is not only an important framing devise for the most ecologically aware members of society, but others too are able to build a knowledge-base from which action can emerge. I return to this point about translating environmental knowledge into practice in Section 5.3 of this chapter.

Thus far, the evidence has suggested that those exhibiting Dark or Mid Green ecological values frame their motivation for action as a moral stance, or at the very least valuing the environment as a priority. Those demonstrating Light Green values and less overt environmental concern generally seem happy to participate in environmental action, but this occurs within limits. For instance, in Archie's case there was recognition that while he makes effort to do what is perceived as 'the right thing', he evaluates his ability to make an individual impact on alleviating burdens as small:

> *[…] I am also conscious of the fact we are part of a bigger system, so even my individual choice to do or not do something is not necessarily going to; is not going to be the "straw that broke the camel's back". I know you said everybody else is making the choices to do or not do things. So even though I know what I'm going to do is not going to be anything major, it is not going to have a major impact, I do think it's important to try and do the right thing and that, that will have a critical mass I think.*

In many ways Archie's account appears antithetical to those exhibiting the deepest of green values. As we saw above, if Robbie's practice seems to stem from an internalised belief that he can make a difference and reduce environmental problems, Archie seems to describe the opposite; reflecting an *external* locus of control (Rotter 1966; Chawla 1998). Here Archie describes his belief that individual choices are irrelevant, or incapable, of evoking real or lasting environmental change. To be fair to Archie, he does seem to believe in *doing* pro-environmental activities, but the

commitment seems to be less obvious than that expressed by others. This seems related to his failure to link his everyday lifestyle choices to pressing ecological concerns, revealed elsewhere in his interview when pressed on what he perceives his own role to be in relation to the environment:

> *[…] I don't see myself as having an active role. I think my role is not to screw it up, if you know what I mean. Whereas you wouldn't find me scraping the wings of a seagull after an oil spill, I'm also not going to be poking holes in an oil tanker. You know, if I had to classify my role it would be "inactive observer", hahaha, I don't know.*

Here Archie's passiveness about ecological problems in general is evident, but even so, he still chooses to participate in recycling, because by his own admission he feels obliged to in a kind of *moral contract* with nature. However, it is less obvious if weak commitment like this will be reliable in the long-term when other lifestyle choices take priority. Penny also displayed a passive commitment to action that seemed to only be weakly associated with ecological values:

> *No, no. Even with me, I care about it but I'm not passionate about it or make them do it, or anything like that. I suppose it's; at the moment it's still recognised as an individual choice. It's like a choice, but it is going to get to a stage where it is not a choice, we're going to have to do it. Em, so ….. but probably not in my lifetime […]*

While Penny is keen to publicly label her participation in recycling as ecologically grounded, this is clearly treated as optional. Penny is the kind of irregular recycler who traditional behavioural change tools (such as information provision, incentives or punitive measures) are normally aimed at. However, in her home there is only evidence of a weak moral economy (Scanlan 2005; Silverstone et al. 1992), resulting in recycling not being practised socially or even discussed with other household members. Given this interpretation it is not surprising that a lack of commitment to the practice is evident if there is no one to support and encourage her participation in the home. An environmentally informed basis to recycling was also exhibited by Matt:

> *I suppose, the environment to me is making it as pleasant as possible. Be that from the big things, like knocking down how much your carbon*

> *footprints is; to your local community, and making sure it is as clean as possible and a pleasant place to be. This might sound a bit grand, but so that the Earth is a pleasant place to live in, basically. And the less impact that we have on the environment the better […]*

On the face of it, this extract indicates a strong-ecological awareness and motivation for action. However, Matt's commitment to participation seemed to be much more about satisfying personal goals (Lee & Newby 1983), in a Weberian sense of social action, as it was an ecological value orientation. Matt's narrative suggested that for some individuals, environmental objectives are rationally pursued. But while he is happy to recycle because it is relatively easy and convenient to do, this is only because it does not intervene with other parts of his daily life that are held in higher regard. This adds further weight to the previous suggestion of a (unstable) moral contract with nature when environmental values are less established or important to a person. This evidence supports a central argument of this thesis: rather than environmental action being reducible to individual choices, it is the social embeddedness of practices that is important. However, these vary across and between people by virtue of their value orientation toward the environment. The next section attempts to explain environmental inaction by considering data from respondents who do not recycle.

5.2.2 Explaining Environmental Inaction

The value basis of environmental motivation was shown in the previous section to vary between and across households. But how can we explain a lack of action? Jack and Louise were the only participants to admit to never recycling in the home. Based on their interview data, they had been identified as having a Detached environmental value orientation. Together they represent an interesting case because they highlight the subjectivity of values as they themselves struggle to describe their values. For instance, in explaining why she does not think about environmental problems or participate in recycling at home, Louise expresses a belief that ecological problems are non-urgent:

> *If we were coming to some extreme state of affairs, then I probably would. But right now I would still go on holiday every year […] I don't dwell on it, hahaha, mainly because there is other stuff going on. You know, going to work everyday, doing your job, coming home, eating, hahaha, things like that take up more.*

Louise's lack of concern about the environment reflects an inability to comprehend them as being of any immediate or pressing concern (Chawla 1998). In Louise's interview this comes across as disinterest, which results in her lack of action as other things in life take priority. Her flatmate Jack also seems disconnected from the issues and adopts a similar position:

> *You kind of have it shoved down your throat that you're connected to it, but whether or not you necessarily feel that in any real sense; certainly from my perspective I'm not entirely sure. I'm certainly not acting on anything I hear […] I'm only gonna be here for a certain amount of time, so what does it matter? […] In detaching yourself from it, you're kind of detaching yourself from responsibility.*

There is a danger of portraying Jack's disconnection from the issues as ignorance, but it is clear that Jack has broad awareness of environmental issues, but displaces responsibility elsewhere. It is possible that Jack and Louise are caught up in a reproducing cycle of environmental detachment, socially and culturally reinforced at a micro-level in their household; each other's lack of interest feeding off the other. Anecdotal evidence for this emerged when Louise talked about recycling in previous living arrangements:

> *[…] When I lived with [my] boyfriend, whenever we went to do our food shop we would load the car up with all our crap and go and do it down at the supermarket ….. we did do it all the time and I got into the habit of doing it mainly because he was the main person doing it and I was just helping him. But it was a completely different set-up. We had a much bigger flat, it was on the ground floor, we had a garden, and we had a big kitchen. We could store all our newspapers and stuff like that. So this is completely different. We are top-floor; tiny flat and I've just got out of the habit of doing it now.*

Here Louise reels off a list of 'barriers' for not recycling. But regardless, it is clear that even in this previous domestic situation the motivation for recycling still came from someone else – her boyfriend. This begs the question then, what is it about

Louise that has caused her to be so detached? Speculatively some explanation may reside in the previous suggestion that where and whom you live with is important. As suggested in Penny's story, living with disinterested people can make sustaining practice difficult leading to a weak moral economy. Clearly in Jack and Louise's case there is no support system and in its place, resistance and disinterest is able to flourish and get confounded further by their shared Detached value system. In the next section of this chapter, how environmental knowledge gets consumed and translated into practice is considered, before a conclusion is offered that examines the broader implications of this chapter for the thesis.

5.3 Environmental Knowledge

The role of ethics and values in motivating environmental action (or inaction) was discussed in the previous section. Implicated in many of the accounts collected in this research was an apparent tension between values and interests, illustrated by similarities, contradictions and inconsistencies in the data. In the final substantive part of this chapter, the different process people go through as they appropriate and translate environmental knowledge into practice is considered. In this thesis I suggest that environmental motivation and action does not occur spontaneously or emerge from nowhere: how people think and talk about environment problems is understood as being related to knowledge about the environment. This part of the discussion explores how actors use what has been termed *intellectual capital*[21] to transform environmental knowledge into specific actions.

[21] The term *Intellectual Capital* has emerged as an important concept in business circles, where the emphasis is on collective knowledge used to produce wealth, assets, gain competitive advantage, and so on. I use the term in a more sociological way, similar to that proposed by Sebastien (2010) in her study on the death of NIMBYism in relation to local opposition to landfill sites in contemporary France. Viewed this way, intellectual capital still retains the idea of collective knowledge; but it is seen as transformative – where societal actors are able to access, acquire and transform knowledge in an empowering way as they become 'lay experts' on local (and global) environmental problems.

5.3.1 Translating Environmental Knowledge into Practice

Across Phase Two, respondents reported seemingly high levels of environmental awareness with the type and volume varying according to value orientation (as summarised in Table 5.2). As one might reasonably expect, it was most common for print, broadcast and Internet media outlets to be reported as the main sources of information about environmental issues regardless of value orientation. This is hardly surprising if we accept the idea that the media is the conduit through which reality gets created (Stein 1972) and that most people depend on the media as their main source of information about environmental risks and technologies (Hannigan 1995). Given the institutional distrust that defines modernity (Beck 1992) and increased scepticism of the public in relation to government-environment relations (Environmental Audit Committee 2011), the evidence consulted here suggested that the media fulfils a central role in educating the public about environmental problems and the actions they can take to alleviate the burden. However, this is not a *'one-way flow of information'* (Webb 2010: 12), it is also intrinsic to notions of participative democracy and the role of the citizen in responding to ecological crises. Media accuracy and objectivity in relation to environmental problems is relevant to the current discussion if it is helping to socially construct the norms and values of society around environmental problems in a way that determines everyday understandings and actions about the environment (Dispensa & Brulle 2003).

Table 5.2 Sources of Environmental Information by Ecological-Type

Dark Green	Mid Green	Light Green	Detached
Quality newspapers Broadcast & film Internet Experts & celebrity endorsement Intuition Government material External information	Quality newspapers Broadcast & film Internet Official government material External information	Quality & tabloid press Broadcast & film Internet Government material	Quality & tabloid press Broadcast & film Internet

As summarised in Table 5.2, the participants labelled Dark Green in this research seemed to demonstrate most intellectual capital in relation to environmental issues; reporting unprompted a greater array of sources of information being consumed and it is assumed translated into practice. This can be contrasted with those in the other value orientations, who reported ever less types and sources of information being consumed, as apparent interest in the environment decreased. While this may stem from their ecological values orientation, other underlying factors like those revealed in Phase One of this research (such as social class, age, education, and so on), could be correlated, or at the very least intervening. It was also surprising to find that Dark Greens were the only category of respondents to use expert and celebrity endorsement as a source of information when acquiring knowledge about the environment. While it's important to avoid reifying this finding beyond the narratives in which they occur this may be anecdotal evidence of *post hoc* justification for action. In addition to consuming more information, Dark Greens use that knowledge to understand better not only their own impact on the planet, but also helping organise their lifestyle better. As described by Naomi:

> *[…] there are times I feel horrified at what we are doing to the environment. And, em, I've taken upon myself over the last 3 years to find out more about the bigger issues. About climate change, about energy, and a lot of these issues I can understand to a point and then they get too big for me. And that used to really worry me because I thought, "how can I contribute to this if I don't understand the bigger issues?" […]*

For Naomi understanding the science behind environmental problems is important in understanding her family's impact. Rather than shy away from complex scientific or technical environmental problems, Naomi confronts these issues in terms of her family's practices, as she seeks out knowledge about environmental problems. But this occurs within limits, as Naomi also made clear, even the most committed actors can get overwhelmed at the sheer volume of information available:

> *I mean I guess I get so much information in via the iPhone and the computer and the television and the radio that you just think "my head is going to explode with all this information". I think there is a limit to how much we can all take on board. We have to filter out the stuff we don't need […]*

But consuming information is only one part of the story. Also apparent in Dark Green accounts was an ability to transform received knowledge about the environment and problems into specific actions. As Gordon outlined:

> *I think because we make ourselves aware of global issues by watching different media that makes us aware of the problems, you know if it's a natural disaster we will try and do something to help […]*

In using knowledge about the environment in such a deliberate way that gets transformed into action, Gordon demonstrates how he is willing and able to act on his values. This suggests that values are more than just 'things' we have, they can also in certain circumstances mediate and encourage behavioural change. One reading of this, is that environmentally engaged and active people are well-placed to act as ecological mentors or advocates of behavioural change, as suggested in models of 'social learning' (Bandura 1977) and 'learning citizenship' (Dobson & Bell 2006). However, this reading assumes that environmental citizenship has less to do with ethics and values and might be learnable across groups of people. I remain unconvinced by such an optimistic view as this though, which seems limited in its ability to have any long-term impact on encouraging behavioural change because the evidence suggests they just end up reinforcing the (unsustainable) status quo.

It was only Dark Green respondents that seemed to use environmental information in such a strong-transformative way. Other participants seemed to be more passively engaged with environmental information. For example, as described by Erica:

> *[…] It's not like when I am browsing the Internet I will go, "oh I want to know what happens to different kinds of plastic after it gets taken away". I don't do that. If there are certain issues that come about or, something on the news, it might encourage me to look more deeply into it. So yeah, I'm quite passive.*

However, passive consumption of information was not necessarily perceived in the negative. For instance, Marilyn recognised the potential for submerged or subliminal messages in advertising and TV programmes to fulfil an educating role with the general public on environmental problems and solutions:

> *[…] it's not just adverts for recycling or that. I mean, you know, some of the soaps. How they deal with recycling, what people do on films with their empty coffee cups, if they put it into a recycling bin, it does go in, eventually.*

This social marketing approach Marilyn alludes to describes systematic procedures, based on commercial marketing techniques that try to 'sell' behavioural change (Kotler & Lee 2008), as though it were a material object. These approaches have broad appeal for policymakers and stakeholders because they set measurable goals, research specific audiences and develop promotional tools for different target audiences (Landis 2005). However while Marilyn appears supportive of educating the public on environmental problems in this way, it was not common across the narratives. In fact social marketing's lack of any sociological awareness seems to render it inappropriate when dealing with the socially embedded practices of people, who behave in unpredictable ways, in response to social interaction and the structures that surround them.

But having said that, an informed population that knows how to participate in environmental behaviour is an obvious prerequisite for any citizen participation. It was not a surprise then to find that across the consulted accounts, information provided by the local authority on local recycling arrangements was reported as important for ensuring successful participation. As explained by Amy:

> *[…] at the recycling points, you know, when you go to deliver something else you'll be able to see on the boxes what they take […] the council, they're quite good at sending out leaflets every six months or so letting you know how you can recycle different things. I probably pick up information from other sources but not obviously, so I haven't noticed anything else other than the council.*

For Janet too, the council is the main source of information about how to take part in the local recycling scheme:

> *[…] Well of course we get regular paper information from the council because they send us the dates, which I dutifully copy into my diary for the whole year. But I'm the only person in the street, you know, everybody looks to my door to see when the bins go out at Christmas*

and what not, because I have written them in my calendar. But that's only because I have a bit of paper telling me. So I don't know how else I would know.

In most models of behaviour, the provision of information is usually seen as key to overcoming barriers to participation (Blake 1999). The assumption here is that information generates knowledge, which shapes attitudes, which leads to behavioural change (Eden 1996). This *information deficit model* of behaviour change (Burgess et al. 1998), where environmental knowledge is delivered through the provision of information assumes that the so-called 'value-action gap' (introduced on page 39 and elaborated further in Section 5.1.3), will then get reduced. Most government and NGO approaches to environmental policy are based around this deficit model, where it is assumed policy objectives can be met by it. But as we have already seen, resorting to the individual in this respect is problematic and unlikely to yield long-term behavioural change. This is because, as Barr and Gilg (2002) have suggested, people do not respond and interpret information in the same way. Rather they respond differently by virtue of their social norms, values, beliefs, networks, and so on. While one would not want to suggest information provision to the public should be abandoned, it needs to be recognised as being only weakly correlated with behavioural change.

Engagement with information provided by the council has obvious benefits: in Amy's case (and presumably in other households) it lets her know how and when to participate; and in Janet's, her routine of dutifully noting the information provided by the council into her diary has a wider communal good beyond her own individual needs – she considers it the way other people in her community know when and how to present their recycling for collection. Consequently, while authorities should not rely on information provision for behavioural change alone, it fulfils and important function in an integrated waste management system. Therefore stakeholders have a duty to provide accurate and reliable information if householders are expected to use that information to acquire knowledge about the problem and plan their participation properly. This was a view expressed by James:

> *And I think they should be giving out the information regularly. Too often they say, we told you about this five years ago. Well people that were 15 five years ago are now 20 years old and could be living on their own, maybe five years ago their parents got it. But they've got to get the information out. They might say the information hasn't changed since five years ago but the people have changed.*

While there is little evidence that James bases this view on first-hand-knowledge, it does nevertheless reflect an expectation that environmental knowledge is 'top-down'. However, as has been argued elsewhere in this chapter, if it is the case that attitudes and beliefs do not get translated into behaviour using information provision, changing behaviour in this way is a flawed strategy.

5.3.2 Environmental Knowledge and Disinterest

So far we have seen that regardless of ecological value orientation, environmental knowledge gets accessed and consumed by people and translated into practice. But what about those most detached from environmental concerns? The summary in Table 5.2 suggests that, in general, Detached individuals broadly consume the same types of information as other value orientations. However when the narratives are inspected, what appears to be noticeably different is the level of engagement with the information. For example, while Jack is aware of environmental problems he resists acting upon this information:

> *Yeah, I don't think you can help but hear about it because it is everywhere you look, whether it's advertising or even on soaps and things, it's mentioned constantly. It's the big 'in' thing at the moment; whether you agree with what's being said or not, you can't really ignore it.*

Though conversely, elsewhere Jack complains about the lack of information available on how he can take environmental action locally:

> *[…] you don't get any guidance from the council. It's very much a notice them on the street and do what you will with them rather than, "here's a service we provide, and here's how to use it".*

The contradictions in Jack's account are revealing because they show, on one hand, a public declaration that he is not interested in environmental issues; but on the other, this is excused as being beyond his control; because of poor top-down information provision and not knowing how to take part properly. While this may indicate a lack of maturity on the part of Jack when responding to environmental problems; given that environmental values are considered constitutive of normal discourse in society (Hawkins 2001), Jack's failure to engage seems: *'[…] morally problematic or even unethical and uncivilised, and certainly resistant to dominant values'* (Dürr 2010: 50). This last point acts as a useful introduction to the next chapter, where apparent 'barriers' to recycling in everyday life are explored more closely.

5.4 Conclusion

Responding to some of the unanswered questions raised from the statistical findings reported in Chapter 4, this chapter has examined people's awareness of environmental problems and their commitment to taking action to try and alleviate them. This involved problematising environmental ethics and values and considering the explanatory usefulness of these dual concepts for understanding better how concern for the environment gets talked about in the home and propensity to act on those concerns gets structured and experienced in daily life. The discussion began by considering a continuum, or typology, of ecological ethics and values. This was proposed as a methodological tool for understanding better environmental citizenship as a normative concept that influences people's motivation for taking environmental action. Using examples from the data it was shown that social rules, norms and values all converge to influence how the environment gets experienced and how people then act accordingly.

These accounts support the view that *lifestyles matter*; but a person's willingness to make changes to their own lifestyle is closely tied to their ethics and value orientation. We saw from the data that those people demonstrating most overt environmental awareness and concern are often trying to live a 'better' and more 'sustainable' life, which results in obvious attempts at changing their behaviour for

ecological reasons. However while these displays of environmental concern may indicate a moral basis for how ecological problems get assessed, by Dark Greens at least, how this gets formed in everyday life can occur in unexpected ways depending upon the context in which they occur or get talked about. The data also showed that for those with a broadly intermediate value orientation, environmental action is a much fuzzier concept. While those exhibiting Mid Green values seem to frame their motivation as being linked to valuing the environment as a priority, this occurs within limits; and even though those reporting Light Green values appear to be partially ecologically concerned, there is less scope for compromise and behavioural change when it comes to having to give-up valued lifestyle activities. Finally, examples of those who are Detached from environmental problems were identified as fulfilling an expectation that they are neither interested nor willing to make changes to their lifestyle on ecological grounds.

But while people have values, some are easier to put in to practice than others. Therefore how values get channelled into specific actions seems important. By way of conclusion, the idea of affordances may offer some explanation for how values get practised in everyday life (Norman 2002). As we saw in Chapter 2, this suggestion involves an actor's goals, values, beliefs and past experiences all converging to act as a conduit though which social action occurs, thus making possible the social construction of practice. Understood in this way, the evidence presented in this chapter has suggested that practice should be seen as fluid and adaptable, dependent upon not only on what that technical system can offer, but also its interaction history. This supports an idea already presented that therefore knowing what was done, who did it and why it was done will influence future actions and help solve social problems. The next chapter builds upon the arguments put forward in this one, by outlining in more detail the evidence that *lifestyles matter* when it comes to explaining environmental action. In Chapter 6, domestic recycling is considered as habitual behaviour that forms directly out of its social and structural context.

Chapter 6 Recycling in Everyday Life

> *'When waste is noticed something shifts in the mundane landscape of domestic habits. The stench and confusion of the garbage bin can no longer be ignored—that rubbish needs some attention!'*
>
> Gay Hawkins (2006: 1)

6.0 Introduction

The previous chapter considered ethics and values toward the environment and the influence this has on commitment to taking action to alleviate environmental problems. Using environmental citizenship as a normative explanatory tool, it was concluded that *lifestyles matter* when it comes to explaining environmental action. In this final substantive data chapter, recycling in everyday life is further explored. Using the collected narratives as evidence, this chapter accounts for how and why 'doing' recycling in everyday situations varies between people. Taken together, these two qualitative chapters are an inductive response to the deductive statistical analyses preformed in Phase One. The first part of this second qualitative chapter considers recycling as a formed, cultivated and maintained habit. Building on theoretical ideas introduced in the literature review (Bourdieu 1977, 1984; Giddens 1986; Shove 2003, 2009; Wilk 2009), how recycling gets naturalised and absorbed in everyday situations is examined. It is proposed that how this manifests and gets experienced varies between people because of their unique social situations. Recycling in everyday life is considered using four inter-related elements or themes: (i) access to services; (ii) commitment to act; (iii) time and space; and (iv) people's talk. The latter part of the chapter examines limits to this explanation, by exploring cases in the data that did not seem to fit very well.

This thesis shares in the view that routines become habitual from the way they are enacted by people as they go about their daily lives (Shove 2009). Habits form and fade under different conditions, but they are never independent of agents. They are dependent upon actors to form and cultivate them, causing them to persist or be

dismissed. The implication is that habituated behaviour can be viewed as socially performed by actors in active or passive ways. The Interactionist literature (Mead 1934; Goffman 1959; Blumer 1969) has been useful for highlighting how agents appropriate habits, and revealing the conflict between the performance of everyday routines and an individual's priorities. Following this lead, this thesis is sympathetic to the view that it is the interactions of social beings, networked with people and institutions surrounding them, which influences how routines get experienced and acted upon (Bourdieu 1977, 1984). Indeed it is within this broader theoretical framework that the narratives collected in this research have been used to illustrate how recycling habits often get formed, cultivated and maintained.

The consulted evidence suggested that successful participation in domestic waste minimisation and recycling is dependent upon someone in the household instigating and performing the practice in the home. However, for this to evolve into a habit involves a number of elements, both internal and external to the household being satisfied. While it is not my intention to argue that these are prerequisite for successful participation in household recycling activity, the data did suggest that they are at least useful for illustrating the typical conditions under which recycling as habit might get formed, cultivated and maintained. Understanding everyday routines by looking at their component parts has been demonstrated elsewhere as a methodologically useful way of revealing how material practices get integrated into social contexts (May & Finch 2009). In the next sections, the four core elements identified above (access to services; commitment to act; time and space; and people's talk) that account for recycling are discussed using evidence in the data. The order these are presented is loosely related only to the order that they appeared in the data and its analysis. This is followed by a discussion of the limits to this habit explanation, exploring cases in the data that this explanation did not fit very well.

6.1 Access to Services

The first element of the habit explanation relates to access to waste and recycling services. The descriptive statistical analyses presented in Chapter 4 (see Table 4.1 on

page 88) suggested that having access to a good recycling service provision is related to higher rates of recycling participation. This is also closely tied to the provision of information, discussed in Section 5.3 on page 129, where it was shown that information could influence participation. As suggested in the literature review, in this research recycling is theoretically understood as a complex socio-technical system, consisting of interlinking elements that include: technology, science, regulation, user practices, markets, cultural meaning, infrastructure and production, supply networks, and so on. Together these make the functioning of the system possible via the interactions of supply and demand side actors (Geels 2004). In leaning more toward a *technological systems* approach (Carlsson & Stankiewicz 1991), this research focuses attention on the engagement of users as networks of actors in the recycling socio-technical system (Geels & Kemp 2007); rather than a *sectoral* approach that focuses most attention on institutions, regulations and functions of the system (Breschi & Malerba 1997). As such, it is considered prerequisite for any household to be able to participate in recycling that a service is provided. Clearly without it, it would not be possible for them to do any recycling. We saw in Chapter 2 that statutory responsibility for collecting waste and recycling in Scotland resides with each local authority, which operates its own autonomous service provision (SEPA 2003). This has resulted in thirty-two separate recycling schemes operating. While there has been some evidence of geographic co-operation between local authorities, each council has its own service in terms of: collection regularity; the procedures involved; and the materials collected for recycling, based on what markets for re-sale each individual council has negotiated.

In fact the centrality of service provision is reflected in the respective positions of various stakeholders, including the waste industry, environmental NGOs and governance actors. Each maintains in their own way that successful participation by the public in sustainable waste and recycling behaviour is dependent upon access to information and services (CIWM n.d.; Friends of the Earth 2008; The Scottish Government 2010c). But this information deficit discourse is not just restricted to knowledgeable stakeholders; it is also engrained in other actors, including media outlets and members of the general public. Given this, it was not surprising that

nearly all of the households interviewed in this research identified the local service provision as the most important reason for why they participate in recycling. For example, consider this extract from Archie:

> *[…] with the kerbside [collection], it just makes it so easy. You know, you just drop it off and don't have to worry about it. Though the plastics we still have to take in the car because of where we stay they don't really have the big on-street ones. So we still have to take that with us when we go somewhere. But yeah, as the service has developed we've bought into the different elements, so when the council were offering a free compost bin we took it. Why not? We had the space in the garden and we use it, you know, we haven't thrown out our vegetable waste in four years or whatever, so the behaviour has changed.*

For Archie participation occurs because of the service on offer from the local council. This works for him and his household because he finds it, on the whole, easy to participate in. He does not need to devote much cognitive resource or physical activity to the tasks involved, other than making sure that it is presented: properly sorted and ready for collection, on the correct day and at the correct time. We can see that the local authority has minimised the inconvenience for Archie by collecting most recyclables from the kerbside. In return, Archie has adapted his household practices to fit in with the service offered; buying into different elements as it has developed over time. This account fits with the dominant discourse summarised above. Archie is critical of the limits to the service on offer though, particularly in relation to plastics that need to be stored at home and transported to bring-sites, which require much more effort. From Archie's perspective then, despite known limitations, the kerbside collection service has been the main catalyst for encouraging his participation.

Regardless of ecological value-orientation, the local recycling service provision was singled-out across the data as being the key determinant for why households participate in recycling. For example Jim, who exhibited typically Mid Green value traits, also identified the council service as important. But while Archie found the complexity of recycling different materials in different ways restrictive, Jim found it empowering and enabled him to recycle more, with less effort:

I think it's the whole service combined really. Having the bins at the end of the street is a big bonus ….. um ….. and you know we have a blue bin for glass and cans and a red bin for cardboard. Though, I never use the red bin because we use so much packaging. It's strange, because you can only put cardboard in the red bin. But if you go along to the bin at the end of the street you can put in packaging. You can put in not only cardboard, but also other things and cans as well. So whether they go different routes when they are picked up, I don't know. But we tend to generate so much packaging that it's easier just to take it all to the end of the street, rather than sorting out the cardboard and putting that in the red box. So I don't tend to use the red box any more. I used to, but not anymore.

Revealed in this extract is Jim's preference for a multi-layered service provision that combines a kerbside collection with on-street facilities. This has made it easier for him to recycle because he is able to choose how to participate. This is empirically enlightening when viewed alongside Archie's narrative, because the two accounts highlight the complex and often incoherent nature of local authority recycling service provision. Using the City of Edinburgh as an exemplar to illustrate this point, we can see the local infrastructure is multifaceted, with various 'types' of recyclable materials being collected in different ways and locations within the same local authority. Some materials are collected from some people's homes, whereas other householders are expected to take their recycling to bring-sites. In Archie's case this is identified as a barrier that makes his participation more difficult, but Jim is enthusiastic, favouring the choices available for how to recycle in his home. Mary, who also expressed satisfaction and a preference for on-street facilities that can be accessed when it suited her, adopted a similar position:

The main thing is having the bins at the end of the street and as I said, I don't know if I would be as good at it if I had to actually physically get in the car and take it. My sister for example, she has the blue bag for paper, which she uses, but she hasn't got anything else, I don't think, and she has no car. She doesn't live near the big supermarkets with the big things, and there aren't the bins in the street and she said that it is just far too inconvenient for her to, you know? Perhaps if she had a blue box or a red box she might use it, but she doesn't. So yeah, I think the prime reason that I'm fairly conscientious about it all is the convenience of it.

Like Jim, Mary participates because of the service available to here in her community, which she evaluates as making it easy to take part. In juxtaposing her recycling service with that of her sister, Mary rationalises her motivation for action as being about the service received. In her view the council have made it easy for some people to take part but not others, like her sister, who has a limited opportunity to participate, despite living in the same city. Jim and Mary are both retired, so maybe they have the luxury of spare time to choose how to participate, or perhaps it is their stage of life. As we saw in Chapter 4, age and generational effects are known to be associated with claimed recycling behaviour, so perhaps if their generation is more likely to participate anyway, collectively we might expect them to welcome the convenience of choosing how to participate. But this remains speculative.

More common was for kerbside collections to be lauded as central to convenient recycling. While this is not unexpected, for some participants the difficulty is in the detail. A number expressed a similar frustration as Archie's at limits placed on the local authority service. For example, while Janet evaluated the kerbside collection service she receives positively, she was also frustrated at the lack of a plastics kerbside collection:

> *[…] so the bins are handy, it's collected on time, nothing is overflowing. I don't have too much of anything, I can just cope with it, the quantities. I would really, really, really like them to do a plastic collection. I wrote that in my [research] diary because I am throwing plastics out, but I cannot find a place in my little arrangements for a plastic tub; and I don't want to leave a plastic tub outside. So that's something. I have a good friend, who is a councillor in the street, and I keep asking her about that and she says, "Well you've got the one at the end", but I don't have enough time to be carrying plastic to the bottom of my street. And I hate these great big things that look ugly in the environment anyway. So yes, I suppose I would like to have a plastic collection. Do they have that in other cities? I'm sure they must.*

Janet's narrative is interesting in a number of respects. First it is obvious that while she is happy to buy into those aspects of the local service she finds agreeable to her tastes, there are some that she refuses to engage with. A reported lack of free time is evident, but more apparent is her reaction to the on-street facilities because of their

aesthetic impact on the cityscape. It is worth noting that these are located only around a hundred yards from her home, which indicates the magnitude of 'real' versus 'perceived' inconvenience. While Janet uses the on-street facilities on occasion, there was a real sense in the interview that using them seemed to legitimate their existence and continued presence on her street. But also relevant in this extract is the idea of 'distinction' and class-based 'likes and interests' being reinforced in everyday life through aesthetics and taste (Bourdieu 1984). However, contradictions like these did not pervade the data. Indeed indicators of distinction aside, it was more common for convenience to be stressed as significant for explaining the organisation of recycling in people's lives. For instance, Shobna identified the convenience of the kerbside collection service she has access to as being important. When asked to speculate on how involved she thought she would be in recycling if the service were not there, she was convinced they would still participate to some extent:

> *I think it would be harder to do it to the same extent because I would have to shove it in the car, and I'd have [my son] in the car, and all his things in the car, so I'd be quite limited on all the things I could put in the car […]*

Given that Shobna's household had been identified as exhibiting Dark Green environmental value traits (as discussed in Chapter 5), it is hardly surprising that they would still want to recycle. Though it is less clear how consuming CO_2 to drive collected recyclates to the local recycling centre could be reconciled with their value orientation.

Nevertheless while evidence in the data stressed the importance of access to a local service, this should not be over-simplified. Picking up on the previous suggestion that distinction plays a role in supporting practice, also evident was a suggestion that social class structures service provision. We already know from Phase One of this research, and research done elsewhere (Iyer & Kashyap 2007; Greenbaum 1995), that social class is likely related to pro-environmental behaviour. In Chapter 4, it was suggested that various indicators of social class (*income band, educational attainment and housing tenure*) all reliably predicted propensity to recycle, holding all the other variables in the model constant. That analysis suggested that those in

'higher' social class categories were more likely to claim to recycle than those in 'lower' social class categories. The qualitative data adds to understanding of this by showing how the effect of social class on the public's participation in recycling is not hidden. Rather the evidence suggested that social class affects recycling provision overtly. Some of the participants in this research expressed a frustration at affluent areas being perceived as receiving a 'better' service than those living in less affluent areas. Matt expressed this particularly well:

> *[…] it seems that there is a definite divide between what the council does in what area. So what is done in the more affluent areas of Edinburgh is they have the collections for recycling, yet these are the people that would probably do it anyway. And there's no incentive for other areas to actually recycle. So, that is something the council will need to look at. And if it is a cost issue, would people really complain about an extra fiver a year - I don't know. But I think that they need to preach less to the converted and more to the people that are not doing it. And it's not just a question of educating them; it's also about providing the facilities and giving them no excuse not to, because people are inherently lazy. If they don't have to do something they won't do it.*

The points Matt highlights are interesting because they demonstrate how local authorities' strategic plans for waste management get perceived in practice. It is not difficult to understand the operational rationale for councils focusing most effort and resources in areas where there are high levels of social, political, economic and intellectual capital because people in these areas are thought (cynically perhaps) to be more likely to recycle 'properly'. By doing this, local authorities maximise the likelihood of high quality, uncontaminated, separated recyclables being collected for re-sale onto appropriate recyclate markets. But adopting this strategy leads to less affluent areas being neglected in terms of provision, despite being the people who might benefit from extra support on how to participate regularly and often. Josh elaborated a related point about this with regard to shared on-street facilities, which he does not view as being conducive to successful participation because the people he has to share them with:

> *[…] but that's what I find really frustrating. I will go to the recycling point and people will have come with their recycling in a carrier bag and just dumped the entire carrier bag of things into the bin. And then*

on top of that you've got furniture; recently there was a broken mirror, and it's just really frustrating.

Josh lives in a social housing area and is clearly frustrated that while he wants to participate in recycling, other people in his community are perceived as contaminating everyone else's recyclable material. But while Josh seems to evaluate this as people resisting participation, this may not entirely be the case. Speculatively it is feasible that limited access to different forms of capital, as mentioned above, reduces people's ability or willingness to participate properly. Not everyone was critical of local services in the ways described by Matt and Josh; indeed it was more common for respondents to evaluate these positively. For example, Mary:

It's a good service. I think because of where I am and because of what I get, I think it's a good service. And I think even the tip place down at Seafield; I think it's excellent down there. I've found the staff, whether it's because I've gone in on my own, but people have been most helpful. I think it's well signposted what you put in what bit and what can be re-used, you know. I think the council do a great job really. And since they've emptied my bin more frequently they do a very good job, hahaha.

Given these contrasting views, in evaluation perhaps Matt and Josh's accounts reflect a personal frustration about not all services and facilities being available to everyone within a given council area. But this may be for reasons that extend beyond mere disinterest or resistance. Certainly the evidence suggests that those who do recycle want to do more and more often; but if waste management systems are designed to favour some groups over others, it is not surprising then if access to recycling services is perceived by people as unequal, and poor performance results.

From the evidence considered here it would seem that access to waste and recycling services and infrastructure is an important element for understanding participation. But how people experience this varies with different household's expressing preferences for how and what they would like to recycle locally. Across the interviews, it was almost universally accepted that kerbside collections are essential to successful participation. While not logistically appropriate in all areas and dwelling types, kerbside provision is often perceived (rightly or wrongly) as

reflecting and reinforcing social divisions in society, so that environmental action appears privileged by class distinctions. That said, however, everyone interviewed in this research did have access to some kind of recycling service, even if the convenience-factor varied. In the next section the factors that may act as a catalyst for recycling action is discussed. This picks up on some of the themes elaborated in Chapter 5, which consider what motivates recycling practice as habit.

6.2 Commitment to Act

Access to services is important for understanding domestic recycling participation, but this is socially influenced and implicated. Here commitment to taking environmental action in explored more closely. In Chapter 5, the significance of environmental ethics and values in relation to action was considered; building on this, this part of the discussion looks at environmental action as occurring on a spectrum. Commitment to recycle is for some people expressed habit; but while there is often an ecological basis of this, for others this does not explain the persistence of the behaviour.

In the data, those who seemed most motivated to take environmental action seemed to have bought into the principle of recycling as part of their everyday domestic life. Here commitment seemed to take an altruistic form, embodied in an ecological discourse, where the routine gets translated into habit. As Robbie outlined:

> *[…] I suppose it's 'cos we are in a routine now, and if you back it in principle, and think it's a good thing to do, and find a routine that works, you don't really need motivation. It just becomes habit.*

It would seem from this extract that Robbie's motivation stems from doing his 'bit' for the environment, and because he has incorporated recycling into his normal routine, his behaviour appears habituated because he rarely needs to think about the performance of the act. This fits with the discussion of *the habitus* (Wilk 2009), introduced in Chapter 2, where everyday tasks get performed automatically, submerged unless something goes wrong. In other accounts too, a commitment to

recycle out of environmental concern was also evident. But in Amy's narrative it differs because the commitment seems to come from the children:

> *[…] but they do realise that they're the ones that came home from school talking about recycling often, so they do see it as the green planet issue. So it's as much theirs as it is ours.*

The evidence of environmental action not emerging from a *knowing parent* but *concerned children* is interesting because the Phase One analyses had suggested that the presence of children in a household was not statistically associated with claimed recycling practice. A number of explanations for Amy's narrative seem plausible. It may be that Amy's household is a unique case or the school's curricula had a particular influence on this family. But given that Naomi, another household in Phase Two with school-aged children, also reported environmental issues being discussed at home in a way that influences their practices, it seems possible that the self-selecting nature of the sample has resulted in families more likely to talk about environmental issues and recycling being included in the research. Nevertheless, the Phase One finding that suggested children were not a significant factor should be viewed in light of this evidence that, in this research at least, the agency of children can contribute to the household's environmental practice. This gives support to David Morgan's idea of *family practices* (1996), where the focus is what gets done in daily family life. Morgan's point is that new forms of family organisation are represented by *'fluidity and flux'* (Chambers et al. 2009: 6). Therefore understanding how families behave, is not necessarily about the nature of relationships, though family dynamics and power relations are still relevant. Rather, what is most important is the agency of individuals for influencing behaviour and relationships (Finch & Mason 1993). In this way, day-to-day interactions are about more than just following cultural norms, individuals are conceptualised as being active in creating and re-creating family living through the enactment of practices. This is a theoretical point that I return to later.

But while an ecologically based commitment to the principle of recycling was evident in some accounts, it this was not universally the case. At the other end of the

spectrum, recycling seems to occur because some actors rationalise that they have no reason not to participate. As Matt suggested:

> *It sounds a bit of a trite answer, but why not? It doesn't take….. Provided you're doing it regularly it only takes five minutes of your time. And there is no harm in, there's no harm in recycling basically. I don't do it for completely saving the planet reasons. I don't think about recycling after I have put it into the recycling bins; but I don't see the point in not doing it. It's slightly ingrained that it's something that should be done, but there's no society pressure, because no one goes rooting through your bins and points a finger, but the amount of effort that it takes, which isn't a lot, provided you keep on top of it.*

In Matt's account we find that rather than recycling emerging from an altruistic commitment to the environment, he recycles for different reasons. Here the ease of participating is important because it means he can fit it into his normal routine and not squander highly valued free time. The other point Matt makes about the lack of societal pressure to recycle is also interesting, because while he does participate, he recognises a lack of stigma attached to not doing it. Penny in Chapter 5, made a related point, about the voluntary nature of recycling in contemporary society, which in this thesis has been theoretically linked to the strength of a household's moral economy. But societal pressure does not only need to be associated with stigma. Other data in Penny's interview suggested that societal pressure motivates her recycling practice because she wants to manage people's impressions of her and her household:

> *Em….. so….. and my neighbour down a bit, but one, he does it as well every week, so I need to keep up with him, hahaha. I need to show that I'm doing my bit too, hahaha.*

In this short extract we find that Penny's domestic recycling practice is, in part at least, about the public performance of the 'green citizen' role in a Goffman-esq (1959) sense of *impression management*. In some ways, this reflects the way ecological issues have moved away from being niche interests to being mainstream concerns. In the literature review this was evidenced by citizens being increasingly involved in environmental discourses, and media and public policy outlets paying ever more attention to contemporary environmental problems. In Penny's example,

the mainstreaming of ecological concerns has ended up being appropriated and used – intentionally or not – to keep her practice motivated. But regardless of motivation, household participation in recycling has consequences for the domestic arrangements of the home in terms of time and space.

6.3 Time and Space

The previous section ended with the idea of time and space as important because free time is valued highly in industrial societies as a commodity. This is relevant to the current discussion because, by definition, for an action to become habituated requires its repeated performance. In the literature review some of the different ways time has been approached in the social sciences was discussed. In that chapter it was shown that a Marxist reading of late-modernity would likely suggest that individuals get forced into mundane routines to occupy their time and limit their freedom (Lefebvre 2004). But while this pessimistic view might be useful for explaining how people consent to allocating their free time to the performance of *'mindless tasks'* (Wilk 2009: 145), it fails to account for the agency of people making choices about what tasks to perform daily. Limited leisure time has long been understood as a prevailing feature of industrial societies (Veblen 1994 [1899]; Bell 1976), which was reflected to some extent in the narratives collected in this research. Free time was highly valued across the accounts, with respondents reluctant to expend time doing mundane chores. Janet's account stood out as particularly revealing in this respect:

> *I've got it down to an easy system, and I haven't really got the time when I'm working; I'm on holiday today so I feel as though I have lots of time, but I don't normally have the time. So the bins are handy, it's collected on time, nothing is overflowing. I don't have too much of anything I can just cope with it, the quantities.*

In this extract, time appears negotiable and related to lifestyle choices and events. This reflects a theoretical idea introduced in Chapter 2 that social life occurs within *'dimensions of time and space'* (Giddens 1986: 110). For Janet, domestic tasks are hierarchical and prioritised depending upon the availability of time. On days off she seems to be willing to allocate time to performing chores, less so on working days.

This marks 'time' out as central to any notion of recycling as habit. A related point in the narratives was *repetition of practice*. Though also true by definition, forming and maintaining habits require behaviour to be repeated. The literature on habits suggests that they persist because of their repetition, but this is not always in people's control (Wilk 2009). There were examples of repetition being identified as relevant in the collected narratives. Amy and James both indicated that they perform recycling in a routine and repeated way everyday that helps it persist as habit. Similarly Mary identified the convenience of repeating the behaviour as relevant:

> *So I really just let my recycling build up 'till I have a, sometimes I take it along every second day. I go along and put it in there. But sometimes if I've been very busy, or whatever, I can just let the bag of stuff pile up quite easily in the house and take a walk along the road. Em, I probably would say that about ninety-eight percent of the time I don't just say, "och, I'm not gonna bother recycling that". Because it is so convenient for me to do I don't think it really gets broken particularly. So I will stress this, it's the convenience.*

In Archie's account this idea of *enactment* was also elaborated, but here we find it is the practising of recycling in tandem with other domestic chores that helps him enact his recycling practice:

> *[…] yeah, absolutely, and I don't know why. Maybe because I'm more of a morning person and the bins going out is a morning job. I tend to handle things in the garden, and that's where the compost is; so by virtue of my situation, yeah, though in terms of things like plastic recycling that's not part of kerbside recycling where we are, so we have to tie it in to other activities. So I will generally take the plastic recycling, I'll chuck it in the back of the car and when I take my wife to work on a day off or if she is working at weekend I will drop it off at the same time as taking her. We have sufficient storage capacity that we don't have to wait a week, two weeks, three weeks. It can accumulate and then I will do in tandem with another task.*

This helps illustrate a central argument of this thesis, that it is the social and structural context of recycling as an embedded practice that helps explain how it gets enacted in daily life. But it was not just the notion of time that was relevant to understanding recycling, so too was the notion of space. Demonstrated mostly through data pertaining to the design and infrastructure of the home, having the space

to participate was raised by a number of respondents. Some of the interviewees had made physical changes to the design of their home so that an efficient and effective routine could be formed and maintained. Take for example James:

> *That's in the sense what the three bins there are. They're the catch all if I can't take the stuff away that morning or if it's my day off, especially if it's my day off. If I wasn't able normally on my day off I would take the stuff down when I went for my paper in the morning, so it's still the same procedure, instead of going at ½ past 5 when I go to my work I will go at ½ past 9 when I go for my paper. But if I hadn't been able to, I'd rather leave it lying through there; it would have gone out to the boxes to be picked up the following day.*

Here we find that James has established a micro- recycling system that fits with his normal routine, which involves taking the recycling to the on-street facility every morning. Supporting his practice are three external storage bins at the front door where recyclates can be stored until he is able to take them to the local bring-site. Other examples of households making physical changes to the home to specifically support the recycling included Shobna:

> *We don't have a normal bin […] so if we've got something we either recycle it, compost it or it goes into a poly-bag that then goes in the bin.*

In Shobna's research diary and interview it was revealed that as a household they had made a conscious decision to remove the kitchen refuse bin so that every time they were confronted with throwing material waste objects away, a decision needed to be made as to how it would be disposed of. This involved: recyclables being cleaned and stored for recycling in a kitchen cupboard; compostable waste going into the composter; and only then was residual waste considered for disposal in the waste bin located in the garden. Though this seems a convoluted and complex system, it is not unexpected given the Dark Green values they seemed to exhibit elsewhere in their narrative. But making physical changes to the home space was not just evident with ecologically committed households. Other participants in the research had also made changes at home to encourage more efficient participation. For instance, Archie:

> *[…] much of the routine is real estate based, for lack of a better term, that the bin is located in the kitchen next to the indoor compost bin and a basket where we put all of our recyclables. It would take a heck of a lot to interrupt that system. A hell of a lot can be going on, but everything is in the same place so unless something really awful is happening it's no easier to fit everything into one bin as it is to drop it three inches away to the left. And that is by design, because when we lived in our old place, and even when we moved into the new place, we didn't have that system, we had everything else [...] we had the bin and the compost and our recycling kept in the cupboard under the stairs. So that was a bit of a; it sounds lazy to say it, nuisance to have to go out to a different location. But we realised that was a problem, so we changed it. And while it makes a kitchen a little bit more untidy, it makes things easier in the grand scheme.*

Archie's extract is interesting in the sense that while data reported in Chapter 5 had indicated he was not overly concerned abut environmental issues, he had still made purposeful design changes to his home to encourage and facilitate better waste and recycling practices. Though this is clearly not something everyone would be able to do unless they had the space to do it, and a desire to be 'better' recyclers. This was a point also picked up by Janet:

> *[...] I suppose I am quite privileged in a way. Maybe it's easier to be a happier recycler if you live in a place with lots of space. In fact it must be, so maybe, though I suppose new builds, and things, take that into account I presume, and have places for people to put their recycling. A central place, I don't know.*

Here we find that the type of accommodation someone lives in is perceived as being influential on recycling participation. This links back to the earlier discussion on recycling services being perceived as privileged; with those living in houses (with space and gardens) appearing to receive a better recycling service than those living in smaller properties (such as city-flats or in less affluent areas). Janet optimistically speculates that this is perhaps something factored into the design phase of new build properties, which on the face of it is not unreasonable. However when this was researched further by the investigator, the Scottish Government's 2010 Domestic Technical Handbook for building standards in Scotland revealed that while building designers should be aware of the National Waste Plan and any local initiatives for dealing with waste; other than a statutory duty to provide solid waste storage and

collection facilities, there is no legal obligation to provide recycling ones (The Scottish Government 2009) – revealing further ecological contradictions at the heart of government policy.

Up until this point, the chapter has explored recycling in everyday life in relation to different elements that have placed recycling habit within its social and structural context. However, actors as socially networked practitioners, interacting with people and institutions, are so far missing. The next section addresses this, by examining people's talk of recycling practice.

6.4 People's Talk

This section considers how people talk about recycling in the home. For most of the people interviewed, recycling had been routinised into the minutia of everyday life. But while the evidence suggested recycling behaviour was unconscious, requiring little cognitive attention, this fails to address the ways that practice operates and functions within social contexts. How actors communicate with others they are networked with is important for understanding how people shape and experience the world around them. In this respect, the household becomes the site of dialogue, negotiation and potential conflict when trying to reach agreement on preferred behaviours.

In this study, reported communication about waste, recycling and the environment varied considerably in the data. As we have already seen, it was common for households with school-aged children to report regular discussions about waste and recycling. Similarly, those exhibiting most ecological awareness and values were, unsurprisingly, also likely to discuss these issues with others in the home. But the reverse of this was evident in households less able to describe environmental problems and identify their role in relation to those problems. Reflecting their mundane and routine nature, it was common in accounts for householder's recycling practices to be reported as rarely discussed unless something out of the ordinary happened to upset the normal routine. The idea of *family practices* (Morgan 1996)

elaborated earlier in this chapter also seems relevant here. The focus here is on 'what gets done' by active agents in the home, interacting and re-creating shared spaces that make up family or household living. Implicit in this thesis is a view that practice is the outcome of the duality of agency and structure. This stems from theoretical ideas introduced in the literature review (Bourdieu 1977, 1984; Giddens 1986; Shove 2003, 2009; Wilk 2009) that help account for how everyday practices get performed in routine and habituated ways. These propositions show how comfort and familiarity results when tasks are performed as expected; however when those expectations are confounded and an actor becomes aware of the rules of behaviour a kind of *anxiety* results until normality is restored. Evidence in the data for this included Sarah's narrative, which indicated well Giddens' (1986) ideas about *practical consciousness* and Wilk's (2009) ideas about the movement of practices. Though Sarah has only recently become an active recycler, recycling is not spoken about in her home:

> *[…] No, no. Not really, no, no. We don't, I probably should, but I haven't. It would go in one ear and out the other anyway, so I haven't, hahaha […] There are times when I'm out all day, em, then I'm eating out, so I'm not doing things around the house. My husband is left with ready-meals and he doesn't recycle. I don't think he even thinks about recycling apart from the newspapers. Maybe that's a bit of my fault for not saying to him.*

Sarah's answer is as honest as it is humorous and the extract indicates how recycling in her home is characteristic of practical consciousness because it is performed in automatic and routine ways without discussion. But when asked to elaborate on why it is not spoken about, Sarah seems to suggest it is about the roles different household members fulfil. Given that Sarah performs the task successfully, it rarely moves into *discursive consciousness*, only doing so when the normal routine is disrupted by her husband's failure to participate. This suggestion that recycling gets performed as unspoken role-playing, was also hinted at by Janet, though she rationalises this as household members having different interests:

> *If I was honest, and no, I think that I know that I would be more interested in that than anyone else in the house at the moment; well*

anyone else in the house generally, there's only four of us altogether […]

Janet assesses her practice as being about an interest in doing this particular chore, which other people in her family do not share, leading to her solo performance of the task in an unspoken way. Matt also indicated recycling practice being performed in a ritualistic manner:

[…] we don't talk about the state of packaging, we don't talk about why some thing might not have been recycled, so the only time will really talk about it is really the collective "sigh" of when we have to take it.

Implicit in Matt's account is an illustration of practical consciousness giving way to discursive consciousness. When the recycling builds up and disrupts normality, the normal routine is only re-established once the recycling practice enters practical consciousness, and becomes part of the everyday routine. This idea of recycling as an unspoken ritual was also apparent in Shobna's interview, who suggested that the recycling practices are only verbalised when out of the ordinary events disrupt the normality:

It's not like a central part of conversation in the house, but if something comes up, or if someone needs reminded to pick some thing up or if some thing is clapped out and we can't use it any more, or when is the next time you can put it in the car and take it to the recycling centre?

In keeping with a broad practices approach, these extracts are interpreted here as indicating that under 'normal' circumstances recycling routines are unspoken, unless something happens to disrupt the routine such as waste being located out of place or objects being transformed from useful to useless. When this happens, the practice becomes known as a dynamic subject that gains the attention not only of the practitioner but other household members too.

But while many households' recycling operates in a routine and unspoken way, this is not the case for everyone. For others, waste and recycling is practised by virtue of its known properties being recognised and spoken about. In households identified

with darker green values, in particular, practical and discursive consciousness seemed to persist at the same time. In these narratives, it seemed that the household's recycling practice had moved beyond just being habitual, underpinned by a *known consciousness* that encourages the practice. For example in Gordon's case, it is the vocalisation of the routine that reinforces and preserves the practice:

> *Well the type of household that we've become, and what we as individuals think in and outside the house. Ultimately it's just how our household operates now. We do recycle so we do need to talk about whether this can, or how do you clean this [...]*

In this extract, Gordon indicates that rather than something having gone wrong with the habituated routine, the talking regularly about the practice is part of the task's performance. This then gets used to reinforce the persistence of the shared practice as part of everyday life. Naomi conveyed a similar experience:

> *[…] It's not the topic everyday. But yeah, absolutely. I mean the girls are really good at it now. They do it. They wouldn't think about cutting out a picture and not putting the waste bits into the bin. They would put it into the recycling. Umm, or at least try to get it to the recycling – it's usually hanging, towards the recycling, but that's just children for you. But we do talk about it. In actual fact, the school is really good and I think their school is going for another eco-flag so there is a lot about recycling, energy, conservation that they do. And they come back with stories about that, em and we do talk about food waste quite a lot. Particularly when they don't like something and I'll say to them, "well you're just gonna waste that, what about the babies in Africa"? Hahaha, and they want to give it to the babies in Africa, hahaha. So yes, we do. But it's not an everyday sort of conversation we have. But they're pretty good at just doing it as well.*

This extract suggests Naomi's motivation for recycling is different from Gordon's. Whereas Gordon uses 'talk' to support the household's recycling practice; for Naomi the decision to recycle has already made. Implicit in this account is a morality to recycle out of a sense of ecological duty. This was first suggested in Chapter 5 in relation to ethics and values toward nature; but is suggested here in stronger terms reflecting how the practice is performed in knowing ways. An obvious difference in these accounts is that Naomi has school-aged children, so information that the children bring into the home (whether related to recycling, energy, conservation, and

so on) needs to be responded to, accepted or rejected, through mutual negotiation. This involves the children's socialisation into the dominant norms, rules and values of environmental issues. Naomi encourages this, so that her children can understand the impact of their behavioural choices. So rather than recycling being habitual and ritualised, Naomi uses information in a purposeful way. However not everyone with school-aged children responded in this way. For example, Amy also engages with information her children bring into the home, but in a very different manner:

> *Well I see my role in the family to keep my kids balanced because they get fed all sorts of nonsense at school, who are very guilty of giving my children opinions on things that they know very little about and that my children don't really need to know about yet, and they can work it out themselves using lots of different resources available to them. So my role is to make sure that my children are informed about both sides of the argument and then they can decide for themselves, usually with my opinion backing them up, hahaha […]*

Amy's motivation seems to differ from Naomi's in that Amy is concerned about the influence of the school on educating her children in messages she might not agree with. Whereas Naomi has an obvious ecological motivation, this is less evident in Amy's case, which seems to be more about sharing family norms and values. This is an important point that suggests that individual agency gets negotiated in daily life, which can then influence behaviour and relationships in the family through creating and re-creating the family experience through the enactment of daily practices.

So in the preceding sections we have seen that how practices are enacted is important for understanding how they get done. The data presented has suggested that the ability of a household to form, cultivate and maintain recycling as habitual, involves reconciling a number of elements, which together help account for the performance of recycling. However, while these help explain recycling practice in many of the households, in other critical cases this explanation seemed over-simplistic or even inadequate; the next section considers these further.

6.5 The Limits to the Habit Explanation

While the habit explanation presented in the preceding sections fitted well most of the participants in Phase Two of this research, there were limits to the usefulness of this. Clearly internal and external barriers make recycling more difficult to maintain. As indicated in the last few chapters, these include: other lifestyle choices taking priority; inadequate service provision; lack of practical knowledge; or a lack of support in the home. It is only by identifying and overcoming barriers that the habit can get (re)formed. However, even after accounting for barriers, there were still cases that the habit model did not seem to fit particularly well. On the one hand, there were households that seemed to have transcended habit and appropriated recycling practices into the material fabric of everyday life; but on the other hand, there were accounts from participants that claimed they were not doing any domestic recycling, despite having access to the same service and opportunities as everybody else; both of these critical cases are considered next.

The first cases that did not seem to fit the habit explanation very well were households where recycling seems to have transcended habit and been appropriated into everyday normality. These narratives were first identified as different in Section 6.4, because their commitment to recycling seemed to have evolved into something more than habit. For instance, as Naomi suggested:

> *[…] I just couldn't do it now. I honestly couldn't do it. I couldn't put bottles in the bin. The only thing we might; you know I have brought bottles back from days out in my handbag because the only place I could get rid of it was a bin […] Even if on holiday we still separate out and find a resource that gets rid of the bottles. I just couldn't do it now, I physically couldn't put something out unless there was something so mankey and horrible at the back of the fridge. You know that would be fine I'm not going to risk some sort of bacteria, hahaha, by opening the bottle. It does happen occasionally. I wouldn't, you know, the routine continues.*

Here we find that the recycling practice is now so engrained in the household routines that Naomi physically could not throw recyclable material away. It is the 'couldn't' that Naomi refers to here that is most interesting, which clearly marks her

practice out as different from the habit other respondents refer to. This strong moral economy of waste perhaps epitomises a deeply embedded commitment to a particular action, where a person has a dramatic, almost physical reaction at the prospect of a behaviour being in danger of compromise or interference. The antithesis of the *hyper*-recycling of Naomi was participants who refuse to do any recycling, or any pro-environmental behaviour.

As we saw in Chapter 5, Jack and Louise were the only participants in this research to admit to never recycling at home, even though they are presented with the same service provision as other flat-dwelling residents in central Edinburgh: packaging and paper bring-sites two minutes from the home and a glass bring-site ten minutes walk away. The ethics and values of Jack and Louise's non-participation were discussed in the last chapter, so will not be repeated here. But when challenged on why they do not participate, Louise identified what she perceived to be barriers:

> *[…] we are very limited here with what we can do with our waste because we don't have a car and we don't have; it's not like we are in a house with loads of storage space and our kitchen is quite small so I think the easiest thing for us is to just bin it.*

While Louise imagines these barriers to be real, given the distance to the nearest bring-site, it is questionable whether they are real barriers or just excuses for non-participation. Louise's position was underpinned by Jack's account too:

> *There's just no point because the nearest glass recycling point is at the B&Q on Easter Road so fair enough there is packaging things down there, but we would have to walk all that way with the amount of waste we had. And it's not practical to keep things lying about […] for that amount of time. So it's not practical to do it, like go every day. So there's no real solution to that other than just bin it.*

For Jack, the perceived effort of carrying glass to the nearest bottle bank is seen as too much, but he is not even interested in using the on-street facilities for paper and packaging that are immediately outside his residential building. This is an important point because, while other respondents in the research reported these facilities as convenient and making participation easy, for Jack and Louise, there is something

else going on that is not accounted for easily. A lack of knowledge about why people recycle or how to take part seems inadequate: like others, both regularly read newspapers; use the Internet; watch TV; and the on-street facilities have information detailing what should or should not be recycled in them.

As we saw in Chapter 5, there does seem to be a subjectivity to their values that results in the non-immediacy and gradual nature of ecological problems making it difficult to engage with what are perceived to be large and complex issues (Preuss 1991, cited in Kollmus & Agyeman 2002). In these examples disengaged actors, lacking emotional involvement, reinforces their *external* locus of control (Rotter 1966) even though environmental issues are generally perceived to be pressing concerns society needs to address (Chawla 1998). Jack and Louise illustrate how: *'conflicting and competing factors shape our daily decisions and actions'* (Kollmus & Agyeman 2002: 256). In this respect, I want to suggest that rather than their non-participation just being about some self-interested lack of concern; an interaction of different forces, including environmental knowledge and awareness, attitudes and values, emotions and the prioritising of interests over responsibilities, compete for priority in the complexity of the everyday. This has resulted in Jack and Louise prioritising some domestic tasks over others, which in this example, has caused the mundane practice of domestic recycling being de-prioritised as a normal routine.

6.6 Conclusion

This final data chapter aimed to extend the arguments elaborated throughout this thesis that social rules, norms and values unite to influence how people experience the environment and then act accordingly. This has involved making the case for the idea that *lifestyles matter* when it comes to understanding pro-environmental behaviour, which for the purposes of this research includes recycling. However a person's willingness to make lifestyle changes for environmental reasons is closely tied to their ecological ethics and value orientation. How this gets formed in everyday situations can occur in unexpected ways, depending upon the context in which they happen. But while people have values, some are easier to put into

practice than others. It has therefore been concluded that how values get channelled into specific actions is relevant, because an actor's goals, values, beliefs and past experiences converge to act as a conduit through which action occurs.

Building on this proposition that lifestyles matter when accounting for environmental action; this chapter has considered further the idea of recycling as habit, which gets formed out of its social and structural context. The discussion began with the proposition that, like other material practices, recycling is a dynamic process with sociological implications. It was shown that while Scottish householders' experience of recycling is socially complex, through recourse to the duality of structure and agency, its continued performance is often dependent upon householders' ability to cultivate and maintenance the routine as habitual. Because this varies between people, who respond out of their unique social situation, implicit in this chapter was a view that routines become naturalised from the way they are enacted. Understood in this way, habits are able to form and fade under different conditions, but not independently of agents, because they are dependent upon actors to form and cultivate them. This research finding therefore contributes to literature that makes the case for the interactions of socially networked actors, as influencing how normal routines get experienced and performed in daily life. The evidence in the data suggested that successful participation in domestic recycling is dependent upon someone in the home instigating and performing recycling, but for this to evolve into habit involves internal and external elements, including: *access to services; commitment to act; time and space; and people's talk*. Each of these is uniquely experienced in each household by virtue of their own social and structural context.

To conclude this chapter, the evidence presented indicates support for the view that it is how practices are performed in daily life that is important for understanding how they get done. But while the identified elements seem appropriate for explaining recycling habit in most households, in some critical cases they are over-simplistic or even inadequate. Cases that did not seem to fit the habit explanation very well were identified as either households where recycling seemed to have transcended habit, or where recycling fails to be prioritised as a daily task. However this begs the question

that, if lifestyles matter and they are indeed influenced by a person's social norms, rules and values could they now be shown in a survey with the right questions? Referring back to the quantitative analyses presented in Chapter 4, the socio-demographic and situational variables included the logistic regression models explained only a limited amount of variance in the outcome. Therefore, it is now worth speculating if this research could be further enhanced by constructing 'new' variables, based on the inductive findings presented in the last two chapters. This 'closing-the-loop' of the research design is an attempt to improve the accuracy of model estimates presented in Chapter 4, which is considered further in the next and final chapter that also serves as the concluding discussion of the thesis.

Chapter 7 Recycling Policy & Practice, a Conclusion

> *'The notion of an inevitable shift to a post-industrial "recycling society" of the future represents a fundamental* ***naïveté*** *on the part of many environmentalists and policy makers over the underlying constraints on recycling in a capitalist economy'.*
>
> Matthew Gandy (1994: 115, emphasis in original)

7.0 Introduction

This thesis has examined the relationship between people and the waste they generate and dispose of in daily life. Focusing on domestic recycling policy and practice, environmental participation and resistance has been explored. The study concludes that rather than focus on individuals and their family or household's behavioural choices for explaining environmental action and inaction, better explanation lies in the social context of embedded practices and how they are enacted in daily life. Sharing in a transitions and practices approach, this research has considered the effectiveness of strategies and initiatives designed to encourage so-called 'green' behavioural change (Jackson 2004). How recycling policy and practice is experienced and engaged with in contemporary Scottish life has been explored by answering one overarching research question: *how best can we explain household recycling practices in the twenty-first century?* In this final chapter, the main research findings are synthesised and the thesis concluded. This involves detailing how the aims and objectives have been met, discussing theoretical and methodological findings, considering future directions for the research and ending with some final thoughts on the implications of the study for policy.

7.1 Evaluating the Thesis Aims and Objectives

In the background and literature review chapter, the intellectual rationale for the research was outlined. This involved placing the thesis within a broader context of

waste and recycling in Scotland and evaluating core empirical and theoretical literature. This thesis has argued that while waste and its disposal may be an inevitable consequence of the social organisation of people, it is usually taken for granted and ignored as a topic of sociological interest. Extending the theoretical arguments made, this thesis makes the case for domestic waste and recycling as socially situated practices, implicated in the interactions of users and actors in society. As a reminder, answering the overarching research question presented above involved considering three additional research sub-questions:

1 What is it about modern families and households that results in some being more likely than others to engage in recycling activities?

2 What is the role of ethics, values and citizenship in influencing environmental concern and action?

3 To what extent can everyday recycling practices be explained as habitual and ritualised?

Using empirical evidence to answer these additional sub-questions, this research has moved away from shallow explanations of behavioural choice to add to a growing body of sociological knowledge on how recycling practice is experienced and engaged with in daily life. In evaluation, it is acknowledged *post hoc* that while I have been critical of the individualising tendencies of psychology and economic approaches to behavioural change, some of the analyses presented strays in the same direction. For instance, the discussion of household values and practices being formed through 'talk' could be construed as also treating the question individualistically. This apparent weakness is returned to later in the chapter, where I speculate ways of looking beyond *variables* and *cases* to look for differences and similarities in personal experience to extrapolate sociological meaning from data.

7.2 Discussion of the Main Findings

In this section the main empirical findings are summarised. These are based on the three data chapters, which together help answer the research questions.

7.2.1 Families and Households

Answering the first research sub-question required understanding an underlying assumption of this thesis that, while waste and its disposal may be an inevitable consequence of socially organised people, it tends to be taken for granted and ignored unless it is *'matter out of place'* (Douglas 2003: 36). This thesis extends arguments that domestic recycling is a socially situated practice implicated in the interactions of different users and actors. As an intentional rebuttal to the dominant discourse of *the individual*, this thesis has shown how recycling is a practice embedded in the social and structural context of everyday life.

As a policy problem, we have seen that most attention tends to get focused onto individuals and their families or households. This occurs for various historical and institutional reasons, which this thesis suggests is problematic because the largest contributors to the waste 'burden' are not domestic consumers, but commercial actors who are largely missing from the debate. Responding to this, this thesis reveals domestic recycling as implicated in and influenced by various internal and external factors. Falling into three analytical categories, nine social and structural factors were initially identified as influencing household recycling: *characteristics of the household*; *the household reference person characteristics*; and *infrastructure and geographic factors*.

The statistical models presented in Chapter 4 and the interview data presented in Chapters 5 and 6 supported the idea that domestic recycling is performed within social contexts. The main findings pointed toward domestic recycling being negotiated and transactional when there are more than two people present in the home. This finding supports the conclusion of other recycling research: Collins et al. (2006) also make the case for domestic recycling being a socially situated practice. In addition, recycling can be seen as part of a 'moral economy' (Scanlan 2005; Silverstone et al. 1992) in people's homes. This is related to the moral norms and values of households as part of a transactional system of production and exchange of

both commodities and meanings (Silverstone et al. 1992). Mundane practices are hierarchically arranged in everyday life, stemming directly from the social embeddedness of practice and not from self-interested rationalising by individuals. But because not all available tasks get prioritised in daily life, families and households are faced with choices about what they will do each day, with different chores being performed in households. This does not occur in a vacuum however, other dimensions were also identified as relevant.

The research suggests too that other situational and structural factors influence recycling activity. Reflecting arguments made elsewhere, for instance Greenbaum (1995); Oates & McDonald (2006); Wallendorf and Reilly (1983); Iyer and Kashyap (2007), among others, this research has shown that across a range of categories, recycling practice, and perhaps other pro-environmental behaviour, is socially determined. This was not only true in relation to internal factors, such as: generational values, gender differences, ethnicity as cultural values or social class; external ones appeared to intervene too. This included where people live and the spaces they occupy and make available for the performance of practice in everyday life. In Chapter 5 it was shown that people's value reasoning leads them to adopt, modify and develop certain practices. In some ways this leads one to ponder if the apparent variation identified between families/households is, in part at least, the same thing the statistical regularities were picking up in Chapter 4. Speculatively this may be why older generations recycle more than younger ones or the professional classes more than others. This may be a moot point, but it illustrates the difficulty of pinning down values and using them to explain differences between cases.

Policy actors are increasingly concerned with understanding better why some households are more likely than others to recycle: municipal recycling rate targets seem to be getting harder to meet and legal obligations are resulting in ever greater sanctions. This study points toward the tendency for environmental policy actors to reproduce a dominant paradigm of the individual. By continuing to focus on cognitive and rational-choice explanations, stakeholders try to measure success or failure of policy interventions. However, they do so at the expense of appreciating

practice as fundamentally implicated in social and structural factors, converging in the routines of normal family or household life. Despite this, the focus in this research on 'typical' socio-demographic variables was still limited in its ability to offer a compete explanation of recycling practice in Scotland. Using variables typical of cross-sectional surveys to construct a best-fitting model, much of the variance remained unexplained. The unaccounted for aspects about how people value the environment and behave towards it still needed to be explained. To do this, the thesis looked beyond *variables* to search for additional explanation in the subjective experience of *cases* as people go about their daily lives, which helps answer the second research question.

7.2.2 Ethics, Values and Citizenship

The second research sub-question was answered as a consequence of the difficulties identified in the preceding section. This was related to the role of ethics, values and environmental citizenship as influencing environmental concern and action. Environmental ethics and values were problematised to try and understand better how environmental concern gets talked about and acted upon in the home. To discuss this, the thesis began with a continuum – or typology – of ecological ethics and values, proposed as a methodological tool for helping explain better environmental citizenship as a normative concept, influencing people's motivation for taking environmental action. Using extracts from the data, it was shown that social rules, norms and values converge to influence how households experience the environment and then act accordingly.

The accounts presented support the view that *lifestyles matter*, but one's willingness to make lifestyle changes is closely tied to ethics and values. Those participants demonstrating the most overt awareness and concern for the environment seem to be trying to live 'better' and more 'sustainable' lives, which results in ecologically-grounded lifestyle choices and behaviour. While these overt displays of environmental concern may indicate a moral basis for how ecological problems get

assessed, by Dark Greens at least, how this is formed in everyday life occurs in unexpected ways depending upon the context in which they occur or get talked about. In contrast, for those exhibiting a broadly intermediate value orientation, environmental action is a much *fuzzier* concept. While the motivation for action by Mid Greens does seem linked to valuing the environment as a priority, this occurs within limits; and while those reporting Light Green values appear partially ecologically concerned, there is less scope for compromise and direct behavioural change when faced with the prospect of giving up highly valued lifestyle activities. Finally, those labelled as Detached fulfilled the expectation that they are neither interested nor willing to make changes to their lifestyle on ecological grounds.

But some values are easier to put in to practice than others. Here the idea of *affordances* (Norman 2002) was posited as offering some explanation for how values get practised in everyday life. The point made here was that a person's goals, values, beliefs and past experiences converge to act as a conduit through which action occurs. Understood in this way, this thesis makes the case for practice as fluid and adaptable, dependent upon the socio-technical system and its interaction history. As a result, knowing what was done, who did it and why it was done influences future action and helps solve the problems faced by society. One conclusion of this research is that environmental behaviour depends upon personal and situational factors, which interact in social spaces and context to determine what actions get *committed to* and *performed* in daily life. While this can be broadly understood within an ethics, values and citizenship framework, these operate on a sliding scale so vary depending upon household's socio-cultural and structural make-up, and the challenges faced in the organisation of everyday life.

7.2.3 Social Practice and the Habit Explanation

The final research sub-question looked to extend the arguments used to answer the first two, that: social rules, norms and values unite to influence how people experience the environment and then act accordingly. This involved making a case for the view that lifestyles matter when it comes to understanding pro-environmental

behaviour. As we saw in the preceding section, one's willingness to make lifestyle changes for environmental reasons is closely tied to ecological ethics and values; but how this gets formed in everyday situations can occur in unexpected ways, depending upon the context in which they happen. Building on this, this thesis considered further the idea of *recycling as habit*, formed out of its social and structural context. This involved viewing recycling as a dynamic process, which like other material practices has direct sociological implications. It was shown that while Scottish householders' experience of recycling is socially complex, through recourse to the duality of structure and agency, its performance is often dependent upon householders' ability to cultivate and maintain the routine as habitual. Because this varies, as people respond out of their social position, routines become naturalised from the way they are enacted. Habits are able to form and fade under different conditions, based on how actors cultivate them. This finding adds to literature that makes the case for the interactions of socially networked actors, as influencing how normal routines get experienced and performed (Shove 2003; Southerton et al. 2004; Shove 2010; Spaargaren 2011). Successful participation in domestic recycling is dependent upon at least one person in the household performing the task but for this to evolve as habit requires internal and external elements to be satisfied, which are experienced by virtue of social and structural context.

So how practices are performed in daily life is important for understanding how they get done. But while the identified elements (*access to services, commitment, time & space,* and *people's talk*) seemed appropriate for explaining recycling as habit in many of the households included in this research, in some critical cases this explanation was over-simplistic or even inadequate. These cases included those where recycling appeared to have transcended habit to be an almost moral response, and households where recycling failed to be prioritised as a domestic chore. However, this leads one to question the idea that, if lifestyles do indeed matter and they are influenced by social norms, rules, ethics and values: could they be explored and identified in a survey with the right questions? Here the reader is referred back to the analyses performed in the first phase, where the socio-demographic and situational variables included in the logistic regression models explained only a limited amount

of variance in the outcome. To take the research full-circle, it is worth speculating if constructing 'new' variables based on the inductive findings could further enhance the research. This attempt at 'closing-the-loop', and improving the accuracy of the model estimates, is discussed after the methodological findings and limitations of the research are considered.

7.3 Methodological Findings, Limitations and Future Directions

The methodology and research design of this research was integral in helping show that rather than be an inconsequential feature of contemporary life, how waste gets generated and disposed of is rooted in social and structural forces that shape people's desires for material objects, how they are consumed and then disposed of. But how people experience this varies by virtue of their social position and ability to access key services and resources. Other than some notable exceptions (Redclift 1996; Yearley 1996; Pellow 2002; Fagan 2002; O'Brien 2008), this is something that mainstream sociology has often failed to recognise. Other disciplines are thus left to account for recycling, even if they are less well equipped to deal with the socio-cultural aspects involved.

7.3.1 Methodological Findings and Limitations

Methodologically this study has been both rewarding and challenging. In retrospect, some things worked better than others. In this section the main methodological findings and limitations of the research are reflected upon, along with some comments on how contradictory data was dealt with. As discussed in Chapter 3, the methodology and research design were selected because they seemed to offer the best opportunity to answer the research questions in a convincing manner using both deductive and inductive forms of knowledge. Because of their complexity, mixed method designs can be difficult to execute. However, a sequential design allows a lone researcher to manage the phases of the project effectively. While mixed methods research is particularly suited to collaborative research (Shulha & Wilson

2003; Teddlie & Tashakkori 2003), I want to challenge the idea that this renders mixed method designs unsuitable for individual researchers. In this research concrete benefits were gained from carefully executing the research design.

Having said that, challenges worth reflecting on did emerge during the conduct of the research. In Phase One in particular, issues typical to any secondary data analysis emerged as problematic. For example, a lack of control over questionnaire content or question format meant Phase One was restricted to the items contained in the dataset. While there were questions about claimed recycling in the SHS, these were simplistic and often needed to be manipulated or transformed to satisfy the assumptions or requirements of the modelling strategy. This enables the skills of the analyst to be enhanced, but managing large datasets is time consuming and necessarily complex. In Phase Two, the main methodological challenge related to the use of solicited diaries. While Blaikie (2000) suggests that diaries are suitable for a range of research designs on their own or in combination with other methods, Alaszewski (2006) suggests that the resulting data can vary in quality and accuracy, being prone to error, missing entries or socially desirable narratives. Unsurprisingly, all of my participating households claimed that the diary contents were an accurate reflection of their 'normal' waste and recycling routine. While twelve households reported the act of keeping the diary was relatively straightforward; two found knowing what to report difficult; and four found it repetitive to do for two weeks. This is not surprising given the mundane nature of the subject matter. However, the diary was in retrospect a useful way to raise participant awareness of waste and recycling prior to interview, enabling more face-to-face interview time to be spent exploring interesting points and getting to the best material sooner.

One difficulty in mixed methods research is handling contradictory data. If research aims to construct multi-dimensional explanations (May 2010), it makes sense to ask different questions about social phenomena, using various data and methods to illuminate its contrasting elements. While this may suggest contradiction (Mason 2006b), capturing multiple dimensions on a given phenomenon can also be considered methodologically illuminating. For instance, in Phase One of this

research it was found that having children in the household was not statistically associated with claimed recycling activity. However when explored qualitatively in Phase Two, how families with children talk about recycling seems important for understanding how it gets appropriated and performed as a daily household chore. While this could be seen to suggest contradiction, it also indicates a need to look at everyday practices using a variety of research tools to provide a holistic understanding. The methodological findings of this research therefore support Mason's (2006a) suggestion that, with care and an appropriate research strategy, the multi-dimensionality and complexity of society and social problems can be better understood by virtue of the very tensions between research approaches.

7.3.2 'Closing-the-Loop'

Overall this thesis suggests environmental action (taken here to include recycling) is related to personal and situational factors that interact together in social contexts to determine how, or if, an action will get practised. Accordingly in this section consideration is given to the question whether we could now 'close-the-loop' and further enhance the research by using the inductive findings to recommend 'new' variables to improve the accuracy of the statistical modelling? Large-scale cross-sectional surveys appeal because their substantial sample size and nationally representative data that can be inferred back to the population with confidence. In particular, they are good for counting and measuring socio-demographic characteristics. However, in terms of understanding claimed recycling practice, the SHS proved limited in its ability to account for recycling in everyday life. As outlined above, this required substantial data manipulation and transformation to meet the requirements of the statistical techniques used and to squeeze as much valuable information as possible out of the variables in the survey. The danger of this is that it can lead to a loss of information (De Vaus 2002: 343) or loss of meaning (van Bommel 2005: vii), if the changed data is far removed from how it was asked or recorded.

In speculating if 'new' variables could be constructed or included in the survey to

improve the predictive ability of the statistical models, various factors were identified as potentially useful for increasing the predictive ability of the regression modelling, but were not issues addressed in the original survey. It is proposed here that the following two types of variables could potentially improve the model estimates and enhance understanding, not only of recycling practice, but also other research areas interested in the social embeddedness of what people do in their everyday lives:

1 *Measuring different forms of 'capital'* - How different forms of capital (social, political and intellectual) and the prevalence of 'taste' and 'distinction' are used to in the performance of practice.
2 *Measuring ecological lifestyles* - Using indictors of lifestyles (e.g. transport options, food miles, material consumption, recycling and re-use) together to examine how contemporary lifestyles are changing in relation to socio-ecological concerns.

In evaluating these suggestions, measuring lifestyles and (non-economic) forms of capital evokes an interest because they may help explain further, not only changes to how people live their lives, but also the role of knowledge, civic engagement and co-operation among groups of people, through shared norms, values and understandings. In short, these factors are relevant for understanding pro-environmental behaviour. The SHS has included, over the years, different indicators of social capital[22], though not specifically political or intellectual capital. In this research, the indicators of social capital as they stood in the survey in the 2005/2006 releases of data were not significantly associated with the recycling outcome. But as indicators, this does not mean they are not relevant or intervening. The nature of survey research makes the measurement of subjective categories with closed questions difficult, because they are prone to error or misinterpretation. Therefore further work needs to build on the

[22] According to Hall et al. (2008) the Office for National Statistics identifies five key dimensions of social capital: views about the local area; civic participation; social networks and support; social participation; and reciprocity and trust.

burgeoning literature related to the measurement of lifestyles and forms of capital in social surveys.

7.3.3 Directions for Future Research

Here future directions for the research are discussed. Above it was speculated if 'new' variables could now be suggested that could improve the accuracy of the research results presented in this thesis. The first obvious extension to the research would be to construct specific survey questions to act as indicators of forms of capital and lifestyles and include them in a nationally representative survey. However while this may help capture dimensions of recycling practice that moves away from standardised socio-demographic variables, other dimensions of recycling were also identified, but it is proposed would be better investigated using a qualitative framework:

- *Exploration of practice as "performance" and practice as "talk"*
- *How practice is appropriated in everyday social contexts*
- *How environmental knowledge transfers between agents*

The findings of this thesis suggest that being able to observe everyday practices in *real-life* and *real-time* situations could be helpful for revealing how practices get appropriated and performed in everyday situations. Taking the lead from other empirical studies that have used innovative research methods to explore social interaction and everyday practice (for example, Woolgar 2007; Laurier et al. 2008; Martens 2011), I suggest there is scope to explore further everyday waste and recycling practices in a similar manner. In addition, looking at how mundane practices are shaped through their performance should also be able to overcome any inadvertent reproduction of the dominant paradigm of the individual, which was discussed in Section 7.1 above.

7.4 Evaluation of the Research

In this section the research is evaluated in relation to validity, reliability and the status of the accounts. In addition, some reflexive comments on my role as actor-researcher are provided.

7.4.1 Validity, Reliability and the Status of the Accounts

Reliability concerns the consistency of a measure, or whether the same results would be achieved if the study were to be repeated (Bryman 2001). Validity is defined as the: *'[…] ability of the researcher to draw meaningful and accurate conclusions from all of the data in the study'* (Creswell & Plano Clark 2007: 146). While measurement error is accepted as an inevitable feature of all sociological data (Fielding & Gilbert 2006), it is worth paying particular attention to these in mixed method studies, which must contend with the general reliability and validity concerns of mono-method approaches to research; these do not disappear when multiple data types are collected and analysed.

As we have seen throughout this research, this thesis sought to avoid methodological purism and rejected the main claims of the *incompatibility thesis* (Howe 1988). This asserted on paradigmatic grounds that different data types and analysis techniques are incommensurable. Adopting a pragmatic approach in this study, epistemology and methodology were de-linked and the entire research methods toolkit consulted to increase reliability and validity (Silverman 2006; Furlong et al. 2000). As detailed in Chapter 3, operating in two phases, the *Sequential Explanatory Mixed Methods Design* combined quantitative analyses and qualitative interpretation to overcome known limits of these respective research strategies. This approach was based on a view that the numerical analyses in Phase One would provide a broad understanding of the research problem, which could inform and enhance the qualitative Phase Two. The second phase could refine and explain further the statistical results through an exploration of participants' own views of their unique experience. This multi-method

approach illuminated different facets of the research questions and thus increased validity and reliability. But while this strategy helped reinforce the findings and improve the validity of the research, it also enabled discrepancies and contradictions in the data to be identified for further investigation.

Answering the research questions by exploiting both quantitative and qualitative approaches was identified at the research design stage. Quantitative approaches were assumed to be advantageous because they are generalisable and provide systematic evidence, qualitative ones providing grounded and interpretive evidence, unique to each research participant. While qualitative approaches have been challenged for a lack of representativeness (Bryman 2001) caused by smaller sample sizes and the deep involvement of the investigator with the research participants, using them in combination with numerical data increased the *external validity* of the study and the ability to make wider generalisations when drawing conclusions and making recommendations (Marshall & Rossman 2010). By sensitively reporting the data from the standpoint of the research design and discussing the validity explicitly as part of the wider project (Bryman 2001), it has been my intention to use all of the data to arrive at higher levels of abstraction whilst remaining true to the original accounts, whether numeric or narrative. This involved synthesising and analysing the data mindfully aware of the context within which it was generated. By reflexively engaging in the research process, I trust I have been true to the intentions and goodwill of all of the participants.

7.4.2 Reflexivity & the Role of the Researcher

Reflexivity is understood to mean reflecting back on the research and one's own role in the process, which is important because researchers are implicated in the research that they conduct (Bryman 2001). Reflecting on my role, I came to the research as a person who deeply cares about the state of the natural environment and the relationship human societies have with the planet. It was this that inspired and motivated the choice of research topic that evolved into the thesis before you today. It would be wrong to claim an objectivity that transcends my own social norms,

attitudes and values about the environment more generally, and waste and recycling policy and practice specifically. While it is accepted that these have impacted upon the execution of the research, what I have found to be important is recognising their influence in and on the research. Reflecting a general scepticism that it is not possible to have an entirely value-free and objective social science (May 1993: 4), I took a reflexive approach to the design and implementation of the research that broadly shares in Stanley and Wise's (1983) view that the researcher is: *'[…] **always** the medium through which research occurs; there is not a method or technique for doing research other than through the medium of the researcher'* (p.157, emphasis in original). In this respect, it was recognised that all research is value-laden, but our empirical endeavours are not harmed by this acknowledgment. Rather by explicitly recognising the role of the researcher and his or her values as being implicated in the design and execution of research, the view is maintained that it enriches it.

7.5 Implications of the Research

Implications for sociological theory and recycling policy resulting from this research are considered in this section as a way of concluding the thesis. This involves identifying how this study contributes to theoretical knowledge about environmental practices, the role of sociology in researching public interests and making policy recommendations based on these research findings.

7.5.1 Implications for Theory

This thesis has attempted to extend the theoretical arguments that domestic waste and recycling are socially situated practices, implicated in the interactions of users and actors. Motivated out of an ontological objection to the idea that individual attitudes and beliefs are sufficient to explain and account for pro-environmental behaviour, this thesis looks beyond the individual when it comes to explaining how householders negotiate the environment in everyday life. Through recourse to both

social and ecological facts, evidence has been provided to support a conclusion that it is how environmental problems get experienced and acted upon (if at all) in their social context that is important. Supporting a transitions and practices approach, it has been shown that known and hidden elements of social practices help explain conventions, technologies and infrastructures as converging to constrain or enable (un)sustainable behaviour, not just at an individual or micro- level, but at meso- and macro- levels too. These conclusions lead one to reflect on the public role of the intellectual (Said 1994) and the call for a public sociology (Burawoy 2005). In both cases, scholars call for a critical engagement with society and its institutions to transform the world. While there are clearly normative aspects to this, the latter case more so (Tittle 2004), they nevertheless appeal when it comes to thinking about a sociology that is relevant to public issues, something I remain sympathetic to and which has guided my conduct of this research.

7.5.2 Implications for Policy

Since 2007, the Scottish Government's strategic objectives have been to make Scotland: *wealthier & fairer, smarter, healthier, safer & stronger and greener* (The Scottish Government 2007). Social researchers have a role to play in this by providing evidence for policymakers to assist making decisions. Several points can be made about this in light of this research. The first relates to the provision of evidence, which should be problem-led, not policy-led. As a result, recommendations may get made that do not always fit with stakeholders' expectations. For example, in this thesis I have been critical of the ways that environmental problems get framed as problems to be solved at the site of individuals and their families. In fact, this thesis concludes that, in terms of environmental policy at least, this dominant paradigm that permeates policy needs to be challenged and a case made for better explanation residing in the nexus of socially embedded practices. This is not to assert that social or cognitive psychology and behavioural economics cannot inform policy, but it should at least be acknowledged that they are not the only disciplines equipped to provide answers to the complex social and ecological problems faced by society.

This research has also suggested that just as some people are avid recyclers, others are less committed and some groups of people are just not interested. Reasons for this include the perceived non-immediacy of environmental problems and a failure to prioritise some tasks over others. In this respect, a case can be made for those who already do recycle being encouraged to do more, through improved services or technology. However, while this may potentially increase overall recycling rates, it is worth reflecting on the kind of society we want to live in. Would it be acceptable for the unchecked *over*-consumption of some people to continue just because others are willing to make lifestyle changes to reduce their burden? My view is that collective responsibility as a society for the consumption of material objects and their final disposal is important.

Less attention needs to be focused on individuals and their consumption and disposal choices, and more focused on manufacturers and retailers, who are largely absent from the debate. A positive start has been made in recent years with relevant actors and stakeholders being included in discussions about creating a *zero waste society* (The Scottish Government 2010b, 2010c). However, for this to be more than mere 'green-washing' (Wilson 2010) or the cynical marketing of green credentials, real leadership is required so that ecological concerns are addressed as 'start-of-pipe' considerations and not 'end-of-pipe' concerns (Mattioli et al. 2002). Shifting responsibility toward producers may reduce the burden on householders, but it will increase costs, so appetite for this kind of change in focus is not likely especially at present. Where policymakers could make a significant difference is in taking the lead and promoting a truly national waste and recycling strategy that includes nationally negotiated recyclate markets. Not only will this increase the net value of Scotland's recycling material, it will also smooth out many of the inconsistencies in service provision across the country. The variation and contradictions in Scottish recycling service provision not only leads to differentiated performance in Scotland's local authorities, it also causes confusion amongst the public. We have seen in many of the accounts presented in this research, the public are often capable and aware of what different material objects can theoretically be recycled. Confusion emerges when their local authority refuses to collect some items, such as plastics, for unknown

reasons. This leads one to a final conclusion that reflects on the extract taken from Gandy (1994) used as an epitaph to introduce this final chapter. This thesis agrees with the sentiment that it would be *sociologically naïve* to think we have moved toward being a kind of *post*-recycling society. As shown in this research, recycling remains a highly differentiated practice implicated in the social and structural constraints of the advanced industrial society within which they occur.

Bibliography

Abercrombie, N., Hill, S. and Turner, B.S. (Eds.) (2000) The Penguin Dictionary of Sociology. Fourth Edition. London: Penguin Books

Abram, D. (1996) The Spell of the Sensuous: Perception and Language in a More-Than-Human-World. New York: Pantheon Books

Adams, W.M. (2001) Green Development: Environment and Sustainability in the Third World. Second Edition. Routledge: London

Agresti, A. (2002) Categorical Data Analysis. New York: Wiley-Interscience

Ajzen, I. and Fishbein, M. (1977) *Attitude-Behavior Relations: A Theoretical Analysis and Review of Empirical Research*. In Psychological Bulletin. Vol. 84, No. 5, pp. 888-918

Ajzen, I. and Fishbein, M. (1980) Understanding Attitudes and Predicting Social Behavior. Englewood Cliffs, NJ: Prentice-Hall

Alaszewski, A. (2006) Using Diaries in Social Research. London: Sage

Aldred, J. (2009) *Ethics and Climate Change Cost-Benefit Analysis: Stern and After.* In New Political Economy. Vol. 14, No. 4, pp. 469-488

Applied Soc (2011) Applying Sociology Within Various Levels of Society. Accessed at: http://www.appliedsoc.org/society/ on 15th October 2011

Archer, M. (1995) Realist Social Theory: The Morphogenetic Approach. Cambridge: Cambridge University Press

Attfield, R. (2003) Environmental Ethics: An Overview for the Twenty-First Century. Cambridge: Polity Press

Audit Scotland (2005) Sustainable Waste Management. Draft Project Brief. Edinburgh: Audit Scotland

Audit Scotland (2010) Protecting and Improving Scotland's Environment. Report prepared for the Auditor General for Scotland and the Accounts Commission. Edinburgh: Audit Scotland (January 2010)

Baker, S. (2006) Sustainable Development. London: Routledge

Ball, R. and Lawson, S.M. (1990) *Public Attitudes Towards Glass Recycling in Scotland.* In Waste Management and Research. Vol. 8, pp. 177-182

Bandura, A. (1977) Social Learning Theory. New York: General Learning Press

Barr, S. (2002) Household Waste in Social Perspective. Aldershot: Ashgate

Barr, S. (2008) Environment and Society: Sustainability, Policy and the Citizen. Aldershot & Burlington: Ashgate

Barr, S. and Gilg, A. (1998) *Environmental Communication and the Cultural Politics of Environmental Citizenship*. In Environment and Planning A. Vol. 30, pp. 1445–1460

Beck, U. (1992) Risk Society: Towards a New Modernity. London: Sage

Becker, H. (1950) Through Values to Social Interpretation. Durham, North Carolina. Dune University Press

Belk, R.W. (1988) *Possession and the Extended Self.* In Journal of Consumer Research. Vol. 15, No. 2, pp. 139-168

Bell, D. (1976) The Coming of Post-Industrial Society. A Venture in Social Forecasting. New York: Basic Books

Bellah, R.N., Madsen, R., Sullivan, W.M., Swidler, A. and Tipton, S.M. (1985) Habits of the Heart: Individualism and Commitment in American Life. London: Harper & Row

Benson, J. (2000) Environmental Ethics. London: Routledge

Bergmann, W. (1992) *The Problem of Time in Sociology: An Overview of the Literature on the State of Theory and Research on the "Sociology of Time", 1900-82.* In Time & Society. Vol. 1, No. 1, pp. 81-134

Blaikie, N. (2000) Designing Social Research: The Logic of Anticipation. Cambridge: Polity Press

Blake, J. (1999) *Overcoming the `Value - Action Gap' in Environmental Policy: Tensions Between National Policy and Local Experience*. In Local Environment. Vol. 4, pp. 257-278

Bland, J.M. and Altman, D.G. (2000) *Statistics Notes. The Odds Ratio*. In British Medical Journal. Vol. 320, pp. 1468

Blowers, A. (1997) *Environmental Policy: Ecological Modernisation or the Risk Society?* In Urban Studies. Vol. 34, pp. 845-871

Blumer, H. (1969) Symbolic Interactionism: Perspective and Method. Englewood Cliffs, N.J.: Prentice-Hall

Bourdieu, P. (1977) Outline of a Theory of Practice. Cambridge: Cambridge University Press

Bourdieu, P. (1984) Distinction: A Social Critique of the Judgement of Taste. London: Routledge

Boyle, M. (2001) *Cleaning Up After the Celtic Tiger: The Politics of Waste Management in Ireland*. In Journal of the Scottish Association of Geography Teachers, Vol. 30. pp. 71-91

Boyle, M. (2002) *Cleaning Up after the Celtic Tiger: Scalar 'Fixes' in the Political Ecology of Tiger Economies.* In Transactions of the Institute of British Geographers. 27 172–194

Brase, C.H. and Brase, C.P. (1987) Understandable Statistics. Third Edition. Massachusetts: D.C. Heath & Company

Breidenbach, A.W. and Eldredge, R.W. (1969) *Research and Development for Better Solid Waste Management*. In BioScience. Vol. 19, No. 11, pp. 984-988

Breschi, S. and Malerba, F. (1997) *Sectoral systems of innovation: technological regimes, Schumpeterian dynamics, and spatial boundaries*. In Edquist, C. (Ed.) Systems of innovation: technologies, institutions and organizations. London: Pinter

British Sociological Association (2002) Statement of Ethical Practice. Retrieved from http://www.britsoc.co.uk/equality/Statement+Ethical+Practice.htm on 27th June 2011

Bryce, W.J., Day, R. and Olney, T.J. (1997) *Commitment Approach to Motivating Community Recycling: New Zealand Curbside Trial*. In The Journal of Consumer Affairs. Vol. 1, No. 1, pp. 27-52

Bryman, A. (1998) *Quantitative & Qualitative Research Strategies in Knowing the Social World*. In May, T. & Williams, M. (Eds.) Knowing the Social World. Buckingham: Open University Press

Bryman, A. (2001) Social Research Methods. Oxford: Oxford University Press

Burawoy, M. (2005) *American Sociological Association 2004 Presidential address: For public sociology*. In American Sociological Review. Vol. 70, Issue 1, pp. 4-28

Burgess, J., Harrison, C.M. and Filius, P. (1998) *Environmental Communication and the Cultural Politics of Environmental Citizenship*. In Environment and Planning A. Vol. 30, pp. 1445-1460

Capecchi, V. (1968) *On the definition of typology and classification in sociology.* In Quality & Quantity. Vol. 2, No. 1-2, pp. 9-30

Carlsson, B. and Stankiewicz, R. (1991) *On the nature, function and composition of technological systems*. In The Journal of Evolutionary Economics. Vol. 1, pp. 93-118

Carpenter, J. and Kenward, M. (no date) Guidelines for handling missing data in social science research. Retrieved from http://missingdata.lshtm.ac.uk/downloads/guidelines.pdf on 7th February 2011

Chambers, P. Allan, G. Phillipson, C. and Ray, M. (2009) Family Practices in Later Life. Bristol: The Policy Press

Chappells, H. and Shove, E. (1999) *The Dustbin: A Study of Domestic Waste, Household Practices and Utility Services*. In International Planning Studies. Vol. 4, No. 2, pp. 267-280

Chartered Institution of Wastes Management (CIWM) (no date) Waste Collection, Recycling and Environmental Cleansing Special Interest Group. Retrieved from http://www.ciwm.co.uk/CIWM/InformationCentre/SpecialInterestWorkingGroups/SIG_WasteColl/WCREC.aspx on 17th February 2011

Chawla, L. (1998) *Significant Life Experiences Revisited: A Review of Research on Sources of Pro-environmental Sensitivity*. In Journal of Environmental Education. Vol. 29, No. 3, pp. 11–21

Cherryholmes, C.C. (1992) *Notes on Pragmatism and Scientific Realism*. In Educational Researcher. Vol. 21, No. 6, pp. 13-17

Cho, J. and Trent, A. (2006) *Validity in qualitative research revisited*. In Qualitative Research. Vol. 6, No. 3, pp. 319-340

Coleman, A.K. (1985) *Alternatives to Landfill*. In Porteous, A. (Ed.) Hazardous Waste Management Handbook. London: Butterworths

Collins, A., O'Doherty, R. and Snell, M.C. (2006) *Household participation in waste and recycling: Some national survey evidence from Scotland*. In Journal of Environmental Planning and Management. Vol. 49, No. 1, pp. 121-140

Corti, L. (1993) *Using Diaries in Social Research*. In Social Research Update No. 2. University of Surrey. March 1993

Creswell, J.W. (2003) Research Design. Second Edition. Sage: London

Creswell, J.W. and Plano-Clark, V.L. (2007) Designing & Conducting Mixed Methods Research. London: Sage

Creswell, J.W., Plano Clark, V., Gutmann, M.L. and Hanson, W.E. (2003) *Advanced Mixed Methods Research Designs*. In Tashakkori, A. & Teddlie, C. (Eds.) Handbook of Mixed Methods in Social & Behavioral Research. London: Sage

Crofts, C., Kuss-Tenzer, C. and Birley, D. (2004) Recycling for flats: Case studies of recycling schemes for housing estates, high-rise blocks and other areas of high-density housing. A study conduced by Waste Watch, commissioned by Defra, Waste Implementation Programme, Local Authority Support Unit

Curry, P. (2006) Ecological Ethics. Cambridge: Polity

Davies, A.R. (2008) The Geographies of Garbage Governance. Aldershot: Ashgate

Day, W. and Lee, A. (2011) *What Next for Sustainable Development?* Press release issued on behalf of the Commissioners and staff of the Sustainable Development Commission. Retrieved from http://www.sd-commission.org.uk/presslist.php/119/what-next-for-sustainable-development on 18th May 2011

De Certeau, M. (1984) The Practice of Everyday Life (translated by Rendall, S.). Berkeley, CA and London: University of California Press

Department of the Environment, Food and Rural Affairs (Defra) (2005) One Future - Different Paths. The UK's Shared Framework for Sustainable Development. Retrieved from http://www.sd-commission.org.uk/publications.php?id=215 on 18th May 2011

Defra (2011) Mainstreaming Sustainable Development. Retrieved from http://sd.defra.gov.uk/documents/mainstreaming-sustainable-development.pdf on 18th May 2011

Derksen, L. and Gartrell, J. (1993) *The Social Context of Recycling*. In American Sociological Review. Vol. 58, No. 3, pp. 443-442

De Vaus, D.A. (2002) Surveys in Social Research. Fifth Edition. Abingdon: Routledge

Dispensa, J.M. and Brulle, R.J. (2003) *Media's Social Construction of Environmental Issues: Focus on Global Warming – A Comparative Study*. In The International Journal of Sociology and Social Policy. Vol. 23, No. 10, pp. 74-105

Dobson, A. and Bell, D. (Eds.) (2006) Environmental Citizenship. Cambridge MA & London: The MIT Press

Dopfer, K. Foster, J. and Potts, J. (2004) *Micro-Meso-Macro*. Journal of Evolutionary Economics. Vol. 12, pp. 263-279

Douglas, M. (2003) Purity and Danger: An Analysis of Concepts of Pollution and Taboo. London: Routledge

Dunlap, R.E. (2002) *Paradigms, Theories, and Environmental Sociology*. In Dunlap, R.E. Buttel, F.H., Dickens, P. & Gijswijt, A. (Eds.) Sociological Theory & the Environment. Oxford: Rowman & Littlefield

Dunlap, R.E. (2010) *A New Ecological Paradigm for Sociology*. In Giddens, A. and Sutton, P.W. (Eds.) Sociology: Introductory Readings. Cambridge: Polity Press

Dunlap, R.E., Buttel, F.H., Dickens, P. and Gijswijt, A. (2002) *Sociological Theory and the Environment: An Overview and Introduction*. In Dunlap, R.E., Buttel, F.H., Dickens, P. and Gijswijt, A. (Eds.) Sociological Theory & the Environment. Oxford: Rowman & Littlefield

Dunlap, R.E. and Catton, W. Jr. (1979) *Environmental Sociology*. In Annual Review of Sociology. Vol. 5, pp. 243-73

Dunlap, R.E., Van Liere, K.D., Mertig, A.G. and Jones, R.E. (2000) *Measuring endorsement of the New Ecological Paradigm: A Revised NEP Scale*. In Journal of Social Issues. Vol. 56, No. 3, pp. 425-442

Dürr, E. (2010) *'Tidy Kiwis/Dirty Asians': Cultural Pollution and Migration in Auckland, New Zealand*. In Dürr, E. and Jaffe, R. (Eds.) Urban Pollution: Cultural Meanings, Social Practices. Oxford: Berghahn Books

Economic & Social Research Council (ESRC) (2011) Quantitative Methods Initiative. Retrieved from http://www.esrc.ac.uk/funding-and-guidance/tools-and-resources/research-resources/initiatives/qmi.aspx on 14th July 2011

Eco-Schools Scotland (no date) *Introduction to Eco-Schools*. Retrieved from www.ecoschoolsscotland.org on 8th February 2011

Eden, S. (1996) *Public Participation in Environmental Policy: Considering Scientific, Counter-scientific and Non-scientific Contributions*. In Public Understanding of Science. Vol. 5, pp. 183–203

Elias, N. (1992) Time: An Essay. Oxford: Blackwell

Elliot, H. (1997) *The Use of Diaries in Sociological Research on Health Experience*. In Sociological Research Online. Vol. 2, No. 2

Ellis, R. (2008) *Applying Bourdieu to Socio-Technical Systems. The Importance of Affordances for Social Translucence in Building 'Capital' and Status to eBay's Success.* Technology and Social Change Working Paper: 2008-03. Technology and Social Change Centre at the Institute for Social and Technical Research, The University of Essex

Environmental Audit Committee (2011) Sixth Report - Budget 2011 and Environmental Taxes. UK Parliament Publication. Retrieved from

http://www.publications.parliament.uk/pa/cm201012/cmselect/cmenvaud/878/87802.htm on 7th July 2011

European Commission (no date) Sustainable Urban Waste Management. Retrieved from http://ec.europa.eu/research/environment/print.cfm?file=/comm/research/environment/newsanddoc/article_3186_en.htm on 14th May 2011

European Commission (2008) Italy: Commission sends final warning over waste crisis in Campania region. European Commission Press Release IP/08/151

European Commission (2010) Waste Statistics. Retrieved from http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Waste_statistics#Waste_generated_by_households on 19th July 2011

European Commission (2011) Waste. Retrieved from http://ec.europa.eu/environment/waste/index.htm on 25th July 2011

Fagan, H. (2002) *Grounding Waste: Towards a Sociology of Waste Networks.* NIRSA Working Paper Series No. 18. December 2002. Retrieved from http://www.nuim.ie/nirsa/publications/WPS18.pdf on 6th August 2008

Field, A. (2005) Discovering Statistics Using SPSS. Second Edition. London: Sage

Field, B.C (1994) Environmental Economics. An Introduction. London: McGraw-Hill

Fielding, J. and Gilbert, N. (2006) Understanding Social Statistics. Second Edition. London: Sage

Finch, J. and Mason, J. (1993) Negotiating Family Responsibilities. London: Routledge

Flom, P.L. and Strauss, S.M. (2003) *Some Graphical Methods for Interpreting Interactions in Logistic and OLS Regression*. In Multiple Linear Regression Viewpoints. Vol. 29, No. 1

Friends of the Earth (2008) How can the Government increase recycling? Retrieved from http://www.foe.co.uk/resource/faqs/waste_recycling_increase_5912.html on 17th February 2011

Furlong, N., Lovelace, E., & Lovelace, K. (2000) Research Methods and Statistics: An Integrated Approach. London: Hartcourt College

Gamba, R.J. and Oskamp, S. (1994) *Factors Influencing Community Residents' Participation in Commingled Curbside Recycling Programs*. In Environment & Behavior. Vol. 26, No. 5, pp. 587-612

Gandy, M. (1994) Recycling and the Politics of Urban Waste. London: Earthscan

Gatersleben, B., White, E., Abrahamse, W., Jackson, T. and Uzzell, D. (2010) *Values and Sustainable Lifestyles*. In Architectural Science Review. Vol. 53, pp. 37-50

Geels, F.W. (2002) *Technological Transitions as Evolutionary Reconfiguration Processes: A Multi-Level Perspective and a Case-Study*. In Research Policy. Vol. 31, pp. 1257-1274

Geels, F.W. (2004) *From Sectoral Systems of Innovation to Socio-Technical Systems: Insights About Dynamics and Change from Sociology and Institutional Theory*. In Research Policy. Vol. 33, No. 6/7, pp. 897-920

Geels, F.W., Elzen, B. and Green, K. (2004) *General Introduction: System Innovation and Transitions to Sustainability*. In Elzen, B., Geels, F.W. and Green, K. (Eds.) System Innovation and the Transition to Sustainability. Theory, Evidence and Policy. Cheltenham: Edward Elgar

Geels, F.W. and Kemp, R. (2007) *Dynamics in Socio-Technical Systems: Typology of Change Process and Contrasting Case Studies*. In Technology in Society. Vol. 29, pp. 441-455

General Register's Office for Scotland (GROS) (2011) Scotland's Census Results Online. Retrieved from www.scrol.gov.uk on 8th February 2011

Giddens, A. (1986) The Constitution of Society. Cambridge: Polity Press

Gioia, D.A. (1999) *Practicability, Paradigms, and Problems in Stakeholder Theorizing*. In Academy of Management Review. Vol. 24, No. 2, pp. 228-232

Gioia, D.A. and Pitre, E. (1990) *Multiparadigm Perspectives on Theory Building*. Academy of Management Review. Vol. 15, No. 4, pp. 584-602

Goffman, E. (1959) The Presentation of Self in Everyday Life. Harmondsworth: Penguin

Greenbaum, A. (1995) *Research on the Social Bases of Environmental Concern*. In Mehta, M.D. & Ouellet (Eds.) Environmental Sociology. Ontario: Captus Press

Grisham, J.W. (Ed.) (1986) Health Aspects of the Disposal of Waste Chemicals. New York: Pergamon

Guagnano, G.A., Dietz, T. and Stern, P.C. (1994) *Willingness to Pay for Public Goods: A Test of the Contribution Model*. In Psychological Science. Vol. 5, pp. 411-145

Gutowski, T.G. (2008) *Thermodynamics and Recycling, A Review*. Paper presented at IEEE International Symposium on Electronics and the Environment. San Francisco, USA. 19-20 June 2008

Hackett, E. J., Amsterdamska, O., Lynch, M. and Wajcman, J. (2008) *Introduction to the Handbook of Science & Technology Studies*. In Hackett, E.J., Amsterdamska, O., Lynch, M. and Wajcman, J. (Eds.) The Handbook of Science & Technology Studies. London, The MIT Press

Hair, J.F., Black, W.C., Babin, B.J. and Anderson, R. E. (2009) Multivariate Data Analysis: A Global Perspective. Seventh Edition. New Jersey: Pearson

Hall, C., Rafferty, A. and Higgins, V. (2008) Social Capital: Introductory User Guide. Version 1.2. Economic and Social Data Service

Hall, S. (1973) *Encoding, Decoding*. In During, S. (Ed.) The Cultural Studies Reader. London: Routledge (1999)

Hammersley, M. (1992) What's Wrong with Ethnography? London: Routledge

Hammersley, M. (2011) Methodology: Who Needs it? London: Sage

Hannigan, J. (1995) Environmental Sociology. London: Routledge

Havlick, J., Tolley, G.S. and Wang, Y. (1969) *'Solid Wastes': A Resource?* In American Journal of Agricultural Economics, Vol. 51, No. 5, pp. 1598-1602

Hawkins, G. (2001) *Plastic Bags: Living with Rubbish.* In International Journal of Cultural Studies. Vol. 4, No. 1, pp. 5-23

Hawkins, G. (2006) The Ethics of Waste. Oxford: Rowman & Littlefield

Hekman, S.J. (1983) Max Weber and Contemporary Social Theory. Oxford: Martin Robertson & Company Ltd

Hetherington, K. (2004) *Secondhandedness: Consumption, Disposal, and Absent Presence.* In Environment & Planning D: Society and Space. Vol. 22, pp. 157-173

Highfill, J. and McAsey, M. (2001) *An Application of Optimal Control to the Economics of Recycling*. In ISIAM Review, Vol. 43, No. 4, pp. 679-693

Hinton, E.D. and Goodman, M.K. (2010) *Sustainable Consumption: Developments, Considerations and New Directions.* In Redclift, M.R. and Woodgate, G. (Eds.) The International Handbook of Environmental Sociology. Second Edition. Cheltenham: Edward Elgar

Hodge, I. (1995) Environmental Economics. Individual Incentives and Public Choices. Basingstoke and London: Macmillan Press

Hodgson, G.M (2004) *Reclaiming Habit for Institutional Economics*. In Journal of Economic Psychology. Vol. 25, pp. 651–660

Holdsworth, M. (2003) *Green Choice: What Choice?* Summary of NCC Research into Consumer Attitudes to Sustainable Consumption. London: National Consumer Council

Hosmer, D.W. and Lemeshow, S. (1989) Applied Logistic Regression. New York: Wiley

Hosmer, D.W. and Lemeshow, S. (2000) Applied Logistic Regression. Second Edition. New York: Wiley

Howe, K.R. (1988) *Against the Quantitative-Qualitative Incompatibility Thesis or Dogmas Die Hard.* In Educational Researcher. Vol. 17, No. 8, pp.10-16

Inglehart, R. (1977) The Silent Revolution: Changing Values and Political Styles Among Western Publics. Princeton: Princeton University Press

Irzik, G. and Nola, R. (2007) *Worldviews and their Relation to Science*. In Science & Education. Vol. 18, Nos. 6-7, pp. 729-745

Iyer, E.S. and Kashyap, R.K. (2007) *Consumer Recycling: Role of Incentives, Information and Social Class*. In Journal of Consumer Behaviour. Vol. 6, Issue 1, pp. 32-47

Jackson, J. (1997) Quality in Market Research. London: Kogan Page Ltd

Jackson, S. (1999) *Families, Household and Domestic Life*. In Taylor, S. (Ed.) Sociology: Issues and Debates. Basingstoke: Macmillan

Jackson, T. (1996) Material Concerns: Pollution, Profit and Quality of Life. London and New York: Routledge

Jackson, T. (2004) *Motivating Sustainable Consumption. A Review of Evidence on Consumer Behaviour & Behavioural Change.* A Report to the Sustainable Development Research Network. Centre for Environmental Strategy, University of Surrey

Johnson, R.B. and Onwuegbuzie, A.J. (2004) *Mixed Methods Research: A Research Paradigm Whose Time Has Come*. In Educational Researcher, Vol. 33, No. 7, pp. 14-26

Johnstone, N. and de Tilly, S. (2006) *Public Policy & Recycling Markets*. Improving Recycling Markets. OECD Publishing

Jones, R.E. and Dunlap, R.E. (1992) *The Social Bases of Environmental Concern: Have They Changed Over Time?* In Rural Sociology. Vol. 57, pp. 28-47

Kallgren, C. A. and Wood, W. (1986) *Access to Attitude Relevant Information in Memory as a Determinant of Attitude-Behavior Consistency*. In Journal of Experimental Social Psychology, Vol. 22, pp. 328-338

Kellert, S. (1984) *American Attitudes Toward and Knowledge of Animals: An Update*. In Fox, M. and Mickley, L. (Eds.) Advances in Animal Welfare Science. Boston, MA: Martinus Nijhoff

Kiely, G. (1997) Environmental Engineering. International Edition. London & New York: McGraw-Hill

Knorr-Cetina, K.D. and Cicourel, A.V. (1981) Advances in Social Theory and Methodology. Toward an Integration of Micro- and Macro-Sociologies. London: Routledge & Kegan Paul

Knussen, C., Yule, F., MacKenzie, J. and Wells, M. (2004) *An Analysis of Intentions to Recycle Household Waste: The Roles of Past Behaviour, Perceived Habit, and Perceived Lack of Facilities*. In Journal of Environmental Psychology. Vol. 24, pp. 237–246

Kollmuss, A. and Agyeman, J. (2002) *Mind the Gap: Why Do People Act Environmentally & What are the Barriers to Pro-Environmental Behavior?* In Environmental Education Research. Vol. 8, No. 3.

Kotler, P. and Lee, N. (2008) Social Marketing. Influencing Behaviors for Good. Third Edition. London: Sage

Kuhn, T. (1962) The Structure of Scientific Revolutions. Chicago: Chicago University Press

Lakatos, I. (1970) *Falsification and the Methodology of Scientific Research Programmes*. In Lakatos, I. and Musgrave, A. (Eds.) Criticism and the Growth of Knowledge. Cambridge: Cambridge University Press

Landis, D. (2005) Social Marketing for Recycling in Ohio. A Guide for Understanding, Planning and Conducting Social Marketing Projects. Ohio Department of Natural Resources

Laurier, E., Lorimer, H, Brown, B., Jones, O., Juhlin, O., Noble, A., Perry, M., Pica, D., Sormani, P., Strebel, I., Swan, L., Taylor, A.S., Watts, L. and Weilenmann, A. (2008) *Driving and Passengering: Notes on the Ordinary Organisation of Car Travel.* Mobilities. Vol. 3, No. 1, pp. 1-23

Lee, D. and Newby, H. (1983) The Problem of Sociology. London. Unwin Hyman. Reprinted by Routledge 2000

Lefebvre, H. (2004) Rhythmanalysis: Space, Time and Everyday Life. London: Continuum

Legard, R., Keegan, J. and Ward, K. (2003) *In-depth Interviews*. In Ritchie, J. & Lewis, J. (Eds.) Qualitative Research Practice. London: Sage

Lester, L. (2010) Media and Environment: Conflict, Politics and the News. Cambridge: Polity Press

Lieber, H. (1970) *Public Administration and Environmental Quality*. In Public Administration Review, Vol. 30, No. 3, pp. 277-286

Lindbeck, A. (1997) *Incentives and Social Norms in Household Behavior*. In The American Economic Review. Vol. 87, No. 2, pp. 370-377

Lynd, R. (1967) Knowledge for what?: The place of social science in American culture. Princeton: Princeton University Press

MacGregor, S. (2006) *No Sustainability without Justice: A Feminist Critique of Environmental Citizenship*. In Dobson, A. & Bell, D. (Eds.) Environmental Citizenship. London: The MIT Press

Macionis, J.J. and Plummer, K. (2005) Sociology. A Global Introduction. Third Edition. Harlow: Pearson Education

Marshall, G. (1998) A Dictionary of Sociology. Oxford: Oxford University Press

Marshall, C. and Rossman, G.B. (2006) Designing Qualitative Research. Fourth Edition. London: Sage

Martens, L. (2011) Visualising Domestic Kitchen Practices: connecting the Ontology and Epistemology of Practices. Paper presented at the British Sociological Association Annual Conference. London, UK. 6-8th April 2011

Mason, J. (2006a) *Six Strategies for mixing methods and linking data in social science research*. A Real Life Methods Working Paper. National Centre for Research Methods. The University of Manchester. July 2006

Mason, J. (2006b) *Mixing methods in a qualitatively driven way*. In Qualitative Research. Vol. 6, No. 1, pp. 9-25

Mattioli, D., Malpei, F., Bortone, G., Rozzi, A. (2002) *Water Minimisation and Reuse in the Textile Industry*. In Lens, P., Pol, L.H., Wilderer, P. and Asano, T. (Eds.) Water Recycling and Resource Recovery in Industry. Analysis, Technology and Implementation. London: IWA Publishing

May, C. and Finch, T. (2009) *Implementing, Embedding, and Integrating Practices: An Outline of Normalization Process Theory*. In Sociology. Vol. 43(3), pp. 535-554

May, T. (1993) Social Research. Issues, Methods and Process. Buckingham: Open University Press

May, V. (2010) *What to do with contradictory data?* Realities Toolkit No. 12. The University of Manchester. July 2010

McCarthy, R. (2005) The Laws of Thermodynamics. New York: The Rosen Publishing Group

McDonald, S. and Oates, C. (2003) *Reasons for Non-participation in a Kerbside Recycling Scheme*. In Resources, Conservation & Recycling. Vol. 39, pp. 369-385

Mead, G.H. (1934) Mind, Self and Society: From the Standpoint of a Social Behaviourist. Chicago & London: The University of Chicago Press

Meadows, D.H., Randers, J., and Berhens III, W. (1972) The Limits to Growth. New York: Universe Books

Merton, R.K. (1968) Social Theory and Social Structure. London: Collier-Macmillan

Miller, D. (1995) *Consumption as the Vanguard of History. A Polemic by Way of an Introduction*. In Miller, D. (Ed.) Acknowledging Consumption: A Review of New Studies. London: Routledge

Mol, A.P.J. (2010) *Ecological Modernization as a Social Theory of Environmental Reform.* In Redclift, M.R. and Woodgate, G. (Eds.) The International Handbook of Environmental Sociology. Second Edition. Cheltenham: Edward Elgar

Mol, A.P.J. and Sonnenfeld, D.A. (2000) *Ecological Modernisation Around the World*. In Environmental Politics. Vol. 9, No. 1, pp. 3-16

Mol, A.P.J., Sonnenfeld, D.A. and Spaargaren, G. (Eds.) (2009) The Ecological Modernization Reader: Environmental Reform in Theory and Practice. London: Routledge

Morgan, D. (1996) Family Connections. Cambridge: Polity Press

Mortensen, E. and Sam, R. (1997) *Solid Waste Treatment*. In Kiely, G. (Ed.) Environmental Engineering. International Edition. London & New York: McGraw-Hill

Moses, J.W. and Knutsen, T.L. (2007) Ways of knowing: competing methodologies and methods in social and political research. Basingstoke: Palgrave Macmillan

Myers, D.G. (2002) Social Psychology. Seventh Edition. London: McGraw Hill

Naess, A. (1973) *The Shallow and the Deep, Long-Range Ecology Movements*. In Inquiry Vol. 16, pp. 95-100

Norman, D.A. (2002) The Design of Everyday Things. New York: Basic Books

Oakley, A. (1974) The Sociology of Housework. Oxford: Martin Robertson

Oates, C.J. and McDonald, S. (2006) *Recycling and the Domestic Division of Labour: Is Green Pink or Blue?* In Sociology. Vol. 40, pp. 417 – 433

O'Brien, M. (1999a) *Rubbish-Power: Towards a Sociology of the Rubbish Society.* In Hearn, J. and Roseneil, S. (Eds.) Consuming Cultures - Power & Resistance. Basingstoke: MacMillan Press

O'Brien, M. (1999b) *Rubbish Values: Reflections on the Political Economy of Waste*. In Science as Culture. Vol. 8, No. 3, pp. 269-295

O'Brien, M. (2008) A Crisis of Waste? Understanding the Rubbish Society. London: Routledge

Olsen, W. (2004) *Triangulation in Social Research: Qualitative & Quantitative Methods Can Really Be Mixed*. In Holburn, M. (Ed.) Developments in Sociology. Ormskirk: Causeway Press

Organisation for Economic Co-Operation and Development (OECD) (2011) Greening Household Behaviour: The Role of Public Policy. Paris, France: OECD Publishing

O'Riordan, T. (1985) *Future directions in environmental policy*. In Environment and Planning A. Vol. 17, pp.1431-1446

Parsons, T. (1937) The Structure of Social Action. New York: McGraw Hill

Pearce, D. (1993) Blueprint 3 Measuring Sustainable Development. London: Earthscan Publications Ltd

Pearce, D., Markandya, A. and Barbier, E. (1989) Blueprint for a Green Economy. London: Earthscan

Pellow, D.N. (2002) Garbage Wars. Massachusetts: The MIT Press

Pepper, D. (1996) Modern Environmentalism. An Introduction. London: Routledge

Pilcher, J. (2000) *Domestic Divisions of Labour in the Twentieth Century: Change Slow A-coming*. In Work, Employment and Society. Vol. 14, No. 4, pp. 771–780

Petts, J. and Eduljee, G. (1994) Environmental Impact Assessment for Waste Treatment and Disposal Facilities. Chichester: Wiley

Pope, C., Zieblandm S. and Nays, N. (2000) *Analysing Qualitative Data*. In British Medical Journal. Vol. 320. January 2000

Postill, J. (2010) *Introduction: Theorising Media and Practice.* In Bräuchker, B. and Postill, J. (Eds.) Theorising Media and Practice. Oxford: Berghahn Books

Povoledo, E. (2008) *EU Criticizes Italy Over Trash Crisis in Naples*. In International Herald Tribune, 15th January 2008

Preuss, S. (1991) Umweltkatastrophe Mensch. Ueber unsere Grenzen und Moeglichkeiten, oekologisch bewusst zu handeln. Heidelberg: Roland Asanger Verlag

Reckwitz, A. (2002) *Toward a Theory of Social Practices. A Development in Culturalist Theorizing*. In European Journal of Social Theory. Vol. 5, No. 2, pp. 245-265

Redclift, M. (1996) Wasted. Counting the Costs of Global Consumption. London: Earthscan Publications Ltd

Ritchie, J. and Lewis, J. (Eds.) (2003) Qualitative Research Practice. London: Sage

Roberts, J. (2004) Environmental Policy. London: Routledge

Robinson, L. (2009) The Problem with Social Marketing. Why You Can't Sell Change Like Soap. Retrieved from http://www.enablingchange.com.au/The_problem_with_Social_Marketing.pdf on 1st June 2011

Rodriguez-Sickert, C. (2009) *Homo Economicus*. In Pell, J. and van Staveren, I. (Eds.) Handbook of Economics and Ethics. Cheltenham: Edward Elgar

Rokeach, M. (1973) The Nature of Human Values. New York: The Free Press

Rook, D.W. (1999). *Ritual*. In Earl, P.E. and Kemp, S. (Eds.) The Elgar Companion to Consumer Research and Economic Psychology. Cheltenham: Edward Elgar

Rotmans, J., Kemp, R. and van Asselt, M. (2001) *More Evolution Than Revolution: Transition Management in Public Foreign Policy*. In Foresight. Vol. 3, No. 1, pp. 15-31

Rotter, J.B. (1966). *Generalized expectancies for internal versus external control of reinforcement*. In Psychological Monographs. 80

Said, E.W. (1994) Representations of the Intellectual: The 1993 Reith Lectures. London: Vintage Books

Santakos, S. (2005) Social Research. New York: Palgrave Macmillan

Scanlan, J. (2005) On Garbage. London: Reaktion Books

Schahn, J. and Holzer, E. (1990) *Studies of Environmental Concern: The Role of Knowledge, Gender and Background Variables*. In Environment and Behavior, Vol. 22, pp. 767-786

Schatzki, T. (1996) Social Practices: A Wittgensteinian Approach to Human Activity and the Social. Cambridge: Cambridge University Press

Schnaiberg, A. (1980) The Environment: From Surplus to Scarcity. New York & Oxford: Oxford University Press

Schwartz, S.H. (1992) *Universals in the Structure of Values: Theory and Empirical Texts in 20 Countries*. In Zanna, M. (Ed.) Advances in Experimental Social Psychology. New York. Academic Press. Vol. 25, pp. 1-65

Schwartz, S.H. and Bilsky, W. (1990) *Toward a Theory of the Universal Content and Structure of Values: Extensions and Cross Cultural Replications*. In Journal of Personality and Social Psychology. Vol. 58, pp. 878-891

Scottish Environmental Protection Agency (SEPA) (1999) National Waste Strategy Scotland. Stirling: SEPA

SEPA (2002) Waste Data Digest 2. Retrieved from http://www.sepa.org.uk/waste/waste_data/waste_data_digest.aspx on 26th July 2011

SEPA (2003) The National Waste Plan. Stirling: SEPA

SEPA (no date) Waste Data Digest 4. Retrieved from http://www.sepa.org.uk/waste/waste_data/waste_data_digest.aspx on 8th February 2011

SEPA (2007) Waste Data Digest 7. Retrieved from http://www.sepa.org.uk/waste/waste_data/waste_data_digest.aspx on 2nd July 2011

SEPA (2008) Waste Data Digest 8. Retrieved from http://www.sepa.org.uk/waste/waste_data/waste_data_digest.aspx on 26th July 2011

The Scottish Government (2007) Scottish Budget Spending Review 2007. Retrieved from http://www.scotland.gov.uk/Publications/2007/11/13092240/0 on 14th July 2011

The Scottish Government (2008) Scotland's People. Annual Report: Results from 2007 Scottish Household Survey. Edinburgh: The Scottish Government

The Scottish Government (2009) Technical Handbooks 2010 Domestic. Retrieved from http://www.scotland.gov.uk/Topics/Built-Environment/Building/Building-standards/publications/pubtech/thb2010dom on 23rd February 2011

The Scottish Government (2010a) Streamlining Sustainability Delivery Press Release. 25th November 2010. Retrieved from http://www.scotland.gov.uk/News/Releases/2010/11/25162957 on 18th May 2011

The Scottish Government (2010b) Scotland's Zero Waste Plan. Accessed at: http://www.scotland.gov.uk/Topics/Environment/waste-and-pollution/Waste-1/wastestrategy on 10th June 2010

The Scottish Government (2010c) Zero Waste Plan for Scotland: What does it mean for me? Retrieved from http://www.scotland.gov.uk/Publications/2010/06/08092724/2 on 17th February 2011

Sebastien, L. (2010) *Death of NIMBY. Awakening of argumented resistance. The case of opposition to a landfill project, Essonne, France.* Paper presented at the International Sociological Association XVII World Congress of Sociology. Gothenburg, Sweden. 11th-17th July 2010

Shove, E. (2003) Comfort, Cleanliness and Convenience: The Social Organization of Normality. Oxford: Berg

Shove, E. (2009) *Habits and their Creatures.* A short unpublished article for Transitions in Practice on the concept of habits and its role in environmental policy. Retrieved from http://www.lancs.ac.uk/staff/shove/transitionsinpractice/tip.htm on 1st July 2010

Shove, E. (2010) *Beyond the ABC: Climate Change Policy and Theories of Social Change*. In Environment and Planning A. Vol. 42, pp. 1273-1285

Shove, E., Watson, M., Hand, M. and Ingram, J. (2007) The Design of Everyday Life. Oxford: Berg

Shulha, L.M., and Wilson, R.J. (2003) *Collaborative mixed methods research.* In Tashakkori, A. and Teddlie, C. (Eds.) Handbook of mixed methods in social and behavioural research. London: Sage

Silverman, D. (2006) Interpreting Qualitative Data. Third Edition. London: Sage

Silverstone, R., Hirsch, E. and Morley, D. (1992) *Information and Communication Technologies and the Moral Economy of the Household*. In Silverstone, R. and Hirsch, E. (Eds.) Consuming Technology: Media and Information in Domestic Space. London: Routledge

Sismondo, S. (2004) An Introduction to Science & Technology Studies. Oxford: Blackwell

Smith, M.J. and Pangsapa, P. (2008) Environment and Citizenship. Integrating Justice, Responsibility and Civic Engagement. London and New York: Zed Books

Smith, A., Stirling, A. and Berkhout, F. (2005) *The governance of sustainable socio-technical transitions*. In Research Policy, Vol. 34, Issue 10, pp. 1491-1510

Southerton, D., Chappells, H. and van Vliet, B. (Eds.) (2004) Sustainable Consumption: The Implications of Changing Infrastructures of Provision. Cheltenham: Edward Elgar

Spaargaren, G. (2003) *Sustainable Consumption: a Theoretical and Environmental Policy Perspective*. In Society and Natural Resources. Vol. 16, pp. 1-15

Spaargaren, G. (2011) *Theories of practice: Agency, technology, and culture. Exploring the relevance of practice theories for the governance of sustainable consumption practices in the new world order.* In press, in Global Environmental Change.

Spaargaren, G. and Oosterveer, P. (2010) *Citizen-Consumers as Agents of Change in Globalizing Modernity: The Case of Sustainable Consumption*. In Sustainability 2010, Vol. 2, No. 7, pp. 1887-1908

Spates, J.L. (1983) *The Sociology of Values*. In Review of Sociology. Vol. 9, pp. 27-49

Stanley, L. and Wise, S. (1983) Breaking Out: Feminist Consciousness and Feminist Research. London: Routledge & Kegan Paul

Stein, R. (1972) Media Power. Boston: Houghton Mifflin Co.

Stern, P. and Dietz, T. (1994) *The Values Basis of Environmental Concern*. In Journal of Social Issues 50, pp. 65-84

Stern, P., Dietz, T., Abel, T., Guagnano, G.A. and Kalof, L. (1999) *A Value-Belief-Norm Theory of Support for Social Movements: The Case of Environmentalism*. In Human Ecology Review. Vol. 6, pp. 81-97

Strasser, S. (1999) Waste and Want. A Social History of Trash. New York: Henry Holt

Sullivan, O. (2000) *The Division of Domestic Labour: Twenty Years of Change?* In Sociology. Vol. 34, No. 3, pp. 437–456

Sutton, P.W. (2004) Nature, Environment & Society. Basingstoke: Palgrave Macmillan

Swallow, V., Newton, J. and Van Lottum, C. (2003) *How to manage and display qualitative data using 'Framework' and Microsoft Excel*. In Journal of Clinical Nursing. Vol. 12, pp. 610-612

Sylvan, R. and Bennett, D. (1994) The Greening of Ethics. Cambridge: The White Horse Press

Tabachnick, B.G. and Fidell, L.S. (2007) Using Multivariate Statistics. Fifth Edition. Pearson Education

Tashakkori, A. and Creswell, J.W. (2007) *Editorial – The New Era of Mixed Methods*. In Journal of Mixed Methods Research. Vol. 1, No. 1, pp. 3-7

Tashakkori, A. and Teddlie, C. (1998) Mixed Methodology: Combining Qualitative and Quantitative Approaches. London: Sage

Tashakkori, A. and Teddlie, C. (Eds.) (2003) Handbook of Mixed Methods in Social & Behavioral Research. London: Sage

Teddlie, C. and Tashakkori, A. (2003) *Major issues and controversies in the use of mixed methods in the social and behavioural sciences*. In Tashakkori, A. & Teddlie, C. (Eds.) Handbook of Mixed Methods in Social & Behavioral Research. London: Sage

Teddlie C and Tashakkori A (2009) Foundations of mixed methods research: Integrating quantitative and qualitative approaches in the social and behavioural Sciences. Sage: London

Thiele, B. (1986) *Vanishing acts in social and political thought: tricks of the trade*. In Pateman, C. and Grosz, E. (Eds.) Feminist challenges: social and political theory. London: Allen & Unwin

Thompson, M. (1979) Rubbish Theory: The Creation & Destruction of Value. Oxford: Oxford University Press

Tietenberg, T. (2001) Environmental Economics and Policy. Third Edition. London & New York: Addison Wesley

Tindall, D.B. (1995) *What is Environmental Sociology? An Inquiry into the Paradigmatic Status of Environmental Sociology*. In Mehta, M.D. and Ouellet, E. (Eds.) Environmental Sociology: Theory and Practice. North York, Ontario: Captus Press

Tittle, C. (2004) *The Arrogance of Public Sociology*. In Social Forces. Vol. 82, No. 4.

Tucker, P. and Douglas, P. (2006) *Understanding Household Waste Prevention Behaviour. Final Report.* Report to Defra Waste and Resources Evidence Programme. University of Paisley Environmental Initiatives Research Group

Unger, M. (2006) *'Too Ambitious' What Happens when Funders Misunderstand the Strengths of Qualitative Research Design*. In Qualitative Social Work. Vol. 5, No. 2, pp. 261-277

The University of Edinburgh School of Social and Political Science Research and Research Ethics Committee (2008) Research Ethics Policy and Procedures. Updated May 2008. Retrieved from http://www.sps.ed.ac.uk/gradschool/intranet/regulations/ethics on 10th January 2011

Vaillencourt, J. (1995) *Sustainable Development: A Sociologists View of the Definition, Origins & Implications of the Concept*. In Mehta, M.D. & Ouellet, E. (Eds.) Environmental Sociology: Theory & Practice. Ontario: Captus Press

Valentine, G. (1999) *Doing household research: Interviewing couples together and apart*. In Area. Vol. 31.1, pp. 67-74

van Bommel, P. (2005) Transformation of Knowledge, Information and Data: Theory and Applications. London: Information Science Publishing

Van Liere, K. and Dunlap, R.E. (1981) *The Social Bases of Environmental Concern: A Review of Hypotheses, Explanations and Empirical Evidence*. In Public Opinion Quarterly 44, pp. 181-97

Veblen, T. (1994) The Theory of the Leisure Class. London: Penguin Classics (1899)

Vesilind, P.A., Pierce, J.J. and Weiner, R.F. (1994) Environmental Engineering. Third Edition. Oxford: Butterworth-Heinneman

Vidal, J. (2004) *The UK's New Rubbish Dump: China*. The Guardian. 20th September 2004. Retrieved from http://www.guardian.co.uk/society/2004/sep/20/environment.china on 21st June 2011

Wallendorf, M. and Reilly, M.D. (1983) *Ethnic Migration, Assimilation, and Consumption*. In Journal of Consumer Research. Vol. 10, No. 3, pp. 292-302

Warde, A. (2005) *Consumption and Theories of Practice*. In Journal of Consumer Culture. Vol. 5, No. 2, pp. 131-153

Waste Online (2004) History of Waste and Recycling Information Sheet. Retrieved from http://dl.dropbox.com/u/21130258/resources/informationsheets/historyofwaste.htm on 30th October 2008

Webb, J. (2010) *Society Matters: Changing Environmental Attitudes and Behaviour in Scotland*. In Scottish Affairs. Vol. 71, pp. 30-63

Webster, F.E. (1975) *Determining the Characteristics of the Socially Conscious Consumer.* In Journal of Consumer Research. Vol. 2, pp. 188–196.

Wilk, R. (2009) *The Edge of Agency: Routines, Habits and Volition*. In Shove, E., Trentmann, F. and Wilk, R. (Eds.) Time, Consumption and Everyday Life: Practice, Materiality and Culture. Oxford and New York: Berg

Wilson, E.J., McDougall, F.R. and Willmore, J. (2001) *Euro-trash: Searching Europe for a More Sustainable Approach to Waste Management.* In Resources, Conservation and Recycling. Vol. 31, pp. 327-346

Windsor, S. (2010) *An Introduction to Green Process Management*. Milwaukee: Quality Press

Woolgar, S. (2007) *Governance and Accountability Relations in Mundane in techno-Scientific Solutions to Public Problems: Full Research Report*. ESRC End of Award Report, RES-151-25-0029. Swindon: ESRC

World Commission on Environment and Development (WCED) (1987) Our Common Future. Retrieved from http://www.un-documents.net/wced-ocf.htm on 23rd March 2011

Woodgate, G. (2010) *Introduction to The International Handbook of Environmental Sociology*. In Redclift, M.R. and Woodgate, G. (Eds.) The International Handbook of Environmental Sociology. Second Edition. Cheltenham: Edward Elgar

Yearley, S. (1996) Sociology, Environmentalism & Globalization. London: Sage

Yearley, S. (2005) Cultures of Environmentalism. Empirical Studies in Environmental Sociology. Basingstoke: Palgrave Macmillan

Yi. Y., Hartloff, A.L. and Meyer, P.B. (1999) *Factors Affecting Household-Level Environmental Decision Making: A Three-Country Comparison of the Determinants of Household Recycling*. In Urban Ecosystems. Vol. 3, pp. 149-161

York, R., Rosa, E.A. and Dietz, T. (2010) *Ecological Modernization Theory: Theoretical and Empirical Challenges*. In Redclift, M.R. and Woodgate, G. (Eds.) The International Handbook of Environmental Sociology. Second Edition. Cheltenham: Edward Elgar

Zero Waste Scotland (2011) Sort It Campaign. Retrieved from http://www.sort-it.org.uk/ on 2nd July 2011

Zimmerman, D.H. and Wieder, D. (1977) *The Diary-Interview Method*. In Urban Life. Vol. 5, No. 4

Appendices

Appendix 1 Recycling Questions in the SHS

HC7D	SHOW CARD F HERE IS A LIST OF THINGS THAT SOME PEOPLE HAVE TOLD US THAT THEY TAKE FOR RECYCLING, OR IS COLLECTED FROM THEIR HOME. WHICH OF THESE, IF ANY, HAS YOUR HOUSEHOLD RECYCLED FROM HOME IN THIS WAY IN THE LAST MONTH? **Interviewer – By recycle we do not mean "re-use"** Glass bottles [1] Plastic [2] Metal cans [3] Newspaper/magazine/paper/cardboard [4] None of these [5]

Ask HC7E if coded 5 "None of these" at HC7D

HC7E	WHY DO YOU NOT RECYCLE ANY OF THESE THINGS? No facilities available [1] Facilities too far away [2] Don't know where facilities are [3] Cannot transport materials to recycling depot [4] Do not use enough/not enough to be worth it [5] Nowhere to store at home [6] Too much mess/bother [7] Not interested/waste of time [8] Normally do - not taken it this month [9] Other [10] Don't know/never thought about it [11]

Appendix 2 The Diary

Household Recycling Diary

Household ID

Date of First Entry

E·S·R·C ECONOMIC & SOCIAL RESEARCH COUNCIL

THE UNIVERSITY OF EDINBURGH

If you have any questions about your diary, please contact Fraser Stewart by telephone: 0131 651 3734 or email: fraser.stewart@ed.ac.uk

Household Waste & Recycling Diary

Household ID

Date of First Entry

E·S·R·C ECONOMIC & SOCIAL RESEARCH COUNCIL

THE UNIVERSITY OF EDINBURGH

If you have any questions about your diary, please contact Fraser Stewart by telephone: 0131 651 3734 or email: fraser.stewart@ed.ac.uk

Your Household's Recycling Diary

Thank you for agreeing to help us with our study. Here are some points to bear in mind when completing your diary:

We are mostly interested in **all** of your household's waste and recycling activities. It will be clearly stated in the diary when we want to know about waste and recycling at home or your place of work or study.

Remember that this is **your** household's diary, so please complete it together as a household. We are interested in finding out as much as possible about the waste and recycling experiences of everyone in your home. So please tell us as much as you can about the waste each person generates and the recycling they do or don't do. If you are not sure whether to tell us something or not, please include it – we would rather have too much information than too little.

There are no right or wrong answers so please try to act as you would normally and fill in the diary as honestly as you can. All personal information will be anonymised and the contents of the diaries and interviews will be kept secure by the researcher. Please don't worry about spelling, grammar or 'best' handwriting. But do try to write as clearly as possible, using a pen.

Please fill in the diary at least **every evening**. If you cannot make an entry for a particular day, then fill it in the following day. Do not try to fill the diary in any later than one day after the entry was due e.g. don't try to fill Monday's entry on Wednesday.

If you end up missing several days, please do not give up the whole week's diary. Just start again on the next day you are able to fill it in and leave the missed day's pages blank.

Please fill in the day and date in the space provided on each new diary page.

If you have any questions about your recycling diary, please contact Fraser Stewart by email (fraser.stewart@ed.ac.uk) or phone (0131 651 3734). He will phone you back, so you don't have to pay for the call.

Information About Your Household's Waste & Recycling Habits

Day of the week _____ Today's Date _____ Unique Household ID _____

ⓘ To help us understand how your household currently views waste and recycling it would be helpful if you could answer the following questions **before starting** to keep the diary. Don't worry, there are no right or wrong answers, but we need this information to understand your household's experience of waste and recycling.

1 Thinking about a typical week, does your household normally recycle? *Please tick* Yes ☐ No ☐

2 If 'yes', write below the name of the person(s) in your household who normally does most recycling. If 'no', write the name of the person(s) who normally deals with your household waste.

⇨ If you **do not normally** recycle, continue from Question 5
⇨ If you **do normally** recycle, continue from Question 3

3 If you **do normally** recycle, how do you do it? *Please tick one box*

 Collected ☐

 By car ☐

 Carried ☐

 Cycled ☐

4 If you **do normally** recycle, how often do you normally do it for the following items? (Either taking or sending them for recycling, or preparing & storing them ready for recycling) *Tick one box for each item*

	Daily	Weekly	Monthly	Less often	Not recycled
 Glass	☐	☐	☐	☐	☐
 Paper	☐	☐	☐	☐	☐

Continues over the page…

… continued from previous page

	Daily	Weekly	Monthly	Less often	Not recycled
 Plastic	☐	☐	☐	☐	☐
 Packaging	☐	☐	☐	☐	☐
 Cans	☐	☐	☐	☐	☐
 Food waste	☐	☐	☐	☐	☐

5 If your household **does not normally** recycle, please tell us below why not i.e. never thought about it, too busy, no storage, too messy, etc.

Continue over the page if necessary

ⓘ These questions should be answered by **all households** whether they recycle or not.

6 Please use the space below to let us know about your household's experience of waste and/or recycling at home i.e. anything in particular that helps you do it or anything that makes it difficult to do.

7 For all the people in your household, how many people have access to recycling at their place of work or study?

8 Please use the space below to let us know anything anyone in your household feels significant or interesting about waste and recycling at their place of work or study i.e. anything that makes you more likely to recycle at work, or anything that makes it difficult to do at work

Continue over the page if necessary

Recycling Diary – Week 1, Day 1

Day of the week _____ Today's Date _____

ⓘ It is best if you complete your diary together as a household at the **end of the day**.

1 Select from the following list all of the different types of rubbish people in your household generated today. *Tick all that apply*

 ☐ Glass

 ☐ Cans

 ☐ Paper

 ☐ Plastic

 ☐ Packaging

 ☐ Food waste

 ☐ Electronics or batteries

 ☐ Other waste

If 'Other waste' is ticked, please write in the box below what they were.

2 Were any of these things recycled? *Please tick* Yes No

3 Can you explain below in more detail why you did or did not recycle the items? For example because you always do, the packaging tells me to, it's too messy, don't have enough room, etc.

Continue over the page if necessary

6

4 What were the most important factors in deciding how to deal with today's waste? For example, how easy or inconvenient it is, belief it is the right thing to do, couldn't find the time, etc.

5 Did anyone in your household speak about waste or recycling today with someone outside the home? *Please tick*

Yes

No

6 If 'yes', briefly state below who it was discussed with and what was talked about.

7 Please write in the box below any particular challenges anyone in your household experienced today in relation to waste or recycling.

Continue over the page if necessary

Week One Finished!

You have now finished the first week of keeping your diary.

After you have completed the diary on Day 7 please remove Pages 3 through to 19 from the diary and return them to us in the pre-paid envelope supplied with your diary.

Please continue to keep your diary in Week 2. Anything you are not sure about or if you have had any problems or issues with keeping the diary, please get in touch with Fraser Stewart by email or telephone.

Some Final Thoughts

ⓘ After you have completed the final entry in your diary **on the last day**, it would be helpful if you could answer the following questions:

1 As a household, how have you found the experience of keeping the recycling diary? Was it easy, enjoyable, difficult, inconvenient, etc?

2 Thinking back, do you think the waste and recycling activities reported in the diary are very different to your household's waste and recycling activities in a 'normal' week? Please explain.

3 Do you have any other more general thoughts on recycling arrangements in your neighbourhood? For example about the collection days/times, places to do recycling, etc.

4 Do you think the act of keeping this diary has influenced or changed how your household deals with their waste and recycling? Please explain.

Continue over the page if necessary

35

Week Two Finished!

Thank you, you have now finished keeping your diary.

After you have completed the diary on Day 7 and the Final Thoughts questions on Page 35, please remove Pages 21 through to 35 from the diary and return them to us in the second pre-paid envelope supplied with your diary.

If you would like to discuss your diary before returning it, please email or telephone Fraser Stewart and he will arrange a suitable time to come to you and collect it in person.

Fraser will be in touch to arrange a convenient time for the interview after he has received or collected your completed diary.

Appendix 3 Information Leaflet and Recruitment Poster

Ok, I'm interested. What next? Speak to the people you live with and explain that you would like to take part, then contact me by telephone or email.

Contact details:

Fraser Stewart
The University of Edinburgh
Chrystal Macmillan Building
15a George Square
Edinburgh, EH8 9LD
Telephone: 0131 651 3734
Email: fraser.stewart@ed.ac.uk

The Project website:
http://www.sociology.ed.ac.uk/research_students/stewart_fraser/recycling_in_scotland

Facebook Group:
www.tinyurl.com/recycling-scotland

Recycling in Scotland

Information for Participants

What is the Project about? Environmental issues seem to be everywhere these days. But to what extent does this increased awareness match the realities of living an ordinary everyday life?

This research is trying to understand this by answering questions about environmental values & behaviours and how we can best explain household recycling practices in 21st Century Scotland.

What would be involved? There would be two main parts to your involvement:

1 Keeping a simple diary of your household's daily waste and recycling practices, and
2 Being interviewed for around an hour on your household's waste and recycling experiences where you live

Who can take part? We need up to 20 households from across Edinburgh and the Lothians to take part.

What would happen to my answers? I will use the information from the diary & interviews to write a research report. While I might use some of your exact words in my report, it will not have your name or address in it so on-one will know it was you who took part.

What about my privacy? All of the information you give in the diary and interview will be strictly confidential and kept secure. This means you can talk about the interview with anyone you want, but I will not talk to anyone about the specific things you tell me. I will only use your answers for writing the report or any publications.

Do I get anything for taking part? In addition to helping answer questions about the environment, you will be entered in to a prize draw with around a 1-in-20 chance of winning £100 in shopping vouchers for a shop of your choice.

Will I get support to take part? Yes, you will be given as much support as you need and if you decide for any reason you no longer wish to take part, you can withdraw at any time.

How do YOU recycle? WE WANT TO KNOW!

Participants Wanted for Research!

Do you live in **Edinburgh and the Lothians** and are willing to share your thoughts and views about the way you deal with your household waste and recycling?

We are looking to speak to people about:

- What **YOU/YOUR** family/household think about waste and recycling where you live
- What **YOU** think about when you do your household chores or shopping
- What motivates **YOUR** behaviour towards the environment

All of the households that successfully participate in the project will be eligible to be entered into a free prize draw, with around a 1-in-20 chance of winning **£100 in shopping vouchers**.

For further information about the project and how to get in involved, please pick up a leaflet or check out the project webpage at: **http://www.sociology.ed.ac.uk/research_students/stewart_fraser/recycling_in_scotland**. Or contact the researcher (Fraser Stewart) direct by email at: **fraser.stewart@ed.ac.uk** or telephone on: **0131 651 3734.**

Appendix 4 New Ecological Paradigm Questionnaire

Understanding Recycling in Scotland

Questions About the Environment

Day of the week _____ Today's Date _____ Unique Household ID _____

This questionnaire should **only** be completed by the person who does most of the recycling in your household, or most of the household chores if your household does not recycle regularly.

For each statement you are asked to state how strongly you agree or disagree with it. Place a tick in the box that most closely corresponds to your own view. Don't worry there are no right or wrong answers. We need this information to understand how you feel about environmental issues more generally.

1 'We are approaching the limit of the number of people the earth can support '

Strongly agree ☐ Agree ☐ Don't know ☐ Disagree ☐ Strongly disagree ☐

2 'The earth has plenty of natural resources if we just learn how to develop them'

Strongly agree ☐ Agree ☐ Don't know ☐ Disagree ☐ Strongly disagree ☐

3 'Humans were meant to rule over the rest of nature'

Strongly agree ☐ Agree ☐ Don't know ☐ Disagree ☐ Strongly disagree ☐

4 'The balance of nature is very delicate and easily upset '

Strongly agree ☐ Agree ☐ Don't know ☐ Disagree ☐ Strongly disagree ☐

5 'Humans will eventually learn enough about how nature works to be able to control it'

Strongly agree ☐ Agree ☐ Don't know ☐ Disagree ☐ Strongly disagree ☐

6 'If things continue on their present course, we will soon experience a major ecological catastrophe'

Strongly agree ☐ Agree ☐ Don't know ☐ Disagree ☐ Strongly disagree ☐

Please make sure this page is completed and handed back before you begin keeping your diary

Appendix 5 Phase Two Pre-Participation Questionnaire

CONFIDENTIAL **Unique Household ID _____**

PRE-PARTICIPATION QUESTIONAIRE

Before your household can take part in the study we need to collect some background information on you and your household. We need this information to ensure that we people and households from different backgrounds in the study. All of the information given in this questionnaire will be treated confidentially and will not be made available to anyone other than the researcher. No one will be able to identify you or anyone from your household in the research report or any associated publications.

---

1 What council does your household live in? _____ (write in)

2 In a normal week does your household ever recycle?

❑ Yes ❑ No ❑ Sometimes

3a How many adults and children (aged under-16) live in your household?

Adults _____ (write in)
Children _____ (write in)

4 What type of property does your household live in?

❑ House/bungalow
❑ Flat/maisonette
❑ Other _____ (write in)

5a Do you own or rent your property?

❑ Owned
❑ Rented
❑ Other _____ (write in)

5b If owned, is it mortgaged or owned outright?

❑ Mortgaged
❑ Owned outright
❑ Other _____ (write in)

5c If rented, is it rented privately or from the council or a housing association?

- ❑ Private
- ❑ Council
- ❑ Housing Association
- ❑ Other _____ (write in)

6 Is the head of the household male or female? By 'head of the household' we mean the person with the highest income, or if you do not know this information, the person who makes most of the household decisions.

❑ Male ❑ Female

7 How would you describe the ethnic background of the people living in your household? For example: White-Scottish / British, Chinese, Asian / Asian-British, Black / Black-British, Mixed heritage, or some other ethnic background.

_____ (Write in)

8 What is the highest educational qualification held by the highest income householder/head of the household?

- ❑ None
- ❑ O-level/S-grade
- ❑ A-level/H-grade
- ❑ HNC or HND
- ❑ Degree or Professional qualification
- ❑ Other _____ (write in)

9 How would you describe the working status of your household?

- ❑ Employed
- ❑ Self-employed
- ❑ Unemployed
- ❑ Retired
- ❑ Student
- ❑ Long-term sick
- ❑ Long-term disability
- ❑ Other _____ (write in)
- ❑ Employed and self-employed

10 What is your approximate annual household income?

- ❑ £0 - £7,000
- ❑ £7001 - £14,000
- ❑ £14,001 - £21,000
- ❑ £21,001 - £28,000
- ❑ £28,001 - £35,000
- ❑ £35,001 - £45,000
- ❑ £45,001 - £65,000
- ❑ £65,001+

Appendix 6 Phase Two Interview Schedule

Understanding Recycling in Scotland
Main Themes and Interview Schedule

Prior to interview: confirm informed consent / agreement to record / confidentiality of data and complete necessary forms

---

Before we start, I would like to remind you that there are no right or wrong answers in this discussion. I am interested in knowing what you think, so please feel free to be frank and to share your point of view. It is important that your opinion is heard.

I want to start by asking you about keeping the waste and recycling diary.

Theme	Sub-theme	Questions
Background	The diary	How did you find keeping the diary?

The first main area I would like to ask you about is questions about your waste and recycling behaviours.

Theme	Sub-theme	Questions
Behaviours	Your normal routine	I was able to see the normal waste and recycling routine you follow in your home, but what happens when your normal routine is broken? *How do you feel, able to catch-up?*
	Shopping	When you go shopping, do you think about waste or recycling? How often do you replacing new for old? *At end of life or more frequently if you desire something?* How aware are you of the eco labelling on packaging? Does it impact how you dispose of things?

	The past	Are things different now from how you dealt with waste in the past? *Perhaps when you were younger?*

Now I would like to hear about how waste and recycling makes you feel and your motivations.

Theme	Sub-theme	Questions
Motivations	Waste generation & throwing away	How does the waste your household generates make you feel? How does throwing things away makes you feel?
	Recycling	Why do you think you do recycle / do not recycle?
	Motivation	What keeps you motivated? Or causes you to lose motivation?

Now I would like to ask you some questions about communication about waste and recycling in your home.

Theme	Sub-theme	Questions
Communication	In the home	How often do you think you talk about waste and/or recycling in your home? *If never, probe further. If not, how does your household decide how they will take part? Is it one person who takes responsibility, etc?*
	Decision-making	Who makes most of the decisions about how to deal waste and recycling in your home? *Is there ever any conflict?*
	Different opinions in the household	Is anyone in your household strongly pro- or anti- recycling? What sorts of things do they say or do?

I would now like to talk about some of the barriers your household might face when dealing with waste and recycling.

Theme	Sub-theme	Questions
Barriers	Ease of participating	What do you find easy about waste / recycling?
	Difficulty in participating	What do you find most difficult about waste / recycling?
	Storage	For some people storage is a big issue, how do you deal with this at home?
	Mess	How do you feel about having waste in your home?

Now I would like to move on to talk about the Council services available to you.

Theme	Sub-theme	Questions
Council services	Evaluation of the services	What do you think about your Council services? Are they g*ood, bad, innovative or poor?*
	What would you change?	What, if anything would you change?
	Materials	Are you aware of the different materials you can or cannot recycle through the Council service? What do you do with the recyclable material that the Council won't collect? How does this make you feel?

I would now like to ask you some wider questions about the environment.

Theme	Sub-theme	Questions
The environment	Your relationship with the environment	What do you see as your role in relation to the environment?
	What changes you are willing to make to your life	Is recycling enough? What other changes are you willing to make or not make to your life? *Such as car travelling, consumption, foreign holidays, etc.*
	Change family activities?	Is concern for the environment something that ever impacts your family's activities
	Climate change	The media is full of stories about climate change. How aware are you of these and how do you see these as being related to your everyday life?

Now I would like to move on to talk a little bit about government policy and where you get your information from.

Theme	Sub-theme	Questions
Government policy	Responsibility for waste management	Who do you think is responsible for waste management? *Local or national government? Manufacturers and retailers? Consumers? Some else?*
	Scotland performance	How well do you think Scotland is doing at managing waste?
	Retailers and manufacturers	What about the retailers and manufacturers? What role do you think they play?
	Sources of information	Where do you think you get most of your information about waste and recycling from? *Government, media, charities/campaigners, etc.*

	Trust	Do you always trust the information you are provided? *Elaborate*

The final main area I would like to ask about is on science and technology. Some see technological development as being the key to the future of waste management (i.e. light-weighting of materials or encouraging the development of energy-from-waste technology).

Theme	Sub-theme	Questions
Science & technology	Future development	Do you have a view on the role of scientific knowledge and technology in managing waste in the future? Are you optimistic about this, or do feel sceptical?

Thank you for answering those questions. To wrap-up I wanted to give you the opportunity to let me know a bit more about what you expected from the interview and how you have found it.

Theme	Sub-theme	Questions
Wrap-up	Expectations of the interview	What did you expect the interview to be like and to ask?
	Other issues	Is there anything you thought I would ask that I didn't?

Thank you for taking the time to talk to me!

Appendix 7 Framework Analysis Index

Main theme	Sub-themes
1.0 Background issues	1.1 Socio-economic demographics 1.2 NEP-scale score 1.3 Waste generation score 1.4 Other issues
2.0 The research process	2.1 The difficulties of keeping the diary 2.2 The easiness of keeping the diary 2.3 Expectations of the interview 2.4 Other issues arising
3.0 Waste and recycling in everyday life	3.1 The 'normal' routine 3.2 The broken routine 3.3 Emotions about waste and recycling 3.4 Performing unpaid labour in the home 3.5 Other issues arising
4.0 Shopping and consumption	4.1 Think about waste / recycling when shopping 4.2 Fashion/built-in obsolescence 4.3 Awareness of eco-labelling on products 4.4 Impact on purchasing decisions 4.5 Impact on disposal of things 4.6 Other issues arising
5.0 The historical context	5.1 Comparison to when they were younger 5.2 How parents / grandparents acted 5.3 How younger generations are now 5.4 Other issues arising
6.0 Motivation & emotions	6.1 Feelings about waste generation 6.2 Emotions toward throwing things away 6.3 Core motivation for recycling 6.4 Other issues arising

7.0 Communication and decision-making	7.1 How waste/recycling is discussed at home 7.2 How the household decides to participate 7.3 Responsibility for recycling practice 7.4 Conflict about waste and recycling 7.5 Other issues arising
8.0 Barriers to participation	8.1 Things that make participating easy 8.2 Things that make participation difficult 8.3 Storage of recyclates at home 8.4 Feelings of revulsion/disgust at waste 8.5 Other issues arising
9.0 Council services	9.1 Evaluation of local recycling service 9.2 Desired changes to local service 9.3 Awareness of what can/cannot be recycled 9.4 How uncollected items are dealt with 9.5 Other issues arising
10.0 The environment	10.1 Personal relationship with nature 10.2 Lifestyle changes willing to make 10.3 'Offsetting' negative behaviour 10.4 Climate change in everyday life 10.5 Other issues arising
11.0 Information, policy & governance	11.1 Responsibility for waste 11.2 Evaluation of Scotland's performance 11.3 Role of retailers and manufacturers 11.4 Sources of information 11.5 Trustworthiness of information 11.6 Other issues arising
12.0 The future	12.1 The role of science and technology 12.2 Optimism about the future 12.3 Scepticism about the future 12.4 Lack of knowledge 12.3 Other issues arising

Appendix 8 Informed Consent Form

Understanding Waste & Recycling in Scotland
Informed Consent Form

Thank you for agreeing to take part in this research project. The purpose of this agreement is to ensure that your contribution to the above research project and any subsequent usage is in strict accordance with your wishes.

This research is being conducted by Fraser Stewart (fraser.stewart@ed.ac.uk) from the Department of Sociology at the University of Edinburgh under the supervision of Professor Steven Yearley (steve.yearley@ed.ac.uk) and Dr Michael Rosie (m.j.rosie@ed.ac.uk). General queries about the project should be directed towards the investigator. Any concerns about the research project should be directed towards the project supervisors.

The research involves interviews with different householders living in Edinburgh and the Lothians and is looking at how these householders live with waste and recycling in their everyday lives. Before we can conduct the interview you need to be made aware of how your data will be used and your right to withdraw at anytime.

- The research is being conducted under the ethical guidelines of the British Sociological Association and the School of Social and Political Science at the University of Edinburgh
- Your participation is voluntary and you may withdraw at any time by contacting the investigator
- All written responses, transcripts and audio recordings of the interviews will be held privately and securely by the investigator unless otherwise agreed
- The project's findings will be presented in a written PhD Thesis to be held at The University of Edinburgh. The findings may also be presented at academic conferences and/or published in academic journal articles authored by the investigator
- Your responses will only be used for research purposes (including research publications and reports) with preservation of anonymity. This means that, while I might use some of your exact words in my report, it will not have your name or address in it

Please tick that you agree to the following statements:

☐ I understand the intent and purpose of this research and give my permission for the responses I am about to give to be used for research purposes (including research publications and reports) with preservation of anonymity

☐ I am aware that my participation in the interview is voluntary. If, for any reason or at any time, I wish to stop the interview or withdraw from the project, I may do so without having to give an explanation

☐ I give my permission for the responses I am about to give to be digitally audio recorded and transcribed for research purposes

☐ I am aware that all data gathered in this project will be confidential with respect to my personal identity unless I specify otherwise

☐ I have been given a contact point if I have any further questions or complaints about the project or the conduct of the interviewer

☐ I have been given a copy of this consent form which I may keep for my own reference. Another copy of this consent form is kept with the interviewer

☐ I have read, understood and agreed with the above statements, and hereby consent to participate in today's interview and any further interview I agree to do for this research

Interviewee 1 name _____ Signed _____ Date _____

Interviewee 2 name _____ Signed _____ Date _____

Interviewer name _____ Signed _____ Date _____

Appendix 9 Multicollinearity Analysis

	Household recycles	Household size	Household type	Working status	Property type	Housing tenure	Age group	Sex	Ethnicity	Economic status	Education	Income Band	Car	Provision	Urban/ rural	Local authority	Region
Household recycles	1.000																
Household size	.112	1.000															
Household type	.159	.794	1.000														
Working status	.158	.424	.590	1.000													
Property type	.245	.218	.248	.242	1.000												
Housing tenure	.235	.195	.308	.318	.254	1.000											
Age group	.133	.253	.456	.347	.185	.310	1.000										
Sex	-.056	.266	.437	.460	.144	.200	.140	1.000									
Ethnicity	-.046	.084	.091	.045	.072	.132	.100	-.023	1.000								
Economic status	.150	.222	.448	.493	.171	.357	.454	.172	.172	1.000							
Education	.155	.087	.139	.161	.054	.188	.153	.053	.060	.183	1.000						
Income band	.160	.267	.240	.424	.203	.271	.207	.295	.017	.322	.206	1.000					
Car	-.217	.414	.468	.560	.373	.487	.316	.273	.031	.441	.272	.509	1.000				
Provision	.145	.026	.026	.032	.091	.059	.019	.025	.060	.036	.038	.027	.071	1.000			
Urban/rural	.084	.058	.071	.082	.206	.104	.072	.067	.061	.076	.046	.062	.188	.056	1.000		
Local authority	.225	.069	.060	.089	.293	.132	.067	.093	.122	.106	.105	.067	.231	1.000	.461	1.000	
Region	.196	.059	.056	.077	.261	.113	.056	.081	.116	.091	.089	.054	.202	.834	.383	1.000	1.000

Notes: Measures of association range from 0-1 using Phi for (2x2 table) variables (sex, ethnicity, car); & Cramer's V for all other variables (larger than 2x2 tables).
Magnitude of association scale: >.5 = high, .3-.5 = moderate, .1-.3 = low, 0-.1 = negligible.