

# Urban Gardens and Sustainable Cities

*Explaining the environmentally beneficial behaviours that make a difference.*

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*Volume One-*

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# **Abstract**

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This research sought to explain why some people take up growing fruit and vegetables, home composting and outdoor drying, whilst others do not and why some of these people persist with these practices, whilst others do not.

In this study the contributions that urban gardens made to the delivery of a wide range of sustainable development objectives were identified. Contributions were found to depend on extent of garden provision and a range of garden practices that had yet to be fully explained. A critical realist approach, using both quantitative and qualitative methods, was then used to build explanations and identify opportunities for behaviour change for each of the garden practices specified above.

Key findings include that knowledge was a necessary condition for practice initiation and persistence. Furthermore, practice initiation was found to depend on indirect knowledge of what others do or what other people thought they should do and access to the material and non-material resources believed to be necessary to practice. In contrast, practice persistence was found to depend on direct knowledge of each practice. In addition, a number of mechanisms were identified that worked to either increase benefits, reduce risk or decrease the effort involved in initiating and then maintaining practice.

The garden practices studied were found to be distinct from other Environmentally Beneficial Behaviours (EBBs) in providing immediate extrinsic and intrinsic benefits. Additionally for people who persisted with each practice, intrinsic benefits were found to be more salient than the personal costs involved in practice. Finally 'time of life' and the garden setting were significant to both practice initiation and persistence, whereas garden size was only significant to practice initiation.

Overall this research hoped to have contributed to understanding the role of the garden in the city and to have identified practical steps towards achieving more sustainable cities.



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# ***Chapter I: The Contribution of Gardens to Sustainable Development***

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## ***1.0 Introduction***

At the emergency climate change summit held in Copenhagen in March 2009, as experts presented a host of new studies suggesting that global warming could hit harder and sooner than expected, Professor Nicholas Stern warned of the potentially devastating consequences of failing to reduce carbon emissions (Adam, 2009). Later that year, in his keynote speech to the World Federation of U.N Associations, UN Secretary General Ban Ki-moon singled out climate change as *“the greatest collective challenge we face to the human family”* (Anon, 2009). Indeed, it is argued that ‘a climate war’ is needed to tackle the unprecedented challenge of climate change (Foster, 2008).

Over the last twenty five years there has been an increasing realisation that the current approach to development is unsustainable. It is argued that a move towards more sustainable development is necessary to tackle the social, economic and environmental problems caused by development- specifically the increasing pressure on resources and environmental systems from production, consumption and waste disposal and the increasing loss of biodiversity. More recently, preventing and mitigating the consequences of climate change has been added to the list of reasons for adopting sustainable development (Department of Environment & Food and Rural Affairs, 2005).

Cities and increasing urbanization have often been blamed for causing environmental problems (Dodman, 2009). However, according to a recent report by UN-HABITAT urban development and increasing urbanization do not inevitably lead to, for example, increasing emissions of greenhouse gases (United Nations Human Settlement Programme (UN-HABITAT), 2008). In the United Kingdom (UK), 80 per cent of people already live in urban areas (Office for National Statistics, 2005a). Indeed by 2050 it is estimated that only 14% of people in the developed world will live outside cities (United Nations Human Settlement Programme (UN-HABITAT), 2008). Moreover, it is increasingly acknowledged that well planned and managed cities have a part to play in tackling global environmental challenges and mitigating climate change, thereby meeting the global goal of sustainable development (Dodman, 2009). This suggests

that cities will have an increasingly important part to play in delivering sustainable development.

In the UK, and across Europe, the compact city idea is one approach to developing more sustainable cities; which are seen to offer major opportunities for reducing energy demand and minimising the pressure on surrounding land and natural resources. However, in both theory and practice there are alternative models or pathways to achieving sustainable cities (Guy and Marvin, 2000). Indeed, there is a growing body of evidence that documents the important role that urban gardens play in mitigating the effects of urbanisation and climate change (managing floods and droughts, micro-climate regulation and maintaining biodiversity) (Hough, 1984). Moreover, urban gardens' contribution to maintaining well-being and quality of life in cities has long been recognised. However, this information is dispersed across many disciplines and is yet to be systematically linked to the delivery of sustainable development objectives.

Additionally, behaviour change- encouraging behaviours that are environmentally beneficial and discouraging those that are not, lies at the heart of many of the most serious policy challenges (including tackling climate change) facing government today (Prendergrast et al., 2008). However, while a vast amount of research has been undertaken on a range of environmentally beneficial behaviours (EBBs), very little has focussed on garden practices (e.g. growing fruit and vegetables, home composting, outdoor drying, collecting and reusing water and encouraging wildlife) and in the main has been descriptive rather than explanatory. As a consequence, it is not known whether these garden practices have anything to add to our understanding of EBBs, or how the potential benefits of these environmentally beneficial behaviours could be realised.

### **Aims of the research**

In 1997 a study of gardens in Sheffield was undertaken which focussed on identifying the potential role of private urban gardens in developing greater environmental sustainability in cities (Qasim, 1997). Nearly a decade later, the Department of Landscape at the University of Sheffield and the Royal Horticultural Society (RHS) sought to revisit this research. Consequently, this research aims to increase our understanding of the potential for urban gardens to contribute towards achieving more sustainable cities.



## **Objectives of the research**

The principal objective of this research was to provide a fuller understanding and explanation for why some people choose to engage in and persist with a range of garden practices of interest, by investigating the mechanisms by which each practice was developed- that is, the process of behaviour change. The specific objectives of this research were to:

- Evaluate the extent to which private urban gardens contribute to sustainable development;
- Explain why some people choose to engage in a range of garden practices of interest;
- Explain why some people persist with practice;
- Explain how the levels of the sustainable garden practices of interest could be increased.

## **Synopsis of each chapter**

**Chapter 1-** Explains the origins of, and need for, the research. A historical review of garden provision is undertaken. Then the concept of sustainable development and how it has been applied to urban areas is explored. Finally, the underlying objectives of sustainable urban development are identified and the contribution that urban gardens could make to the delivery of these objectives are detailed.

**Chapter 2-** Critiques what is already thought to be known about Environmentally Beneficial Behaviours and demonstrates that it is possible to use existing theory and research findings to hypothesise how the process of behaviour change might work.

**Chapter 3-** Details the primary research questions that provide the focus for this research and the critical realist approach and methodology that will be used to answer the research questions.

**Chapter 4-** Uses a quantitative research method to describe and start to explore explanations for the garden practices of interest at this stage, which are: growing fruit and vegetables, home composting, outdoor drying, collecting and re-using water and encouraging wildlife.



**Chapter 5-** Uses data gathered in 1: 1 interviews to search for evidence of the necessary conditions and the mechanisms that can be used to explain the initiation and persistence of the garden practice growing fruit and vegetables.

**Chapter 6-** Uses data gathered in 1: 1 interviews to search for evidence of the necessary conditions and the mechanisms that can be used to explain the initiation and persistence of the garden practice home composting.

**Chapter 7-** Uses data gathered in 1: 1 interviews and provides evidence of the necessary conditions and the mechanisms that can be used to explain the initiation and persistence of the garden practice outdoor drying.

**Chapter 8-** Concludes and discusses findings.

This rest of this chapter presents the literature review, and details the context and rationale for this research. Firstly, an historical review of the factors that have had an affect on garden provision is undertaken. Then definitions of sustainable development are discussed and translated into core ideas, after which different approaches to sustainable urban development are investigated in order to identify underlying objectives. Finally, evidence is sought to establish the nature and extent to which private urban gardens could contribute to the delivery of the sustainable urban development objectives.

## ***1.1 Private Garden Provision in Cities***

In this section the rationale/s and factors that have affected garden provision in the past are explored before going on to consider their relevance to current debates and thinking on sustainable development.

### ***1.1.1 Historical review of provision***

The origins of the domestic city garden have been traced back to the late sixteenth century (Schofield, 1999). Ward (1989) argues that before the explosion in population in the nineteenth century "*cities were full of gardens both around and detached from houses*" (p.96).

The reduction and then elimination of much garden provision in towns and cities has been attributed to the continued adherence to single-family dwellings, rather than flats,

and higher densities as rates of urbanisation increased drastically in towns and cities during the nineteenth century (Kellett, 1982). Burnett (1990) notes how Nottingham grew from a population of 10,000 in 2,000 houses in 1750 "*many of them in gardens or orchards*" to 53,000 in 1841 "*two thirds of whom lived in back-to-back cottages..on what had once been gardens and cherry orchards*" (p.90).

Ravetz (1995) contends that "*From the 1840's there was a clear distinction between the provision of suburban mansions and villas with private back gardens for a middle class minority, and the relative exclusion of the mass of the population from private garden space*" (p.178). However by the end of the nineteenth century, as a result of early initiatives by central government to combat slum housing (provided by the model bye-laws of 1877) and the arguments put forward by the 'garden city' movement, it was generally accepted that gardens were desirable and that controlled development in the suburbs was the only way to provide sufficient garden space for families (Gaskell, 1980; Kellett, 1982). However, it was not until towards the end of the First World War that this was officially sanctioned with the publication of The Tudor Walters Report which recommended densities of 12 houses to the acre, which provided back gardens of about 400 yards<sup>2</sup> (Local Government Board for England and Wales and Scotland, 1918).

Consequently between 1919 and 1939 nearly four million new houses were constructed, including 1 million in the public sector, creating almost universal provision of back gardens and bringing "*the cultivation of a private garden within reach of a large and previously uninitiated section of society*" (Constantine, 1981). But, since the 1950's successive governments have argued for higher density housing. Jenks and Dempsey (2005) detail how the rationale for urban containment has shifted over time but has included: reducing the loss of agricultural land in the 1950's; preservation of the countryside in the 1960's, increasing convenience of city living in the 1970's, sustainable development in the 1990's; and urban renaissance in 2000. But surprisingly, density standards have remained relatively unchanged since the Dudley Report (Central Housing Advisory Committee, 1944).

By the early 1980's it was suggested that the shortfall in supply of gardens was slight (75% of dwellings have private garden provision with 85-90% of all households indicating demand for private garden space) (Kellett, 1982). Currently according to the Survey of English Housing 84% of all households have access to a garden (Office of the Deputy Prime Minister, 2004).

In summary, before the industrial revolution garden provision in cities was extensive. But, as a result of the rapid increase in the population of city dwellers and desire to contain urban areas, gardens became almost exclusively associated with private housing and owner occupiers. However the massive expansion of public house building after both World Wars served to make provision almost universally available in the public sector. However inequalities continue to exist, with 92% owner occupiers having a garden compared to 69% of public and 63% of private renters, which suggests that under provision is yet to be fully addressed.

### **1.1.2 Private versus public outdoor space**

A number of researchers note how allotments in particular, but also municipal parks, have been used as partial compensation for lack of private garden during the nineteenth century (Gaskell, 1980; Ravetz, 1995). But according to Gaskell (1980) municipal parks *“could not provide those positive qualities advocated in the individual garden”* (p.491). More recently Williams (1995) suggests that public parks and allotments should be seen as complementary to, rather than as an alternative to, private gardens in that *“they afford different opportunities and their usage reflects different motives”* (p.100).

The opportunities afforded by private gardens differ markedly from other types of outdoor or green space in that they are proximal to the house and are private, rather than public or shared space. Here privacy has been defined as exclusive access and use, which in many back gardens can be extended to include freedom from overlooking (Williams, 1995). Gaskell (1980) contends that the lesson of Bournville (planned and developed at the turn of the nineteenth century) had demonstrated the value of planning gardens that were directly linked to houses as he concludes:

*“It was increasingly recognised by the end of the century, both by social reformers and by horticulturalists that the natural place for the garden for the working man was round the house itself, as this permitted him to devote odd moments of spare time to cultivation. In proximity to the house it formed a safe place for children to play ... Added to these features were the indefinable environmental and aesthetic benefits”* (p.500).

Thus, in part, the garden is valued for its convenience and for the sense of security that it bestows on users, in that children are ‘safe’, in a secure space, that can also be ‘kept an eye on’ from the house.



Gross and Lane (2007) found that the concept of territory and security associated with the home was often extended to the garden. Indeed Kaplan's (1973) much earlier research on identifying the variable(s) that could predict benefits from gardening for both community and home gardeners, found that home gardeners experienced the greatest satisfaction from gardening. This difference was explained in terms of increased convenience, ownership and control, and willingness to take responsibility felt by home gardeners (p.153). More recently, satisfaction with the home and residential stability have also both been found to be clearly associated with having a garden (Bramley et al., 2009).

The Code for Sustainable Homes (Department of Communities and Local Government, 2007) acknowledges that provision of outdoor space is a key factor affecting people's quality of life. However, a private garden is only one of five types of outdoor space specified, and partially private rather than private space is deemed to be acceptable.

In summary, gardens in cities differ from other types of green or open space in that they are an extension of the 'home' and afford a sense of ownership, control and freedom of use not possible in other public or shared spaces. However, although the specific attributes of private gardens continue to be valued by their users, they are still not completely understood or appreciated in government policy.

### **1.1.3 Garden size**

Garden provision has been acknowledged as important in all the landmark government reports aimed at improving housing standards, from The Tudor Walters Report (1918) specifically in regard to children's play, through to the Dudley Report (Central Housing Advisory Committee, 1944) in terms of providing "*sufficient space to give outdoor amenities for inhabitants*", to The Parker Morris Report, *Homes for Today and Tomorrow* (1961) specifically for "*outdoor living, for children's play and the baby's sleep..and for the pleasure of gardening*" but not to keep a family "*properly fed*" (p.39), and in Planning Policy Statement 3: Housing (Department of Communities and Local Government, 2006b) "*Particularly where family housing is proposed it will be important that the needs of children are taken into account*" (p.9). However, this concern has not extended to specifying minimum space standards for gardens. Indeed in The Tudor Walters Report it was argued that "*Climate, soil, the nature of employment differ so much locally that considerable variation in the arrangement and apportionment of land as between individual gardens and other purpose will be naturally desirable*" (Local Government Board, 1919). Similarly, The Dudley Report (1944) concluded that garden space standards "*can only be determined empirically, since it is influenced by many*



*varying and sometimes contradictory individual preferences*" (p.63). Twenty years later, The Parker Morris Report (Ministry of Housing and Local Government, 1961) recommended only that gardens should *"not be made so small as to detract from their usefulness"* (p.54).

A later research report by the Department of the Environment (1976) acknowledged that *"The value judgement is that garden size results in environmental benefits, the opportunity of pursuing these benefits being important to people"* (p.33). However it also suggested that there may be *"other ideas of environmental benefit that should be considered as a basis of decision about garden size"* (p.33), but nonetheless concluded that *"hard standards were undesirable"* (p.99). Indeed this continued to be the attitude of successive Conservative and Labour governments. That is until 2007, when the Code for Sustainable Homes was published (Department of Communities and Local Government, 2007) which did set space standards for gardens, but at very low levels, (i.e. 1.5 m<sup>2</sup>/bedroom for private space and 1m<sup>2</sup>/bedroom for shared garden space) (p.165), with assessment criteria being based on providing only at least sufficient space for all occupants to sit out.

In summary, whilst it is widely acknowledged that gardens need to be of a certain size to accommodate specific activities, establishing what size city gardens should be has proved problematic and, in the main, has been deemed unnecessary.

#### **1.1.4 Loss of existing gardens**

In the UK levels of garden provision are not static, in that existing gardens are lost and new gardens are added by new housing development. However new house building adds less than 1% to existing housing stock each year (Leishmann et al., 2004). As such, existing garden provision is of great importance to overall provision. Over the past decade or more urban consolidation policies have moved to the fore of the policy agenda. These policies have been seen as a means of making savings on infrastructure costs, reducing demand on edge of city land, reducing travel distances and possibly promoting increased use of public transport (Haughton and Hunter, 1994), all issues that have resonated in sustainable development discourse. In terms of housing provision urban consolidation policies which can have an effect on provision and/or access to private garden space typically include: infill on non developed urban land; residential plot subdivision; reducing residential plot sizes in land use plans; allowing medium density housing in areas previously designated for low density housing in local plans; and a shift towards 2 or 3 storey housing.

The effects of urban containment on garden provision were noted in the early eighties by Hall (1984) who suggested that there was a 'prima facie' case for arguing that there was a reduction in the provision of private open space attached to dwellings in large areas of cities and that the problem was concentrated in existing housing areas that were subjected to partial (e.g. conversion to flats) or complete redevelopment (demolition of housing and rebuilt as flats) (p.186).

By the 1990's government advice in *This Common Inheritance* sought to qualify existing policy as follows:

*"Land in urban areas should be used to meet as much as possible of the demand for sites for new housing... (but this) should not mean the disappearance of the playing fields and green spaces which every town and city needs"* (Department of the Environment, 1990).

This point is reiterated in PPG3: Housing (Department of the Environment, 1992). This was followed by the formal policy framework set out in *Sustainable Development: the UK Strategy* (H M Government, 1994), which Lock (1995) suggests *"drew attention to the potential benefits of the 'compact city'"*- whilst also warning of the need to *"establish the limits to which built-up areas can be developed before loss of amenity is incurred"*. Nevertheless, by 1996 a national target was set for 60% of all new housing to be built on previously developed land by 2008 (Department of Environment, 1996).

From the outset, the 60% target was problematic for urban gardens and continues to be so. As gardens have been treated as previously developed land since 1985, after changes to the Land Use Change statistics made by the then Conservative government (Hansard, 8th November 2006). However, it was not until 2004, after a spate of press releases concerned with residents' opposition to development in gardens or residents selling off parts of their gardens (Jackson, 2003), that MPs became aware of the fact that gardens were included under the definition of 'brownfield' sites. As a result, Greg Clark Conservative MP for Tunbridge Wells sought to introduce a Private Member's Bill in parliament to redefine 'brownfield' land with the aim of restricting development on sites of houses and gardens in residential streets (Norwood, 2006). Since that time one further Private Member's Bill has been talked out and currently the debate on the second reading of *The Land Use (Garden Protection) Bill* is adjourned until October 2009 (Hansard, 8th May 2009). Moreover, given the nature of Private Member's Bills it would seem unlikely that this Bill will be passed.

The most recent government guidance on planning for housing, Planning Policy Statement 3 (2006) continues to emphasize that the *“Efficient use of land is a key consideration in planning for housing”* (p.16). Here 30 dwellings per hectare (dph) are set as the national minimum housing density (p.17). However, although it is often assumed that building at higher densities precludes the provision of gardens, historically this has not been the case (Burnett, 1990; Greater London Authority, 2003). Consequently, the density levels at which national planning policies are now set do not preclude private garden provision, but preferences (or competition) from other uses, most notably car-parking, may serve to restrict provision.

In summary, historically, private garden provision in cities has explicitly been linked to issues of quality of life, well being and social justice, all issues that resonate in sustainable development discourse. However, the approach currently taken by the UK government, with its focus on urban containment and compaction, suggests that there is more than one way to interpret the idea of sustainable development. In the next section the concept of sustainable development is introduced, before going on to identify ‘core ideas’ and objectives that can then be applied to urban areas.

## ***1.2 Definitions of Sustainable Development***

‘Sustainable development’ is described by Foster (2008) as *“a policy idea for putting our newly perceived ecological responsibilities into practice”* (p.4). The concept was first used in the World Conservation Strategy (International Union for the Conservation of Nature, 1980) and then was brought to the centre of the international agenda with the publication of *Our Common Future* (also known as The Brundtland Report) (World Commission on the Environment and Development, 1987). Jacobs (1999) argues that most of those who use the term sustainable development are referring to either the ‘Brundtland definition’ i.e. *“Development that meets the needs of the present without compromising the ability of future generations to meet their needs”* (p.43), or the ‘Caring for the Earth definition’ i.e. *“Improving the quality of life while living within the carrying capacity of supporting ecosystems”* (p.10).

Over twenty years later, the ‘idea’ of sustainable development is now widely endorsed, at both the national and international levels, and by governments, businesses and non-governmental organisations. However, the focus and content of much of the discussions on sustainability have not always easily translated into action. As a result attempts have been made to redefine, expand and/or clarify the meaning of sustainable



development in an effort to more directly apply it to policy making and practice (Nijkamp et al., 1992). In addition it has been argued that sustainability should be defined as a process rather than an end-point (Mega, 1996; Haughton, 1999; Foster, 2008). More recently there have been calls for a different approach, with a focus on positives and opportunities rather than negatives and deprivations (Giddens, 2009). Indeed, Newman (2006) argues for a definition of sustainability that *“is positive about cities and their opportunities, whilst at the same time promoting an agenda to reduce the impact of cities”* (p.286). However, Jacobs (1999) suggests that such efforts may be misguided, in that at the first level of meaning sustainable development, as with other political concepts, may be widely endorsed, but it is at the second level where *“argument can then proceed as to what must be done to achieve it in practice”* (p.23).

### **1.2.1 Identifying ‘core ideas’**

Jacobs (1999) contends that sustainable development is an example of a *‘contestable concept’*, which has two levels of meaning. At the first level it is suggested that sustainable development can be defined by a number of ‘core ideas’, each of which represents a substantive value or objective. Furthermore, it is argued that because these ‘core ideas’ are readily understood and can be agreed, they can be thought of as fixed or given. Here Jacobs (1999) identifies six ‘core ideas’; based on a review of the discourse of sustainable development. These are:

- Environment-economy integration: ensuring that economic development and environmental protection are integrated in planning and implementation;
- Futurity: an explicit concern about the impact of current activity on future generations;
- Environmental protection: a commitment to reducing pollution and environmental degradation and to the more efficient use of resources;
- Equity: a commitment to meeting at least the basic needs of the poor of the present generation (as well as equity between generations);
- Quality of life: the recognition that human well being is constituted by more than just economic growth;
- Participation: the recognition that sustainable development requires the political involvement of all groups or ‘stakeholders’ in society (p.26).

The first five of these ‘core ideas’ are drawn from The Brundtland Report (1987) and Caring for the Earth (International Union for the Conservation of Nature (IUCN), 1991),

while the sixth 'core idea' is drawn from Agenda 21 Rio Earth Summit (United Nations Conference on Environment and Development (UNCED), 1992).

The continuing influence of these six 'core ideas' is evident in the second official UK Sustainable Development Strategy, *Securing the Future* (Department of Environment & Food and Rural Affairs, 2005). But, Jacobs argues (1999) that it is at the second level of meaning, in terms of how the concept is interpreted in practice, where the differences become evident, because those who use the sustainable development concept have different interests and values.

The next section investigates how the 'idea' of sustainable development has been applied to urban areas. Here the aim is to identify the common objectives that underlie the different models of sustainable urban development. It then goes on to investigate whether, and the extent to which, urban back gardens could contribute to the delivery of these objectives.

### **1.2.2 Identifying policy objectives for urban areas**

According to Newman (2006) wherever the objective of sustainability has been applied at the city level "*obvious policy outcomes become quite clear*" (p.286). Haughton (1997) concurs, noting that different approaches to sustainable urban development "*frequently indicate similar policies*", but "*in respect to land-use their approaches can differ markedly*" (p.190). Haughton identifies four approaches to sustainable urban development that "*reflect different sets of values and judgements about both environmental and urban development*" (p.190). The next section seeks to identify the underlying objectives of three of these four approaches and the extent to which these objectives are shared or common to all models.

### **1.2.3 Multiple models of sustainable urban development**

The first approach Haughton (1997) identifies, the Self-Reliant City (SRC) model, is based on the objective of minimising damage to the natural environment by reducing the use of resources and minimising waste. Here, the focus is the city and its bio-region. In practice this involves encouraging the production/use of local renewable resources and encouraging reuse and recycling. The SRC model also recognises the need for more decentralized and local decision making, requiring a change in values, towards those which are more cooperative and nature centred. In land use terms the emphasis is on increasing the number of small towns, decreasing the number of larger

cities, increasing the mix of uses and increasing the amount of natural space (including parks and gardens etc.) within cities.

The second approach, the Re-designing Cities (RDC) model, most closely represents the 'compact city' idea and again is based on the objectives of minimising damage to the natural environment by reducing resource use and minimising waste. Here, the focus is almost entirely on the city itself. In practice this involves encouraging sustainable use of land, energy efficiency and changing human behaviour. In land use terms increasing residential density and the mix of uses within cities is emphasised, although it is acknowledged that this may well lead to a reduction in the amount of natural space within the city.

Williams (2000) provides a more comprehensive summary of the objectives of compaction and their UK policy sources, from which it is possible to identify two additional social objectives for the 'compact city' approach, these are:

- **Meeting needs and improving quality of life** by providing land in urban areas for residential development and by improving urban areas;
- **Improving social equity** by ensuring that services and facilities are accessible to all who reside in urban areas (p.38).

The third approach, the Externally Dependent City (EDC) model is based on the objective of minimising damage to the natural environment, without making any reductions to resource consumption or waste generation and disposal within the city. Again, this is a city-focussed model, but unlike the SRC (and to a lesser extent RDC model), there is little or no concern for where resources come from or waste goes to. In practice this involves improving or creating markets that internalise the costs of environmental damage (e.g. the polluter pays principle), thereby creating incentives for people to change their behaviour. Thus, in terms of land use, the development of cities would be dictated by 'the market'.

The fourth model draws from aspects of all three previous models and as such is not considered in detail.

It is clear that each model differs in focus, concern for where resources come from and waste goes, policy approach and emphasis, and type of urban development. However the overriding objective of each model is the same (i.e. to minimise damage to the natural environment). In addition it is possible to identify a number of secondary objectives, as follows: reducing the consumption of natural resources (inputs);



minimising waste; changing behaviour and changing values. Williams (2000) research suggests that the list of objectives for urban areas can be extended to include improving quality of life, health and well-being and social equity. Taken together, these objectives accord with Newman's (2006) definition of sustainability in cities as:

*“reducing Ecological Footprint (energy, water, land materials, waste) while simultaneously improving the quality of life (health, housing, employment, community...) within the capacity constraints of the city” (p.286).*

In summary, it is clear that there are multiple models, or pathways and therefore a range of policy options, not simply based on urban redesign and the compact city, that could contribute to the creation of sustainable cities (Guy and Marvin, 2000). In addition, that there is clearly a place for urban gardens, in at least one of the three models considered. Moreover, it is possible to identify shared, as well as distinct objectives, from each of the three models. Please see **Figure 1.5.1** for a summary of the 'core ideas' and sustainable urban objectives that can be drawn from previously mentioned literature. The next task is to identify the nature and extent of the contributions that urban gardens can make to the delivery of these objectives.

### **1.3 Contributions from urban gardens**

There is a growing body of research, spanning a multitude of disciplines, which can be used to identify both the current and potential contribution that private urban gardens make (or could make) to sustainable urban development. This section aims to investigate the evidence relating garden provision and garden practice to the delivery of the 'core ideas' of sustainable development and the objectives for urban areas identified above.

#### **1.3.1 Urban Objective 1: Minimising damage to the natural environment**

##### **1a. Reducing inputs**

Households were responsible for greenhouse gas emissions totalling 152 million tonnes of equivalent in 2006 (equating to approximately 10.92 tonnes of CO<sub>2</sub> person/year) (Office of National Statistics, 2009). With current emissions being 7.2% higher than those in 1990, despite the government target of reducing emissions to 20% below 1990 levels by 2010. As such it is widely recognised that targets cannot be met by technical efficiency gains alone (which tend to be overtaken by growth in energy

consumption anyway) and that to have any hope of meeting targets changes in people's behaviour are crucial if energy consumption, and emissions, are to be reduced.

Domestic water use has been increasing since the 1950's and now accounts for over half of the public water supply. Indeed demand is expected to continue to increase due to the predicted effects of climate change for the UK including: increased temperatures; drier summers; and increased risk of drought and increases in population (H M Government and DEFRA, 2008). The annual amount of water used in a garden is relatively small when compared to other domestic uses (estimated at 3% of total domestic use), but usage can rise to up to 70% during spells of hot weather (Environment Agency, 2007). Furthermore as a result of climate change demand is expected to rise, in the main due to increased watering of lawns.

The Water Resources Strategy for England and Wales (Environment Agency, 2009) sets a target for reducing the average amount of water used per person per day from 150 litres to 130 litres by 2030 (p.49) and recognises the importance of promoting external water efficiency measures in order to do so. More extensive benefits of such practice are acknowledged across government departments in terms of encouraging recycling; reducing the consumption of potable water (Department of Communities and Local Government, 2006a); reducing surface run-off thereby improving water quality; reducing the risk of flooding; lowering the cost of water for households (Department of Communities and Local Government, 2007); and balancing supply and demand in areas or periods when water is scarce (H M Government and DEFRA, 2008). As such government guidelines design criteria, such as the Code for Sustainable Homes, include for the provision of systems to collect rainwater e.g. water butts, and it is acknowledged that such provision depends on having space to site equipment e.g. in a garden, patio or communal garden (Department of Communities and Local Government, 2007).

Urban gardens provide opportunities for a range of gardening practices, including growing fruit and vegetables, home composting, line drying and collecting and reusing water that contribute indirectly to reducing inputs (e.g. energy and water) by: conserving energy e.g. reducing the need for transporting fruit and vegetables, collecting and processing waste, use of electricity to dry clothes and reducing leisure time travel; and maximising the use of local and renewable resources (i.e. collecting and reusing water and using wind and solar energy ). The next section considers the evidence in more detail.

## **Garden contribution 1: Reduce energy consumption**

- **Reducing leisure time travel**

According to the Office for National Statistics (2009) personal travel (by road, rail and air) has almost doubled since 1971, standing at 508 billion passenger miles in 2007. With the single largest source of personal carbon emissions (estimated at a fifth of the average emissions of 10.92 tons of CO<sub>2</sub>), being attributed to recreation and leisure which includes travelling to and from leisure destinations (Carbon Trust, 2006). Indeed it is widely recognised that reducing the use of private cars and travel by plane is crucial if the government is to meet targets for reducing greenhouse gas emissions. To this end, it is suggested that private gardens in cities may be a useful tool for slowing people down and reducing the desire or need for leisure travel (Orr, 1993).

Cook (1968) observed that as car ownership increased gardening activity decreased, yet Halkett (1978) was the first to suggest that households with little or no garden space may travel more and spend more on recreational activities compared to occupants of detached houses. Further research was undertaken by Holden and Norland (2005) to test the compensatory mechanism hypothesis which suggested:

*“ that people who live in densely populated urban areas and who have limited need for everyday transport, tend to undertake longer travel in their leisure time as a compensation for limited access to green/outdoor areas” (p.2146).*

Their findings linked access to a private garden to reduced residents' travel by plane and long leisure time travel by car and this was also found to apply to residents living in flats who had access to a garden (p.2160). However whether findings for Norwegian residents would hold true for the UK residents would require further research.

- **Reducing food transportation**

In 2008 it was estimated that the UK produced 11% of the fruit and 58% of the vegetables consumed (Department of Environment & Food and Rural Affairs, 2009) and depended on imports, transported by air freight (increasingly the preferred choice) or road to meet the shortfall. Furthermore according to a recent report by the Department of Environment, Food and Rural Affairs (2010) transport and energy generation are the two most significant sources of air quality and climate pollutants. This would suggest that growing fruit and vegetables in urban gardens could contribute to reducing air pollution and environmental degradation.



From Ebenezer Howard's garden cities in the late eighteenth century to the present day, local food production has always played a role in both imagined and actual attempts at creating sustainable cities. Ward and Best (1956) note the premium put on both garden and allotment produce after the outbreak of the war and report a Parliamentary reply in 1944 from the Private Secretary to the Ministry of Agriculture that suggested that produce from gardens and allotments was contributing 10% of home produced food. Annual reports of the National Food Survey Committee, however, suggested that the fruit and vegetables produced in both gardens and allotments in urban areas at the height of the growing season contributed between a fifth and a quarter of the total fruit and vegetable consumption in households (Ministry of Food, 1951).

Hough (1984) argues that commercial fruit and vegetables growing is very energy intensive and in comparison *".. at the smaller, personal scale, the backyard provides some of the best opportunities for food growing in terms of energy, efficiency and direct benefits"* (p.218). This suggests that urban food production (including the produce of gardens) could play a role in reducing CO2 emissions associated with food transportation. More recently Garnett's (2006) ongoing research aiming to bring together information on greenhouse gas emissions for the UK fruit and vegetable sector suggests that while emissions from some foodstuffs may have been overplayed this is not the case with fruit and vegetable production as *"Air freighting of foods has an overwhelming, and negative environmental impact and that fruit and vegetables are the largest air freighted food sector by volume"* in addition *"The signs are that the proportion of fruit and vegetables carried by this mode is likely to grow"* (p.108).

In contrast there are no transportation emissions (neither in distribution nor consumption) or packaging associated with garden grown fruit and vegetables. Furthermore the more recent introduction of a range of winter salads, including lettuce, rocket and lambs lettuce, means that urban gardeners now have access to a range of seeds to extend the growing season well into the winter, which would suggest that there is further potential to reduce the need for buying imported salad outside of the traditional growing season. However Beck et al.'s (2003) energy analysis<sup>1</sup> of four different garden plots (of 54m<sup>2</sup>) aimed at assessing the yield and sustainability of four different growing systems concluded that, in terms of overall energy use, growing fruit and vegetables alone did not contribute towards sustainability. The prime reason given

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<sup>1</sup> Beck et al. (2003) define energy as all the available energy (i.e. solar energy) used directly or indirectly in the production of the product or service (p.188)

was the high levels of economic inputs needed to establish and maintain plots (e.g. compost, timber, tools and machinery and plants) which resulted in food producing gardens yielding far less energy than they consume. However Beck et al. (2003) suggest that the growing of fruit and vegetables by urban households could be more sustainable if inputs were available at the neighbourhood (e.g. leaves, newspaper and bark mulch) or city level (e.g. finished compost and plant materials) rather than imported inputs from outside the city.

### **Garden contribution 2: Water Conservation**

Syme et al.'s (2004) research on predicting and understanding water use in gardens found associations between households with occupants that had a greater interest in gardening and higher use of their gardens for recreation and higher use of external water. More recently the Plant for Life Environment report (drawn from the results of research from a representative sample of over 1000 adults) found that 38% of respondents had reduced their use of mains water in their gardens, with 51% collecting rainwater and 34% using grey water from the house (Horticultural Trades Association, 2008). However these figures are substantially higher than those recorded in Qasim's (1997) earlier study of gardens in Sheffield which found only 30% of householders were collecting water in water butts (p.84). Nevertheless this suggests that there is further potential to reduce the use of potable water in the garden. As such back gardens (in that water butts are rarely seen in front gardens) are one of the few places that provide opportunities for householders to harvest and store rainwater for future use, in either water butts connected to down pipes from house or shed roofs or open water butts.

### **Garden contribution 3: Maximising the use of local and renewable resources**

Maximising the use of local and renewable resources (i.e. water, wind and solar energy), is widely recognised as having a part to play in reducing the consumption of non-renewable sources of energy (i.e. coal and oil). As such urban gardens provide opportunities to use a range of technologies (i.e. ground source heat pumps and micro-wind turbines) to generate energy and engage in practices (i.e. collect and reuse local rainfall and outdoor drying) that make use of renewable resources in preference to non-renewable sources of energy. As a result energy consumption is reduced, as are water and fuel costs, thereby contributing to the social as well as environmental aspects of sustainability (Williams and Dair, 2007).

### **Wind and solar energy**

The electricity and carbon savings from installing wind turbines and ground source heat pumps are substantial (Energy Saving Trust, 2010a; Energy Saving Trust, 2010c). However the high cost of installing such technologies (estimated at £7000 to £13000 for a ground source heat pump and £11,000 to £19,000 for a mast rather than roof mounted micro-wind turbine) and long payback times, currently preclude many people from using these technologies in their gardens. Moreover the suitability of using wind turbine technology for domestic use in dense urban areas has been questioned because the carbon emitted in the production, installation and operation of wind turbines is currently greater than electricity and carbon savings, in the main because of the lower wind speeds and frequent changes in wind direction experienced in cities (Carbon Trust, 2008). However technological developments and expanding markets may enable the carbon saving potential from using these technologies to be realised in the future. In contrast, it costs very little to practice outdoor drying. Moreover despite the increase in use of tumble dryers, it continues to be a widespread practice in the UK. This suggests that the energy savings could be substantial and realisable. As such this next section will focus on the practice of outdoor drying in more detail.

### **Outdoor drying**

As a result of the increasing concern about the use of non-renewable energy resources a small body of research undertaken in the mid to late 1980's in the USA highlighted both the environmental benefits of line drying, in terms of saving non-renewable energy resources, in addition to the savings made by reducing electricity consumption and in expenditure of buying, installing and maintaining tumble dryers. Other benefits identified included increasing physical activity, increasing exposure to fresh air and the fresher smell of washing from line drying (Pedersen et al., 1988; Labhard and Pedersen, 1989).

Research into identifying alternatives to traditional patterns of consumption based on shared use of facilities rather than individual ownership of appliances etc. noted how the environmental impact of washing clothes has increased since the 1960's, such that as total amounts of laundry have increased so has the resulting impact on the environment due to increased consumption of energy, water and washing powder (Mont, 2004). Although Mont (2004) observes that studies have concluded that washing in a washing centre has less of an environmental impact when compared to washing at home, from her findings she concludes:

*\*.. a life cycle assessment shows that washing in a launderette has a larger environmental impact than washing at home, because people*



*tend to tumble dry their clothes when they wash in a launderette and to use a clothes line when they wash at home (p.146).*

This suggests that it is the method of drying, i.e. outdoor drying, that holds the key to reducing the environmental impact of the laundry process. Indeed Pedersen et al. (1988) conclude that *"Energy conservation practices in any area of the home, when multiplied by thousands of households, can make significant contributions to energy conservation"* (p.349). Moreover according to the Energy Saving Trust (Energy Saving Trust, 2010b) if everybody in the UK with a tumble dryer dried outside in the summer, collectively £180 million could be saved in the consumption of electricity per year, resulting in reductions in carbon emissions equivalent to taking 240,000 cars off Britain's roads.

In the UK clothes dryer ownership has risen from 1% in 1969, to 23% in 1981, to 59% in 2008 (Zmroczek, 1992; Office for National Statistics, 2005b; Office for National Statistics, 2008). Nonetheless, it has been suggested that if all households with a tumble dryer dried one load of washing outside each week, instead of using a tumble dryer over a million tonnes of CO<sub>2</sub> emissions would be saved each year (Fry, 2008). However whilst research from the USA and Europe suggests that if householders have a tumble dryer then it is used fairly frequently, little is known about the extent of tumble dryer use compared to outdoor drying in Britain. As such the current and potential emission savings from using renewable sources (e.g. solar and wind) rather than from using electricity (often from non-renewable sources) are not known.

More recently the Code for Sustainable Homes (Department of Communities and Local Government, 2006a) has recognised that the provision of drying space can make a contribution to reducing energy consumption and emissions of CO<sub>2</sub>, but does not differentiate between internal or external provision (Department of Communities and Local Government, 2007).

### **1b: Minimising waste**

The total amount of municipal waste produced in England has risen 11% over the past decade, with households generating the equivalent of 495 kg/per person in 2007/2008, of which 40% is biodegradable (i.e. suitable for home composting). Over half of this municipal waste went to landfill whilst more than 1/3 was recycled or composted (Office for National Statistics, 2009). According to Reid (2008) there is still much more to do in terms of reducing waste, as Britain is still dumping more waste into landfill than any

other country in the European Union and as a result is facing fines of up to £3 billion (for contravening targets set by the Landfill Directive) if the waste thrown into landfill is not reduced dramatically.

#### **Contribution from gardens 4: Recycling or reusing**

Jasim and Smith (2003) identify home composting as a major opportunity for both *“managing part of the domestic biodegradable waste stream”* and minimising the amount of biodegradable waste going into landfill (p.1). Jasim and Smith’s (2003) study highlights the problems that disposal of biodegradable waste cause in landfill in terms of emissions of green house gases, landfill subsidence and pollution of surface and groundwater and identifies the benefits of home composting as financial, in terms of reduced costs for collection and disposal of waste for local authorities and reduced costs for soil conditioners and mulches for householders. Environmental, as home composting is seen to be the most sustainable management option as waste is dealt with at source. In addition the practice is seen to contribute towards: conserving natural peat land; improving moisture retention; conserving soil organic matter and improving soil structure (p.2). Accordingly, as a ‘high in hierarchy’ waste management option, it is argued that home composting should be considered a priority for action (Eunomia Research and Consulting et al., 2007)

However, the amount of kitchen and garden waste collected for centralised (not home) composting by local authorities in England has increased substantially over the period 1997 to 2000, rising from 0.3 million tonnes in 1996/97 to almost 3.2 million tonnes in 2007/08 (Office for National Statistics, 2009). Indeed, compost now forms the largest component (36%) of collections compared to a level of 20% in 1997 (DEFRA, 2008). In a recent report to the House of Commons Committee of Public Accounts DEFRA acknowledged that the convenience of garden waste collections may have diverted waste that would have been composted in the garden thereby increasing tonnage of waste collected without reducing amounts diverted from landfill (House of Commons Committee of Public Accounts, 2007). According to the Audit Commission (2008) this situation may now be changing as a number of local authorities are no longer collecting garden waste in an attempt to encourage home composting.

The Code for Sustainable Homes: Technical Guide (Department of Communities and Local Government, 2007) acknowledges that home composting is the most effective and environmentally friendly way to recycle organic waste and suggests that 30% of household waste could be diverted from landfill if all households composted (p.135).

Subsequently the code awards points for the provision of composting facilities in new homes (Department of Communities and Local Government, 2006a).

### **Contribution from gardens 5: Maintaining or increasing biodiversity**

The executive director of the European Environment Agency recently conceded that not only would the European 2010 targets for halting the loss of biodiversity not be met, but the overall risk of species extinction for wildlife in Europe has increased and that biodiversity was being lost even in those areas that are protected (McGlade, 2009).

Gardens in cities have been called 'doorstep' nature reserves. Indeed there is now a substantial body of evidence documenting the role that private urban gardens play in maintaining biodiversity which has focussed on: the extent and spatial configuration of gardens (Owen, 1991; Smith et al., 2005); the high level of biodiversity in gardens that have been subject to detail study (Owen, 1991; Thompson et al., 2003); the presence of scarce 'red-listed' species (Owen, 1991; Thompson et al., 2003; Cannon et al., 2005); the increase in the numbers of specific species that had previously been associated with rural habitats (Mason, 2000), that now establish themselves in urban areas before moving out to rural areas (Osborne et al., 2007).

Thompson et al. (2003) argue that the richness of plants in gardens and the ability of rare species to persist even at very low densities is a direct result of how gardens are actively maintained and managed (p.76). Thornton Wood (2002) highlights the fact that managing a garden for biodiversity complements rather than conflicts with managing a garden for aesthetic or productive purposes. This point is exemplified by Osborne et al. (2007) who state that *"The desire of gardeners for extended flowering seasons ensures continuity of nectar and pollen sources (for bees) throughout spring and summer, at a density rarely encountered in the countryside.."* (p. 6). Owen (1991) concludes *".. for whatever reason a garden is maintained, the vast amount of care lavished on the large area of gardens in Britain, results in a significant area of land with considerable value, or at least potential, for wildlife"* (p.19). More recently urban gardeners have been called on to do more, by doing less, in terms of reducing garden maintenance to encourage biodiversity (Osborne et al., 2007; Sample, 2007).

It is widely acknowledged that significant numbers of households are engaging in some form of wildlife gardening, predominantly involving feeding the birds (Gaston et al., 2007). The proportion of households undertaking wildlife gardening in England is now



included as one of five urban biodiversity indicators by the UK Government (Department of Environment & Food and Rural Affairs, 2002; Department of Environment & Food and Rural Affairs, 2003). According to Gaston et al. (2007) the use of the wildlife gardening indicator “.. reflects the high proportion of urban green space that comprises domestic (private) gardens, and therefore the potentially marked benefits that might be gained if these were managed in a fashion sympathetic to native biodiversity” and the “..potential benefits of widespread public awareness of biodiversity issues” (p.3228).

### **1C: Changing values, attitudes and behaviour**

It has been argued that whilst political and developmental decisions are important to delivering sustainable development big impacts can come from changes in people’s everyday behaviour (Haughton and McGranahan, 2006). According to a recent report published by the Social Market Foundation (2008) behaviour change lies “*at the heart of many of the most serious policy challenges (including tackling climate change) facing government today*” (p.15). Indeed this was recognised in the Sustainable Development Strategy of the UK Government, *Securing the Future* (Department of Environment & Food and Rural Affairs, 2005).

#### **Garden contribution 6: Valuing intrinsic benefits**

It is suggested that the process of living sustainably calls for people to re-examine their values and change their behaviour and this has led to a call for those values that support sustainability to be promoted whilst discouraging those that are incompatible (Agius, 2006). Benton (2008) argues that environmental values come from common experiences and everyday pleasures of urban nature, and suggests that practices, including horticulture, “*provide the experiential setting in which moral sentiments of affection and respect for non-human elements/participants are liable to arise spontaneously*” (p.213).

#### **Garden contribution 7: Encouraging Environmentally Beneficial Behaviours**

From the early 1980s onwards a vast amount of research has been undertaken on a range of environmentally beneficial behaviours including waste reduction, recycling, travel, water conservation and buying (from vehicles and major appliances to food). However, very little has focussed on garden practices (e.g. growing fruit and vegetables, home composting, outdoor drying, collecting and reusing water and

encouraging wildlife). Moreover, the majority of EBB research has been descriptive rather than explanatory and has focused on initiation rather than maintaining behaviour (Geller, 2002).

A number of studies have also sought to investigate whether there are relationships amongst EBBs (Oskamp et al., 1991; Berger, 1997; Corral-Verdugo, 1997; Tucker and Speirs, 2001; Magnusson et al., 2003). However, previous research has found weak correlations (Corral-Verdugo, 1997; Harland et al., 1999) or no correlation (Oskamp et al., 1991) between EBBs. Subsequently, little is known about how a garden practice like home composting fits in with other EBBs, whether garden based or not (Tucker and Speirs, 2001).

### ***1.3.2 Urban Objective 2: Improving quality of life and increasing well-being***

There is considerable overlap in the contribution that urban gardens make to both improving quality of life and increasing well-being, as such both these objectives will be addressed in this section. In the main private urban gardens' contributions to improving quality of life and increasing well-being include: improving environmental quality and function; increasing residential amenity (and specifically increasing access to daylight and meeting recreational needs); improving indoor air quality; increasing relaxation and stress reduction; and increasing connection to nature. In the next section each contribution is considered in more detail.

#### **Garden contribution 8: Improving environmental quality and function**

Since the early 1980's it has been recognised that gardens in cities made a contribution to improving the environmental quality and function of the city as a whole, not just at the neighbourhood level (Hough, 1984), thereby contributing to public health and increasing the quality of life of urban dwellers (Bolund and Hunhammar, 1999).

Hough (1984) contends that cities place enormous stresses on natural systems as the process of urbanisation breaks up or destroys natural habitats, alters climatic conditions and interferes with energy, waste and water cycles. Moreover it is suggested that areas of green space in cities, and particularly gardens, due to the extent of their contribution to urban greenspace, can make an important contribution to ameliorating the changes caused by urbanisation (Smith et al., 2005).

According to the Environment Agency (2009) climate change will result in: changing rainfall patterns; hotter and drier summers; and increasing risk of droughts and floods occurring simultaneously. In addition, *“Treatment plants, pumping stations and sewers, designed to cope with the past and present climate, may no longer be adequate”* (p.2). It is also suggested that dense urban areas may especially experience increased temperatures, leading to some cities becoming uninhabitable for parts of the year (Goldberg, 2009). This would suggest that urban gardens have an increasingly important role to play in also mitigating the effects of climate change.

Bolund and Hunhammar (1999) identify four ecosystem services<sup>2</sup> as having major importance in improving the environmental quality and function of urban areas, with the following four services being provided by urban gardens: air filtering, micro-climate regulation, noise reduction and rainwater drainage. Later research extended this list to include maintaining biodiversity and suggested that the scale of contribution is largely determined by the extent of garden provision (Tratalos et al., 2007), as well as garden configuration and composition (Smith et al., 2005). The next section will look at micro-climate regulation and rain water drainage in more detail, and biodiversity will be covered later in this chapter.

- **Micro-climate regulation**

Hough (1984) provides a two part explanation for urban gardens contribution to climatic control in cities. Firstly by explaining that *“one of the most effective ways of controlling local climate is through the evaporation of water into air”* and secondly by reporting findings of a simulation of urban climate which suggests that where at least 20% of an urban area is covered by plants, more incoming heat is used to evaporate water than to warm the air (p.42). In addition Hough (1984) asserts that *“...from a climatic point of view .. a fine mesh of open spaces, distributed evenly over the whole city, is more effective than reliance on a few large ones”* (p.47).

- **Rain water drainage**

The contribution that private gardens make to a city’s ability to absorb rainfall, reduce surface run-off and thereby improve water quality is widely recognised (London Assembly, 2005). According to an advisory note issued by the Royal Horticultural Society (2005):

*“ an average suburban garden on a typical rainy day will absorb 10 litres of rainwater per minute. This is around 10% of the water that will fall in a storm.*

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<sup>2</sup> Costanza et al. (1997) define ecosystem services as “the benefits human populations derive, directly or indirectly, from ecosystem functions”.



*Although it may not seem a lot, it prevents thousands of litres contributing to localised flooding or eventually causing rivers to burst their banks in extreme weather” (p.1).*

Further more the majority of this contribution is made by back gardens, in that their contribution to the garden area of a city is far greater than front gardens, estimated by Loram et al. (2007) at 62% to 74% in the five major cities studied in the UK (p.606). Moreover compared to front gardens back gardens, by nature of their disposition (i.e. in the back), are much more likely to have restricted vehicle access and as a result surfaces that are porous rather than impervious to rainfall. Indeed the London Assembly (2005) estimated that two thirds of London’s front gardens are already partially covered by hard surfaces rather than porous surfaces, in the main to provide hard standing for cars (p.5).

### **Garden contribution 9: Increasing residential amenity**

The early rationale for garden provision focussed on ‘improving quality of life’ by increasing residential amenity, particularly in terms of increasing access to daylight and meeting household and recreational needs.

- **Daylight**

In terms of the home environment private gardens provide the space between buildings that affords ‘residential amenity’ in terms of adequate daylight/sunlight to rooms within dwellings and privacy from overlooking by neighbours. Current daylight and sunlight standards can be traced back to The Tudors Walters Report (Local Government Board for England and Wales and Scotland, 1918) and today whilst it is not uncommon for traditional residential amenity planning policies not to make explicit reference to garden space, they do imply garden lengths of 10-12 metres. Most recently, the Code for Sustainable Homes: Technical Guide (Department of Communities and Local Government, 2007) acknowledges that good day lighting improves people’s quality of life and as such provision of good daylight is included as one of their design criteria in Category 7: Health and Well-being (p.151).

- **Household and recreational needs**

It is suggested that even the smallest backyards, common in the late nineteenth and twentieth century, were put to a multitude of uses including: growing flowers, keeping

pets, hens, rabbits and aviaries and small workshops for repairing shoes and furniture (Ravetz, 1995). Ward (1989) sums up a variety of other uses that private gardens have been put to over the years as follows:

*"The urban back garden has always been one of the most cherished of amenities, being used not only as an outdoor room, a storage space, a workshop, a dump, a playpen and safe playground, but also as the one space where people can indulge in their passion for growing things. The uses change from family to family and from time to time in the same household. The important thing is that the space is there and that the space is theirs". (p.97)*

Ravetz (1995) suggests that for the first council houses built in the 1920's and 1930's it was clear that back gardens were intended for a whole range of uses. Indeed a Mass Observation study of people's homes (1943) assessed 753 gardens, in seven areas, and found that people used their gardens to grow vegetables and flowers, for drying washing, for keeping chickens, rabbits and dogs, children's play, relaxation and 'nothing' and noted that for the majority of people tending their garden *"formed their principal leisure time occupation"* (p.163).

During 1950's arguments for garden provision continued to be centred on the primary use of the garden for food production. However by the late 50's as gardens became progressively smaller space for vegetable and fruit growing increasingly had to be sacrificed. Thus by the mid-1960's Ravetz (1995) suggests that changes in plot size and garden use had overtaken the interwar concept of the 'zoned' garden and *"In new homes, space for drying clothes, growing flowers, children's play and 'sitting out' all had to be integrated into one well used area"* (p.193). More recently Bhatti and Church (2004) assert that since the 1980's the decrease in average garden plot sizes has resulted in a reduction in the growing of vegetables or fruit.

Nevertheless gardening continues to be a popular leisure activity, with 45% of men and women citing gardening as a leisure time activity, and it is ranked 12<sup>th</sup> out of 15 most selected activities for men and 8<sup>th</sup> out of 15 most selected leisure activities for women (Office for National Statistics, 2009). Moreover the Code for Sustainable Homes: Technical Guide (Department of Communities and Local Government, 2007) acknowledges the provision of outdoor space (including private gardens) as a key factor affecting people's quality of life.

### **Garden contribution 10: Improving indoor air quality**

More recently concern over the quality of indoor air has increased, as the majority of people who live in cities, particularly young children, in temperate climates spend the majority of their time indoors (Hancock, 1996). Having access to a garden can indirectly affect indoor air quality by providing opportunities for drying laundry outdoors, thereby reducing or avoiding indoor drying or the use of tumble dryers, which leads to a reduction in indoor humidity.

- **Indoor humidity**

Research undertaken in the early 1980's estimated the moisture generated from indoor drying of wet clothes at 5 kilograms a day and 12 kilograms per week (Lake and Lloyd Hughes, 1980), which it could be concluded would now be considerably higher as the weight and number of loads of washing has increased considerably (Mont, 2004).

The indoor environment has been identified as an important environmental factor in relation to the development of asthma and allergy especially in countries with cold or temperate climates (Hesselmar et al., 2005). In seeking to identify the mechanisms that might account for this relationship Gross et al.'s (2000) research found that increased indoor humidity was associated with increased concentrations of house dust mite and concluded that indoor humidity should be controlled in order to minimise exposure to house dust mite and reduce the risk of developing allergies (p.376). As such, outdoor drying has been cited as being an effective way to reduce dust mite populations (Platt Mills et al., 2000). Similar associations have been found between condensation dampness and mould and again outdoor drying was suggested as a remedy (Prahl, 1992; Ryan, 2002)

### **Garden contribution 11: Increasing relaxation and stress reduction**

The World Health Organisation (2001) predicts that by 2020 depression will become the second most common cause of ill health worldwide. In the UK it is estimated that 16% of adults and 10% of children are currently affected by depression and anxiety (The Government Office for Science, 2008).

There is a growing body of evidence that links access to the natural environment (in cities this would include access to gardens) and gardening with positive mental health. According to Hine (2006) nature (in the widest possible sense of the word i.e. if it's



green it's nature) helps people recover from pre-existing stresses, has an immunising effect thereby protecting a person from future stresses and helps one concentrate and think more clearly. Here three possible levels of engagement with nature are identified: viewing nature (e.g. looking out the window into your garden); incidental exposure; and active participation (e.g. gardening). A number of studies provide evidence that demonstrates the benefits to human health and well-being simply by viewing nature (Kaplan, 1985; Kaplan, 1992; Ulrich and Parsons, 1992) and from active participation in gardening (Kaplan, 1973).

Tzoulas and James (2005) suggests that "stress recovery" theory (Ulrich and Parsons, 1992) and "attention restoration" theory (Kaplan and Kaplan, 1989; Kaplan, 1992) both provide initial explanations for the psychological restorative potential of nature whereby nature (i.e. viewing natural scenes) provides immediate respite from daily pressure and stress in the "stress recovery" theory, whilst in "attention restoration" theory benefits are felt to be long term and cognitive rather than affective (p.827). Dunnett and Qasim's (2000) research into the benefits to human well being of urban gardens found that majority of residents valued the opportunity their garden and gardening provided for the "creation of a pleasant environment" (76%) , followed by "promoting relaxation" (74%), "fresh air and exercise" (64%), "contact with plants" (54%), "contact with nature" (43%), "production vegetables" (19%) and fruit (23%), "creativity" (36%), whilst only 10% valued nothing (p.43).

In an extensive study investigating the prevalence of mental health problems in both rural and urban areas people, it was found that people living in built up urban areas had a much higher prevalence of mental health problems when compared to rural residents. Whilst participants in urban areas who had access to a garden or open space had rates intermittent to those of built up and rural areas (Lewis and Booth, 1994). Crucially, associations were found to persist even when controlling for the effect of a range of other socio-demographic variables. In contrast Weich et al.'s (2002) study into the effects of the built environment on prevalence of depression in two wards in North London found that associations between prevalence of depression and areas characterised by few private gardens disappeared after adjusting for other individual and household level risk factors for depression suggesting that Lewis and Booth (1994) may have excluded factors that may have made a difference to findings.

It is suggested there are few, if any, opportunities for people living in highly industrialised societies to make or actively shape their built environment (Ravetz, 1980). Indeed according to Ravetz (1980), for council tenants, *"The only way in which it*

*might be argued that they had in fact some effective control over space was in the use of their garden” (p.146). That this opportunity is afforded to all who have a garden is recognised by Hough (1984) who asserts that “Gardening provides for adults what water, mud and plants provide for children: a manipulable environment that provides a feeling of control- of proof that one is able to change their physical surroundings” (p.23). Seddon (1997) elaborates further suggesting that:*

*“ In our own garden we can make our own decisions, give free rein to our creative impulses, make our own mistakes, and learn from them, change our minds, watch and observe the consequences of our actions, gain some insight into natural processes, and tie ourselves to the rhythm of the seasons” (p.164).*

Indeed Crozier (2003) concludes that *“tending the garden is perhaps now no longer so much a place to get lost in but to get found in” (p.87).*

### **Garden contribution 12: Increasing connection to nature**

Throughout history people have sought to maintain contact with nature often through the creation and care of gardens. English Nature’s report ‘Space for Nature’ (1996) argues that everyday contact with nature is important for people’s sense of ‘well being’ and ‘quality of life’ and that people should be able to enjoy such contact without having to make any special effort or journey to do so (p6). According to Seymour (2003) nearly four fifths of the population of England live in urban or semi-urban settings and as such for an increasing majority of people access to nature is dependant on urban nature. A recent review of the accessibility of natural greenspace in towns and cities undertaken by English Nature identified a number of physical barriers to accessing urban nature in such settings including distance from home, severance factors such as roads and the degree of independent mobility of particular groups of adults and children (Harrison et al., 1995). Indeed it has been found that only 18% of Sheffield householders are within the recommended 300 metres (or five minute walk) of a municipal park (Barbosa et al., 2007). Consequently, for many people living in cities, it is in their private garden that urban nature is most easily accessed.

Research undertaken in the Netherlands into the relationship between values and housing preferences found that the housing attribute ‘the garden’ was linked to six values, including ‘unity with nature’, ‘creativity’, ‘enjoying life’, ‘cosiness’ and ‘true friendship’. In addition that the everyday practice of gardening intervened in the relationship between ‘the garden’ attribute and the first three values ‘unity with nature’, ‘creativity’ and ‘enjoying life’ (Coolen and Hoekstra, 2001). Similarly Gross and Lane

(2007) found the relationship between people and nature to be the most important relationship, within the context of the garden, and noted how this relationship often involved gardening as well as deliberate actions to encourage wildlife into their gardens. Thus according to Gross and Lane (2007) *“..the garden is a place where a relationship with nature can flourish and thus much of the significance of gardens is represented by this opportunity they afford, especially as environments become more built up”* (p.237).

## **1.4 Discussion**

It is evident that since the end of the nineteenth century gardens have been seen as an essential ingredient of a decent home and provision has explicitly been linked to issues of quality of life, well being and social justice. This, in part, is due to the unparalleled opportunities afforded by private gardens and the localised or privatised benefits that result. However, over the last twenty years, the ‘compact city’ approach to sustainable urban development, focussed on reducing the use of resources (e.g. energy, water, land) by more efficient use and reuse, notably building at higher densities and redeveloping previously developed (i.e. ‘brownfield’) land, has led to a reduction in new garden provision and the loss of existing urban garden provision. Yet, although the potential benefits of compaction are widely documented, it is increasingly acknowledged that there is no single model or pathway to sustainable urban development (Guy and Marvin, 2000; Williams et al., 2000; Dempsey and Jenks, 2005; Bramley et al., 2009). Indeed, at least one of the three models of sustainable urban development identified by Haughton (1997), the SRC, suggests that urban gardens could have a role to play in the move towards more sustainable cities.

Furthermore, existing ‘core ideas’ and models of sustainable urban development can be used to uncover both shared and distinct objectives for urban areas, from which it is then possible to identify the contribution that urban gardens could make to the delivery of more sustainable cities. The contribution that urban gardens could make to sustainable development was found to depend on the: coverage, configuration, and distribution of provision. As well as the structure and land cover richness of the garden and extent of specific garden practices: growing fruit and vegetables, composting, collecting and reusing water, line drying and encouraging wildlife.

Consequently, sustaining the current contribution that urban gardens make to sustainable development will depend on preserving existing provision or ensuring that

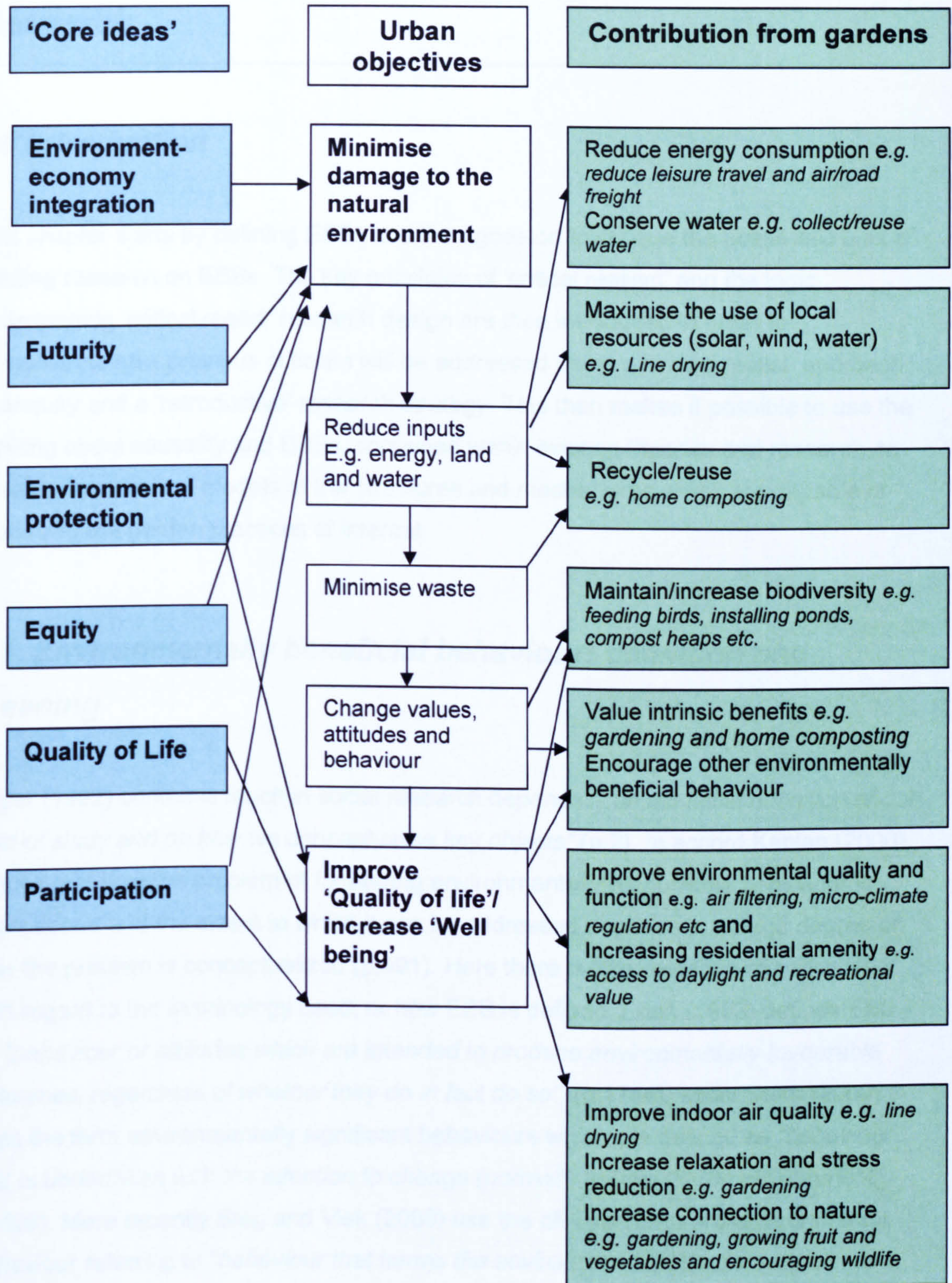


new provision makes up for the loss of existing gardens, as well as ensuring that people continue to grow fruit and vegetables, compost, line dry etc. in the same numbers by maintaining current practice or by ensuring that drop-outs are replaced with new practitioners. Maximising the contribution made by urban gardens would require garden provision to be increased, current practice to be sustained and an increased number of new practitioners. However, the garden practices identified in this review are little understood and are yet to be explained. Moreover, a better understanding of why some people choose to initiate and persist with these garden practices is needed if their potential contribution to sustainable development is to be realised.

### ***1.5 Closing summation***

This chapter introduced the research and presented the literature review. The purpose of this chapter was to set the scene for the research that follows, by exploring the factors that have affected garden provision to date and identifying the extent to which urban gardens contribute to meeting sustainable development objectives, which is summarised in **Figure 1.5.1**. This chapter also identified a range of garden practices including: growing fruit and vegetables; home composting; collecting and reusing water; outdoor drying; and encouraging wildlife that could make an important contribution to sustainable development, particularly to the objectives of reducing resource consumption. The need to better understand the process by which these garden practices are initiated and maintained was highlighted and it is this issue which provides the main focus for the rest of the research. The following chapter critiques what is already thought to be known about environmentally beneficial behaviours (EBBs) and draws upon existing behavioural theory and research to start to explore possible explanations for the garden practices of interest.





**Figure 1.5.1** Summary of urban gardens potential contribution to sustainable development



## **Chapter 2: Exploring Existing Approaches, Theory and Research**

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### **2.0 Introduction**

This chapter starts by defining EBBs and then goes on to critique the positivistic bias of existing research on EBBs. The key principles of 'critical realism' and the logic underpinning 'critical realist' research design are then introduced in order to demonstrate how previous criticism will be addressed using a 'critical realist' approach to enquiry and a 'retroductive' research strategy. This then makes it possible to use the thinking about causality and EBBs, contained within existing theories and research, to develop hypothetical models of the structures and mechanisms which are capable of producing the garden practices of interest.

### **2.1. Environmentally beneficial behaviour: definition and meaning**

Sayer (1992) contends much in social research depends *"..on the initial definition of our field of study and on how we conceptualise key objects"* (p.2). In accord Kaplan (2000) argues that how the problem of facilitating environmentally responsible behaviour is approached and the extent to which it can be addressed depends to a large degree on how the problem is conceptualized (p.491). Here there is little evidence of consensus with regard to the terminology used, or how EBB is defined. Eden (1993) defines EBB - as *"behaviour or attitudes which are intended to produce environmentally favourable outcomes, regardless of whether they do in fact do so"* (p.1744), whilst Stern (2000) uses the term environmentally significant behaviours which are defined as *"behaviour that is undertaken with the intention to change (normally to benefit) the environment"* (p.408). More recently Steg and Vlek (2008) use the oft-used term pro-environmental behaviour referring to *"behaviour that harms the environment as little as possible, or even benefits the environment"* (p.1).

The range of garden practices identified in chapter 1 including: growing fruit and vegetables; composting; collecting and reusing water; line drying; and encouraging wildlife may be understood as EBBs in that they serve to: reduce the input of resources, minimise waste and maintain or increase biodiversity and therefore can be



considered as ways of behaving that are beneficial to the environment and conducive to sustainable development. However, in contrast to some of the concepts of EBB identified above, garden practices may not always be undertaken with the intention of producing environmentally favourable outcomes. Subsequently in this research EBB is defined very simply as behaviour which benefits the environment, whether intended or not.

## ***2.2 Methodological critique of previous research***

Typically research on EBB is concerned with identifying the variables that may be associated with, or may be the determinants of, a range of EBBs. Here the aim is to quantify, compare and make generalisations about particular behaviours. To this end, reductionist quantitative methods are most often used, involving large sample sizes in which individuals are defined by a limited number of properties e.g. gender, age, income, employment and type of tenure etc, in order to enable statistical analysis and meet the requirements of particular statistical tests.

Throughout EBB research a positivist view of causation is taken (though not explicitly), whereby causation is viewed as a sequence of events where one event is followed by another i.e. 'Cause' and 'Effect'. Accordingly, causation is proven by gathering data on relationships (i.e. common associations or characteristics of a sample) measured at one point in time and place, which are then treated as 'regularities', in that they are assumed to be common properties or general patterns that are expected to hold over time. Often, these 'regularities' are then extrapolated into the future and used to make generalisations about what other people, in another time and place, will do.

For positivists (and in a lot of EBB research), causation is indicated by regularity; as such, the search for 'regularities' provides the focus for the research. According to Sayer (1992) it is often assumed that *"common properties or... distinguishing characteristics of objects will necessarily also be causally-significant properties"* (p.139), and in EBB research the use of descriptions of behaviour to 'explain' EBBs is widespread.

For example, Meinhold and Malkus (2005) found that environmental attitudes and environmental knowledge (identified as independent variables) were associated with a range of EBBs (identified as dependent variables). As such, it was concluded (in accord with the positivist paradigm) that *"adolescents' proenvironmental attitudes can accurately predict adolescents' proenvironmental behaviour"* (p.526). But, more often

than not these bold statements are usually qualified by further (more 'quiet') statements, using the Meinhold and Malkus (2005) example again *"It should be noted, however, that although environmental attitudes were found to be predictive of environmental behaviours, they accounted for only a moderate (25%) amount of variance in environmental behaviours"* (p.526). So on the one hand, it is asserted that environmental attitudes can be used to predict EBB, but then it is suggested that such predictions will not be very accurate. An alternative reading of these statements is that environmental attitudes have been found to co-vary with EBBs (i.e. quantitative change in one is associated with quantitative change in the other) from which it cannot then be concluded that environmental attitudes 'caused' or can explain 25% of EBBs.

The need to encourage behaviour change is recognised in the majority of the introductions to EBB research. Indeed, the findings of Meinhold and Malkus (2005) suggest that to increase EBBs would simple require a shift in the 'predictor' variables e.g. increase in environmental attitudes or environmental knowledge. However, Fife-Schaw et al. (2007) contend that intervention studies that have attempted to change the variables used, for example in the Theory of Planned Behaviour (these include attitudes, self-efficacy and subject norms), do not yet indicate that this theory is of any use to efforts to change behaviour as *"these experiments often have non-significant or small impacts on relevant predictors."* (p.44). This suggests that 'measuring' environmental attitudes and knowledge and finding associations with EBBs, does not provide the information that is needed to change behaviour.

It should be noted that the example used is not atypical, but although the variables used in studies can differ, and the quantitative analysis can get very complicated, the overall approach and the outcomes are similarly disappointing, though understandable. Not surprisingly then, the methodological rigour of research on EBBs has been questioned, in the main because of the:

- focus on prediction and inability to provide adequate explanations for behaviour (Stern et al., 1995; Corraliza and Berenguer, 2000; Bierhoff, 2002);
- failure of theory to specify causal mechanisms (Dietz et al., 1998);
- over emphasis of the individuals' personality as the source of social practices (Aitken, 1991);
- lack of attention to social and institutional contexts or spatio-temporal locations (Stern et al., 1995; Aberg et al., 1996; Corraliza and Berenguer, 2000; Steg and Vlek, 2008);
- inappropriate use of reductionist quantitative methods to answer qualitative questions (Bhatti and Church, 2001);

- over reliance on the use of quantitative methods (Steg and Vlek, 2008);
- focus on single rather than multiple motives for behaviour (De Young, 2000; Lindenberg and Steg, 2007);
- inability to capture or represent behaviour with models and 'predictor' variables (i.e. in terms of choice of variables and/or method of measurement) (Dietz et al., 1998; Harland et al., 1999); and
- dependence on the use of self-reports of behaviour rather than actual behaviour (Armitage and Conner, 2001; Steg and Vlek, 2008).

Whilst the shortcomings of EBB research have long been recognised, there is still a sense that these can be overcome by improving, not changing, the approaches used, for example by improving the accuracy and reliability of self-report data (Steg and Vlek, 2008) or using actual EBB to corroborate their findings of self-reported behaviour (Mannetti et al., 2004; Meinhold and Malkus, 2005).

This critique suggests that a different strategy is called for if the garden practices of interest are to be explained and the potential for behaviour change identified, which has a focus on actual behaviour, explanation and context, and is able to establish causality and identify opportunities for behaviour change, without overly relying on the use of quantitative methods. Taken together this suggests that a critical realist approach, using the '*retroductive*' strategy, is the best approach and strategy to answer research questions. The next section introduces the critical realist approach, highlighting how the requirements set out above are met, and detailing the research strategy to be used.

### ***2.3 Key principles of realism***

Critical realists argue, unlike positivistic methodologies, that the real world works as a multi-dimensional open system. Instead of events following a set order, behaviour/outcomes arise from the interactions between social structures, mechanism and human agency, such that what a person can and cannot do is not entirely down to the person's reasoning and choices, in that social relations and rules as well as the context within which the practice takes place can enable or constrain practice.



### **2.3.1 View of causation/reality**

For critical realists causation is not understood in terms of one event following another (e.g. 'Cause and Effect'), as such explanation does not depend on finding such 'regularities'. Instead critical realists aim to explain the continuous process by which 'Cause' produced 'Effect' as such explanation depends on identifying causal mechanisms and demonstrating how they work, and discovering if they have been activated and under what conditions (Sayer, 2000). Consequently, the question of what causes something to happen is approached, not by looking for relationships between discrete events (i.e. 'Cause and Effect'), but by looking for causal powers or liabilities (or mechanisms) within the objects or agents or structures that are being investigated (Pawson, 2006), and using the *retroductive* research strategy to postulate (and then identify) the mechanisms that are capable of producing the effect (Sayer, 1992).

According to Sayer (1992) this view of causation allows for powers and liabilities to exist *"whether or not they are being exercised or suffered"* (p.105). Thus for example a person may be physically able and have the knowledge, experience and skills to grow vegetables and could do so, but, does not. In addition Sayer (2000) acknowledges that in the 'open system' of the social world the same causal mechanism can produce different outcomes depending on context and different mechanisms can produce the same outcomes (p.15) (e.g. people may start growing fruit and vegetables for a variety of reasons) and that *"causes of changes can be multiple rather than single"* and *"causal processes can be repeated and ongoing rather than compressed into a single founding moment"* (p.95). Lastly it is suggested that *"some human causal powers may stay once 'installed' (e.g. like riding a bike) even if practice is not regular or has not been possible for some time, whilst others only persist because they are regularly exercised"* (p.95).

Thus critical realist's view of causation is broad, and does not assume that all causes must be physical. According to Archer (2000) some of the constituents of social life including structural properties, cultural constraints and the distribution of resources which go with them *"exert causal influences of a constraining or enabling kind"* (p.90). Thus whilst 'the English' have been called a nation of gardeners and nearly every newspaper and television channel has gardening columns or programmes not everybody has a garden, which for many people precludes them from gardening. In addition it is argued that causal powers can be activated by their immediate surroundings or *"action at a distance via information or other flows is also possible"*

*provided there are intervening media through which they can exert influence” (Sayer, 2000).*

Critical realists also have a very distinct view of reality, distinguishing between three different ontological modes of reality: the *empirical* which refers to those events that can be observed; the *actual* which refers to events whether or not they are observed; and the *real* which refers to the structures and causal powers and liabilities (mechanisms) that produce these events (Blaikie, 2000). Accordingly, whilst behaviour may be observed, the structure/s and the causal mechanisms producing the behaviour may not be immediately observable. However, it is asserted that they can be inferred by combining empirical investigation with theory construction. Thus for critical realists the question of what exists is judged on the basis of what can be observed and by asking questions about what caused it.

Sayer (1992) argues that social phenomena (i.e. ideas, beliefs, concepts and knowledge) are *concept-dependent* (p.30), as such what people think they are doing (i.e. what is real to them) and what they think is supposed to happen when they practice EBBs, needs to form a part of any explanation of such practices. In accord with the logic of interpretivism, critical realists acknowledge that social practices are intrinsically meaningful or concept dependent and that meaning has to be understood if practices are to be explained. However, Sayer (2000) contends *that “unlike interpretivism it argues that this does not rule out causal explanation, a) because material change in society has to be explained too, and b) because reasons can also be causes, in that they prompt us to do things differently” (p.18).* Thus it is acknowledged that reasons can be seen as *immediate causes* of events, but, whilst necessary are insufficient for explanation. In that, practice or reasons for not practicing may be dependent on concepts which are false (i.e. people may believe that you have to have a large garden to grow vegetables, or you have to be a gardener/vegetable grower to practice home composting), or reasons given may cover up or misrepresent

record></Cite></EndNote>□(1909)□ ground breaking work on the art of designing new housing in cities and suburbs. In regard to the placing of houses in their pley cannot afford to buy and use a tumble dryer). As such, reasons will always be subject to, or require, interpretation.

### **2.3.2. Necessity**

According to Sayer (1992) critical realists focus on the *“qualitative aspects of people and their substantial relations (i.e. relations of connection and interaction for example with other people and places), whether necessary (internal) or contingent (external)”* rather than on the *“formal relations of similarity or dissimilarity, and the study of quantitative dimensions of systems”* (p.99). Thus Sayer (2000) suggests that identifying what causes something to happen in complex open systems should be approached by asking a series of questions that focus on necessity rather than regularity, in order to distinguish what must be the case from what can be the case, and uses the following examples:

*“What does the existence of the practice presuppose? What are its preconditions? Can/could practice A exist without B? What is it about a person that enables it to do certain things?”* (p.16).

### **2.3.3 Structure and agency**

Sayer (1992) identifies that people have the causal powers of being able to work, speak, and reason etc. as well as being susceptible to social or peer pressure, but argues that causal powers are not just found in individuals *“But, in the social relations and structures which they form”* (p.105). Sayer (1992) uses the example of attitudes and actions associated with ‘respect’ and ‘contempt’ and argues that *“each presupposes reciprocal relations between people and sets of rules regarding acceptable behaviour”* (p.90). Thus within the family there are particular positions associated with particular roles e.g. parent (guide) and child (guided), and between the parent and child it is understood (the rule is) that the child should do what their parent asks. As not to do so could result in parental disapproval and possibly other social sanctions. Thus according to Archer (2008) *“explanations of why things social are so and not otherwise depends upon an account of how the properties of the ‘people’ ( i.e. agency) causally intertwine with those of the ‘parts’ (of society)”* (i.e. structure) (p.15).

### **2.3.4 Context**

According to Sayer (1984) *“the relationship between causal mechanisms and effect is not fixed, but, contingent”* (p.107) as such, mechanisms will only work if the context is conducive. Here context includes not just the garden, house, street or neighbourhood but, also the *“prior set of social rules, norms, values and interrelationships gathered in these places”* (Pawson and Tilley, 1997, p.70). Indeed, Sayer (2000) maintains that



people bring their past experiences gained in other places into present and as such “..what actors do at a given time is likely to be affected by dispositions which were ‘sedimented’ at some earlier stage, often in a different place” (p.16) . Moreover Pawson (2006) argues that context works by constraining an individuals choice thus in terms of the garden practices of interest in this study, for example people have different dispositions towards garden practices, existing relationships may or may not enable garden practices, and they may or may not have the power to embrace new ideas. Sayer (2000) concludes that how much difference context makes will depend on the nature of the processes of interest and how context dependent it is (p.16).

Consequently for critical realist’s space matters in terms of both meeting necessary conditions and activating the causal mechanisms that generate practice. Thus Sayer (2000) explains how “*The constitutive properties of space can work in two ways, often in conjunction: in terms of material preconditions of actions, and in terms of their constitutive meanings*”.(p.114). In addition he suggests:

*“Whether causal powers are activated, and with what effects depends upon their context or conditions, that is, upon the objects (and their causal powers) with which they are in contact, and this in term depends on spatial form”* (Sayer, 2000).

### **2.3.5 Behaviour change**

The focus on explanation not prediction, the attention paid to the way in which way in which key objects are conceptualised and the basis upon which explanations are developed would suggest that a critical realist approach is particularly suitable for the study of behaviour change.

Sayer (2000) suggests that the critical realist way of seeing and thinking about the social world has important implications for how we conceptualise behaviour change:

*“The recognition of the possibility that powers may exist unexercised, and hence what has happened or been known to have happened does not exhaust what could happen or have happened. The nature of the real objects present at a given time constrains and enables what can happen But, does not pre-determine what will happen. Realist ontology therefore makes it possible to understand how we could be or become many things which currently we are not”* (p.12).

Thus using a critical realist approach may enable more effective behaviour change initiatives to be developed, as according to Sayer (1992):

*"By providing information on the necessary conditions both for the existence and the activation of the mechanism, and in some cases on the way conditions mediate its effects, we increase the chance of either removing or changing the mechanism, preventing its activation or suppressing the damaging effects of its exercise" (p.135).*

### **2.3.6 Quantitative and qualitative methods**

Critical realism is compatible with a wide range of research methods including quantitative and qualitative methods (Pawson and Tilley, 1997; Blaikie, 2000; Sayer, 2000) but, it is suggested that choice of methods should depend on the nature of the research problem (Philip, 1998; McEvoy and Richards, 2006). In addition it has been argued that a combination of quantitative and qualitative research methods can provide the most effective approach in many cases (Sayer, 1992; Olsen and Morgan, 2004), but, from a critical realist perspective it is how quantitative and qualitative methods are used that is most important.

It is suggested that in order to identify what causes something to happen research should focus on patterns in outcomes rather than just identifying regularities (Pawson and Tilley, 1997). Kemp and Holmwood (2003) suggest that quantitative research may be used to reveal patterns and can particularly be useful *"in such events (i.e. where there are multiple influences) that are obscured by the range of influences operating upon them"* (p.178).

In contrast, Sayer (1992) questions whether context-dependent actions, attitudes and beliefs are suitable for quantifying, in that they are qualitative aspects of a person rather than quantitative, and as such in any one time or place we cannot be confident that we are measuring the same thing. Thus according to the critical realist view of causation qualitative analysis is needed to uncover mechanisms and establish causality. Sayer (2000) suggests that qualitative methods can be used to answer research questions concerned with: how a process works in a small number of cases; what produces a certain change; and what part the person played. In addition Sayer (1992) suggests that *"By looking at the actual relations entered into by identifiable agents, the interdependencies between activities and between characteristics can be revealed"* (p.242), thereby allowing causal explanations of social practices to be produced.

Lastly, whilst it is acknowledged that qualitative research findings are unlikely to be 'representative' of a whole population, Sayer (1992) argues that because critical realists are concerned with necessity "*..they are likely to discover relations and properties which are 'general' or widely distributed, although exactly how is only determined through empirical study*" (p.239).

### **2.3.7 Realist method**

Wai-Chung Yeung (1997) asserts that realist method is "*basically a posteriori*", (in that it is difficult to identify 'a cause' unless some 'effect' is experienced), and because "*Causal mechanisms are historical and contextual in their realization. The realist method must abstract a posteriori causal mechanism and stipulate their contextual conditions*" (p.57). According to Sayer (1992) abstraction is a means to individuate objects and to characterize their attributes and relationships and involves 'abstracting' "*..from particular conditions excluding those which have no significant effect in order to focus on those which do*" (p.86). As such Sayer defines the process of abstraction as one which "*..isolates in thought a one-sided or partial aspect of an object*", in that for example a person "*..combines influences and properties from a wide range of sources, each of which might be isolated in thought by means of abstraction, as a first step towards conceptualising their combined effect*" (p.87). Thus according to Wai-Chung Yeung (1997) the task is "*..to abstract the necessary relation between the concrete phenomenon and deeper causal structures to form generative mechanisms*" (p.59). Yet, whilst in some cases the phenomenon and processes under study work are already well known and the mechanisms may already be familiar and have been observed, in the case of EBBs very little is known about the mechanisms that may be involved in generating practice, hence they have to be conjectured or hypothesized. Then in accord with the '*retroductive*' research strategy, the researcher's task is to work backwards from the data to establish whether the hypothesized mechanisms do exist and act in the way postulated.

## **2.4 Using existing research to develop hypotheses**

In undertaking quantitative analysis of EBBs and developing behavioural models it is evident that much effort has gone into thinking about causality, identifying dependent and independent variables and working out the order in which variables might be expected to work. This section demonstrates how this thinking can be used to develop



hypotheses about mechanisms, and speculate on how the process of behaviour change might work.

#### **2.4.1 Focus of research to date**

The Theory of Planned Behaviour (TPB) (based on Rational Choice Theory) and Norm Activation Theory are the two main theories that have been used to try and explain how people make choices in regard to a range of EBBs (Bamberg and Moser, 2007). In addition Diffusion Theory (Taylor and Todd, 1995) and the Theory of Repeat Behaviour have each been used to study home composting (Åberg et al., 1996). All these theories work on the assumption that the decision to practice will be based on an evaluation of 'costs' and 'benefits' but, what counts as a 'cost' and what counts as a 'benefit' and therefore what the 'payoff' is differs according to which theory is being applied.

The assumptions behind the initial explanation of EBBs provided by 'Rational Choice' Theory are that decisions to engage in EBBs are motivated solely by self-interest and that risks are calculated only in terms of risks to the self. In contrast initial explanations of Norm-Activation Theory (NAM) presume that people are motivated solely by concern for others and/or the environment and subsequently that risks/rewards are calculated in terms of risks/rewards to others and to the environment. Although they may be seen as opposing theories they share some constructs and as each theory has developed, either by introducing new constructs or by borrowing constructs from the other, it can be demonstrated that decisions to engage in EBBs may be motivated by self-interest, sense of duty and concern for others and the environment.

#### **2.4.2 EBB as decisions based on weighing costs and benefits**

##### **'Rational Choice Theory'**

The conceptual framework on which the Theory of Planned Behaviour (TPB) is based on 'rational choice' and assumes that human action is based on a calculation of the costs and benefits which different decisions entail and that people are motivated to avoid risk/punishment and seek rewards/benefit. According to 'Rational Choice' Theory only one condition must be met before EBB is initiated and that is that the individual must be '*aware of the consequences*' to the self (i.e. in terms of cost and benefit/utility). As such 'Rational Choice' Theory presupposes that an individual has '*access to the resources*' needed to perform the behaviour (Oom Do Valle et al., 2005) and that individuals have some powers or liabilities (i.e. perfect or imperfect knowledge), in that

without some knowledge of a practice, however imperfect, you cannot know that there is utility in it. Thus for the practice of home composting the mechanism works as follows: the practitioner knows that there are benefits (production of compost) and the costs are low (e.g. a one-off outlay of £10 to buy a subsidised bin from the council). Furthermore this person cares about money, and believes that the initial £10 outlay for the bin could be recouped in the first year (in that for e.g. it costs £2.99 to buy 20 litres of compost), and thereafter the compost would be free. As a result they decide to start home composting.

Weber et al. (2004) argue that rational choice models are good at predicting decision makers' choices when: (a) the choice environment is less, rather than more social; (b) when the context makes the economic aspect of the decision particularly salient; and (c) when the context calls for a calculated and deliberate approach to decision making (p.282).

Thus Åberg et al.'s (1996) research into the factors that influenced households' decision to participate in a home composting scheme found that none of the households mentioned the possibility of a reduced fee for household waste collection as being significant in their initial decision to participate in the home composting project. Indeed, 6 months into the project the majority of participants ranked a reduced fee as the least important motive for continuing with composting. Similarly Tucker et al. (2003) found that saving money from offsetting the need to buy compost was the least likely reason to be given by participants for initiating home composting.

Such findings suggest that the explanatory power of rational choice models when applied to decisions regarding EBB may be limited, in that in the privacy of your back garden, or in the public gaze of the street, EBBs are social practices rather than economic decisions. Furthermore while many people no longer 'need to' (i.e. because they can afford to do otherwise) grow vegetables, make their own compost or dry clothes outside some still choose to do so. This suggests that the economic aspect of the decision is not the most persuasive or explanatory.

### **The Theory of Planned Behaviour**

Rational choice theorists have sought to extend rational choice models to better account for the social aspects of behaviour as well as broadening the definition of utility to include non-economic definitions. The Theory of Planned Behaviour (TPB) is such an extended model and has been used in the study of a composite measure of behaviour including recycling (Fife-Shaw et al., 2007), and individual conservation



behaviour (Harland et al., 1999) and more recently to study recycling (Mannetti et al., 2004). According to the TPB intentions to practice (or not) are based on an evaluation of costs and benefits, perceived social pressure and both difficulty of practice and ability. Moreover it is assumed that individuals will choose the option that has highest benefits (now including social as well as material benefits), lowest costs and which entails the least effort. The TPB proposes that the most immediate and important predictor of behaviour is the person's *intention* to act (e.g. 'I intend to compost this week'). The theory also proposes that a person's evaluation of the behaviour (attitude; e.g. 'composting would be good/bad for me') and their perceptions of the social pressure to perform the behaviour (subjective norm; e.g. 'people who are important to me i.e. family, friends and neighbours think I should be composting') are key determinants of intention. In addition the TPB also proposes an additional predictor of intention and behaviour: perceived behavioural control (PBC). Here the PBC construct refers to a person's evaluation of the difficulty and their ability to perform the practice effectively (e.g. 'composting this week is easy and I have everything I need to do it'). Thus, the more positive a person's attitude and subjective norm, and the greater the PBC, the stronger should be the intention to act, and the stronger a person's intention to act the more likely they will actually perform the practice. A detailed representation of the TPB is set out in **Figure 2.4.2**.

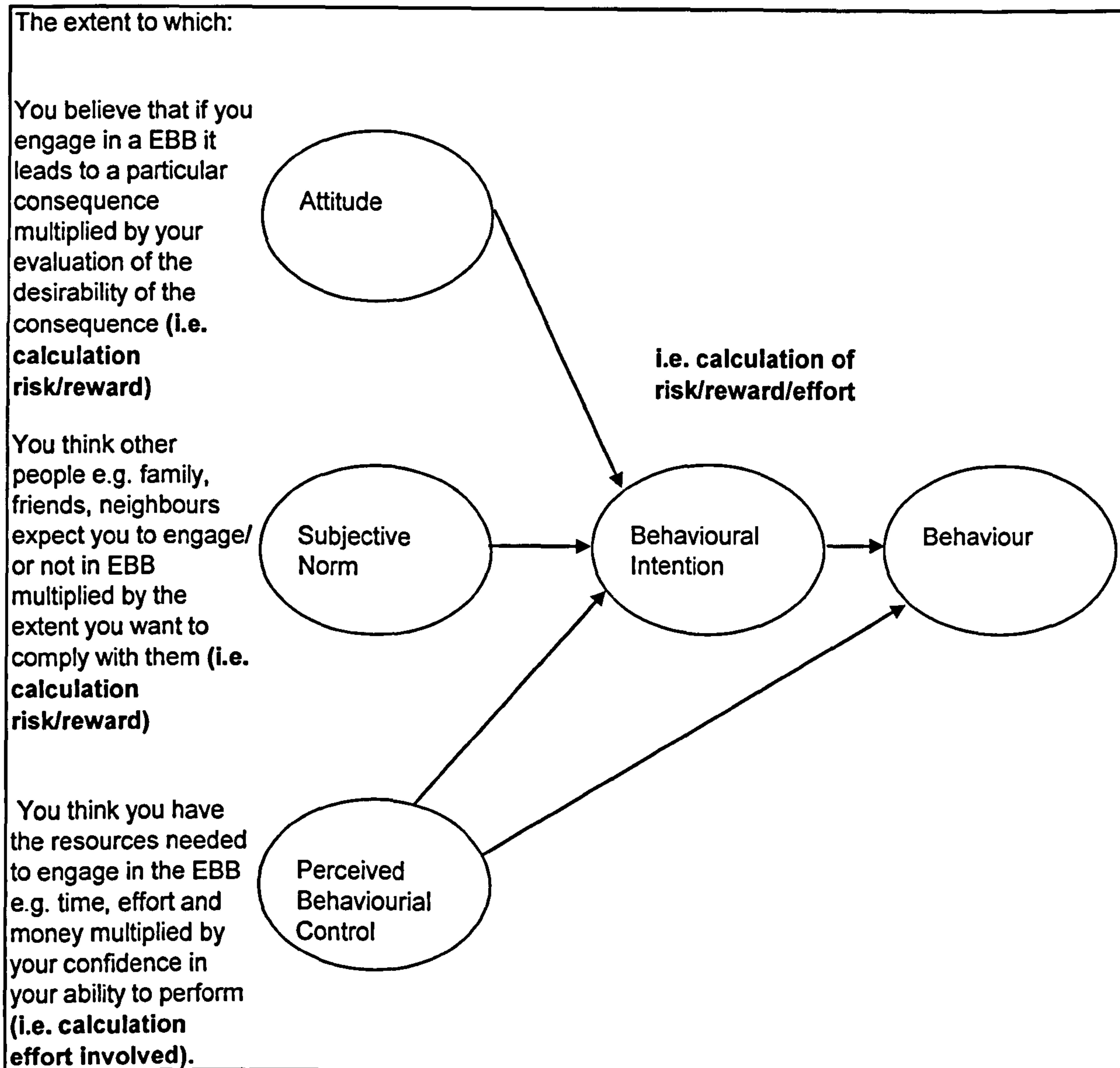
In terms of identifying one of the mechanisms that may be at work in this instance it is widely acknowledged that in order for subjective norms to influence behaviour firstly people need to know what is expected (i.e. how to behave appropriately) and then be willing to comply with these social expectations (i.e. akin to a 'sense of duty').

Consequently '*awareness of expectations*' is based on social customs or traditions and the need for social approval and people feel embarrassment or shame when a 'norm' is violated (Kaiser and Shimoda, 1999).

Bandura (1982) provides a further insight into the mechanism that may be at work as he argues that verbal persuasion/encouragement may work to increase a person's belief in their own capabilities to initiate practice in the short-term (p.127). This suggests a mechanism whose structure links '*awareness of expectations*' to desire for social approval and increased confidence in capabilities and willingness to comply, herein called the '**Should do**' mechanism.

In addition Bamberg and Moser (2007) suggest that social norms not only provide information about whether a behaviour is morally right or wrong, or appropriate, but,

also whether it is beneficial (i.e. increases 'awareness of consequences') and easy to carry out (i.e. increases 'indirect knowledge').



**Figure 2.4.2: The Theory of Planned Behaviour**

Bandura (1982) provides a further insight into the relationship between the perceived behaviour control construct and intention and actual behaviour. He contends that the degree of personal control a person has over a practice has an effect on one's perception of self-efficacy and that if control is relinquished self-efficacy is restricted, in that successful practice is now dependent on the competencies and goodwill of others (p.142). In Self Determination Theory (SDT) the need to feel competent and self-determined is identified as one of three 'basic psychological needs. Moreover Deci and Ryan (2000b) believe that there is also a motivational effect to behaviours that satisfy 'basic psychological needs' such that "people will become more or less interested in activities as a function of the degree to which they experience needs satisfaction (i.e.



for competence and autonomy) *while engaging in those activities* (p.233) .Thus it is the psychological rather than EBB research that suggest a mechanism that links *'freedom to choose'* to practice with reducing conflict and increasing interest and ability to practice as is desired. This also results in increased confidence in ability to practice successfully and increasing willingness to practice, from herein called the 'Will do' mechanism.

Macnagten and Urry's (1998) review of policy related research on environmental concerns and behaviours provides further insight into structure of the '**Will do**' mechanism. Citing research that found that people's receptivity to information provided by scientific or policy bodies was significantly affected by their own sense of personal agency (i.e. their sense of power or freedom to act upon or use information), which in turn was affected by the degree to which they felt connected to and empowered by both political and policy institutions. They concluded:

*"..people's inability or unwillingness to assimilate information may frequently be due to the tacit political or cultural structures of empowerment or disempowerment which may have no particular connection to the particular environmental issue in question" (p.92).*

From a critical realist perspective the activation of the mechanism/s that may be associated with explaining the relationship between subjective norm and the perceived behavioural control aspect of the TPB and behaviour would be seen to be contingent, on the context being conducive. In that, in terms of subjective norms, behaviour would depend on an individual's interpretation of what other people think they should do, which in turn depends on the social norms gathered in that place. So for example you may have grown up in a household (and a neighbourhood) where outdoor drying was practiced i.e. it was the norm. Yet, on moving to another neighbourhood, you notice that none of your neighbours are drying outdoors i.e. it is not the norm. This is then taken into consideration in deciding whether to continue with practice or not. Secondly, in terms of perceived behavioural control, behaviour would depend on an individual's reasoning of whether they had access to the resources needed to practice, which in turn depends on the material resources gathered in that place. Thus for example when living in a home with a fair-sized garden you may have reasoned that you had everything you needed to start composting. Then on moving to a house with a smaller garden you find that you no longer have sufficient garden waste, as such whilst you intended to continue with practice, you now reason that you don't have access to the resources needed to practice.

According to the critical realist reading of the TPB five conditions must be met before EBB is initiated including that people are: *'aware of the consequences'* to the self, and *'aware of the expectations'* of family and friends. Furthermore they must have either *'indirect'* or *'direct knowledge'* of the practice and *'access to the resources'* needed, as well as having the *'freedom to choose'* to practice.

Consequently for the practice of home composting the mechanism works as follows: the person knows that there are benefits (in terms of: the compost and social approval). In addition that the risks are low, in that there is no body to prevent you from practicing and you feel confident in your own capability. Also not too much effort is required, as for example, the council will deliver a subsidised bin and you feel that you have enough composting knowledge and skill and everything else you need to practice. Subsequently you expect to be able to (eventually) produce compost without too much effort and also care about what other people think. As a result you are increasingly willing to comply with the expectations of others and initiate practice.

### **The Theory of Planned Behaviour and Empirical Research Findings 1**

Tucker and Speirs (2003) research into home composting tested a number of the TPB constructs including: respondent's perceived knowledge; convenience factors; perceived effectiveness; other negative perceptions; and the influence of social norms. Highly significant differences in attitudes between new recruits and prior composters compared to non-composters were found. In terms of perceived social pressures and support to compost attitudes were similar for new recruits and prior composters. However, non-composters' perceptions were significantly different in that they were more likely to disagree with the idea that household members, friends or neighbours expected/encouraged them to compost (p.294). In terms of behaviour persistence only 7-9% of both lapsed composters and non-composters felt their friends or neighbours thought they should compost. In contrast 30% of lapsed composters felt that household members believed they should compost, compared to 60% for composters, but, this did not prevent drop-out (Tucker et al., 2003). Thus both theory and empirical research findings would suggest that *'awareness of expectations'* of others to practice may be a *necessary condition* for both initiation and practice persistence.

Tucker and Speirs (2001) also found that garden size appeared to be a significant predictor of composting, with tendency to compost increasing with garden size (p.19). It was also noted that *'having a larger garden'* was often cited as being a necessary condition for practice to be reinstated in lapsed composters (p.36). Subsequently it was



concluded that quantity of waste and space limitations may present real barriers to practice initiation in non-composters (p.vi) and practice persistence in lapsed composters. Similarly an American study of the practice of outdoor drying found that only 22% of women studied were line drying, and here the reasons cited for not wishing to line dry included lack of space and facilities (Labhard and Pedersen, 1989). Such findings suggest that '*access to resources*' may be a '*necessary condition*' for the practice of home composting and outdoor drying.

Sterner and Bartelings (1999) research on recycling and composting found that whilst economic incentives (i.e. fee structures for waste management) were an important factor in reducing waste they were not significantly associated with composting practice. Indeed, they found that the quantity of garden waste composted best explained the quantity of kitchen waste composted. This finding lends further support to the suggestion that '*access to resources*' may be a necessary condition for both practice extension (i.e. composting both garden and kitchen waste) and persistence as they conclude:

*"People who have access to garden waste are thus not only more likely to start composting kitchen waste since they have the habits and the equipment- they are furthermore much more likely to be successful (because composting household and garden waste provides a better mix than either components on their own) and thus to persist in their composting in the long run" (p.484).*

These findings suggest a mechanism whose structure links '*access to resources*' (in terms of both composting equipment and materials needed to compost) to reduced effort and cost. In terms of practice initiation this also results in increased confidence that pre-conditions felt to be needed for successful practice are met. Similarly in practice persistence the result is sustained confidence that the conditions known to be needed for successful practice are met, herein called the '**Can do-external**' mechanism.

The interpretation of the TPB made earlier suggests that the condition '*freedom to choose*' may be a '*necessary condition*' for practice. This is supported by Åberg et al.'s (1996) research on home composting which identified differing opinions and commitment to the idea of composting within participating households and noted that once composting was initiated "*Quite often differing attitudes to composting resulted in repeated conflicts between household members*" (p.60). With the effect that behaviour was modified to reduce conflict and fit better into the day to day living of each household (e.g. gradually composting less waste, irregular composting, avoiding

certain kinds of waste, dumping compost away from the garden and stopping composting).

### **Extended Theory of Planned Behaviour 1**

Harland et al. (1999) sought to further develop the TPB by introducing the construct personal norm as a further motive for engaging in EBB. This extended TPB has all the presumptions of the TPB (identified previously) along with the assumption that *'awareness of the consequences'* of their behaviour will lead to an individual feeling personally responsible or obligated to act. Furthermore it is assumed that decisions to practice are based on an evaluation of material; and social payoffs (as in the TPB) as well as the practices moral worth to the self, and that an individual will choose the option that has highest benefits (now including moral benefits to the self as well as material and social benefits), lowest costs and entails the least effort.

According to Schwartz (1977) personal norms work much in the same way as social norms, but, differ in that expectations, sanctions and obligations are tied to the self (akin to a *'sense of duty'* to the self rather than to the *'sense of duty'* to others involved in other social relations). Thus this extended TPB presupposes that the *'necessary conditions'* that must be met are that the person is *'aware of the consequences'*, in terms of the benefits of practicing to the self, which results in an increased willingness to *'ascribe responsibility'* for these consequences to themselves. Here benefits are now expanded to include both a moral and material dimension.

For the practice of home composting the mechanism works as follows- the person knows that they ought to compost to avoid harm to others (and the environment). Moreover, avoiding harm to others and the environment and self-approval is important to them, such that they would feel that they had let themselves down and feel a sense of guilt for not practicing home composting. As a result they are increasingly willing to initiate practice.

### **An Alternative Integrated Theory of Planned Behaviour 2**

Taylor and Todd (1995) used the Theory of Planned Behaviour (Ajzen, 1991) as a theoretical framework to integrate a wide variety of factors that previous research had indicated as being important to EBB, including factors from: diffusion theory (Rogers, 2003), facilitating conditions (Triandis, 1979) and self-efficacy (Bandura, 1977). This integrated model was then used to study both recycling and composting and it was

found that attitude was positively influenced by subjective norm and perceived behavioural control. With attitude being positively influenced by relative advantage and negatively influenced by complexity, whereas subjective norm was influenced by both internal and external norms. However, although efficacy and resource facilitating conditions were related to perceived behavioural control, compatibility was negatively related.

According to this integrated model 'attitude' to composting was based on an evaluation of two factors: 'relative advantage' (i.e. costs and benefits) and 'complexity' (i.e. effort) from Roger's (2003) Diffusion Theory, which are explained as follows:

- *Relative advantage* is viewed as a ratio of the expected benefits and costs of adoption of an innovation and examples of sub-dimensions of this concept include: economic profitability, low initial cost, a saving of time and effort, and immediacy of reward with relative advantage being viewed as one of the strongest predictors of adopting new ideas/practices(p.233);
- *Complexity* is the extent to which an idea/practice is thought to be relatively difficult to understand and use (p.256).

The construct 'perceived behavioural control' was based on an evaluation of three factors 'self efficacy', 'compatibility' and 'resource facilitating conditions'. According to Bandura (1982) knowledge and skills, whilst necessary for successful practice, are insufficient in that people reflect back on their own "*judgements of how well one can execute courses of action required to deal with prospective situations*" (p.122). As such it is suggested that judgements on self-efficacy are based on four key sources of information including: performance attainment; second hand experiences of observing the practice of others; verbal persuasion and similar types of social influences; and psychological states i.e. if they are calm or agitated and tense, from which people then judge their ability, strength, and vulnerability (Bandura, 1982). It is also argued that achievements gained by practicing provide the strongest source of efficacy information as they are based on actual mastery of a practice, and that seeing others practice successfully also raises efficacy expectations. This provides an opportunity to judge whether one has the same capabilities as the practitioner at the same time as increasing familiarity with the practice. However, whilst it is suggested that verbal persuasion can be used to get people to believe that they have the ability to practice it is also noted that the effects are short term and not enduring.

Such findings suggest two mechanisms. The first works by linking '*indirect knowledge*' of the practice with increasing familiarity with the resources, skills and risks involved in



practice ('know that') thereby raising expectations of their own capabilities, herein called the '**Could do**' mechanism (i.e. reduce risk/reduce effort). The second mechanism links '*direct knowledge*' of practice to 'know-how' and skills, which works to generate confidence and reduce effort, herein known as the '**Can do-internal**' mechanism.

According to this integrated model of the TPB 'perceived behavioural control' was also based on an evaluation of '*compatibility*', which is explained by Rogers (2003) as "*the degree to which an innovation is perceived as consistent with the existing values, past experiences, and needs of householders*" (p.240). Here, it is suggested that an idea/practice that is more compatible is more familiar and less uncertain (i.e. less risky).

This integrated TPB presupposes that the '*necessary conditions*' that must be met are that the person has either '*direct or indirect knowledge*' of the practice of home composting (depending on the nature of the previous experience) and is '*aware of the expectations*' to practice and has '*access to the resources*' needed to practice.

Consequently for the practice of home composting the mechanisms work as follows- the person is familiar with the practice and believes that the technology is not difficult to understand or use. They also believe they have access to the resources needed to practice and think they are capable of doing so. In addition they are aware that family and/or friends expect them to compost. As such they know that there are advantages to practice e.g. production of compost and social approval. Moreover they care about what family and friends think and are confident that they have everything they need to practice. As a result they feel compelled to compost even though the practice is not felt to be particularly compatible with existing routines, lifestyle or past experiences.

## **The Theory of Planned Behaviour and Empirical Research Findings 2**

With regards to the self-efficacy concept used in this theory and a number of other theories applied to EBB, De Young (2000) provides a further insight into the structure of the mechanism that may be at work here, whereby competence is conceptualized as having both a skill and motivational aspect. As such, competence is not just a measure of ability and impact/affect but, also includes the motives for both developing and maintaining competencies. Thus he finds that people report deriving personal enjoyment from the process of developing behavioural competence and indeed, that this is the most widely felt of all intrinsic satisfactions (p.517). Deci and Ryan (2000b)

concur, noting how the first strand of the definition of intrinsic motivation “*..emphasized that intrinsically motivated behaviours are interesting in themselves and do not depend on reinforcements- that is, they do not require operationally separable consequences*” because the doing of an activity is itself intrinsically rewarding (p.233). This is consistent with Åberg et al.'s (1996) findings which identified interest in efficient management of household resources as one of the four factors that characterised participation in the home composting project (p.57). Furthermore Deci and Ryan (2000a) contend that if people are motivated to act because they value or are interested in a practice this generates more “*interest, excitement ,and confidence, which in turn manifest both as enhanced performance, persistence and creativity*” (p.69).

Such findings suggest a mechanism that has a structure that links practice initiation and persistence with intrinsic interest and value. This in turn generates further interest and confidence in practice- herein called the ‘**Goes together**’ mechanism.

Tucker and Speirs (2001) research findings lend further support to the idea that a ‘**Goes-together**’ mechanism may be at work in home composting, in that gardening interest, activity, garden size and composting were found to be closely related (p.20). Furthermore Åberg et al. (1996) found that where composting was felt to be incompatible with other householders social use of the garden (e.g. due to problems with smells and flies) conflict could arise. This then created an obstacle to routinization and persistence of the practice (p.62).

### **2.4.3 Environmentally beneficial behaviours as moral concerns**

#### **Norm Activation Theory**

Sayer (2000) argues in terms of everyday behaviour that:

*“..there is a continual evaluation of each situation according to implicit notions of the appropriate, fair and just which are contained in every set of routines and conventions..”* and that “*Actors are unlikely to think about such issues systematically and in general terms*” and “*there are many practices which they may strongly believe to be right or wrong without being able to fully articulate the reasons for such beliefs..*” (p.176).

This perspective is reflected in Norm-Activation Theory which argues that human action is determined by moral rather than other types of thinking i.e. rational choice

(Schwartz, 1977). Schwartz (1977) developed Norm-Activation Theory (NAT) to explain altruistic behaviour which is defined as *“behaviour performed for the benefit of others rather than for than for the self in terms of “social and material reinforcements”* (p.222). Here it assumed that people feel obligated to care for others beyond their own reasonable interests (Kaiser and Shimoda, 1999).

Although this model was initially developed to explain altruistic behaviour it has since been applied to a range of EBBs such as: recycling (Hopper and Nielson, 1991; Guagnano et al., 1995), energy conservation (Black et al., 1985), and a composite measure of EBB including composting (Widegren, 1998).

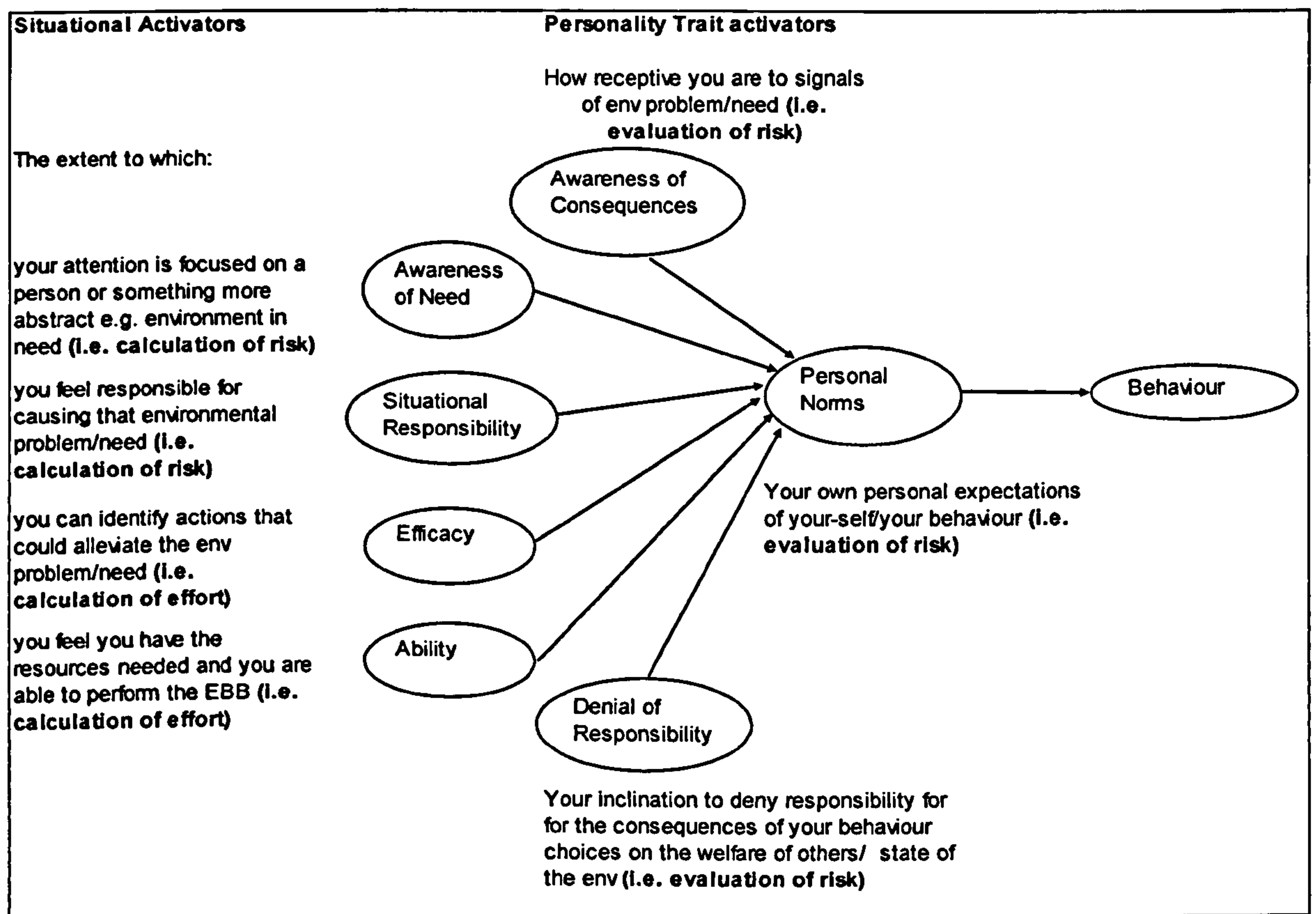
The NAT model of how people make decisions in moral situations proposes that the most immediate and important predictor of behaviour is the person's personal norm to act (e.g. 'I feel a moral/personal obligation to compost'). The theory also proposes that people's awareness of an environmental problem (*'awareness of need'* e.g. I am aware that the amount of waste going into landfill is causing environmental problems) and awareness of the outcome of behaviour for the well-being of others, the environment (*'awareness of consequences'* e.g. 'I am aware that by not composting I would be harming the well-being of myself, others and the 'environment' ) are key activators of personal norms, as well as their willingness to take personal responsibility for the problem (*'ascription of responsibility'* e.g. 'I feel a sense of responsibility for the 'waste' problem').

In addition the full model of the NAT includes two additional 'situational activators' termed 'efficacy' and 'ability' (see **Figure 2.4.3** for a summary). It is also presupposed that a person also has some knowledge of the practice (i.e. either *'indirect'* or *'direct knowledge'*) along with *'access to the resources'* needed to practice. Thus according to the NAT five conditions must be met before practice is initiated: *'awareness of need'*, *'awareness of consequences'*, *'ascription of responsibility'*, *'indirect or direct knowledge'* and *'access to resources'*.

Furthermore Kaiser and Shimoda (1999) argue that people will only ascribe moral responsibility to themselves for the outcome of their behaviour if three conditions are met: causality, freedom of choice and intentionality. Thus people who feel a moral sense of responsibility to practice home composting, would have intended to benefit rather than harm other people and the environment, and would have been free to choose to practice as they wished.



Thus in accord with the full model of the NAT for home composting - the person knows that there are risks (i.e. harm to themselves, other people and the environment from the amount of waste that is being generated and disposed of in landfill) and 'know that' they contributed to the waste problem. In addition they 'know how' they can act (by home composting) to reduce those risks and also 'know that' they have everything they need to practice home composting. Moreover they feel a sense of moral obligation (or duty) not to do harm to others and the environment and do not want to let themselves down. Equally important they believe the effort needed to initiate/persist with practice is not too great. As a result they initiate or persist with home composting.



**Figure 2.4.3 Risk Calculations in Norm Activation Theory**

### From Norm Activation Theory to Empirical Research

Harland et al. (2007) applied a part NAT (e.g. including 'awareness of need' and 'ascription of responsibility' and the full NAT ( e.g. including the 'situational activators' efficacy and ability) to two EBBs (including non-car based travel modes and water conservation within the household). They found that 'awareness of need' and 'ascription of responsibility' were only significantly correlated with behavioural intention in the partial NAT. However, when the full NAT was applied 'awareness of need' and 'ascription of responsibility' were no longer significantly correlated but, efficacy and

ability were significantly related to EBB intentions. This suggests that effort matters, over and above evaluations of risk and benefit.

In accord with NAT researchers have found that recycling is related to personal norms i.e. '*ascription of responsibility*' to practice, provided that the participant was also high in '*awareness of consequence*' in terms of benefits to others and the environment (Hopper and Nielson, 1991). In addition Guagnano et al. (1995) found that the relationship between self-reported recycling and '*ascription of responsibility*' was related to effort, in that the relationship was significant if the recyclers had to use recycling centres (increased effort) but, not if they were using a curb-side scheme (reduced effort).

In contrast research investigating the extent to which a person felt responsibility for the environment could be used to predict ecological behaviour concluded that people do feel morally responsible rather than conventionally responsible for the environment (Kaiser and Shimoda, 1999). From this research two possible mechanisms can be identified. Firstly a '**Guilt**' mechanism, in that if an individual is '*aware of the consequences*' of their behaviour in terms of whether it is beneficial or harmful to others and the environment and they care about other people and the environment being harmed and also do not want to feel bad about themselves, they then feel guilty for how they behave or fail to behave. They may also then be more likely to feel an increased sense of personal responsibility (i.e. '*self-ascription of responsibility*') and obligation to act to reduce harm, herein known as the '**Moral responsibility**' mechanism.

Nordlund and Garvill (2002) found that general values influenced environmental values, problem awareness and the personal norm and that the personal norm influenced behaviour (including recycling, energy conservation and environmental consumerism). Indeed, a number of studies have focussed on the prediction of environmentally beneficial behaviour from general attitudes about the environment (e.g. the New Environmental Paradigm (NEP) developed and more recently revised by Dunlap et al., 2000). However, empirical research has found that the extent of peoples concern for the environment is not reflected in specific EBBs e.g. recycling (Vining and Ebreo, 1992). This is supported by Tucker and Speirs (2001) research which applied the NEP to composting behaviour and did not find any significant difference between composters and non-composters in terms of general environmental attitudes (p.21). This also accords with Sterner and Barteling (1999) who concluded that a

householder's concern for the general waste problem was not a significant determinant of composting practice.

Thus, although in theory the condition '*general environmental awareness*' and '*awareness of need*' (e.g. to reduce waste) are suggested as '*necessary conditions*' for EBB to be initiated, this is not supported by existing research.

### **Extended Norm Activation Theory 1**

Oskamp et al.'s (1991) development of NAT to investigate factors encouraging or deterring kerbside recycling suggests that decisions to engage in behaviours are informed by the level of perceived risk and reward. Here the seriousness of a specified environmental problem (i.e. '*awareness of consequences*' in terms of harm or benefit to the environment) and social norm (i.e. '*awareness of expectations*' to practice from friends and neighbours) can be taken to count as a perceived risk. In addition intrinsic satisfaction from practice (i.e. '*awareness of the consequences*' in terms of benefit to the self including satisfaction from being resourceful, from being part of a community program and making a difference to an environmental problem) can be taken to count as a reward. This extended NAT suggests that decisions to initiate EBB can be based on both self-interest (intrinsic rather than extrinsic interest) as well as concern for others and the environment. Here it is presupposed that there is some knowledge of the practice ('*indirect or direct knowledge*') and also that a person has '*access to the resources*' they need to practice. Thus according to this extended NAT four conditions must be met before an EBB is initiated: '*awareness of consequences*' to the self and others and the environment; '*awareness of expectations*' to practice; '*indirect knowledge*' and '*access to the resources*' needed to practice.

According to this version of the NAT- the person knows that there are risks (i.e. they know that the waste problem can cause harm to other people and the environment and that friends and neighbours are already using the kerbside recycling scheme and subsequently that not to do so may result in social disapproval). In addition they know that there are benefits/rewards to themselves. Moreover they feel a sense of moral obligation not to do harm to others and the environment, a '*sense of duty/obligation*' to act with their friends and neighbours, do not want to be wasteful, and want to make a difference or contribute to reducing the waste problem. As a result they decide to start using the kerbside recycling scheme.



## **From Extended Norm-Activation Theory 1 to Empirical Research**

Oskamp et al. (1991) found that kerbside recyclers were more likely to: have friends and neighbours who recycled; acknowledge that there was a waste problem; and find satisfaction in being resourceful and making a difference/contribution to reducing the national waste problem compared to people who were not using the kerbside scheme. This supports the inclusion '*awareness of consequences*' in terms of intrinsic benefits to the self, as a '*necessary condition*' for EBB initiation.

Early research focused on identifying the psychological benefits people experience from gardening also supports the inclusion '*awareness of consequences*' in terms of intrinsic benefits to the self as a *necessary condition* for the garden practice of growing fruit and vegetables (Kaplan, 1973). Kaplan (1973) sought to identify the variable/s that could predict benefits from gardening for both community and home gardeners and divided gardening satisfaction into 3 groups. The first and second group represented intrinsic satisfaction i.e. 'primary gardening experiences' including: 'desire to work the soil', 'wanting to see things grow', 'like being outside' and 'interest in learning about gardening' and 'sustained interest scale' including: 'interest', 'diversion from routine', 'valuable way to spend time' and 'opportunity to relax'. The third group represented extrinsic satisfaction (i.e. 'tangible outcome scale' including: 'enjoyment in producing food' and 'cutting food expenses'). Findings showed no difference for home gardeners and community gardeners in terms of 'primary garden experiences' and the 'tangible outcome scale' with both groups gaining greatest satisfaction from the 'primary garden experiences'. However, in terms of 'sustained interest' benefits home gardeners experienced more satisfaction from their gardening practices. For home gardeners neither age nor extent of gardening experience described felt benefits. However, interest in growing vegetables and flowers was a significant descriptor of gardening satisfaction. In addition home gardeners' enjoyment of nature was also a highly significant descriptor of 'sustained interest benefits' (p.157).

A review of DeYoung's (2000) research on intrinsic satisfaction used nine studies covering a range of EBBs (e.g. conservation behaviour) as well as specific EBBs (e.g. recycling) to identify and develop three intrinsic satisfaction categories that were seen as being particularly relevant to environmental sustainability and EBB. The categories identified were: (1) satisfaction derived from striving for behavioural competence, (2) frugal, thoughtful consumption, and (3) participation in maintaining community. As such De Young (2000) found that across studies people justified engaging in certain practices first and foremost in terms of what they got out of the practice itself e.g.

personal enjoyment in the effort involved in develop behavioural competence, satisfaction in developing resource competence as well as taking action that made a difference. Thus it can be concluded that the sense of competence and the satisfaction that derive from it are an essential but, often overlooked aspect of behaviour change.

#### **2.4.4 Environmentally beneficial behaviours as habitual behaviours**

##### **The Theory of Repeat Behaviour**

The theoretical frameworks that have been discussed thus far assume that people make reasoned choices. However, it has been argued that in many cases practice is habitual, and carried out at the sub-conscious level, rather than being the result of elaborate evaluations and reasoning (Steg and Vlek, 2008). Ronis et al.'s (1989) research based on health related behaviours suggests that repeat behaviours (e.g. composting and line drying) pose additional problems to those of non-repeat behaviours. Consequently, that explanation for such behaviours is likely to be different and more complex than for those of one-off or infrequent behaviours (p.216). The rationale given suggests that unlike non-repeat behaviours, repeat behaviours are characterised by at least two stages i.e. initiation and persistence. According to Ronis et al. (1989) the theory of repeat behaviour suggests that variables skills, knowledge, memory and obstacles are likely to influence practice persistence whereas expectancies, values and attitude variables are more likely to have greater influence on initiating a practice (p.235).

In addition the Theory of Repeat Behaviour suggests that practice becomes associated with specific stimuli e.g. knowledge/awareness of environmental problems and increased opportunities to initiate new practice. As well as persistence cues which facilitate memory for the action and development of the habit, which together have the effect of reducing the risk/effort associated with practice.

It is further suggested that in the case of routine or habitual practices people develop knowledge of their own capabilities through repeated practice until eventually no further judgement is needed for practice to continue (Bandura, 1982). This then serves to reduce the effort needed for practice persistence. However, significant changes in practice or situation (*i.e. moving to a house with a smaller garden*) can, as Bandura argues, "*prompt self-efficacy appraisals as guides for action under altered conditions*" (p.123).

Thus according to the critical realist reading of the Theory of Repeat Behaviour, it is presupposed that the '*necessary conditions*' that must be met for practice to be initiated are that the person has '*general environmental awareness*', '*access to the resources*' needed to practice and '*indirect knowledge*' of the practice. In contrast '*direct knowledge*' is needed for practice to persist.

As such the practitioner knows that there are risks to the environment and 'know that' that there are rewards in terms of producing compost. Furthermore they believe that the effort would not be too great (for example they may have had a leaflet about composting through the door from the council and know that they could get a subsidised compost bin delivered). Consequently because they value the environment and the idea of the compost (it is not clear which would take precedence) and cannot think of a reason not to, they initiate home composting.

Whereas for practice persistence- the persons know the risks are low, in that they now 'know how' to compost, and 'know how' little effort is required, and repeated practice negates the need for constant evaluation. Furthermore they no longer even have to think about taking the compost out (i.e. it has become routine), continue to value the compost, know they have everything they need to continue, hence practice persists. Additionally it is recognised that practice persistence is dependent on the context being conducive which requires a facilitatory environment and cues which facilitate memory for the action and development of the habit.

### **The Theory of Repeat Behaviour and Empirical Research**

Åberg et al. (1996) applied the Theory of Repeat Behaviour to composting and identified earlier experiences of watching or taking part in composting garden waste (i.e. both '*indirect*' and '*direct knowledge*') from childhood as a specific motivator for both the initiation and reinstatement of practice but, not practice persistence (p.56). In addition Tucker et al.'s (2003) research on composting found past behaviour to be important in "*strengthening current intentions and increasing pro-activity attitudes and correcting prior perceptions of "inconvenience"*" (p.291).

An early study of energy conservation behaviours suggests that direct experience works to increase familiarity with the behaviour, which in turn increases the likelihood that an individual would engage in that behaviour in the future (Macey and Brown, 1983) . Albarracin and McNatt's (2005) study into the influence of past behaviour on



the stability of attitudes elicited by the behaviour endorses this earlier research. Furthermore it suggests that the mechanisms that underlie the influence of past behaviour on attitudes involves a consideration of both the outcomes of the behaviour and *"..more global inferences that, if they performed a given behaviour in the past, they must have liked the behaviour and the object to which the behaviour was directed"* (p.730).

De Young (2000) concurs and suggests the fundamental mechanism at work is familiarity with the behaviour rather than direct experience per se (p.513). Other research focussed on identifying new ways to engage non-recyclers suggests that previous experience (in recycling) can act to lower the perception of effort required and have already corrected any misconceptions about the behaviour (Dahab et al., 1995). In addition research into the link between recycling and litter concludes that direct experience appears to increase self-confidence and suggests that if attitudes are formed from direct experience they are held with greater clarity (Reams et al., 1986).

Such findings suggest a mechanism that links both *'indirect knowledge'* and *'direct knowledge'* of the practice with familiarity with how convenience and satisfaction from practice could, or from feedback does outweigh difficulties, and results in a positive perception of the practice being generated- herein known as the **'Positive thinking'** mechanism.

Aberg et al.(1996) also found that *'awareness of environmental problems'* together with increased *'access to resources'* to start composting provided stimuli for initiating composting, as well as *expectancies* i.e. benefits to the self, linked to interest in gardening and use/appreciation of compost. This suggests that the **'Goes-together'** mechanism previously identified can be expanded to also include compatibility with interests. However, other factors, not taken into consideration by the repeat behaviour model, were also related to the initiation of composting including:

- providing a role model for children (suggesting a mechanism that links *'awareness of consequences'*, *'ascription of responsibility'* with moral responsibility and influence;
- interest in efficient management of household resources (again linking practice outcomes to intrinsic interests i.e. the **'Goes together'** mechanism);
- earlier experience or knowledge of the practice;
- extent of political activity of householders;



- opportunity to take action to make a difference to an environmental problem (suggesting that satisfaction from having an impact on an environmental problem forms part of the evaluation of benefits) (p.57).

Whereas factors cited as resources/enabling factors or barriers in the model including limited knowledge of the composting process and lack of functionality of the technology (compost bin), but, not memory, were found to be more decisive in the routinization process than in the initiation process.

Tucker and Speirs (2001) findings concur with Ronis et al. (1989) in identifying both an initiation and persistence phase for home composting, with different determinants at work at each stage. Research compared attitudes and perceptions of composters, lapsed composters and non-composters and found that composters showed only slightly stronger environmental attitudes when compared to non-composters, however, there was a highly significant difference in terms of the negative perceptions of the practice (Tucker and Speirs, 2001). In terms of behaviour persistence, the majority of lapsed composters did not think that composting took a lot of time, required a lot of effort, space or knowledge. However, there were significant differences in perception between lapsed composters and composters, namely that composting required a lot of waste, composting attracted flies or vermin and that bins were unsightly. From a second study it is suggested that there may be two distinct classes of attitudes that determine the initiation of composting activity. Firstly time, effort and knowledge perceptions which may be set soon after an initial experience is gained, and secondly perceptions about waste requirements, flies and vermin and aesthetics of the compost bin, which may be established before gaining any real experience and may be significant in "*performing a predisposition to participate*" (Tucker and Speirs, 2003). Findings from the third (longitudinal) study suggested that perceptions of lapsed composters that composting took up a lot of time, effort and knowledge did not weaken with practice. Indeed, it was concluded that perceptions that a lot of waste was needed, that flies and vermin were a problem and that bins were unsightly may have strengthened over time (Tucker and Speirs, 2003).

To summarise, existing theories make a range of assumptions about what might 'count' to people when making decisions on whether or not to initiate and persist with EBB, from money to making a difference, to social approval or self-approval. As such it is suggested that decisions may be based on 'self-interest' (and here 'self-interest' can include both extrinsic and extrinsic interests), sense of duty to others, sense of moral obligation to others and the environment and sense of duty to the self.



## **2.5 Is context significant?**

For critical realists explanation involves not only identifying underlying mechanisms which may generate the practices of interest, but, also involves an investigation into how the way mechanisms work are contingent and only activated in particular contexts. According to Sayer (1992) context has a social, as well as a temporal and spatial dimension, in that practices invariably have “..a particular time and place” (p.116). This section makes use of a range of writing and research to investigate the difference that context could make to EBB.

### **2.5.1 Social context**

In the main explanations for EBB have not been sought from investigations into macro social change. However, it has been suggested that adjustments in work patterns and household structures and the increasing number of households where both parents are working can be used, in part, to explain how the use of gardens has changed over time (Williams, 1995). Indeed, an American study of the practice of outdoor drying found that only 22% of women studied were line drying, and here difficulties in fitting the practice in with work was one of the main reasons given for not wishing to line dry (Labhard and Pedersen, 1989). In addition there is widespread agreement that leisure is becoming increasingly individualised and home based (Bhatti and Church, 2000). However, whether such changes are significant for the EBBs of interest in this research is not known.

More usually explanations for environmentally beneficial behaviour have been sought from investigations into socio-demographics ( for a range of behaviours including home composting see Olli et al., 2001; for home composting see Tucker and Speirs, 2001). Such approaches have assumed that people sharing similar demographics may be more likely to hold certain attitudes, be influenced by the same social norms and possibly face the same barriers to environmentally beneficial behaviour practice. For example Cook (1968) found that levels of gardening and drying clothes in the garden were related to the number of young children in a family. Similarly Hall (1987) found that the percentage of residents who cited drying clothes as the most important use of their garden nearly doubled as household size increased from 1-3 people.



Furthermore for the practice of home composting Sterner and Bartelings (1999) found significant associations with household size, education level, and whether or not householders were at home during the daytime. However, Olli et al. (2001) found no associations between education and waste handling behaviour (which included a home composting dimension), but, did find associations with extent of participation in environmental organisations, followed by urban residency (negatively correlated), compost knowledge, gender and political radicalism. Tucker and Speirs (2001) investigated five demographic variables including: tenure, stage in family life cycle, social class, household size and car ownership and found that housing type, tenure, family life cycle and whether households were single or multi-occupied were highly significant descriptors of home composting. But, in terms of housing type it was suggested that the relationship was more than likely to be between garden size and home composting rather than house type per se.

### **2.5.2 Temporal context**

Many of the socio-demographic variables used in EBB research, for example 'age' (used by Syme et al. (1980) to study water conservation in the garden) and 'family life-cycle' (used by Tucker and Speirs (2001) to study home composting) add a temporal dimension to the research on EBBs which is often overlooked. Syme et al. (1980) found age to be an important descriptor of gardening interest and water consumption. Whereas Tucker and Speirs (2001) found that the three older life-cycle stages (including 'Families with older children', 'More mature' (not yet retired) and 'Retired' ) had the highest ratio of composters to non-composters, while 'Families with young children' were least likely to be composting.

Yet, age or 'family life-cycle' cannot in itself cause behaviour. Instead it is what age or each stage in 'family life-cycle' indexes that are important, for example in terms of changing roles/responsibilities, expectancies and access to both material and non-material resources. According to Elder (1994) the concept 'timing of life' refers to the incidence, duration and sequence of roles, and to relevant expectations and beliefs based on age (p.6). For example childhood is the 'time of life' between infancy and adolescence that is characterised by interest and openness to new experiences, often without the need for particular rewards (Deci and Ryan, 2000a). However, Deci and Ryan (2000a) contend that this curiosity and openness is often curtailed thereafter by *"..social pressures to do activities that are not interesting and to assume new responsibilities"* (p.71).

Similarly in terms of the roles and responsibilities associated with adulthood, Gross and Lane (2007) found that for the majority of adult home owners, interest in creating a garden came after they had bought their first home. Indeed, their gardens were often identified as an extension of their home “..which brought with it the responsibility to create and maintain a garden” (p.234).

However, in terms of expectancies, Gross and Lane’s (2007) research found that while the garden and gardening played a significant role in childhood and adulthood, it did not in late adolescence or early adulthood. This was explained in terms of young people’s perception that “.. the garden is predominantly a place for later in life” (p.232). In other words these young people did not expect to be interested in gardens or gardening until they were older. Ravetz (1995) also suggests that gardening activity in people who are now elderly can be explained in terms of “..habits and expectancies...formed through their housing experience of fifty years ago”, as well because people have more time to garden as they get older (p.198). This suggests that that ‘time of life’ also has an effect on the non-material resources (e.g. time) available to people.

Short-term transitions from one ‘time of life’ to another (e.g. leaving home) also have important implications for the material resources available to people. For example in early adulthood when a person leaves their family home and moves into rented accommodation they may no longer have access to a garden, or be able to continue previous practices (e.g. outdoor drying and composting). This may be because of lack of equipment or restrictions imposed by landlords on what they can and cannot do in a garden. Subsequently in this research the concept of ‘time of life’ refers to the roles/responsibilities, expectancies and access to both material and non-material resources that are experienced as a person moves from childhood to adolescence, and onto adulthood through to retirement.

### **2.5.2 Spatial context**

#### **Front or back?**

Differentiating between ‘front’ and ‘back’ gardens is important, as according to Williams (1995) the influence of disposition of space on recreational use of gardens is much more evident than that of associations between garden size and use. With uses of front and back gardens being highly differentiated and regulated by whether space is public/semi public (as is often the case in the front garden) or whether it is private (as is



more often the case in the back garden) (p.87). Indeed, Ravetz (1995) traces the taboo of growing vegetables in front gardens back to the beginning of the twentieth century and notes how this social taboo was only breached for a brief period after the outbreak of the First World War when front gardens were given over to vegetables (p.189). Moreover the EBBs of interest in this research, including home composting, growing fruit and vegetables, outdoor drying, collecting and reusing water and encouraging wildlife can all be thought of as 'private' practices in that are undertaken in the back garden. As such this research focuses on the 'back' garden and all data used in the forthcoming analysis relates only to the 'back' garden.

### **Size of Garden**

The back garden differs from the front garden not only in terms of privacy, exclusive use and freedom from overlooking, as more often than not the back garden is also larger than the front garden. The rationale for allocating more space to the back garden can be traced back to Unwin's (1909) ground breaking work on the art of designing new housing in cities and suburbs. In regard to the placing of houses in their plots, Unwin (1909) argued against placing housing in the middle of the plot as *"the garden is unnecessarily cut up into several pieces at the front and sides which are of little practical value, whilst the main garden at the back has no single dimension large enough to produce any sense of size or to develop any vista"* (p.350). Instead he advocated placing the house/s to the front of the plot, thereby creating a small front garden and large back garden with the result that *"all the ground is in the most valuable position"* (p.350) (i.e. in the back garden).

Williams (1995) identifies household composition, the value household members place on the garden, recreational interests that can be garden based, the type of the neighbourhood and garden size and configuration as being theoretically significant to how (and by whom) a garden is used. According to Williams (1995) the size of garden could influence its recreational use, in that in a larger garden *"the greater the scope of that space to absorb a diverse range of recreations (including simultaneous uses)"*, whilst in smaller gardens: *"..constraints may arise because minimum space needs for recreation are not effectively met"* (p.86).

Cook's (1968) early attempt to establish whether there was a relationship between back garden size and activity were inconclusive, leading him to conclude that the *"incidence of garden use appears...to be similar ...irrespective of the proportion who feel their gardens are too small"* (p.225). This accords with Coulson (1980) who found

that most people seemed happy to adapt their activities to fit the size of the garden they had. A later publication by Cook (1969) suggested that it was the extent, not the incidence, of garden practices that were affected by garden size.

A number of the garden practices of interest in this research, including home composting, collecting and reusing water and encouraging wildlife, have only recently been the subject of more extensive research. Qasim's (1997) study of back gardens in Sheffield found associations between house type and home composting, with differences in practice being put down to differences in garden size, and specifically lack of space in small terraced houses (p.115). More recent extensive research on home composting by Tucker et al. (2003) provides a fuller explanation concluding that *"Gardening interest, gardening activity and garden size are all highly correlated with home composting behaviour"* (p.247). Moreover it was found that the perception that composting needed a lot of waste was strongest among those with smaller gardens and particularly high amongst drop-outs, and there was a significant difference between lapsed and current composters with regard to perceptions of composting requiring a lot of space, attracting flies or vermin and bins being thought of as unsightly (Tucker and Speirs, 2001).

Jasim and Smith's (2003) research into the practicability of using home composting for the management of biodegradable household waste sheds some light on the problems with fruit flies identified above. As it was found that fruit flies were particularly attracted to compost bins at homes with small gardens compared to large gardens, and this was attributed to the predominance of kitchen waste in these home compost bins. In addition that the numbers of flies found at increasing distances from compost bins were greater in small gardens when compared to compost bins from large garden groups (p.119) and unlike home owners with larger gardens, householders with small gardens were less able to position bins away from areas of the garden that were most in use.

Jeffcote's (1993) study of wildlife conservation in private back gardens in Leicester found that householders with larger gardens showed a greater tendency to maintain gardens for wildlife when compared to householders with smaller gardens (p.153). This finding is supported by more recent work by Gaston et al. (2007) that spanned 5 UK cities which found that variation in wildlife gardening activity was, in the main, associated with garden size and the proportion of land cover by gardens. And Indeed, that *"where individual gardens are very large and garden cover is broad, there is disproportionately high participation in wildlife gardening"* (p.3236). Yet, in both studies no explanation was given for why this was found to be so.



## **Garden setting**

Bhatti and Church (2001) assert that “*..the domestic garden provides opportunities and possibilities in relation to nature that may not exist elsewhere either in the rest of the home or in public spaces*” (p.380). According to Williams et al. (1992) the setting of the back garden, in providing the context for recreation to take place “*..can facilitate or hinder not only the activities which occur but, also the quality of the recreational experience*” (p.29). Thus whilst Williams (1995) notes that the setting has often been viewed as merely a collection of features or attributes whose use produces utility, he also argues that such a view is limiting, particularly in that “*The commodity view perpetuates the notion that recreation settings are theoretically interchangeable, even reproducible, given that the replacement provides a similar combination of attributes*” (p.30). This leads Williams (1995) to conclude that the substitutability of a place is more likely to be “*inversely proportional to its ‘meaningfulness’- a quality rarely reducible to tangible properties or the activities that occur within it*” (p.30).

Hendee's (1974) research on activity substitutability defines the concept of ‘substitutability’ as “*the interchangeability of recreation activities in satisfying participants’ motives, needs and preferences*” (p.157) which suggests that the relationship between garden practices and setting, extent of and ability to trade off between similar and different practices and acceptability of changes in satisfaction and benefits will determine the substitutability of private back garden space for other semi-public and public outdoor space.

## **2.6 Summary and discussion**

From the critique of existing research into EBBs it is concluded that a critical realist approach, using the ‘*retroductive*’ research strategy will provide the most robust approach to explaining EBB practice initiation and persistence. Furthermore, that practice initiation and persistence can be approached by asking a series of realist questions.

In addition, by focussing on what is explicit and implicit in each theory, in terms of how the process of behaviour change might work, it is clear that explanations for behaviour (e.g. EBB) differ according to which process is postulated to connect perception of need (e.g. issue) to behavioural intention: either activation of social expectations (i.e. in accord with the TPB) or activation of self-expectations (i.e. in accord with norm-activation theory). However, both of the two main theories used to study EBB suggest

that decisions involve an evaluation of benefits and costs (i.e. in terms of risks and effort), though what constitutes benefit and risk depends on which theory is being used. This would suggest mechanisms that increase benefit, and reduce risk and effort could be used to explain EBB regularities.

By using a critical realist approach to reading existing EBB theories and empirical research it is possible to identify 9 possible pre-conditions (or necessary conditions) that must be met before EBBs are initiated: '*general environmental awareness*'; '*awareness of need*'; '*awareness of consequences*'; '*ascription of responsibility*'; '*awareness of expectations*'; '*indirect knowledge*'; '*direct knowledge*'; '*access to resources*'; and '*freedom to choose*'. In addition 11 hypothetical mechanisms that could generate practice including the: 'Goes-together'; 'Could do'; 'Can do-internal'; 'Can do-external'; 'Moral responsibility'; 'Positive thinking', 'Will do'; 'Influence'; 'Should do'; 'Guilt'; and 'Habit' are postulated. For a summary of hypothesized mechanisms and initial thoughts on how they might work see **Table 2.6.1**.

In addition, there is evidence from existing research to suggest that context (including a social, temporal and spatial dimension) is significant to the EBBs of interest in his research. Firstly, associations have been found between a range of socio-demographic variables and home composting and outdoor drying. Secondly, 'time of life' has been found to be associated with the practice of gardening, home-composting and line drying, although it is not clear how this might be explained. Thirdly, disposition of garden space (i.e. 'front' or 'back') is clearly significant for all the practices of interest. In addition, size of garden space has been found to be associated with practice initiation, extent and persistence, particularly in regard to home composting, growing fruit and vegetables and encouraging wildlife. As yet, there are no explanations for why this should or should not be so. Lastly, while practices such as growing fruit and vegetables, home composting, collecting and reusing water, outdoor drying and encouraging wildlife are unique to back gardens, it is not clear to what extent non-garden settings e.g. allotments, could be substituted for the garden setting, or what trade-offs would be involved and how this might affect the satisfaction and benefits associated with practice.



<b>Mechanism</b>	<b>Way of working</b>
'Goes-together' (i.e. increase benefit)	' <i>indirect knowledge</i> ' of the practice may increase practice initiation, by <i>making</i> the householder familiar with the extent to which the practice could meet needs and may be compatible with their values/lifestyle/interests. or/ ' <i>direct knowledge</i> ' may increase practice persistence by providing practice feedback which <i>reinforces</i> belief in utility or compatibility with their values/lifestyle/interests. Which in turn generates further interest and confidence in practice.
'Could do' (i.e. reduce risk/reduce effort)	' <i>indirect knowledge</i> ' of the practice may increase the initiation in 'sustainable' garden practice by <i>increasing</i> householder's familiarity with the resources, skills and risks involved in practice ('know that') and providing an opportunity to make a judgement on their own capability thereby <i>raising</i> expectations and confidence in their own capabilities.
'Can do-internal' (i.e. reduce risk, effort/increase benefit)	' <i>direct knowledge</i> ' of the practice may increase practice persistence, by <i>enabling</i> 'know how' and skills to develop thereby <i>increasing</i> ability and <i>generating</i> confidence, satisfaction from competence and interest in the practice.
'Can do-external' (i.e. reduce risk, effort/increase benefit)	' <i>access to resources</i> ' may increase the initiation and persistence in practice, by <i>increasing</i> opportunity and <i>reducing</i> the cost and effort required to try the practice and/or by <i>increasing</i> confidence that pre-conditions felt to be (or known to be in the case of practice persistence) needed for successful practice are met.
'Guilt' 'Moral responsibility' 'Influence' (i.e. reduce risk/increase benefit)	' <i>awareness of the consequences</i> ' to the self, others and wider environment of failing to practice (to reduce harm) might increase initiation/persistence in practice, by <i>making</i> the householder realize that they are acting in a way that is detrimental to others and the wider environment and against their own expectations which <i>increases</i> their ' <i>ascription of responsibility</i> ' and felt moral obligation to act to reduce risk. This may also <i>bring about</i> a desire to influence others behaviour.
'Positive thinking' (i.e. increase benefit)	' <i>direct</i> ' or ' <i>indirect knowledge</i> ' of the practice may increase the initiation/persistence in practice, by <i>making</i> the householder familiar with how convenience and satisfaction from practice could, or from feedback, does outweigh difficulties thereby <i>generating</i> positive perceptions of the practice.
'Will do' (i.e. reduce risk/increase benefit)	' <i>freedom to choose</i> ' to practice may increase the level of initiation/persistence in practice by <i>increasing</i> interest, <i>reducing</i> conflict and <i>increasing</i> confidence in ability to practice as is desired which in turn <i>increases</i> satisfaction and willingness to persist with practice.
'Should do' (i.e. reduce risk/increase benefit)	' <i>awareness of expectations</i> ' to practice might increase the initiation/persistence in practice, by <i>increasing</i> familiarity with what behaviour is deemed appropriate/possible which combined with a desire for social approval or dislike of disapproval might <i>increase</i> willingness to comply with expectations of others.
'Habit' (i.e. reduce effort)	' <i>direct knowledge</i> ' may increase the persistence in practices (line drying and composting), by <i>facilitating</i> memory for the practice and the development of routine thereby reducing effort and <i>increasing</i> willingness to practice.

Table 2.6.1 Hypothesised mechanisms and their ways of working.



## ***2.7 Closing summation***

The review of literature in Chapter 1 provided the context and rationale for this study, identifying the important contribution made to sustainable development by a range of garden practices and highlighting the importance of increasing our understanding of practice initiation and persistence. This chapter identified the shortcomings of existing research on EBBs and presented an alternative approach that would address previous criticisms. In doing so it demonstrated how using a critical realist approach, which involved hypothesising mechanisms, could then be used to make use of the theorising evident in existing research. The next chapter sets out the research questions now seen to be most relevant to this study and details the methodology that will be used to answer them.



## **Chapter 3: Research Questions and Methodology**

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### **3.0 Introduction**

In chapter two, the explanation for how the use of a critical realist approach could address criticisms that had been levelled at existing EBB research highlighted a number of realist questions that were felt to be particularly relevant for this research. Consequently, this chapter details the two primary research questions that provided the focus for this research and the critical realist methodology that was used to answer primary research questions.

### **3.1 Research questions**

This research addressed two primary and six secondary research questions:

1. *"Why do some people take up 'sustainable' garden practices whilst others do not?"*
  1. *"What are the preconditions for the garden practices of interest?"*
  2. *"What is it about a person that enables them to practice?"*
  3. *"What is it about 'the garden' that makes a difference to practice?"*
2. *"Why do some of these people persist with practice whilst others do not?"*
  1. *"What are the preconditions for persisting with practices of interest?"*
  2. *"What is it about a person that enables them to persist with practice/s?"*
  3. *"What is it about 'the garden' that makes a difference to practice?"*

### **3.2 Methodology**

A critical realist approach, using the *'retroduction'* research strategy, was used to answer research questions. This aimed to identify: the immediate causes of practice; the necessary conditions for the existence of mechanisms that generate practice; and to provide an explanation of how necessary conditions are met. Necessary conditions were distinguished from contingent or incidental conditions by asking the secondary research questions including *"What are the preconditions for the garden practices of*

*interest? What is it about a person that enables them to practice each of the garden practices of interest?" What is it about the garden that makes a difference to practice?*

### **3.2.1 Hypothesizing mechanisms**

In accord with Blaikie (2000), the starting point for this explanatory part of the study, involved drawing upon existing behavioural theory and research, relating to human choices and capacities. Here the method of abstraction suggested by Sayer (1992) was used to differentiate between the incidental and the essential, and external or contingent from the internal or necessary relations. In addition, existing thinking drawn from previous research about how the process of practice/behaviour change might work was used to hypothesize mechanisms that could generate practice.

### **3.2.2 Identifying patterns and associations**

Secondly, a quantitative method of data collection (questionnaire) and analysis was used to provide reliable descriptions and identify patterns and associations in garden practices, as well as highlight external relations e.g. between garden size and practice. At this stage the garden practices highlighted in chapter one as contributing to (components of) sustainable development were of particular interest and included: growing fruit and vegetables, home composting, collecting and re-using water, outdoor drying and encouraging wildlife.

#### **Target Population**

The target population included 2 elements – a geographical boundary covering all or part of the Sheffield City Council wards of Walkley, Crookes and Broomhill (please see **Figure 3.2.4**) and a temporal boundary (late Summer/Early Autumn for the questionnaire) as attitudes to and use of gardens specifically in regard to the garden practices of interest may vary greatly by season.

#### **Data Sources, Type and Form**

Primary data to answer the first and second research question came from individual householders in their home environment (i.e. where the practices etc. are carried out). The data was quantitative at this stage of the research and came from a questionnaire administered by the researcher (i.e. the questionnaires were hand delivered with a pre-paid envelope for return).



### **Questionnaire Structure**

The questionnaire was structured to cover all areas of interest, intentionally the garden practices of interest were set within questions that would have a broad appeal so as not to lead or put off householders who were not engaged in these practices (please see **Appendix 1** for a full copy of the questionnaire). The following themes were used:

- Socio-demographics
- Garden activities
- Changes to garden, and reasons for
- Extent of environmentally beneficial behaviour (line drying)
- Satisfaction with garden size
- Benefits of outlook and garden use
- Disadvantages of garden ownership
- Use of other outdoor space

The draft questionnaire was piloted with a group of 20 residents attending a tenants meeting at the Ashberry Road Estate in Upperthorpe and suggested changes were incorporated into the final questionnaire.

### **Sampling Strategy-Sample Size**

Time and resource limitations made it impractical to completely leave sampling decisions to unfold as the research progressed. Following Parfitt's (2005) advice, information including the number of households in the target population, desired error level (e.g. 5%) and the level of confidence (e.g. 95%), estimated response rate and requirements of the type of analysis to be undertaken (i.e. sufficient respondents to enable statistically reliable comparisons to be made) were used to determine an approximate sample size of 1235 households, with the aim of generating a sample of 400. The eventual sample size increased to 1335 due to lower than expected returns from public renting householders.

### **Sampling Method**

Essentially the questionnaire sample needed to provide access to the data which would enable the development of an empirically and theoretically grounded explanation of the garden practices of interest (Mason, 2002). Here the 'universe' of interest included all urban private garden users and garden practitioners and non-practitioners.

Subsequently, empirically the sample sought to include the range of contexts i.e. in terms of proximity/distance to city centre/city edge, tenure, house type/age, garden size, age and life-stage, household type and economic activity that commonly occur in the 'universe' of interest. In addition using a critical realist approach suggested that the

'universe' of the garden practices of interest was constituted theoretically in terms of social structure, individual agency and context i.e. different people, with different pasts in different places, in different social set-ups and spaces, who might be practitioners or not, and again these are the features that were sought to be represented in the sample.

Sampling strategically across a range of contexts made it possible to use this detail not only to understand how things work, but also how things work differently or similarly in other relevant contexts, thereby enabling the development of well founded cross-contextual generalities (Mason, 2002). The focus then was on how garden practices work in particular contexts rather than representing the full range of experience.

A general form of theoretical (purposive) sampling was used to construct a sample. For the questionnaire this entailed dividing the research area into predominant house types and tenures and selecting both streets covered by Qasim's (1997) earlier research and new streets in an attempt to provide the range of contexts identified as being relevant. With no knowledge, at this early stage, of who might be most interesting or informative, initially a sampling ratio of every other house (1:2) was used. Questionnaires were hand delivered with a pre-paid envelope to return completed questionnaires. Initially targets were set for sampling categories of tenure and house type (based on the actual ratio of house types and tenures across the research area) and returns were regularly checked against set targets. In accord with Flick (2006) final sampling decisions were informed by a 'stock taking' exercise, taken two thirds of the way through the process of delivering and checking questionnaire returns, which allowed for an immediate, rather than detailed, interpretation of types of people, range of contexts and extent of garden practices already included in the sample and the gaps that needed to be filled. Subsequently, due to lower than expected returns from public renters, the sampling ratio was increased to 1:1 and all houses in outstanding streets were sampled in order to meet targets.

### **Response Rates**

Out of 1335 questionnaires 405 questionnaires were returned, giving an overall response rate of 30%. However this figure masks large differences between tenures as the response rate for public renters was only 10% (43 questionnaires out of 435 delivered) compared to 40% (362 out of 900) for private owners and renters. It should be noted that it was not possible to differentiate response rates from private owners or private renters, in that in both cases the houses look the same from the outside. However slightly lower than expected responses from public renters and substantially lower responses from private renters matters, in that these two groups have not been



represented in the majority of earlier research. Reasons for lower response rates can only be speculative, for example people living in rented accommodation may be more transient and have insufficient time to establish garden practices, or they may have less sense of 'ownership' of the garden, or landlords may forbid more extensive use of rented gardens. Indeed in the few studies that had included people who were renting, for example in Tucker and Speir's (2001) study of home composting, this group was found to be least likely to be home composting. This would suggest that the attitudes, experiences and beliefs of people living in both public and privately rented homes may particularly provide an insight into the question of "Why some people choose to take-up the garden practices of interest whilst others do not?" However due to lower than expected response rates from these two groups it was not possible to talk about public or private renters with any confidence or make reliable comparisons with other groups. As such the responses from both public and private renters must be treated with caution.

Please see **Appendix 2** for detailed information on the characteristics of questionnaire respondents.

### **Garden size information**

From experience, (i.e. looking at questionnaire responses to garden size questions from other research), gaining accurate information from householders on garden size is fraught with difficulties. Consequently information on garden size was not requested in the questionnaire. Instead data on garden size came from measuring gardens using the online resource Google-Earth. Where information could not be found reliably (e.g. for some houses garden areas were difficult to see), measurements were calculated from Ordnance Survey maps, where addresses were known. Later interviews provided an opportunity to check the accuracy of both sources with some householders and in the main garden size estimates were reliable.

From using a variety of methods garden size information was available for 326 out of the 405 people responding to the questionnaire (79 not known). Examples of the range of garden sizes are shown in **Figure 3.2.2**.



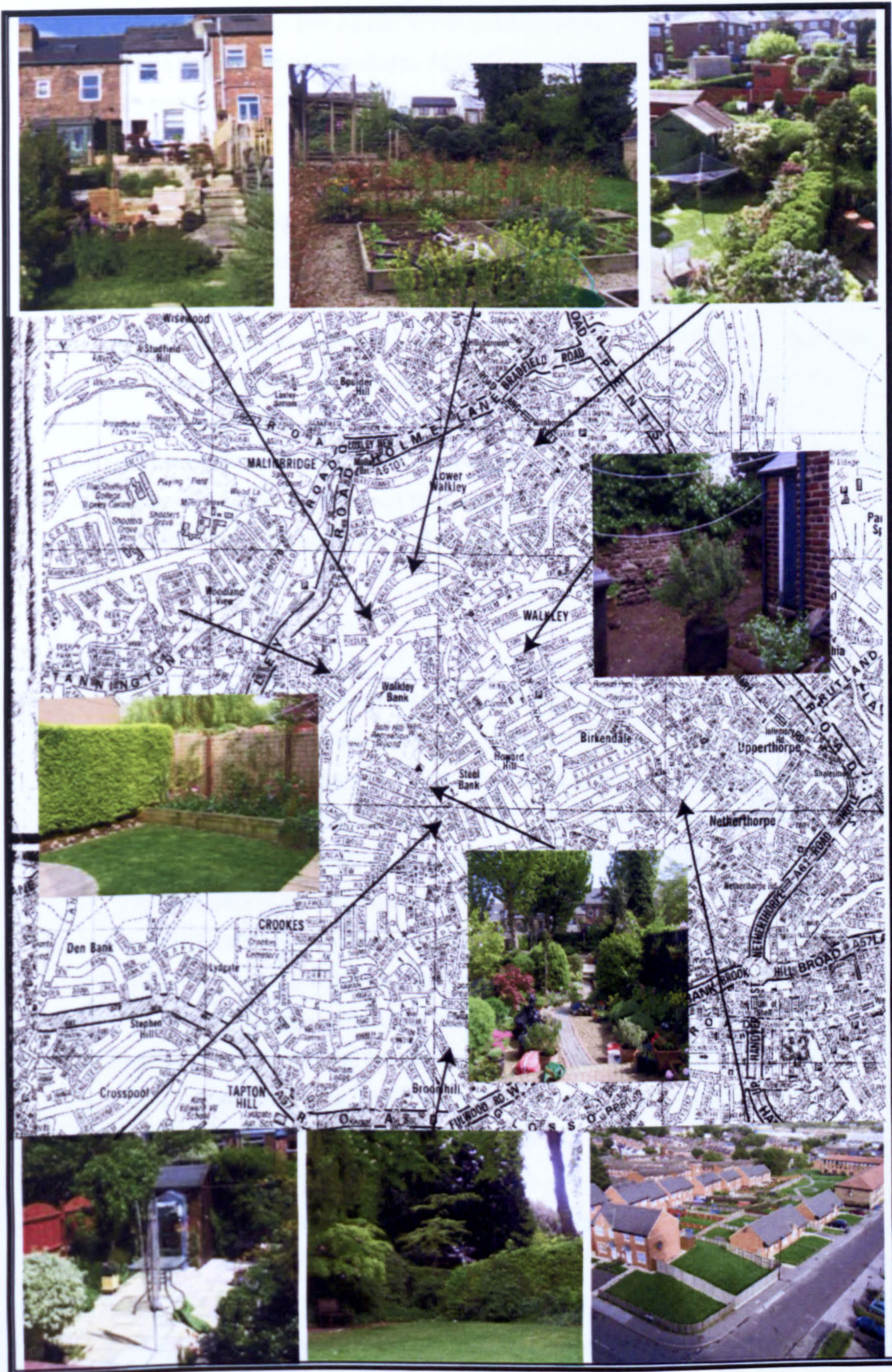


Figure 3.2.2 Garden size across the research area



### **Data Reduction**

A number of questions were pre-coded in the questionnaire, and post coding was undertaken for all open ended questions. All data (i.e. data from questionnaires, Google-Earth and OS maps) was entered into an SPSS database.

### **Data Transformation**

Data from section F in the questionnaire (including questions 20-24) was used to allocate each respondent to a particular household type. Household types identified included: one person pensioner, one person other, family no children, family with children, shared households and pensioner families. Here the use of 'family' replaced the use of the more standard term 'couple' (ONS, 2008). In addition there was no category of families with non-dependent children. The drawbacks of not using standardised descriptions were not fully appreciated when transforming and analysing data. Nonetheless it is now understood that researchers using standardised descriptions in their own research will find it difficult to compare and make full use of findings from this research.

### **Data Analysis**

As the majority of data collected was categorical, two techniques were considered for analysing data, the Pearson's chi-square test and the likelihood ratio statistic. The likelihood ratio statistic is preferred to Pearson's chi-squared when the sample is small (Field, 2005). However as the sample was a good size (405) Pearson's chi-squared test was selected as the preferred method of analysis. Subsequently descriptive statistics, cross tabulation and chi-squared tests of significance for garden practices (nominal categories) and demographic and situational variables (nominal categories) were undertaken. For example the garden practices growing fruit and vegetables, home composting, collecting and reusing water and outdoor drying were treated as dependent variables whilst tenure, house type, garden history, and garden size were treated as independent variables. Here the approach was exploratory in that there were no hunches or hypotheses that were being tried out.

### ***3.2.3 Developing explanations for garden practices***

Thirdly, qualitative methods including semi-structured interviews and garden observation were used to develop explanations for the patterns and associations deemed to be most relevant to the garden practices of interest. Here opportunities to observe gardens and practices were used to overcome problems of reliance on self-report data alone. In addition the use of semi-structured and more interactive type of

interview made use of, and built upon, knowledge gained from questionnaires on householder practice, thereby increasing the chances of learning from each householder *“what the different significances of circumstances are for them”* in deciding whether to practice or not (Sayer, 1992).

At this stage, due to constraints on time in reporting rather than collecting and analysing data, the garden practices of interest were reduced from five to three and included: growing fruit and vegetables, home composting and outdoor drying. These practices were chosen over collecting and reusing water and encouraging wildlife as very little research had been undertaken on the practices of growing fruit and vegetables and outdoor drying, whilst home composting had been quite extensively researched but had yet to be explained.

### **Participants**

The aim of this stage of the research was to develop explanations for the 3 garden practices of interest including: growing fruit and vegetables; composting; and line drying, by detailed investigation of the process by which practices were initiated and sustained or not, in particular contexts. As such the sample needed to produce a relevant range of contexts (i.e. a range of garden sizes) and garden practitioners and non-practitioners at different ‘times of life’. This would allow any similarities or differences to be explored and the development of explanations to account for these similarities and differences, in particular contexts.

Of the 405 householders who completed the questionnaire 123 indicated a willingness to be involved in further interviews. Strategic sampling was used to decide who, of these, to choose to interview. Initial sampling targets and final review against targets are detailed below. The proposed total sample size= 80 interviews (*71 completed*)

To include:

- At least 25 people demonstrating at least 2 environmentally beneficial garden practices (*16 interviewed*)
- At least 15 people who are not line drying (3 of which have taken out the feature e.g. washing line) (*12 interviewed*)
- At least 25 people who are not engaged in any other environmentally beneficial behaviour other than line drying (*24 interviewed*)
- At least 20 people who added environmentally beneficial features (*28 interviewed*)
- At least 10 people where the feature/use was already present in the garden (*9 interviewed*)



- At least 5 people who have never had a garden before (*all 4 possible participants interviewed*)
- Ensuring that there are a range of garden sizes in all above 6 categories
- Ensuring a range of tenure in the first 6 categories (See Table 3.2.3)
- Ensuring a range of ages in the first 6 categories (See Table 3.3.4).

Tenure	Garden size					Total	%
	up to 50 sqms	51-100 sqms	101-150 sqms	151-200 sqms	201 sqms+		
Owner occupier	20	14	8	6	7	55	77
Public rented	8	2	1	0	0	11	16
Private rented	5	0	0	0	0	5	7
<b>Total</b>	<b>33</b>	<b>16</b>	<b>9</b>	<b>6</b>	<b>7</b>	<b>71</b>	<b>100</b>
<b>%</b>	<b>46</b>	<b>23</b>	<b>13</b>	<b>8</b>	<b>10</b>		<b>100</b>

**Table 3.2.3: Tenure and garden size characteristics of interviewees**

Age	Frequency	%
18-24	1	2
25-34	13	18
35-44	18	25
45-54	16	23
55-64	15	21
65+	8	11
<b>Total</b>	<b>71</b>	<b>100</b>

**Table 3.2.4: Age of interviewees**

### Procedure

Interviews took place in the participant's home, often but not always in the garden, or if not possible overlooking the garden. In 9 households both partners were interviewed but in the majority of interviews (e.g. 62) participants were interviewed on their own. A series of general questions including: "What was your garden like when you first moved in? What changes have you made? What were the reasons for the changes? If you had twice as much space would you do anything differently (or half as much space for householders with gardens over 70 square metres)? After the first 5 interviews it was decided that time permitted two further questions to be included as follows: To what extent do wider environmental issues have an effect on what you do in your garden? To what extent do you think parks and allotments could be a substitute for your garden?

The interviews were digitally recorded and lasted between 30 minutes and one hour and forty minutes, but in the main were up to an hour long. Verbatim transcripts were produced for all interviews.



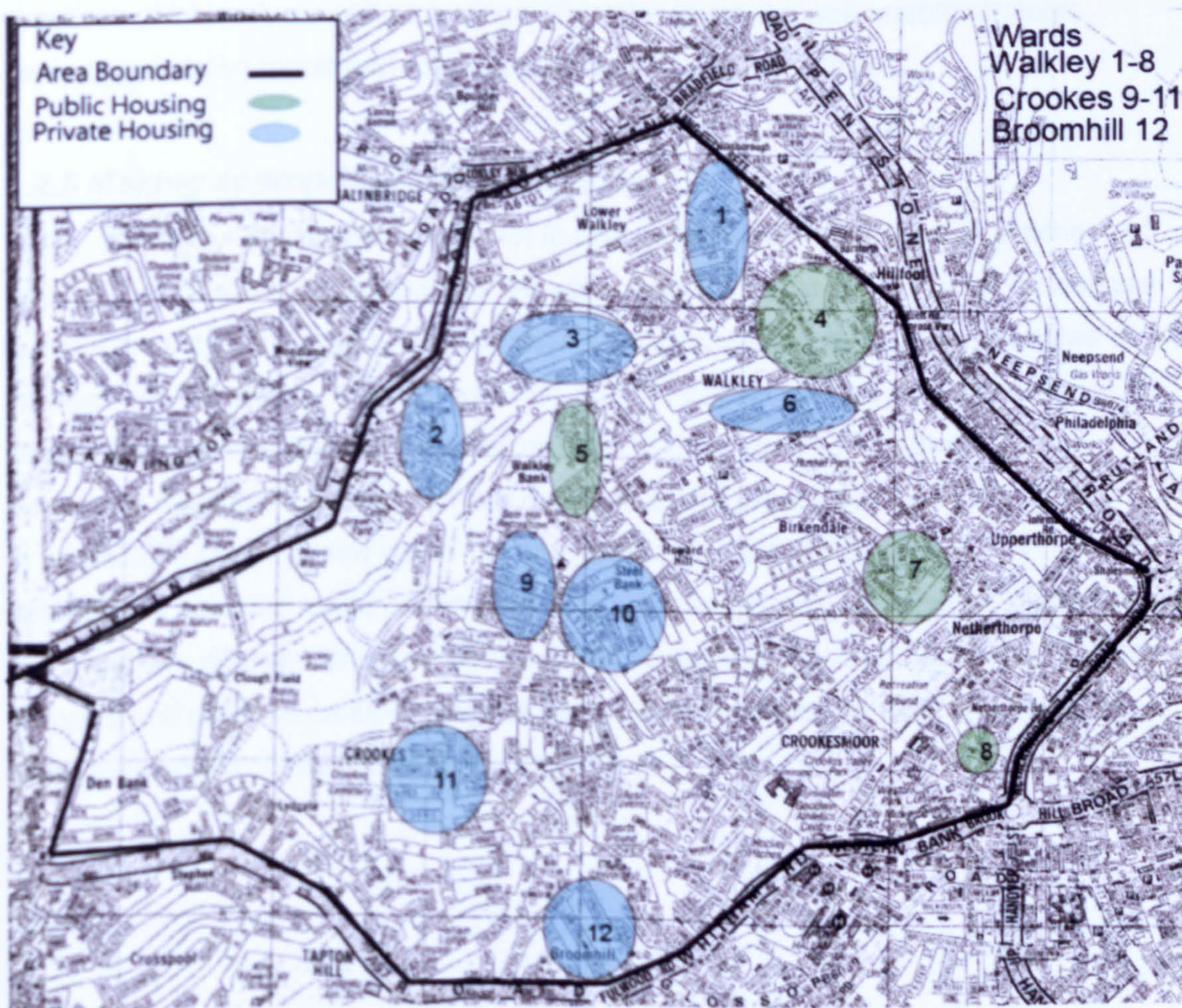
## Analysis

The review of existing theory and research was used to derive seven categories for possible pre-conditions for practice and eleven categories for generative mechanisms (please refer back to **Table 2.6.1**, page 71). All data was then indexed using these categories. The use of NVIVO software for analysis of interview data was considered but ruled out, as it was felt to put too much distance between the text and the researcher. During analysis categories were regularly reviewed and revised when necessary, for example when new ways of meeting necessary conditions were identified.

The methodological strategy is summarised at the end of this chapter.

### 3.2.4. Research area

An area to the west of the City of Sheffield was chosen as the setting for this research. The area is covered almost entirely by the Walkley ward, and smaller parts of the Crookes and Broomhill wards of Sheffield City Council. The area covered by Qasim's (1997) research a decade earlier (**Figure 3.2.4** shows a map of the research area).



**Figure 3.2.4** Research area boundary, selected areas within wards and tenure



The research area selected contains a mix of housing types and tenure. Housing stock is very mixed and includes Victorian terraces (e.g. areas 1, 9 and 10), semi-detached houses (e.g. area 10) and larger villas of a similar age (e.g. area 12), as well as semi-detached houses from the 1930's onwards (e.g. area 11). In contrast public rented housing dates from the 1930's (e.g. area 5) or the 1960's (e.g. area 4), but also includes 2 more recent housing developments (e.g. areas 7 and 8). Furthermore density across the area varies considerably from twice the city average of 3136 people/km<sup>2</sup> (e.g. area 4) to 7 times that of the city as a whole (e.g. area 9, 10 and 11) (Sheffield City Council, 2006).

In choosing this research area it is acknowledged that garden practices may well have arisen from another time and place and as such may have been the result of material and social relationships and associated motivations, rules and norms or discourses that emanated from 'elsewhere'. Moreover while it is not expected that such information will be made available in the questionnaire data, it is expected that it will be unearthed in the interviews that follow. In addition, it is expected that this setting will include a mix of practitioners, previous practitioners and those who have never practiced the garden practices of interest, as well as a range of garden sizes that will enable strategic comparisons to be made and robust explanations to be developed.

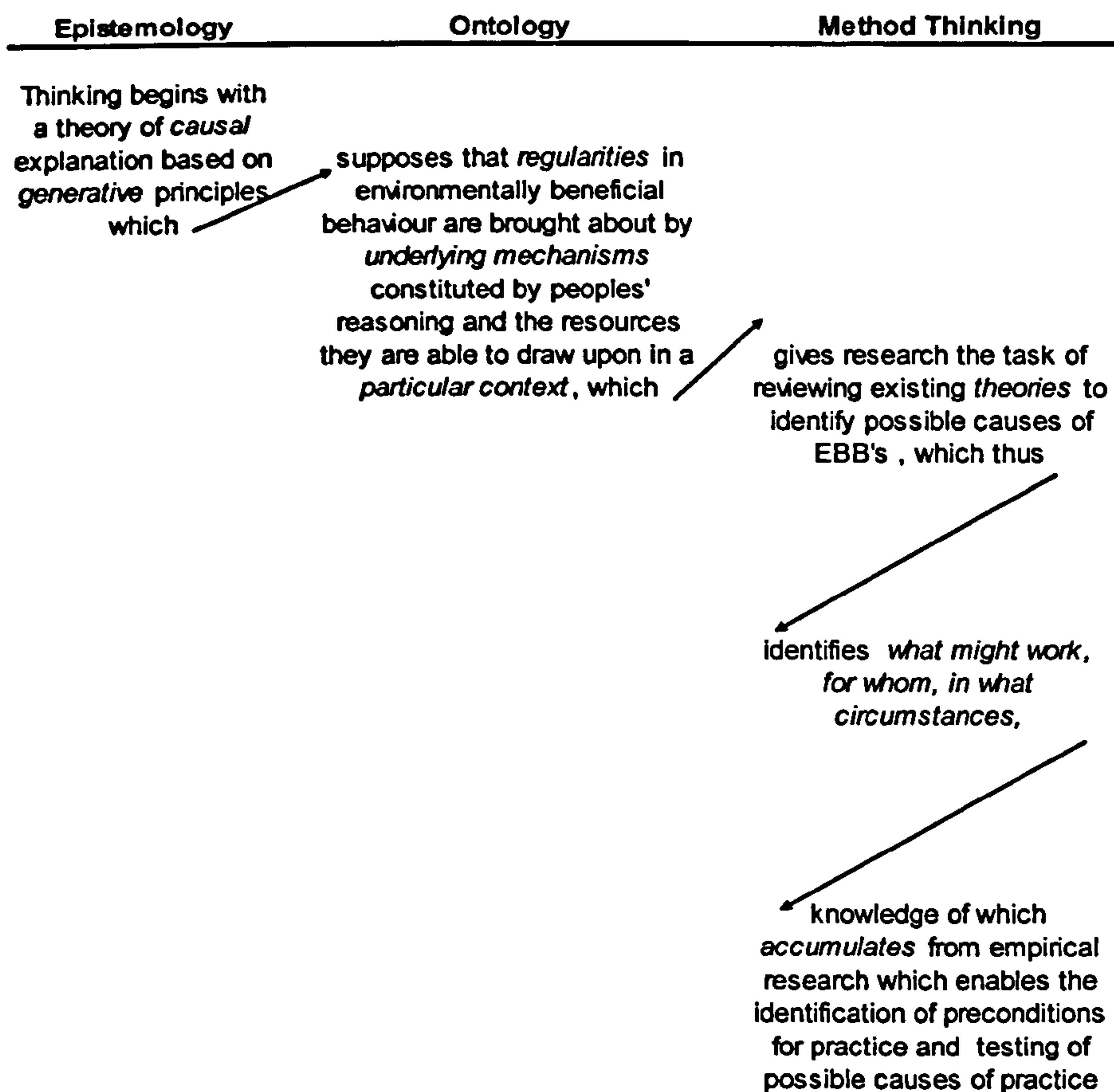
### ***3.2.5 Making appropriate generalizations***

Lastly, the aim of this research was not to make claims about the garden practices of interest that could be generalized to the wider population. As such it is acknowledged that the findings concerning who has initiated and sustained the garden practices of interest may be unique. Yet it is expected that the causal powers (or mechanisms) of people that are identified will be generalizable to other contexts (in that they are necessary features of people, not just the people who were involved in this research). In addition, in showing how garden practices are initiated and sustained in a strategically selected range of contexts (e.g. including a range of tenures, garden sizes and people at different 'times of life') it will be possible to make comparisons between contexts and produce cross-contextual generalities focussed on what it is that may make the context conducive or not to practice.



### 3.3 Summary

The methodological strategy that is used to answer research questions is summarised in Figure 3.3.1



**Figure 3.3.1** Methodological strategy  
(Adapted from Pawson and Tilley, 1997)

### 3.4 Closing summation

In chapter 1 it was suggested that explanation rather than description was needed for each sustainable garden practice in order to be able to identify the potential for behaviour change. Chapter 2 used a critique of the methodological approaches used in EBB research to put forward an alternative approach based on critical realism. In this chapter the relevant research questions were set out and the research strategy and methodology that was used to answer research questions is detailed. The use of a realist approach and methodology was an attempt to both respond to the methodological criticism of previous research and ensure that robust answers to research questions could be found. By using a multi-method approach, including both quantitative and qualitative methods, it sought to identify and explain behaviour in terms of the necessary conditions for the existence and the activation of the



mechanisms that generate EBB and in doing so take full account of the way conditions (context) mediate their effects. The task for Chapter 4 is to use new empirical research to provide reliable descriptions, identify patterns and associations for the garden practices of interest, and further explore how associations found might be explained.



## ***Chapter 4: Associations and Patterns in Garden Practices***

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### ***4.0 Introduction***

This chapter starts to explore answers to primary research question 1 “Why do some people take up the garden practices of interest while others do not?” Here a quantitative method is used to describe and identify reasons, patterns and associations for garden practices, this then enables gaps in knowledge for specific practices to be filled and preliminary ideas for ‘necessary conditions’ and causal mechanisms to be tested and developed.

### ***4.1 Questionnaire findings***

#### ***4.1.1 Extent and classification of garden practices***

The responses to question 6 “Which of these activities do you (and your family) do in your back garden?” are set out in **Table 4.1.1**. Here data is subdivided into domestic, gardening or leisure practices. With further subdivisions into primary, secondary and minor activities according to the number of householders engaged in each activity. It was found that only 2% of householders were not using their garden.

#### ***4.1.2 Changes in garden features***

In question 11 householders were asked about the features that were present in their garden when they first moved in and then about the features that were present at the time of the survey. It was then possible to determine which features were retained, removed or added, and from that which practices were initiated, sustained or abandoned.



Domestic	Gardening	Leisure
<b>Primary activities</b> (activities undertaken by over 50% of respondents)		
Outdoor drying	Looking after the garden	Sitting out/relaxing**
Storage	Growing flowers and shrubs	
Bins		
<b>Secondary activities</b> (activities undertaken by between 10 and 50% of respondents)		
	Growing from seed**	Watching wildlife**
	Growing fruit and veg**	Children's play**
	Composting**	Family play
		Cooking/eating**
<b>Minor activities</b> (activities undertaken by less than 10% of respondents)		
Car parking	Propagating	Socializing
		Reading
		Keeping pets

\*\* indicates activities that are undertaken by both householders and by family members.

**Table 4.1.1:** Categorisation and extent of garden practices

**Vegetable patch**

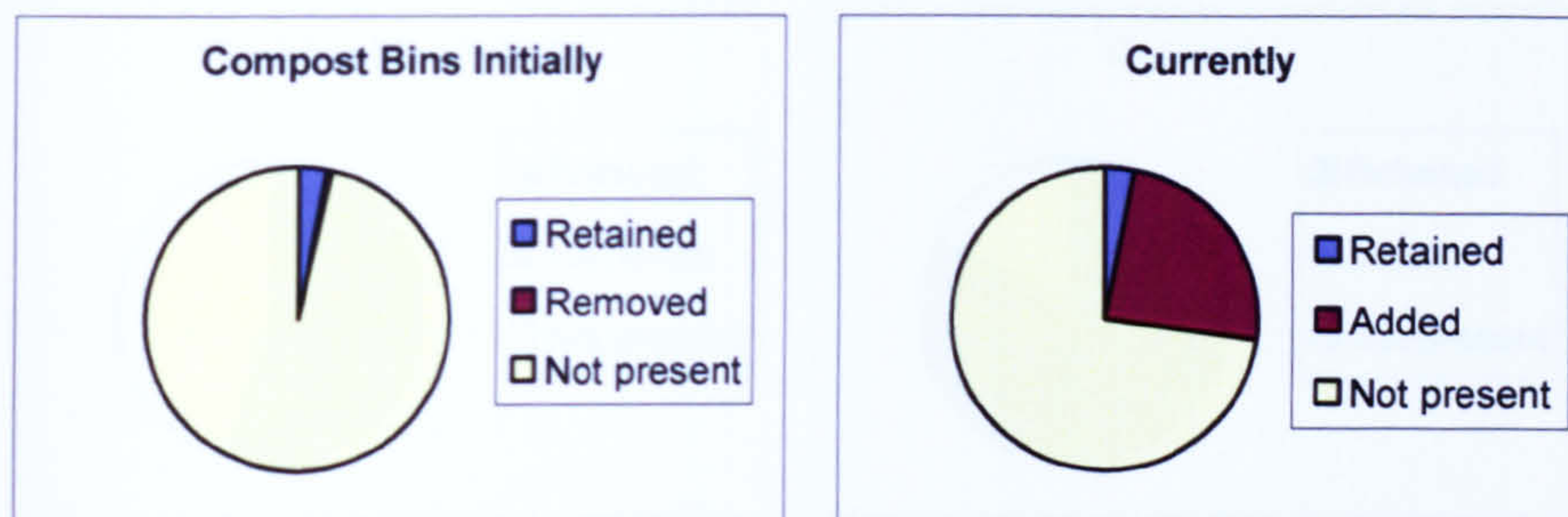
Out of 396 householders, initially 32 (8%) gardens had vegetable patches. Of these, 16 (50%) of householders retained vegetable patches and 16 (50%) of householders removed vegetable patches. In comparison 64 (16%) gardens had patches at the time of the survey and of these 16 (25%) were already present and 48 (75%) had been added by householders.



**Compost bins**

Out of 396 householders, initially 14 (4%) gardens had compost bins. Of these, 12 (86%) of householders retained compost bins and 2 (14%) removed compost bins. At the time of the survey 108 (27%) gardens had compost bins and of these 12 (11%) had retained their bins and 96 (89%) had added new bins.





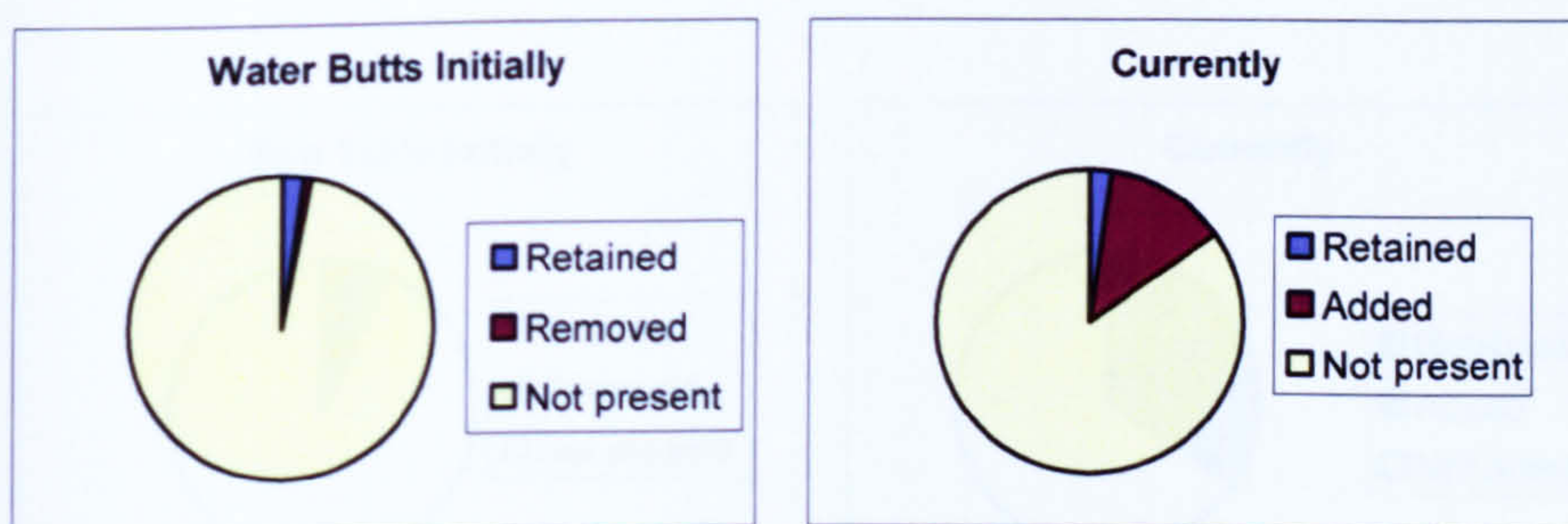
### Compost heaps

Out of 396 householders, initially 18 (5%) gardens had compost heaps. Of these, 13 (72%) of householders retained compost heaps whilst 5 (28%) of householders removed compost heaps. In contrast 59 (15%) of gardens had compost heaps at the time of the survey and of these 13 (22%) were retained whilst 46 (78%) had been added. Only 41 (10%) of composters were using both bins and compost heaps.



### Water butts

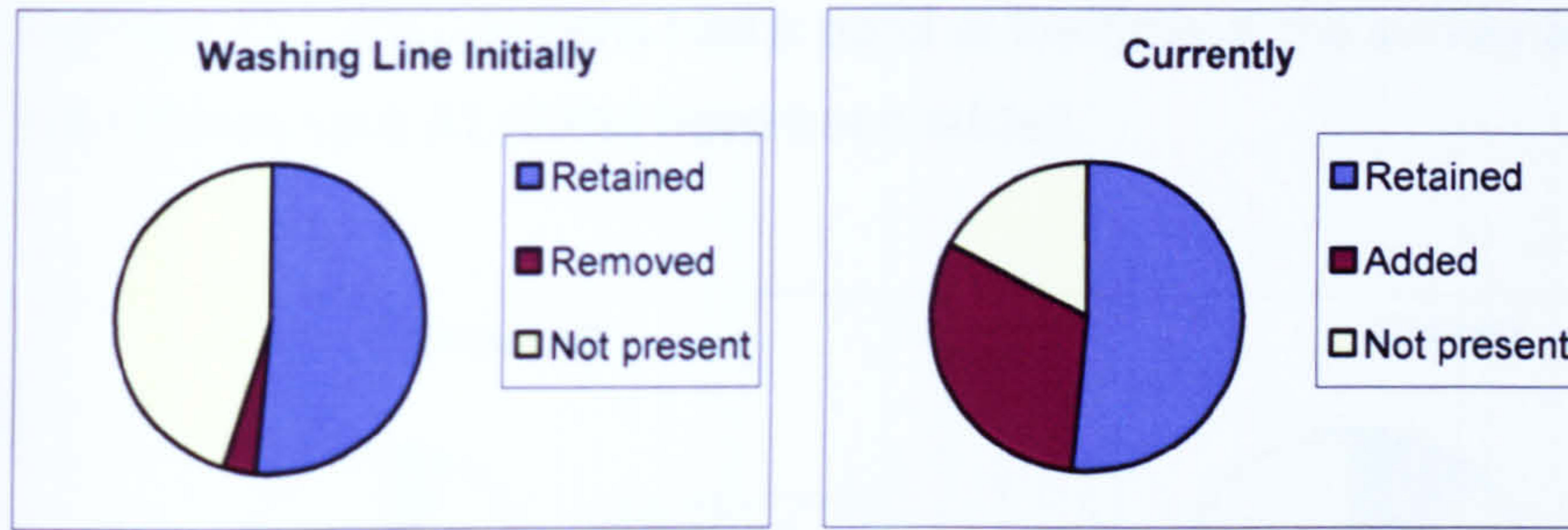
Out of 396 householders, initially 12 (3%) gardens had water butts. Of these, 9 (75%) of householders retained water butts whilst 3 (25%) of householders removed them. In contrast 61 (15%) gardens had water butts at the time of the survey and of these 9 (15%) were retained and 52 (85%) had been added.



### Washing lines

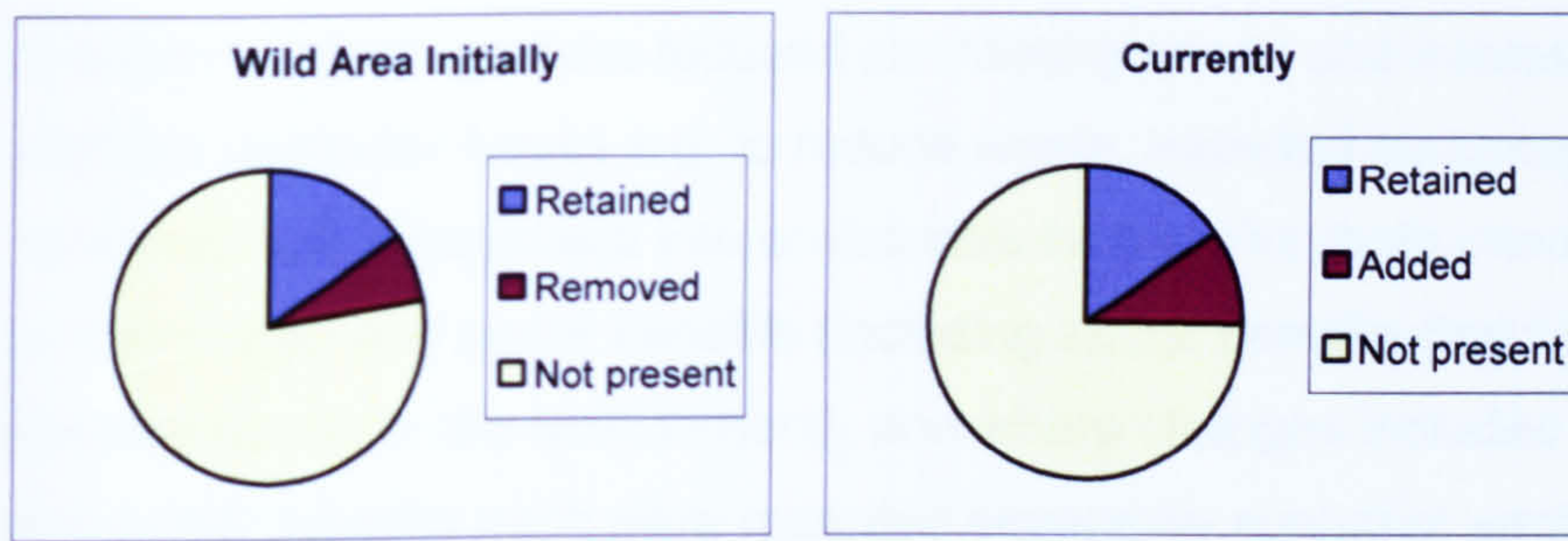
Out of 396 householders, initially 217 (55%) gardens had washing lines. Of these, 203 (94%) of householders retained washing lines whilst 14 (6%) of householders removed them. In contrast 328 (83%) gardens had washing lines at the time of the survey and of these 203 (62%) had been retained and 125 (38%) had been added.





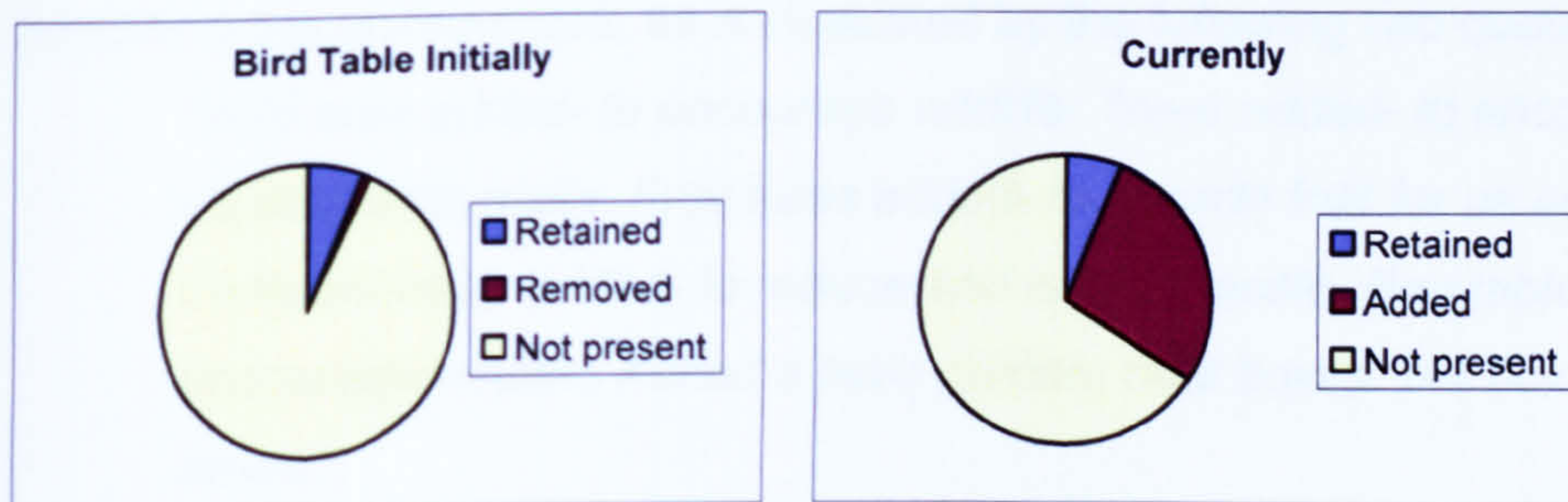
**Wild area**

Out of 396 householders, initially 89 (22%) gardens had a wild area. Of these, 60 (67%) of householders retained wild areas whilst 29 (33%) of householders removed them. In contrast 100 (25%) gardens had wild areas at the time of the survey and of these 60 (60%) are retained and 40 (40%) have been added.



**Bird table**

Out of 396 householders, initially 28 (7%) gardens had bird tables. Of these, 24 (86%) of householders retained bird tables whilst 4 (14%) of householders removed them. In contrast 135 (34%) gardens had bird tables at the time of the survey and of these 24 (18%) are retained and 111 (82%) have been added.

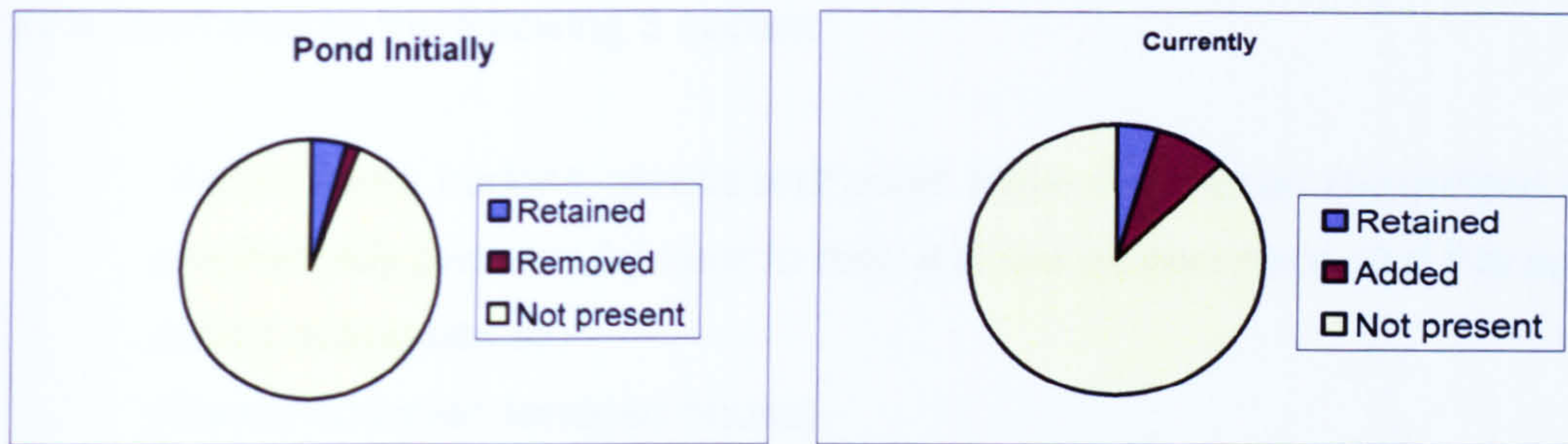


**Pond**

Out of 396 householders, initially 24 (6%) gardens had ponds. Of these, 18 (75%) of householders retained ponds whilst 6 (25%) of householders removed them. In



contrast 49 (12%) gardens had a pond at the time of the survey and of these 18 (37%) are retained and 31 (63%) have been added.



#### 4.1.3 Reasons for changes and outcomes

Of the 405 householders responding 147 (36%) gave a range of reasons for the changes made to gardens focused on meeting needs and interests and/or concerns to address particular issues e.g. to reduce waste. Intended outcomes (i.e. reasons) were assessed and categorised into environmental benefits (both intentional and unintentional) and social benefits (including social benefits that had negative consequences to the environment), and where changes included both environmental and social benefits each were recorded separately such that each category could total 147 (100%).

##### Intentional environmental benefits

In this category the outcome of the changes made to gardens were environmentally beneficial i.e. encouraging wildlife, reducing energy consumption, reducing waste. Of these 147 householders 79 (54%) made changes that were environmentally beneficial and of these, 37 (47%) of householders made changes with the stated intention of benefiting the environment, as is illustrated by the following two quotes:

*“Wild area added- to encourage wildlife. Trees added- to encourage wildlife/biodiversity. Fruit trees added- to provide fruit for us and wildlife. Compost heap added- to reduce and recycle waste. Bird table added- to encourage wildlife. Added a herb garden, nest boxes, bat box and insect boxes”.*

(Owner occupier, terraced house)

*“Compost bin- acquired from local council under special scheme to encourage composting. Bird table added- as a decorative feature and encourages birds into the garden. Washing line added- for outside airing of clothes, saves using indoor heating”.* (Owner occupier, terraced house)



### **Unintentional environmental benefits**

For 42 (29%) of householders changes made to gardens were environmentally beneficial but this was not always explicit in the reasons given for each change made, as is illustrated by the following 3 quotes:

*"Added trees, hedges, shrubs and pond. Have redesigned the garden so it is: aesthetically pleasing (at least to me); it is low maintenance and it is suitable for eating out/parties etc".*

(Owner occupier, terraced house)

*"Washing line- needed a washing line".*

(Private renter, semi-detached house)

*"Added wild area- converted an overgrown bed into a wildflower bed. Veg patch added- dug over an unused bed to plant- potatoes, carrots, cabbage, broccoli and rocket. Added cold frame- to grow tomatoes and seedlings. Compost heap added- for all garden waste. Bird table- Put in bird table because there are a lot of interesting birds here. Compost bin added- Got compost bin because interested in recycling".* (Private renter, terraced house)

### **Social benefits**

In this category the outcome of the changes made to gardens are identified as being socially beneficial e.g. add or enlarge: play areas; sitting out; and eating areas. Of 147 householders, 73 (50%) of householders made changes with the stated intention of benefiting the householder and/or family, as is illustrated by the following quote:

*"Lawn added- we made a lawn on the back garden for our children to play on (children now grown up and left home). Flower beds added- flower beds to make it look pretty. Patio added- small area to sit out on".* (Owner occupier, terraced house)

In addition 22 (30%) of householders made changes that had both social benefits and negative outcomes for the environment i.e. removal of trees, hedges, ponds, compost bins, vegetable patches and concreting of previously permeable surfaces, as is illustrated by the following 3 quotes:

*"Trees removed- too large (inappropriate planting) therefore removed. Fruit trees removed- to make way for extra garage. Greenhouse removed- to make*



*way for extra garage. Pond removed- filled in and gravelled for safety of children also trouble with herons”.*

(Owner occupier, detached house)

*“Lawn removed- and paved because I don't like gardening”.*

(Private renter, semi-detached)

*“Lawn removed. Flower beds removed. Veg patch removed- now just needs sweeping and keeping clean. Added patio set”.*

(Owner occupier, terraced house)

## **4.2 Associations and patterns**

### **4.2.1 Demographic/situational associations and garden practices (environmental)**

Due to the small sample size and low return rate from respondents living in publicly and privately rented homes, any findings for these groups should be treated with caution. For a summary of analysis for demographic/situational and garden practice variables please see **Table 4.2.1** and please see **Appendix 3** for details of statistical analysis.

#### **Tenure**

'Tenure' was found to be significantly associated with a range of garden practices including: 'growing fruit and veg'; 'composting'; 'collecting/reusing water'; 'growing from seed'; 'growing flowers and shrubs'; 'garden maintenance'; and 'frequency of gardening'. With householders 'growing fruit and veg', 'composting', 'growing plants from seed' and 'growing flowers and shrubs' increasing as tenure changed from 'private rented' through to 'public rented' to 'owner occupiers' respectively. In addition home owners were more likely to be collecting and reusing water (19%) compared to 2% of privately rented and no public renters. While 'public renters' were the largest group undertaking 'garden maintenance'. These findings are given further thought in the section on demographic associations.

#### **Housing type**

'Housing type' was found to be significantly associated with garden practices: 'growing fruit and veg'; 'collecting and reusing water'; 'growing from seed' and 'growing flowers'. Here the proportion of practitioners 'collecting and reusing water', 'growing from seed'



and 'growing flowers' increased as house type changed from 'terrace' to 'semi-detached' to 'detached' respectively, with nearly twice as many householders living in 'detached' houses 'growing fruit and veg' (45%) compared to those in 'semi-detached' (23%) and 'terraced' houses (24%).

Previous research has suggested that house type is simply a proxy for garden size. As such a possible explanation for these associations is that larger gardens provide more opportunities and increase the choices available to engage in a range of practices that might be more constrained or conflict with other uses in smaller gardens.

### **Garden history**

'Garden history' was significantly associated with the garden practices: 'composting' and 'growing flowers and shrubs'. As the frequency of having a garden before increases from 'never' to 'nearly always' to 'always' householders composting increased from 14% to 34% to 52%. A linear relationship was also found between frequency of having a garden before and 'growing flowers and shrubs' with householders practicing increasing from 'never had a garden before' (57%) through to 'nearly always' (67%) to 'always had a garden' (84%) respectively. As such it is possible that 'composting' and 'growing flowers and shrubs' have something to do with familiarity with gardens (i.e. 'access to' and 'experience of' a garden).

### **Household type**

'Household type' was not significantly associated with any of the garden practices of interest.

### **Economic activity**

'Economic activity' was highly significantly associated with garden practice: 'frequency of gardening'. With householders who were 'economically inactive' being the largest group of 'daily' gardeners (29%) and 'those householders working part-time' being the largest group of 'weekly' gardeners (54%), and householders in 'full-time' work being the largest group of 'monthly' gardeners (50%). Here one possible explanation is that those who are not in paid work have fewer constraints on their time and more opportunity to garden, compared to those in part- or full-time work.

### **Age**

There was a highly significant association between householder's 'age' and garden practices 'growing flowers/shrubs' and 'frequency of gardening'. With householders 'growing flowers' increasing from age group '18-24' (57%) up to age group '55-64'



(86%), and householder's daily use of the garden for gardening increasing (0% to 25%), with increasing age, with the exception of '35-44' age group. In addition householders over 65 years old were most likely to be collecting and reusing water closely followed by householders aged '35-54', while householders under 35 years of age were much less likely to be collecting and reusing water (5%)

Gardening interest and extent of activity is often associated with older people, and a gradual change from outside interests (e.g. going to clubs and pubs) to more home based interests and a reduction in other responsibilities (e.g. caring for young children). But as a possible explanation, this seems too prescriptive and would not account for those people who develop an interest in gardening at a young age or those who never do so.

### **Young children**

'Householder's with young children' was not significantly associated with any of the garden practices of interest.

### **Garden size**

There was a highly significant association between 'Garden size' and garden practices: 'growing fruit and veg', 'composting' and 'growing from seed'. As 'garden size increased (e.g. from garden size category 'up to 50 sqms' to '200 sqms +') the percentage of householders: 'growing fruit and veg' increased from 20% to 38%; and those 'composting' increased from 28% to 59%. With householders 'composting' and 'growing fruit and veg' out numbering those not undertaking practices in all garden size categories, apart from gardens in the '0-50 sqms category.

'Garden size' was also a highly significant descriptor of gardening practice: 'growing from seed', and as garden size increased from the smallest to the largest size category percentage of householders 'growing plants from seed' increased from 36% to 62%. However, it is not clear to what extent these associations are related to the size of garden or to the interests of the people who have larger gardens.

### ***4.2.2 Association between demographics***

In the light of the findings of associations between tenure and all but one of the garden practices of interest, further analysis was undertaken to identify whether associations could be found between demographic variables that might differentiate public and private renters from owner occupiers.



### **Had a garden before**

There was a significant association between 'tenure' and whether householders have 'had a garden before'. With owner occupiers being over twice as likely to have 'always' had a garden before (56%), compared to 26% of public renters. In addition public renters were nearly twice as likely (37%), compared to owner occupiers (20%), to have 'never' had a garden before.

### **Length of residence**

There was a highly significant association between 'tenure' and 'length of residence'. However this was mostly due to the very short length of residence for private renters e.g. 48% in residence for less than one year compared to 5% of public renters and 2% of owner occupiers, rather than differences between public renters and owner occupiers e.g. 60% of public renters and 56% of owner occupiers have lived in their current home for over 10 years.

### **Age of respondent**

There was a highly significant association between 'tenure' and 'age of respondent'. With over half (62%) of public renters being in the '55+' age category compared to 38% of owner occupiers and 10% of private renters. In contrast 78% of private renters are under the age of 34, compared to 3% of owner occupiers and no public renters.

### **Children under 9**

There was no significant association between 'tenure' and whether households have young children or not.

### **Single vs multi-person households**

There was no significant association between 'tenure' and whether households are single or multi-person.

### **Garden size**

There was a highly significant association between 'tenure' and 'garden size'. Private renters were the most likely to have gardens of 50 square metres or less (83%) followed by public renters (66%), with owner occupiers being least likely (50%). In addition owner occupiers were the most likely to have gardens over 100 square metres (23%) compared to 9% of public renters and 7% of private renters.



	Tenure	House type	Garden history	Household type	Single vs. multi HH	Economic activity	Age	Children under 9	Garden size
Growing fruit and veg	✓✓✓	✓✓	✗	✗	✗	✗	✗	✗	✓✓
Composting	✓✓✓	✗	✓	✗	✗	✗	✗	✗	✓✓
Collecting/reuse water	✓✓✓	✓✓	✗	✗	✗	-	✓	✗	-
Drying clothes	✗	✗	✗	-	✗	-	✗	-	✗
Growing from seed	✓	✓	✗	✗	✗	✗	✗	✗	✓✓
Growing flowers	✓✓✓	✓	✓	✗	✗	✗	✓✓✓	✗	✗
Looking after garden	✓✓✓	✗	✗	✗	✗	✗	✗	✗	✗
Freq of gardening	✓✓	✗	✗	-	✗	✓✓✓	✓✓✓	✗	✗

Table 4.2.1 Summary of Demographic/Situational Associations and Garden Practices

	Grow fruit/veg	Compost	Collect water	Outdoor drying	Grow from seed	Grow flowers	Look after garden	Freq gardening
Growing fruit and veg								
Composting	✓✓✓ **							
Collecting/reuse water	-	-						
Drying clothes	✓✓	✓✓	-					
Growing from seed	✓✓✓	✓✓✓ **	-	✗				
Growing flowers	✓✓✓	✓✓✓	-	✓	✓✓✓			
Looking after garden	✓✓✓	✓✓✓	-	✗	✓✓✓	✓✓✓		
Freq of gardening	✓✓✓	✓✓✓	-	✗	✓✓✓	✓✓✓	✓✓✓	

Table 4.2.3 Summary of Associations between Garden Practices

- ✓✓✓ = significant at + 99% confidence level (p≤.001)
- ✓✓ = significant at 99% confidence level (p ≤ .01)
- ✓ = significant at 95% confidence level (p < .05)
- ✗ = not significant
- \*\* = control for garden size relationship remains at 95% confidence level
- \* = control for garden size relationship disappears
- = assumptions for chi-squared test not met



### **Economic activity**

There was a highly significant association between 'tenure' and 'economic activity'. With public renters being most likely to be economically inactive (74%) (this category includes pensioners, people looking after children and those in receipt of benefit), compared to 33% of owner occupiers and 38% of private renters. In contrast private renters were most likely to be in full-time work (45%), compared to 45% of owner occupiers and 14% of public renters.

There were clearly differences in both age and extent of economic activity between those living in public rented housing and those living in owner-occupied housing. Yet such differences could be used to explain associations between type of tenure and garden practices rather than lack of association, in that those living in public rented housing were more likely to be older and economically inactive, and possibly have the time and inclination to initiate the garden practices of interest. However significant associations were found between type of tenure and the extent to which the householder had had a garden before and garden size. Consequently a possible explanation for lack of garden practices could be that those living in public rented homes are much less familiar and experienced in gardens and gardening and/or that small size of garden was felt to preclude more extensive practices.

### **4.2.3 Associations between garden practices (environmental)**

For a summary of analysis of associations between garden practices please see **Table 4.2.3** and please see **Appendix 3** for details of statistical analysis using the chi-squared test.

#### **Growing fruit and vegetables**

There was a highly significant association between the practice growing fruit and vegetables and garden practices: 'composting'; 'outdoor drying'; 'growing from seed', 'growing flowers'; 'garden maintenance'; and 'frequency of gardening'. Based on the odds ratio householders were: 6.2 times more likely to be composting; 4.8 times more likely to be 'outdoor drying'; 8 times more likely to be 'growing plants from seed'; and 4.7 times more likely to be undertaking 'garden maintenance' if growing fruit and vegetables than if not. Additionally, as frequency of gardening increased from 'never' to 'daily', the number of householders growing fruit and vegetables increased from 7% to 44%.



Here, it is possible that gardening interest and extent of activity underlie this practice, and provides a reason that ties these garden practices together, although this would not apply to outdoor drying.

### **Home composting**

There was a highly significant association between the practice of home composting and garden practices: 'growing fruit and veg'; 'outdoor drying'; 'growing from seed'; 'growing flowers'; 'garden maintenance' and 'frequency of gardening'. Based on the odds ratio householders were: 6.2 times more likely to be growing fruit and veg; 4 times more likely to be 'outdoor drying'; 8 times more likely to be 'growing from seed'; 1.9 times more likely to be growing flowers; and 12 times more likely to be undertaking 'garden maintenance' if they were home composting than if not. In addition as frequency of gardening increased from 'never' to 'twice a week' numbers of householders composting rose from 4% to 65%. However householders who were gardening on a daily basis were least likely to be composting, compared to those who were gardening once or twice a week.

Again, this is a practice that may also be explained by an underlying interest in gardening. In that maybe if you are 'into' gardening then you have a reason to, and use for, home compost.

### **Collecting and reusing water**

Unfortunately due to the small numbers of householders collecting and reusing water the assumptions of the chi-squared test were not met for the majority of tests run for this practice.

### **Outdoor drying**

A highly significant association was found between the practice of 'outdoor drying' and 'composting', and a significant association was found with 'growing flowers'. Based on the odds ratio householders were 4 times more likely be 'composting', 4.8 times more likely be growing fruit and vegetables and 2 times more likely to be 'growing flowers' if outdoor drying than if not. However whilst a pattern of associations was found, further qualitative research is required to explain such associations.



#### 4.2.4 Associations between environmental and social garden practices

For a summary of associations between social and environmental garden practices please see **Table 4.2.4** and for more detailed information on data analysis see **Appendix 4**.

##### Growing from seed

A highly significant association was found between the practice 'growing from seed' and social garden practices: 'sitting out/relaxing'; 'frequency of sitting out/relaxing'; 'watching wildlife'; and 'children's play'. Additionally a significant association was found with 'cooking/eating' in the garden. Based on the odds ratio householders were 3.1 times more likely to be using their garden for 'sitting out/relaxing', 4.9 times more likely to be 'watching wildlife', 2.3 times more likely to be using their garden for play, and 1.83 times more likely to be using their garden for cooking and eating outside if growing plants from seed than if not.

	Garden size	Growing fruit & veg	Composting	Collect/reuse water	Outdoor Drying
Sitting out/relaxing	✓	✓✓✓	✓✓✓	✗	✗
Freq sit/relax	✗	✗	✗	✗	-
Watching wildlife	✓✓✓	✓✓✓	✓✓✓	✓✓✓	✗
Childrens play	✗	✗	✓	✗	✗
Family Play	✓	✗	✓✓	✗	✓
Freq play	✗	-	-	✗	-
Cook/Eat outside	✗	✓✓✓	✓✓✓	✗	✗

**Table 4.2.4** Summary of Associations Environmental and Social Garden Practices

- ✓✓✓ = significant at + 99% confidence level ( $p \leq .001$ )
- ✓✓ = significant at 99% confidence level ( $p \leq .01$ )
- ✓ = significant at 95% confidence level ( $p < .05$ )
- x = no significant association
- = assumptions for chi-squared test not met

From these findings it may be that this practice also relates to people enjoying being in the garden, rather than only an interest in all things gardening.

##### Growing flowers and shrubs

A highly significant association was found between 'growing flowers and shrubs' and social garden practices: 'sitting out/relaxing'; 'watching wildlife'; 'children's play'; and 'cooking/eating' outside. Additionally a significant association was found with 'frequency of sitting out/relaxing'. Based on the odds ratio householders were 6.14 times more likely to be using their garden for 'sitting out/relaxing', 5.97 times as likely to be 'watching wildlife', 3.36 times as likely to be using their garden for 'children's play',



2.48 times more likely to be using their garden for 'cooking and eating' outside if they are growing flowers and shrubs than if not.

### **Growing fruit and vegetables**

There is a highly significant association between 'growing fruit and vegetables' and social garden practices: 'sitting out/relaxing'; 'watching wildlife'; and 'cooking/eating' outside. Based on the odds ratio householders were 5 times more likely to be using their garden for 'sitting out/relaxing', 3.35 times as likely to be 'watching wildlife' and 2.42 times more likely to be using their garden for 'cooking and eating outside' if they are 'growing fruit and vegetables' than if not.

Here it may be possible that the practice of growing fruit and vegetables is also related to many other leisure uses of the garden.

### **Garden maintenance**

There is a highly significant association between 'garden maintenance' and social garden practices: 'sitting out/relaxing'; 'watching wildlife'; 'children's play'; 'family play'; and 'cooking/eating' outside. Based on the odds ratio householders were 10.54 times more likely to be using their garden for 'sitting out/relaxing', 4.88 times more likely to be 'watching wildlife', 2.85 times more likely to be using their garden for 'children's play', 6.03 times more likely to be using their garden for 'adult/family play', and 4.28 times more likely to be using their garden for 'cooking and eating' outside if they are undertaking garden maintenance than if not.

### **Composting**

There is a highly significant association between 'composting' and social garden practices: 'sitting out/relaxing', 'watching wildlife', 'family play' and 'cooking/eating' outside. Based on the odds ratio householders were 3.85 times more likely to be using their garden for 'sitting out/relaxing', 3.74 times as likely to be 'watching wildlife', 2.12 times more likely to be using their garden for 'adult/family play', and 2.41 times more likely to be using their garden for 'cooking and eating' outside if they are composting than if not. Again, it may be possible that environmental garden practices such as composting also go-with more leisure or social uses of the garden, as 'doing' in the garden does not appear to preclude 'being' in the garden.

### **Collecting and reusing Water**

There is a highly significant association between 'collecting/reusing water' and leisure 'watching wildlife'. According to the odds ratio householders are 2.6 times more likely to



be watching wildlife if collecting/reusing water than if not. However, it is not clear what can be inferred from this.

### **Drying clothes**

A significant association was found between 'drying clothes' and the social garden practice 'family play'. Based on the odds ratio householders are 2.38 times more likely to be using their garden for family play if they are line drying than if not. But again, it is not clear what can be inferred by this, other than the possibility that 'family play' is a proxy for larger households or households with children.

### **Frequency of gardening**

A highly significant association was found between 'frequency of gardening' and social garden practices: 'sitting out/relaxing', 'frequency of sitting out/relaxing', 'watching wildlife', 'frequency of play' and 'cooking/eating' outside. As frequency of gardening increases from 'monthly' through 'weekly' to 'daily' respectively 'frequency of sitting out/relaxing' increases (38% -58%) and as 'frequency of gardening increases so do the number of households 'watching wildlife'.

## **4.3 Satisfaction with garden size**

### **4.3.1 Reasons for satisfaction or not**

Out of 404 householders responding to this question, 194 gave a range of reasons for the extent to which they were satisfied or not with the size of their garden, which are illustrated below.

#### **Very satisfied**

Of the 68 householders who gave reasons for their response to the question concerning satisfaction with garden size, 18 householders explained why they were 'very satisfied' with the size of their garden. For the majority satisfaction was based on their gardens meeting needs i.e. for play or for gardening, whilst at the same time being of a size which is easy to maintain, as is illustrated by the following quote:

*"Neither of us are keen gardeners but enjoy its benefits. Ours is easily maintained, small, but large enough for us and family and friends to put out deckchairs and enjoy a cuppa or a G&T. Great view towards Bradfield".*  
(Owner occupiers, garden size 45 sqms)



For a number of householders satisfaction was also based on their garden being able to accommodate different uses over time, as this response illustrates:

*"It is a flat garden, has been great when kids were younger- very safe, no access to front and road. Grass-used for football and cricket over the years. Good for playing. Now they are older starting to reclaim flower beds and start to replant them. A good size, very private with high hedges".*

(Owner occupiers, semi-detached, garden size 171 sqms)

In addition to the householder quoted above, one other householder stated that satisfaction related to his garden being *"private and peaceful"*.

### **Satisfied**

Similar reasons were given by the 17 householders who were 'satisfied' with the size of their garden, in terms of their garden meeting needs and being manageable:

*"My garden is the right size for our lifestyle. We are very busy and it is manageable and gives us a lot of satisfaction and relaxation. If we were not so busy I should like more space for vegetables and chickens".*

(Owner occupier, semi-detached, garden size 160 sqms)

Also in terms of their gardens being able to accommodate different uses over time:

*"Our back garden was big enough when our children were small for them to play out, and now it's not too big that I can't manage it".*

(Owner occupiers, terraced, garden size 56 sqms)

### **Unsatisfied**

For the 18 householders who were 'unsatisfied' with the size of their garden, in the main this was because of inability to meet the space felt to be required for a range of activities including play:

*"I have a family of young children and would like a flatter and larger garden with a lawned area. This is not possible due to the amount of terracing and work/cost involved. Garden is too noisy as near a main road, with constant noise of traffic".*

(Owner occupier, semi-detached, garden size 46 sqms)

Or vegetable growing, planting trees and composting, as is illustrated in this quote:

*"Would like it to be bigger, with more room for veg and composter etc"*

(Owner occupier, semi-detached, age 25-34, garden size 32sqm).



For a few householders garden size was felt to constrain existing practice:

*"I really enjoy being outside and have, over the years, discovered the joys of gardening. I grew my own vegetables and plants from seed for the first time this year. I want more space as I'd love to have different 'zones' and be able to enjoy experimenting".*

(Owner occupier, terraced, garden size 30 sqms)

In addition, nearly a third of householders cited lack of privacy, overlooking and noise as reasons for dissatisfaction, as is illustrated in this quote:

*"Grew up with a large outdoor space. Think that I would spend more time in my garden if I HAD MORE PRIVACY AND WAS LESS OVERLOOKED. But I suppose that's the disadvantage of city living".*

(Owner occupier, terraced, garden size 59 sqms)

## **4.4 Benefits of having a garden to use**

### **4.4.1 Extent of benefits of having a garden to use**

The core benefits of having a garden are set out in **Table 4.4.1**. Here data is subdivided into extrinsic (i.e. valued as a means to an end e.g. growing fruit and vegetables for the final produce alone) and intrinsic benefits (i.e. inherent in garden practice and valued for themselves rather than as a means to an end), with further subdivisions into primary and secondary benefits according to levels of popularity. While for 7% of householders no benefit was felt in having a garden to use.

### **4.4.2 Demographic/situational associations and benefits of garden practices (environmental).**

For a summary of associations between demographic, social and environmental garden practices and benefit variables please see **Table 4.4.2** and please see **Appendix 5** for detailed statistical analysis using the chi-squared test.

#### **Tenure**

A highly significant association was found between type of 'tenure' and garden benefits: 'provides interest' and 'fresh fruit/vegetables', and not surprisingly as owner occupiers are most likely to be growing fruit and vegetables they are also most likely to cite these benefits. Tenure was also significantly associated with garden benefit 'safe



play'. Here public renters were most likely to cite this benefit (35%), followed by owner occupiers (33%), while private renters were least likely (16%).

	<b>Extrinsic benefit</b>	<b>Intrinsic benefit</b>
<b>Primary</b> (over 50% of respondents)	'Extra space'	'Fresh air' 'Cheers me up' 'Helps me unwind' 'Gets me outdoors' 'Provides interest/stimulation' 'Provides exercise' 'Provides contact with nature'
<b>Secondary</b> (between 10% and 50%)	'Provides safe play space' 'Provides fresh fruit' 'Provides fresh veg'	'Peace and quiet' 'Encourages me to care for things' 'Opportunities to try new things' 'Opportunities to learn new things'

**Table 4.4.1** Extent and categorisation of benefits of having a garden

### **House type**

A highly significant association was found between 'house type' and garden benefits: 'provides exercise'; 'provides interest'; and 'safe play'. With the percentage of householders citing all three benefits increasing as house type moved from terraced to semi-detached to detached respectively. This may possibly be explained by 'house type' providing a proxy measure of garden size, with larger gardens providing more opportunities for exercise and safe play as well as creating interest.

### **Garden history**

A highly significant association was found between 'garden history' and garden benefit 'fresh fruit/vegetables', with most householders citing this benefit (34%) only 'sometimes' having a garden before compared to 20% of householders who have 'always' had a garden before.

'Garden history' was also found to be significantly associated with benefits: 'gets me outdoors' and 'provides interest'. Whilst the relationship was not clear for benefit: 'gets me outdoors', for benefit 'provides interest' householders who have 'always had a garden' are most likely to cite this benefit (60%). With householders citing these benefits nearly doubling from those who have 'never had a garden' to those who have either 'sometimes' or 'nearly always' had a garden (32% to 52%). Here one possible



explanation is that householders may have chosen to have a garden because they like being outdoors and have an interest in gardens.

### **Household type**

A highly significant association was found between 'household type' and garden benefits: 'peace and quiet'; 'safe play'; and 'fresh air', and a significant association was found with garden benefits 'gets me outdoors' and 'contact with nature'. With families with children being most likely to cite benefits: 'peace and quiet' (63%), 'safe play' (70%) and 'fresh air'. Pensioner families were most likely to cite the benefit: 'gets me outdoors' (75%), and second most likely to cite the benefit 'safe play' (35%). In addition single pensioners were the least likely to cite the benefits: 'contact with nature' (38%), 'peace and quiet' (25%) and 'fresh air' (53%). Here one possibility is that household type is acting as a proxy for "time of life" with different benefits being associated with different "times of life".

### **Single versus multi-person households**

A highly significant association was found between whether households are single or multi-occupied and garden benefits: 'fresh air'; 'peace and quiet'; and 'safe play', and a significant association was found with the garden benefit: 'contact with nature'. Based on the odds ratio householders were 2.32 times more likely to cite 'fresh air' as a benefit, 2.26 times more likely to cite 'peace and quiet' as a benefit, 4.45 times more likely to cite 'safe play' as a benefit if in a multi-person household than if not. In addition 56% in multi-person households cited the benefit 'contact with nature' compared with 43% from single households.

### **Economic activity**

A highly significant association was found between 'economic activity' and the garden benefits: 'provides exercise' and 'safe play' and a significant association was found with the benefit: 'care for things'. Here retired people were most likely to cite the benefit 'provides exercise' (69%) followed by the self-employed (65%), whilst those employed part-time were least likely (45%) to cite this benefit. Whereas householders who were employed part-time were most likely to cite the benefit 'safe play' (64%). But those who were self-employed were least likely to cite this benefit (26%), suggesting the possibility that 'economic activity' is again providing a proxy measure for "time of life" and whether or not householders have children. In addition householders who are self-employed were most likely to cite the benefit 'care for things' (52%), with those who were employed fulltime being least likely (26%) to cite this benefit, although why this should be so is not known.



### **Age**

A highly significant association was found between 'age' of householder and garden benefit: 'provides exercise', and significant associations were found with the benefits: 'peace and quiet' and 'safe play'. The benefit 'provides exercise' peaks at age group 55-64 (33% to 70%), whilst the benefit 'peace and quiet' and 'safe play' peaks at age group 45-54. This suggests the possibility that 'age' is again providing a proxy for 'time of life' and whether or not householders have children.

### **Young children**

A highly significant association was found between whether households had young children and garden benefits: 'provides exercise' and 'safe play'. Based on the odds ratio householders were .5 times more likely to cite 'provides exercise' as a benefit and 18.6 times more likely to cite 'safe play' as a benefit if they had younger children than if not.

### **Garden size**

A significant association was found between 'garden size' and the garden benefits 'fresh fruit/vegetables' and 'provides exercise'. With householders citing the benefit 'fresh fruit/vegetables' increasing from garden size category '0-50 sqms (18%) to '101-150 sqms (35%), and householders with gardens in the '202 sqms+' category (41%) being most likely to cite this benefit. However the relationship for the 'provides exercise' benefit is unclear. One possible explanation is that larger gardens provide more opportunities to initiate practices that are perceived as requiring more space and, in that there is more to maintain, create more opportunities for exercise.

### **4.4.3 Associations for garden practices and benefits**

For a summary of associations between social and environmental garden practices and benefit variables please see Table 4.4.3 and please see Appendix 5 for detailed statistical analysis using the chi-squared test.

### **Growing from seed**

A highly significant association was found between the practice 'growing from seed' and garden benefits: 'fresh fruit/vegetables'; 'cheers me up'; 'helps me unwind'; 'gets me outdoors'; 'provides exercise'; 'provides interest'; 'contact with nature'; 'peace and quiet'; and 'care for things' and a significant predictor of benefit 'fresh air'. Based on the odds ratio householders are 5.2 times more likely to cite the benefit 'fresh fruit/vegetables', 4.86 times more likely to cite the benefit 'cheers me up and 'helps me



unwind', 4.04 times more likely to cite the benefit 'gets me outdoors', 7.25 times more likely to cite the benefit 'provides exercise', 5.07 times more likely to cite the benefit 'provides interest, 4.05 times more likely to cite the benefit 'contact with nature', 2.58 times more likely to cite the benefit 'peace and quiet' , 2.44 times more likely to cite the benefit 'care for things' and 1.98 times more likely to cite the benefit 'fresh air' if practicing growing from seed than if not.

### **Growing flowers and shrubs**

A highly significant association was found between the practice 'growing flowers and shrubs' and garden benefits: 'fresh air'; 'cheers me up'; 'helps me unwind'; 'gets me outdoors'; 'provides exercise'; 'provides interest'; 'contact with nature'; 'peace and quiet'; and 'care for things'. Based on the odds ratio householders are 7.68 times more likely to cite the benefit 'fresh air', 2.95 times more likely to cite the benefit 'cheers me up and 'helps me unwind', 3.59 times more likely to cite the benefit 'gets me outdoors', 5.62 times more likely to cite the benefit 'provides exercise', 5.25 times more likely to cite the benefit 'provides interest, 3.37 times more likely to cite the benefit 'contact with nature', 3.29 times more likely to cite the benefit 'peace and quiet' and 3.07 times more likely to cite the benefit 'care for things' if practicing growing flowers and shrubs than if not. In addition practice 'growing flowers and shrubs' is significantly associated with the benefit: 'fresh fruit/vegetable. Based on the odds ratio householders are twice as likely to cite the benefit 'fresh fresh fruit/vegetables' if practicing growing flowers and shrubs than if not.

### **Growing fruit and veg**

A highly significant association was found between the practice 'growing fruit and veg' and the garden benefits: 'fresh fruit/vegetables'; 'gets me outdoors'; 'provides exercise'; 'provides interest'; and 'contact with nature', and significantly associated with the benefits: 'cheers me up'; 'helps me unwind'; and 'care for things'. Based on the odds ratio householders are 4.6 times more likely to cite the benefit 'fresh fruit/vegetables', 1.86 times more likely to cite the benefit 'cheers me up and 'helps me unwind', 2.28 times more likely to cite the benefit 'gets me outdoors', 2.55 times more likely to cite the benefit 'provides exercise', 2.27 times more likely to cite the benefit 'provides interest, 2.84 times more likely to cite the benefit 'contact with nature', 1.75 times more likely to cite the benefit 'care for things' if practicing growing fruit and veg than if not.

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### **Composting**

A highly significant association was found between the practice 'composting' and the garden benefits: 'fresh fruit/vegetables'; 'cheers me up'; 'helps me unwind'; 'provides exercise'; 'provides interest'; 'contact with nature'; and 'care for things', and a significant association with the benefit 'gets me outdoors'. Based on the odds ratio householders are 5 times more likely to cite the benefit 'fresh fruit/vegetables', 2.9 times more likely to cite the benefit 'cheers me up and 'helps me unwind', 3.64 times more likely to cite the benefit 'provides exercise', 3.7 times more likely to cite the benefit 'provides interest, 2.49 times more likely to cite the benefit 'contact with nature', 2.09 times more likely to cite the benefit 'care for things' and 1.68 times more likely to cite the benefit 'gets me outdoors' if practicing composting than if not

### **Outdoor drying**

A significant association was found between the practice 'outdoor drying' and the garden benefit 'provides exercise' and 'safe play'. Based on the odds ratio householders are twice as likely to cite the benefit 'provides exercise' and 4.5 times more likely to cite the benefit 'safe play', if practicing outdoor drying than if not.

### **Garden maintenance**

A highly significant association was found between the practice 'garden maintenance' and the garden benefits: 'cheers me up'; 'helps me unwind'; 'gets me outdoors'; 'provides exercise'; 'provides interest'; 'contact with nature'; 'peace and quiet' ; and 'care for things', and a significant association was found with the benefit 'fresh air'. Based on the odds ratio householders are 3.05 times more likely to cite the benefit 'cheers me up and 'helps me unwind', 2.38 times more likely to cite the benefit 'gets me outdoors', 4.04 times more likely to cite the benefit 'provides exercise', 3.35 times more likely to cite the benefit 'provides interest, 3.17 times more likely to cite the benefit 'contact with nature', 2.87 times more likely to cite the benefit 'peace and quiet' , 1.95 times more likely to cite the benefit 'care for things' and 1.75 times more likely to cite the benefit 'fresh air' if practicing garden maintenance than if not.

### **Frequency of gardening**

A highly significant association was found between the practice 'frequency of gardening' and garden benefits: 'fresh fruit/vegetables'; 'cheers me up'; 'helps me unwind'; 'gets me outdoors'; 'provides exercise'; 'provides interest'; 'contact with nature'; 'peace and quiet'; and 'care for things', and a significant association with the benefit: 'fresh air'. As frequency of gardening increased householders citing the benefits: 'fresh fruit/vegetables', 'cheers me up', 'helps me unwind', 'gets me outdoors',



'provides exercise', 'provides interest', 'contact with nature', 'peace and quiet', 'care for things' and 'fresh air' increased.

### **Sitting out/relaxing**

A highly significant association was found between the practice 'sitting out and relaxing' and garden benefits: 'fresh air'; 'cheers me up'; 'helps me unwind'; 'gets me outdoors'; 'provides exercise'; 'provides interest'; 'contact with nature'; and 'peace and quiet'.

Based on the odds ratio householders are 2.9 times more likely to cite the benefit 'fresh air', 2.96 times more likely to cite the benefit 'cheers me up and 'helps me unwind', 2.45 times more likely to cite the benefit 'gets me outdoors', 1.97 times more likely to cite the benefit 'provides exercise', 2.31 times more likely to cite the benefit 'provides interest, 1.85 times more likely to cite the benefit 'contact with nature' and 2.28 times more likely to cite the benefit 'peace and quiet' if practicing sitting out/relaxing than if not.

### **Watching wildlife**

A highly significant association was found between the practice 'watching wildlife' and the garden benefits: 'cheers me up'; 'helps me unwind'; 'gets me outdoors'; 'provides exercise'; 'provides interest'; 'contact with nature'; 'peace and quiet'; and 'care for things', and a significant association was found with the benefit 'fresh air'. Based on the odds ratio householders are 3.45 times more likely to cite the benefit 'cheers me up and 'helps me unwind', 2.48 times more likely to cite the benefit 'gets me outdoors', 4.02 times more likely to cite the benefit 'provides exercise', 3.28 times more likely to cite the benefit 'provides interest, 5.11 times more likely to cite the benefit 'contact with nature', 2.43 times more likely to cite the benefit 'peace and quiet' and 2.5 times more likely to cite the benefit 'care for things' if practicing watching wildlife than if not.

### **Children's play**

A highly significant association was found between the practice 'children's play' and the garden benefits: 'provides exercise'; 'care for things'; and 'safe play', and a significant association was found with the benefits: 'fresh air'; 'cheers me up'; 'helps me unwind'; 'gets me outdoors'; 'contact with nature'; and 'peace and quiet'. Based on the odds ratio householders are 2.12 times more likely to cite the benefit 'cheers me up' and 'helps me unwind', 2.05 times more likely to cite the benefit 'gets me outdoors', 2.28 times more likely to cite the benefit 'provides exercise, 1.93 time more likely to cite the benefit 'contact with nature', 1.75 times more likely to cite the benefit 'peace and quiet', twice as likely to cite the benefit 'care for things' and unsurprisingly 13.39 times more likely to cite the benefit 'safe play' if practicing children's play than if not.



### **Frequency of sitting out/relaxing**

A highly significant association was found between the practice 'sitting out and relaxing' and garden benefits: 'cheers me up'; 'helps me unwind'; 'gets me outdoors'; 'provides exercise'; 'contact with nature'; 'peace and quiet'; 'care for things', and 'safe play', and a significant association was found with the benefit 'fresh air'. As frequency of sitting out/relaxing increases householders citing the benefits 'cheers me up', 'helps me unwind', 'gets me outdoors', 'contact with nature', 'peace and quiet' and 'care for things' and 'safe play' increases.

### **Frequency of playing**

A highly significant association was found between the practice frequency of garden practice 'playing' and the garden benefits: 'provides interest'; 'peace and quiet'; 'care for things'; and 'safe play'.

In summary, a pattern of associations is found between and within demographic, environmental and social garden practices and a range of benefits. These will be explored using qualitative research and analysis in the following three chapters in order to identify why this might be so.

## ***4.5 Clothes Drying***

### ***4.5.1 Type and frequency of drying***

The frequency of line drying is highly dependant on season. Out of 376 respondents, 58% of households regularly line dry in the spring (and of these 25% are line drying on a daily basis), which increases to 72% of households in the summer (and of these 45% are line drying on a daily basis), decreasing to 48% in the autumn (and of these 17% are line drying on a daily basis), with further reductions to 16% regularly line drying in the winter (and of these 20% are line drying on a daily basis). Please see **Figure 4.5.1a** for a summary.

In terms of indoor drying, out of 376 respondents, tumble dryers are regularly used in 32% of households, with 9% of households using a tumble dryer on a 'daily' basis, whilst 57% of households 'never' use a tumble dryer. In addition 47% of households are regularly using radiators and 63% are regularly using clothes horses for indoor drying. Please see **Figure 4.5.1b** for a summary.



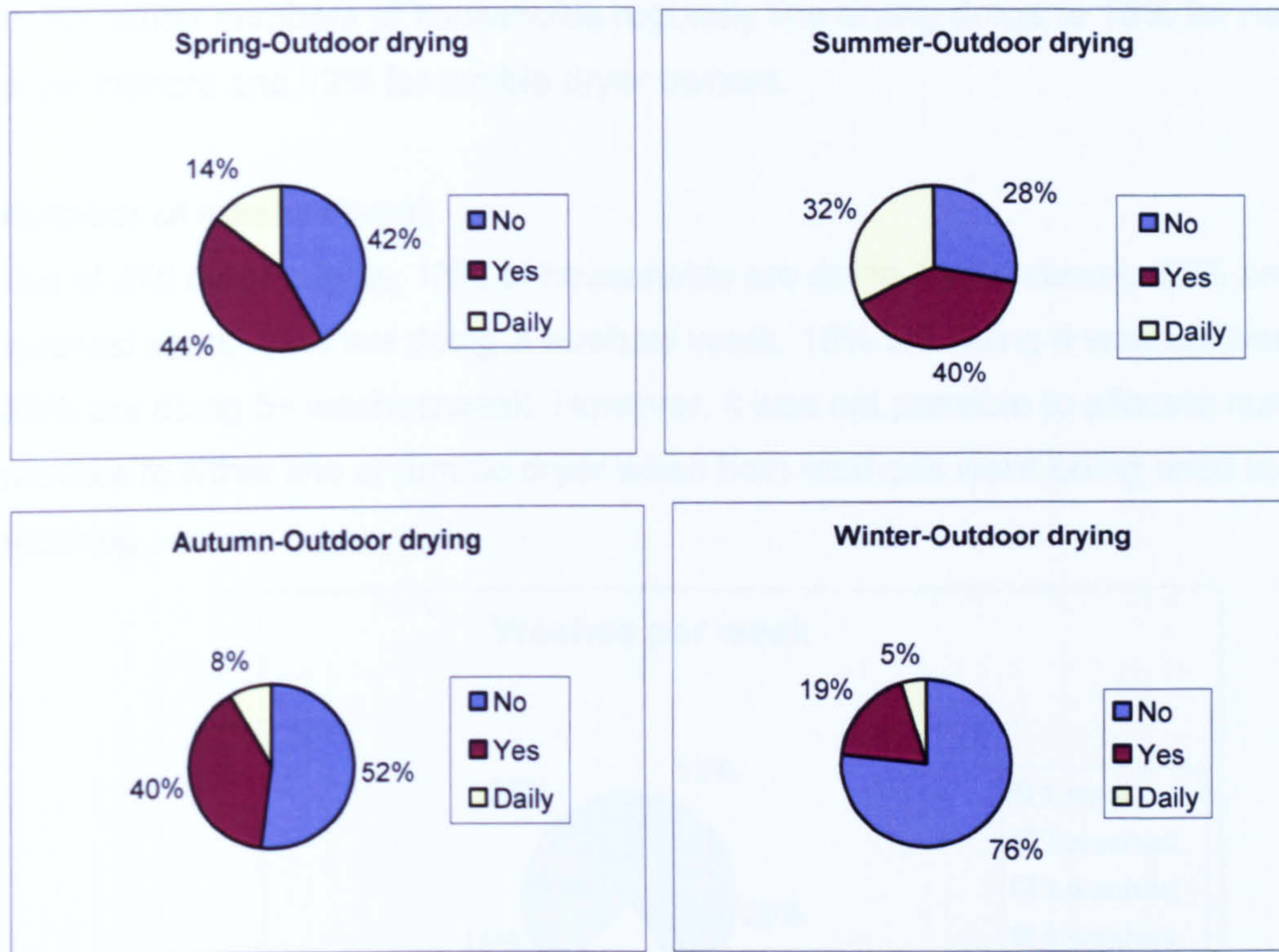


Figure 4.5.1a Incidence and frequency of outdoor drying by season

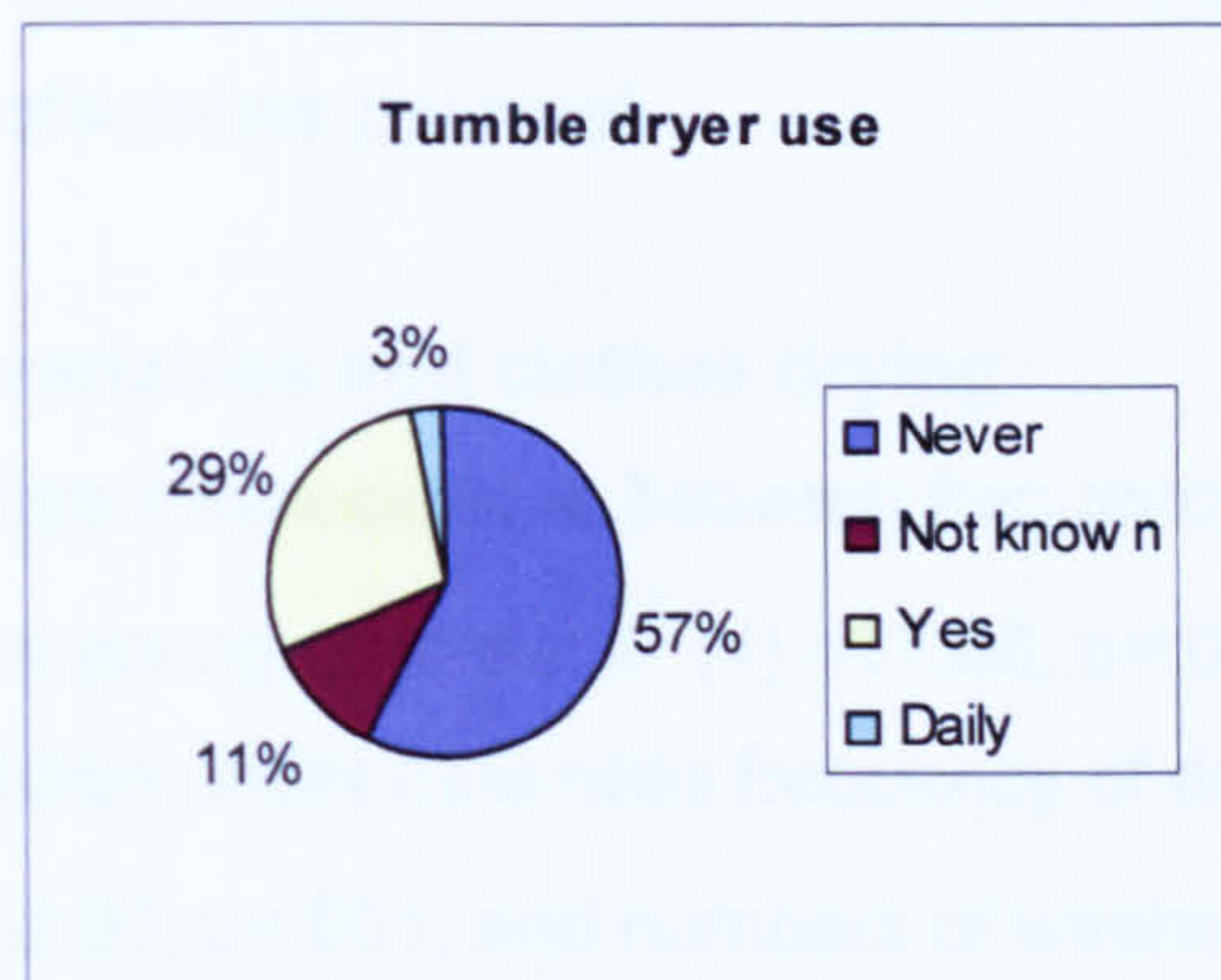


Figure 4.5.1b Incidence and frequency of tumble dryer use

#### 4.5.2 Comparing line use for owners and non-owners of tumble dryers.

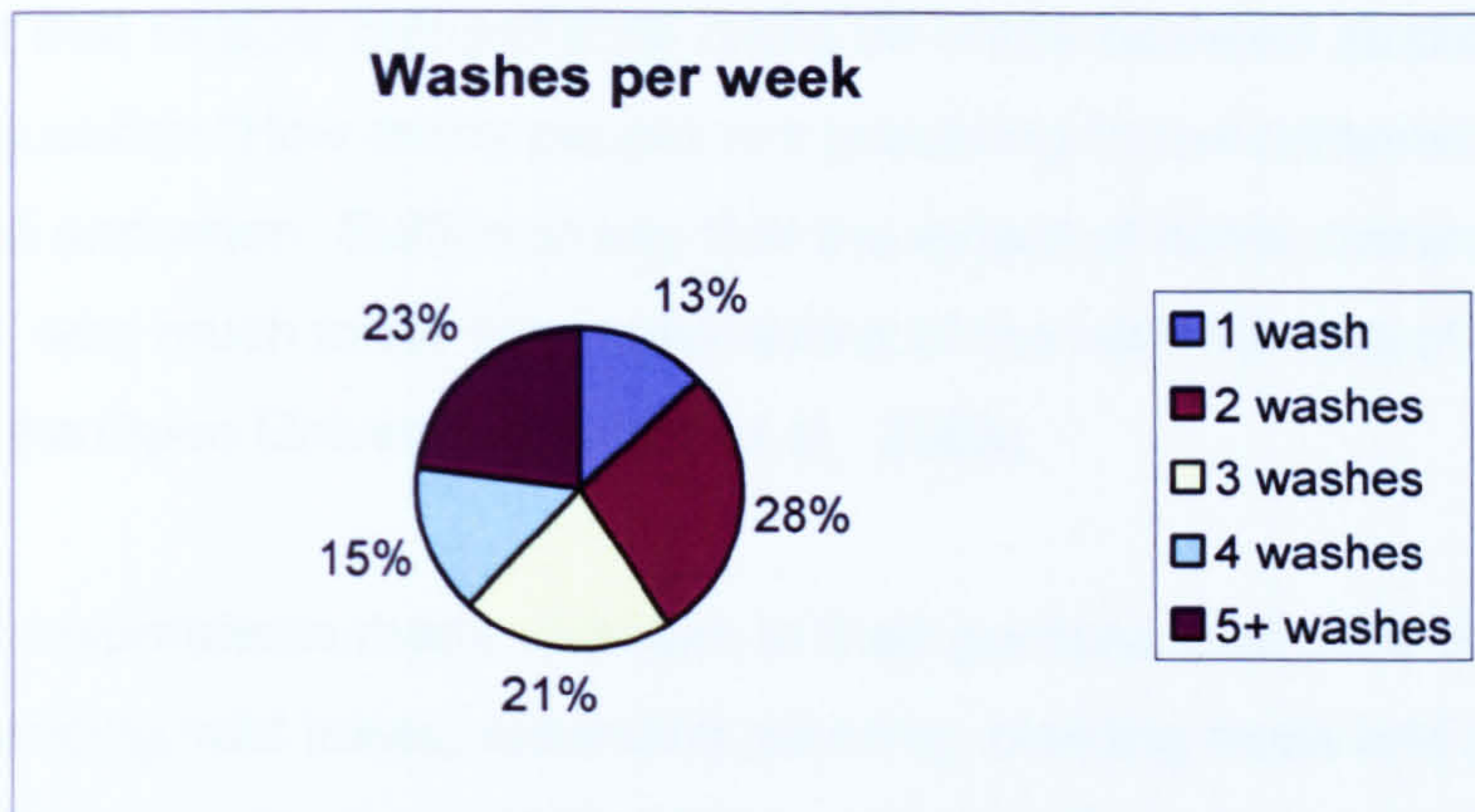
Out of 376 respondents, there are 215 households who never use a tumble dryer and 73% of these households regularly line dry in the summer, compared to 161 tumble dryer owners, of which 71% regularly line dry. Indeed more tumble dryer owners make daily use of an outdoor line (43% compared to only 25% of non-tumble dryer owners). There is a highly significant association between frequency of using a dryer and frequency of outdoor drying,  $\chi^2(16) = 40.96$ ,  $p = .001$ , with numbers of households who never or rarely use a line being very similar for non-owners and owners of tumble dryers (27% and 29% respectively).



In the winter numbers of households regularly line drying drops to 18% for non-tumble dryer owners and 12% for tumble dryer owners.

### Number of washes/week

Out of 376 respondents, 13% of households are doing 1 wash/week, 28% are doing 2 washes/ week, 21% are doing 3 washes/ week, 15% are doing 4 washes/week and 23% are doing 5+ washes/week. However, it was not possible to allocate number of washes to either line or tumble dryer when both methods were being used to dry washing.



**Figure 4.5.2** Number of washes per week

### Socio-demographic variables and clothes drying

There are highly significant associations between frequency of dryer use and: whether or not households have young children,  $\chi^2 (4) = 17.66$ ,  $p = .001$ , as percentage of householders with children under nine rises frequency of dryer use rises; size of household,  $\chi^2 (12) = 58.00$ ,  $p < .001$ ; and numbers of washes/week,  $\chi^2 (16) = 55.49$ ,  $p < .001$ . The same associations are also evident for line drying, indeed as the number of washes/week rises (from 1-5+) the number of households using both line drying and a tumble dryer to dry washing increases (27-53%).

## 4.6 Discussion

The purpose of undertaking the questionnaire survey was to identify patterns and associations for the garden practices of interest, including growing fruit and vegetables, home composting, collecting and re-using water, outdoor drying and encouraging wildlife. These could then be used to start generating possible explanations for mechanisms etc. that can then be explored in the qualitative work.



In that everybody needs clean and dry clothes, it is not surprising that the practice of outdoor drying is widespread (undertaken by 90% of respondents). In addition gardening (undertaken by 65% of respondents) (e.g. growing flowers and shrubs) and garden maintenance were widespread (undertaken by 73% of respondents). In contrast the practices of growing from seed (undertaken by 32% of respondents), growing fruit and vegetables (undertaken by 26% of respondents) and home composting (undertaken by 28% of respondents) were only undertaken in a minority of households, and may be interest- rather than needs-based. In accord with critical realist thinking, it was not expected that levels of practice found in Qasim's (1997) study would hold true for this study or that reliable comparisons could be made between studies, in that the answer to the question "How many people are practicing home composting?" depends on who is asked and when. Suffice to say that the extent of home composting, at 28% of respondents, was much lower than estimations of the national rate of 47% reported in research by the Open University (Jones et al., 2008).

The majority of respondents made changes to their gardens that were environmentally beneficial e.g. adding wild areas, extending planting, planting trees and adding compost bins. Moreover for a sizeable minority this was their stated intention. However for the majority, meeting needs (e.g. adding a clothes line for outdoor drying), or particular interest in practice (e.g. gardening, encouraging wildlife and composting) were the reasons given for changes. In contrast the reasons given for removing environmentally beneficial features e.g. ponds, compost bins and vegetable patches, were much more utilitarian and focused on domestic and leisure uses of the garden including accommodating garages, safe play, sitting out and providing eating areas.

Reasons given by respondents may be thought of as the cause of practice, but are not sufficient to explain practice, in that they do not identify the conditions within which the reasons were formulated. This would require further qualitative research. A possible explanation for the above findings is that features were retained because they met needs (e.g. domestic), or were compatible with gardening or wildlife interest. Such an explanation would be in accord with the hypothesized 'Goes-together' mechanism, which will be explored using qualitative work in the next chapters.

In comparing the features that were in gardens when people moved into their new homes to those that were present at the time of the survey, it was found that retention rates for the features associated with the garden practices growing fruit and vegetables, home composting, collecting and re-using water, outdoor drying and encouraging wildlife were high e.g. from 50% for vegetable patches to 94% for washing



lines. To explain why this was so will require exploration in the qualitative research that follows.

In accord with earlier research on EBBs, apart from 'tenure' and to a lesser extent 'house type' and 'age', demographics tell us very little about the garden practices of interest (Dietz et al., 1998; Tucker and Speirs, 2001; Knussen et al., 2004). However a pattern of associations was found between type of tenure and the garden practices of interest including growing fruit and vegetables, home composting and collecting and reusing water.

Additional analysis of type of tenure and other demographic variables was undertaken and patterns of associations between tenure and extent of having a garden before; size of garden; length of residence; age of respondent and economic activity were found. Possible explanations for associations might have included, for example in the case of public renters, that they were less familiar or had less experience of gardens and gardening, or that the small size of gardens precluded practices that were perceived to require more space than was available, or that they had not lived in a place long enough to initiate practices like growing fruit and vegetables, or were preoccupied with bringing up young children or were too busy working etc, only two of these possible explanations are supported at this stage. Namely, the possibility that people living in public rented housing do not undertake these practices because they are much less familiar with gardens and gardening, as people who lived in public housing were much less likely to have always had a garden and much more likely to have never had a garden before. In addition they may also have believed that they did not have the space to accommodate additional practices.

Lastly, it should be noted that in the main, home owners have chosen to buy a house with a garden whilst those in public rented housing can no longer indicate a preference (or not) for a garden on their 'Housing Preference Form' (Kelly, 2007). Taken together, this suggests further exploration, using a qualitative method, is needed.

Previous research has found weak correlations (Corral-Verdugo, 1997; Harland et al., 1999) or no correlation (Oskamp et al., 1991) between EBBs. In contrast extensive associations were found between: 'growing fruit and veg', 'composting', 'outdoor drying', growing from seed' and 'frequency of gardening'. It was also found that the likelihood of respondents who were engaged in one environmental practice being engaged in additional environmental practices was greater than the likelihood of being engaged in other social practices. Tucker and Speirs (2001) suggest that as



behaviours become more closely related the correlations between the behaviours increase (p.13) (i.e. correlations between behaviours within the same class type e.g. energy conservation rather than correlations between different class types e.g. water conservation and waste reduction). However current findings highlight associations between different class types e.g. waste reduction (composting), and energy conservation (outdoor drying and growing fruit and veg). The number of 'quick fix' garden make-over programmes might suggest that 'the garden' and gardening is all about buying things and show. As such you would not necessarily expect to find associations between garden practices, in that for example it takes much less effort and time to buy compost rather than make it yourself. In contrast the pattern of associations found between growing fruit and vegetables, composting, growing from seed, growing flowers and shrubs and frequency of gardening suggest the possibility that these associations might be explained in terms of gardening interest and 'good practice'. Again, such an explanation would be in accord with the hypothesized 'Goes-together' mechanism, in that practice associations might be explained in terms of gardening lifestyle and interest, which will be explored using qualitative work in the next chapters.

In contrast whilst outdoor drying was found to be associated with growing fruit and vegetables and home composting, it was less extensively associated with other garden practices. Further exploration is needed to explain such associations.

Context (e.g. garden size) is found to be associated with a range of the garden practices of interest including: growing fruit and vegetables; composting; and growing from seed. In the main this was a straight-forward linear association. One possible explanation is that these practices are dependant on extent of garden resource which suggests that '*access to resources*' might be a '*necessary condition*' for these practices.

In accord with Coulson's (1980) earlier findings, satisfaction with garden size was not dependent on actual garden size (i.e. across the range of garden sizes most householders were not unsatisfied with garden size). However there were a substantial number of householders, across all garden sizes, who wanted a bigger garden. The most frequently cited reason for wanting a bigger garden for householders who had gardens 'up to 50 sqms' was to grow fruit and vegetables, which concurs with Kellett's (1982) suggestion that the reason for dissatisfaction with garden of 50 square metres is because it allows very little space for cultivation. Here the possible explanation for lack



of practice might then not be due to lack of interest rather that garden size constrains or is felt to preclude practice.

Again demographics tell us little about the benefits of having a garden to use, other than that 'families with children', 'families with no children' and 'pensioner families' are most likely to cite the range of benefits from having a garden to use, and 'single person households' (both pensioner and others) and people living in 'shared households' are least likely to cite any benefits from having a garden to use. However significant associations were found between householder's age and the benefit 'provides exercise' with householders most likely to cite this benefit being in the age group 55-64 years old. Again this warrants more detailed exploration.

EBBs have been considered to be opposed to immediate, clearly perceptible individual benefits this does not appear to be so in regard to garden practices of interest. As there are clear and extensive associations between felt benefits and gardening, environmental (with the exception of the practice of outdoor drying) and social (passive rather than active) garden practices and frequency of activity. Moreover, gardening practices (growing from seed stands out particularly) and to a lesser extent environmental practices were found to have the largest effect. In accord with the findings of Kaplan's (1973) much earlier research, benefits most often cited are in the main intrinsic (i.e. inherent in the garden or garden practice and valued for themselves rather than as a means to an ends) and include: being outdoors, relaxation, lifting your mood, interest and contact with nature. Thus possible explanations for such associations may be that practices, in providing intrinsic benefits, meet intrinsic needs. Such an explanation would be in accord with the hypothesized 'Goes-together' mechanism, in that practice associations might be explained in terms of meeting intrinsic needs, which will be explored using qualitative work in the next chapters.

In terms of context (e.g. garden size) felt benefits of having a garden to use, with the exception of provision of 'fresh fruit and veg' and 'provides exercise', were not found to be associated with garden size, which is both heartening and significant.

Lastly, there is currently little evidence to suggest that tumble dryer ownership is substituting line drying. Currently levels of dryer use are lower, sole use of line drying levels are higher, and use of both line drying and tumble dryers is far higher than those reported in other research (Pedersen et al., 1988; Labhard and Pedersen, 1989; Bartiaux and Gram-Hanssen, 2005). However 9% of households are using a tumble dryer whatever the weather. Associations found between number of washes and



frequency of tumble dryer use, suggest that it may be sheer quantity of washing that is driving use of tumble dryers. But although both line and tumble dryer use were found to be associated with quantity of washing, size of household and whether or not there are young children, there may be other aspects of both practices that are not wholly explained by utility and meeting household needs that need further exploration.

#### ***4.7 Closing summation***

In chapter 1 a range of sustainable garden practices were identified as the means by which urban gardens contribute to the components of sustainable development.

Chapter 2 then reviewed existing theories and research in order to start thinking about how the process of behaviour change might be explained for these practices. Chapter 3 then set out the research questions and the strategy that would be used to answer them. This chapter used new empirical research to describe and start to explore a range of garden practices and found significant associations and patterns between gardening, environmental and social garden practices. In doing so a number of possible explanations were identified and will be explored in the next three chapters. Subsequently the task for chapter 5 is to continue to explore possible explanations for the garden practice 'growing fruit and vegetables'.



## **Chapter 5: Explaining the Practice of Growing Fruit and Vegetables**

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### **5.0 Introduction**

This chapter continues to provide answers to primary research question 1 “*Why do some people take up ‘sustainable’ garden practices whilst others do not?*” and primary research question 2 “*Why do some of these people persist with practice whilst others do not?*” In chapter 4 a range of associations were found between the practice of growing fruit and vegetables and demographic, environmental and social garden practices, garden size and benefits. This chapter seeks to explore, test and extend possible explanations by using a qualitative method to carry out a causal analysis of the practice of growing fruit and vegetables, covering both practice initiation and persistence. This involved: identifying the ‘*necessary conditions*’ for practice; developing an explanation which addressed how necessary conditions were met; verifying (or not) the existence of the postulated mechanisms; and comparing current practitioners, previous practitioners and those who have never practiced.

### **5.1 Pre-conditions for practice initiation and persistence**

The possible ‘*necessary conditions*’ that must be met for practice initiation and persistence are as follows: ‘*general environmental awareness*’; ‘*awareness of need*’; ‘*awareness of consequences*’; ‘*ascription of responsibility*’; ‘*awareness of expectations*’; ‘*indirect knowledge*’; ‘*direct knowledge*’; ‘*access to resources*’; and ‘*freedom to choose*’ .

In this section the extent to which current practitioners, previous practitioners and those that have never practiced met or now meet proposed preconditions for practice initiation and persistence are summarised. Then quotes and extracts of dialogue that illustrate each of the nine ‘*necessary conditions*’ are discussed, and where possible reference to how these ‘*necessary condition*’ are met are identified, for both practice initiation and persistence in growing fruit and vegetables. Please note with dialogue that text in italic is the interviewee speaking and text not in italic is the interviewer. See summary **table 5.1.1** and **table 5.1.2** for conditions met prior to practice initiation by current practitioners and previous practitioners and **table 5.1.3** for conditions met



currently by those who have never practiced. And see summary **table 5.1.4** for conditions now met by current practitioners persisting with practice and **table 5.1.5** for conditions now met for previous practitioners.

### **5.1.1 'General environmental awareness'**

#### **Initiation**

Prior to practice initiation levels of '*general environmental awareness*' were found to be lowest for current practitioners, with 4 (14%) expressing a general concern or awareness of environmental issues, whilst 3 (19%) of previous practitioners and 5 (18%) of those who have never practiced expressed a general concern or awareness of environmental issues. This suggests that '*general environmental awareness*' is not associated with practice initiation, as it was not met in the majority of current or previous practitioners, and indeed as it is more likely to be met in those who have never practiced, it is not a condition that must be met prior to practice initiation.

#### **Persistence**

Levels of '*general environmental awareness*' were found to be slightly higher in current practitioners 9 (33%), compared to 4 (27%) in previous practitioners. This suggests that whilst '*general environmental awareness*' may be associated with practice persistence, as it was not met in the majority of current practitioners, it is not a condition that must be met in order for practice to persist practice.

#### **Current practitioners**

Interviewee 16 is a very active member of The Green Party and also suggests that a concern for wider environmental issues preceded practice:

*"I have been thinking globally far longer than I have been gardening"... "So do you think an interest in wider environmental stuff has affected what you do?".. "It's affected how I do it. I think I would still have wanted to create a nice space. Because I just love making things home and me and putting my character into things.. I couldn't do anything other than garden organically, I couldn't use pesticides. I try and buy local, organic food. I think the gardening side, the vegetables, it makes me realise how cheap organic food is."*















**Table 5.1.5: Previous Practitioners: Growing Fruit and Vegetables -Current**

Necessary Conditions		Interviewee														Total		
		4	5	15	22	24	28	39	41	44	45	50	53	56	61	63	66	(+)
NC1	'General env awareness'						+					+	+	+			4	27
NC2	'Awareness of need'																0	0
NC3	'Awareness consequences'						+										1	7
NC4	'Ascription of responsibility'						+										1	7
NC5	'Awareness expectations'									+							1	7
NC6	'Indirect knowledge'						+										1	7
NC6*	'Direct knowledge'	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	15	100
NC7	'Access to resources'	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	15	100
NC8	'Freedom to practice'	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	13	87
Conditions met		3	3	3	3	3	7	3	4	3	3	4	4	3	3	2	3	

Mechanisms		Interviewee														Total		
		4	5	15	22	24	28	39	41	44	45	50	53	56	61	63	66	(+)
M1	'Goes together'	+	+	+		+	+	+		+							7	47
M2	'Could do'																0	0
M3	'Can do-internal'						+	+					+			+	4	25
M3*	'Can do-external'																0	0
M4	'Moral responsibility'						+										1	7
M5	'Positive thinking'									+							2	14
M6	'Will do'			+		+											2	14
M7	'Influence'			+			+										2	14
M8	'Should do'									+							1	7
M9	'Guilt'																0	0
Mechanisms evident (+)		1	1	3	0	2	4	2	2	1	0	0	0	1	0	0	1	

Context Dependence		Interviewee															
The Time	'time of life'	D	x	D	x	x	x	x	D	x	x	x	x	x	D	x	D
The Space	Increased	D	D	D	D	D	D	x	D								
	Reduced																
The Place	garden setting	D	D	D	NA	D	x	x	D	D	NA	NA	NA	D	D	NA	D

<b>Key:</b>	+	= met/evident in youth	NA=	Not applicable	X =	Not dependent
	+	= met/evident as adult	D =	Dependent		

**Previous practitioners**

For interviewee 4 wider environmental issues have no influence on what she does in her garden as she explains:

*“The garden it is just about being there and doing what I’m doing and encouraging the stuff that I like. I like the idea of creating these little habitats like the lawn is for my animals, the pond area is for nature’s animals and that just happens because I am thinking just insular.”*

**Never practiced**

Interviewee 52 has recently stopped using a patio-heater because of the national media campaign which suggested that such practices were not environmentally



friendly, and as she explains her awareness of wider environmental issues comes in the main from the national media:

*“Umm, I think that most people do now don't they (think about wider environmental issues)?.. Yeah, I think everybody must do, if you did not you must be deaf and blind, because we get it every angle really in the press, on TV.”*

When interviewee 17 was asked whether she thought about wider environmental issues in terms of what she did in her garden she explained how she had had an interest in environmental issues for many years:

*“Yes, I do, I mean I do, I suppose, I did a geography degree so I've always had an interest in or been aware of all that before it's now much more in the public domain and it's become an issue that people talk about regularly...”*

From which it can be inferred that, in this instance, the 'general environmental awareness' 'necessary condition' is met, as a result of higher education as well as more general public debate.

### **5.1.2 'Awareness of need'**

#### **Initiation**

Fewer than 1 in 10 current practitioners (7%) had an 'awareness of need' to reduce energy consumption (or food miles) by growing fruit and vegetables prior to practice initiation, whilst no previous practitioners did so and only 1 (4%) of those who have never practiced did so. Again, this suggests that whilst 'awareness of need' may be associated with practice initiation, as it was not met in the majority of practitioners it is not a condition that must be met prior to practice initiation.

#### **Persistence**

In terms of practice persistence levels of 'awareness of need' to reduce energy consumption (or food miles) by growing fruit and vegetables were found to be higher (but still at relatively low levels) in current practitioners 4 (14%), but again no previous practitioners currently meet this condition. Again suggesting that whilst 'awareness of need' may be associated with practice persistence, as it was not met in the majority of current practitioners, it is not a condition that must be met for practice to persist.



### **Current practitioners**

Interviewee 20 has been a keen gardener for a number of years and has just started growing vegetables, and she explains she is aware of the debate surrounding local food which is particularly prominent in the Crookes area of Sheffield where she lives:

*“If I could choose I wouldn’t go to supermarkets, it’s the providence thing, I would much rather NOT buy from them. And what could be more LOCAL than your back garden. Yeah, it’s just nice knowing that I don’t use any kind of pesticides. It’s nice to know.”*

### **5.1.3 ‘Awareness of consequences’ of practice**

#### **Initiation**

Only 2 (7%) current practitioners, no previous practitioners and 1 (4%) of those who have never practiced made a link between growing fruit and vegetables and increasing benefits to themselves, others and the environment prior to practice being initiated. Again, this suggests that whilst ‘awareness of consequences’ may be associated with practice, as it was not met in the majority of practitioners it is not a condition that must be met prior to practice initiation.

#### **Persistence**

In terms of practice persistence 4 (14%) current practitioners and 1 (7%) previous practitioners now make a link between practice and increasing benefits to themselves, others and the environment. Again, this suggests that whilst ‘awareness of consequences’ may be associated with practice, as it was not met in the majority of current practitioners it is not a condition that must be met for practice to persist. But again, this is clearly a condition that differentiates those who continue to practice from those who have ceased to practice.

### **Current practitioners**

Interviewee 34 has been growing fruit and vegetables for many years and from reflecting on what he has been able to grow has become more ‘aware of the consequences’ of his own practice in terms of benefits to himself and the wider environment, as he explains:

*“Well I work as an environmentalist so I feel guilty all the time basically..So for that reason I tend to always think about the wider issues which can be a bit of a bane. Because it would be nice to only think about this in terms of the joy of*



*being able to eat things you have grown and being able to sit out in your own space. But we can't really separate the two. You could look at it from a self sufficiency point of view. I was completely shocked how much of our food last summer came from our garden. So in terms of your global footprint you could, just from a food point of view, get it down a lot."*

### **Never practiced**

Interviewee 51 has recently moved back into the area where she was born, and as with a previous interviewee has been influenced by the debate on local food that is prominent in her local high-street. Consequently, she sees the benefits of growing your own particularly in terms of provenance (i.e. knowing where produce has come from and how it has been grown etc.), as she explains:

*"It's the space (interviewee now has a larger garden) but it's me as well because our attitudes have changed since we have been here. Because I'm from Sheffield and I'm actually from Crookes and ..I'm a big believer in buying locally as opposed to going somewhere like Tesco's. You know where after a period of time, you look at the veg, a couple of weeks ago, and we were appalled by these apples that came from China. You know and you just think, well what's gone off? You know if you go up there you've got the Coop, and the [greengrocers]"... "[They are really good]"..."And you know it's all local produce..YEAH. If you grow your own at least you know where it's come from..Yeah, and what could be more local really?"*

### **5.1.4 'Ascription of responsibility' to practice**

#### **Initiation**

Prior to practice initiation no current or previous practitioners or those who have never practiced implicitly or explicitly demonstrated that they felt a personal responsibility to practice. This suggests that 'ascription of responsibility' it is not a condition that must be met prior to practice initiation.

#### **Persistence**

In terms of practice persistence, no current practitioners and 1 (7%) of those who have never practiced implicitly or explicitly demonstrate that they feel a personal responsibility to persist with practice in order to reduce harm to the environment. This suggests that 'ascription of responsibility' is not associated with practice persistence, and is not a condition that must be met for practice to persist.



Please see section 5.2.5 'Moral responsibility' mechanism for examples of how this condition is met.

### **5.1.5 'Awareness of expectations' to practice**

#### **Initiation**

Prior to practice initiation over a third of current practitioners 11(39%) had family, friends or colleagues who practiced and were all encouraged to practice in their youth. In comparison nearly half 7 (44%) of previous practitioners met this condition, and of these 4 (57%) were encouraged to practice as a child and 3 (43%) were encouraged to practice as an adult by either friends or family members, whilst 2 (8%) of those who have never practiced have been encouraged by friends or colleagues to practice in their adult life. This suggests that whilst 'aware of expectations' may be associated with practice initiation, as it is not a condition that is met in the majority of practitioners, it is not a condition that must be met prior to practice initiation. Again it is a condition that may also be associated with no practice.

#### **Persistence**

In terms of practice persistence, only 3 (11%) current practitioners (compared to 39% at practice initiation) and 1 (7%) previous practitioners have family, friends or colleagues who now expect them to practice. This suggests that whilst 'aware of expectations' may be associated with practice persistence, as it is not a condition that is now met in the majority of current practitioners, it is not a condition that must be met for practice to persist.

#### **Current practitioners**

When asked if she had grown vegetables before interviewee 13 explained how her mother had encouraged her to practice and how she came to be growing vegetables in her own tiny garden:

*"YEAH, my mum is a real, like allotmenter. And has always told me since I was about 19 that I should get one in London. But I was busy doing stuff and I did not want to cycle with the tools and everything. But I have always kind of liked gardening. So whenever I go home I go to the allotment. And you know you pick things up, bit by bit, and it becomes part of your MAKE-UP."*



### **Previous practitioners**

Interviewee 15 was also encouraged to practice by her parents as a child which resulted in practice being initiated, as she explains:

*“When we were children my parents encouraged us to have our own plots in the garden. So we both had our own bits and my brother went on to do a horticulture degree, and he was into doing vegetables and I was into doing flowers. I did do some vegetables as well but mainly flowers. So that was from, you know, being sort of school age.”*

### **Never practiced**

In contrast interviewee 52 was encouraged to practice as a teenager but at the time was not inclined to do so, as she explains:

*“My mum and dad, both were keen gardeners. But my mum more on the plant side. They both grew vegetables but my mum more on the plant side than me dad. BUT I’m sure she encouraged me but I probably did not take any notice. Like teenagers don’t of their mum.”*

## **5.1.6 ‘Indirect knowledge’ of practice**

### **Initiation**

Prior to practice initiation nearly all 26 (93%) current practitioners had ‘*indirect knowledge*’ of the practice, gained either by from watching a family member or friend as a child 19 (68%) or watching a practitioner or reading about the practice as an adult 9 (32%). Similarly 12 (75%) previous practitioners met this condition, of which 9 (75%) gained it in their youth, and 3 (25%) gained it in adulthood. But only 10 (37%) of those who have never practiced currently meet this condition, and of these 7 (70%) gained this knowledge in their youth from watching a family or neighbours practice, while 3 (30%) gained this knowledge as an adult. As this condition was met in the majority of practitioners it can be concluded that it is a condition that must be met prior to practice initiation.

### **Persistence**

In terms of practice persistence, 9 (32%) current practitioners continue to gain ‘*indirect knowledge*’ of the practice, in the main from reading, but only 1 (7%) previous practitioners has continued to gain ‘*indirect knowledge*’ of the practice. As this condition



does not continue to be met in the majority of practitioners it can be concluded that it is a condition that must be met for practice to persist.

### **Current practitioners**

Since moving into sheltered housing interviewee 36 has scaled down her practice, and now just grows soft fruit. She gardens organically and from watching television she continues to build her knowledge of the practice, as she explains *"I also watch the gardening programmes on Sky and it was Alan Titchmarsh who came out with putting porridge round"*. From which it can be inferred that the condition 'indirect knowledge' continues to be met in practice persistence.

Interviewee 38 watched her aunt garden as a child thereby gaining 'indirect knowledge' of the practice, however at the time it did not generate any interest in the practice as she explains:

*"So I suppose she was the more traditional gardener and maybe I had no interest in it at all as a kid. I really did not. And I think what I have found an interest in has been completely different to what I grew up with."*

### **Previous practitioners**

Interviewee 44 lived in a flat when she was young and they only had a yard, but she lived near to a farm and was a very 'outdoor' child subsequently she became familiar with the practice of growing vegetables from a young age, as she explained:

*"So I don't know maybe I just got used to, I knew where vegetables came from, kids don't nowadays, but I knew, you know, that vegetables were mucky and they came out of the ground."*

Interviewee 56 suggests that her knowledge of growing vegetables stems from her youth on her father's allotment:

*"I mean my father loved his garden, he used to have allotments up Rivelin"... "So your dad was into gardening and veg growing?"... "OH yeah, he loved his garden. I mean he had one, two, three allotments up Rivelin."... "Did he grow flowers and veg?"... "He did both yeah"..."And did you have to help?"... "We used to go for the day. He had this hut with an old gramophone and we would take a picnic up, you know it would just be a bottle of water and a few sandwiches."*



### ***Never practiced***

Interviewee 8 explained that his knowledge of growing fruit and vegetables came from watching his father and as a result “.. *it is something I have always fancied doing... Yeah. Part of what we used the land for at home was growing veg and me dad still does.*”

### **5.1.7 'Direct knowledge' of practice**

#### **Initiation**

'*Direct knowledge*' of the practice is not a condition that is associated with practice initiation.

#### **Persistence**

Not surprisingly, all current and previous practitioners have '*direct knowledge*' of the practice. Whilst 12 (43%) current practitioners gained knowledge from hands-on experience in their youth, the majority 16 (57%) gained this experience from practice in their adult life. In contrast only 4 (27%) previous practitioners have '*direct knowledge*' of the practice gained from hands-on experience in their youth, whilst the majority 11 (73%) gained this experience as an adult. As this condition was met in the majority of practitioners it can be concluded that it is a condition that must be met for practice to persist.

#### **Current practitioners**

Interviewee 43 explains how her early experience of growing vegetables with her father has stayed with her into her old age:

*“I learnt from my father who had an allotment you see as a child we had our little bits of garden. And I loved it but it would take me twice as long as the others.” .. “Slowly, slowly”.. “That kind of interest...Stays with you all your life. I think.”*

Interviewee 9 was encouraged to try his hand at growing fruit by his neighbour, from which he gained his first practical experience of the practice as he explains:

*“Well when I was very little my neighbour, who was a railway man..my neighbour was a very keen gardener and he had a big garden and I was always there. So he taught me how to graft roses and look after everything..And because I was there until about, I don't know, sixteen or seventeen, ummm I*



*could see the results and he yeah, he would grow flowers which he would cut for his wife to put in vases and we would have OHHHHHH, I don't know, a whole stack of strawberries and fruit bushes."*

Interviewee 70 is one of only a few interviewees who had no previous knowledge of the practice (apart from listening to 'Gardeners Question Time'), and is self taught, as she explains:

*"Even though I had a garden as a child I was not required to do anything, and my parents never did any gardening with me so I did not really know anything about gardens at all. It's just like cooking, nobody taught me how to cook either, you just did it because you have to. It's just there I mean they want to grow don't they so.. You just stick a seed in and they just do it."*

### **Previous practitioners**

Interviewee 5 explained how *"We've grown tomatoes and runner beans down at the other house"*, from which it can be inferred that she has some 'direct knowledge (albeit limited) of the practice.

Interviewee 22 is a keen gardener, and has some experience of growing vegetables but was put off in her youth, as she explains:

*"My family, we live in a big house across the road. My mum still lives there. But when I was young my grandfather also had a garden at Tinker Lane and allotment. But WE veg gardened, grew. And I hated gardening because I used to get those jobs you know picking caterpillars from the cabbages so I got so as I HATED IT. And also another boring job with a rabbit's tail doing the tomatoes and the cucumbers. You know? And we forced rhubarb. Because I was telling you our Sunday mornings, people used to be sort of queuing at our house for MINT, to come and get the mint and the rhubarb."*

### **Never practiced**

Interviewee 28 is into her second year of allotment holding but as she explains, her first hands-on experience of growing vegetables was gained in her youth:

*"I've always from being a child yes, my grandfather had an allotment and I've always gardened from being quite young..I've always read gardening books .And it's something I've always really enjoyed. I've got fond memories of picking peas as a child."*



### **5.1.8 'Access to resources' for practice**

#### **Initiation**

For 7 (25%) current practitioners size of garden was not given as a reason for practice initiation and of these all initiated practice in their current garden, whilst for 12 (43%) practice was initiated in a parents or neighbours garden and as such size of garden played no part in their decision making process. For 9 (32%) current practitioners size of garden was cited as a reason for practice initiation, and of these 5 (55%) initiated practice in a larger previous garden, whilst for 4 (45%) the size of their current garden was taken into consideration prior to practice being initiated.

For previous practitioners 7 (44%) did not cite garden size as a reason for initiating practice. Of these 4 (57%) initiated practice in their current garden and 3 (43%) initiated practice in a previous garden, whilst for 5 (32%) of previous practitioners practice was initiated in a parents garden or an allotment and as such size of garden played no part in their decision making process. For 2 (12%) previous practitioners practice initiation was dependent on garden size, with one interviewee considering the size of their current garden and one having considered the size of a previous garden. In contrast for 6 (35%) of those who have never practiced, who currently have a garden of under 70 square metres (sqms), having access to a larger garden was cited as a reason for practice to be initiated, whilst for 11 (65%) of those who have never practiced having access to a larger garden would make no difference.

#### **Persistence**

For a minority of current practitioners 5 (29%) with gardens of under 70 sqms, extent of practice is felt to be dependent on garden size and practice would increase if they had access to a larger garden, whilst for the majority of practitioners 10 (91%) with larger gardens, practice would be sustained even with access to less space. In contrast, only 1 (8%) of previous practitioners with gardens of under 70 sqms, would initiate garden based (as opposed to allotment based) practice if they had access to a garden twice the size of their current garden, whilst for previous practitioners having access to less space would make no difference in that they would continue not to practice.



## Increased Space

### Current practitioners

Interviewee 14 is now retired, and he has recently remarried and currently lives in a bungalow rented from the council which has a smaller garden than his previous house. He is a skilled and knowledgeable gardener, but as he explained his interests have changed *"I don't feel as though it is necessary now to do that (grow lots of vegetables). I think some people haven't got the interests that I've got. Maybe they want to spend more time in garden"*. In addition, he also suggested that he no longer had the space to practice in his small garden, but when questioned on this point it was clear from his reply that it was lack of interest rather than lack of space that limited his practice:

*"Well because I haven't really enough room and another thing as well I've got to be honest we are very err, I mean I am 65 I have just recently retired and I was always working and I have got to 65 and we haven't the time to be honest."*

Consequently he is no longer willing to put the time and the effort he knows is required to practice extensively, either in his garden or in an allotment as he explains:

*"It's just if you are going grow something like veg then you really have to look after it. It's no use planting something like that and forgetting it. You have got to look after it. And nurture the plants you put in..And I prefer, now I have got to the age I have, I like the garden to more or less look after itself in a way."*

Thus while he feels he is able to determine what he does with his garden, he is less willing to invest his resources in a rented garden. As such, it is not garden size that constrains practice, rather limited practice can be explained by a reduction in interest and lack of willingness to put the time and effort into a garden that is rented.

Interviewee 16 had recently given up an allotment and was very clear that with twice as much garden space (i.e. from 34 sqms to 68 sqms) current limited practice would be extended as she explains how much more conducive it would be compared to allotment practice:

*"..because the effort of walking 20 minutes down to our allotment, which is on Rivelin Valley, and then realising that you have left a tool behind or you are hungry, or you want a cup of tea or you need the loo emmm.."*. "It's an aggravation isn't it?".. *"Everything takes longer and you don't just pop out the same as you would to a garden and then you don't just tend the vegetables for*



*10 minutes because it's an expedition to get there ermm. So I would definitely go for the home veg growing. This is more, if I had it over again I would still grow flowers but I would try and grow more fruit and vegetables...."*

Interviewee 29 had stated in her questionnaire response that she was very satisfied with the size of her garden (48 sqms) although when she was younger she would have liked more space, as she explained during the interview:

*"Well, I am now I'm 78. When I was younger I would have liked more space".*

*"It's different at different times"?.. "Well, just at the moment, you see my life has changed because F [husband] is not able to walk, he is actually housebound, so if he is asleep in the afternoon I'll go and sit out there. And actually the garden don't want a lot doing at the moment."*

Subsequently this interviewee's practice would stay at its current level.

Interviewee 31, currently only grows a few chillies and tomatoes and suggested that current practice is constrained by lack of space (garden size of 49 sqms) as he explained: *"I'd love to grow veg. I did have an allotment. I don't grow veg here because it's not big enough."* However from observation this interviewee prefers to use existing beds for growing flowers, in addition he shares his garden with his wife and does not have free rein to change the use of existing lawn space, for example. Thus it is preference for other uses and lack of power to change existing uses, rather than lack of space per se that limits practice. Nonetheless he perceives that more space is needed for more extensive practice. Subsequently when asked how existing practice would change with twice as much garden space he stated that existing practice would be **extended** as more space would be made available to each person and existing uses would not have to be compromised.

For interviewees 40 an increase in garden size from 65 sqms to 130 sqms would result in *"More veg. Definitely love to grow more veg. We haven't enough room here."* Again it can be inferred that for these interviewee's initiation of practice was not dependent on garden size, but once initiated the extent of practice has been determined by garden size.





**Figure 5.1.8** showing interviewees 40 tightly packed vegetable patch, which measures 4 metres by 2 metres.

### **Previous- practitioners**

Interviewee 4 is one of the interviewees who have previous experience of the practice and would initiate practice if she had access to twice as much garden space (i.e. from 17 sqms to 34 sqms ) as she explains:

*“I thought about this, I’m lazy so I probably wouldn’t appreciate the extra work but I would love to grow veggies and fruit and things. It’s from my dad that really because I grew up with helping him with the garden and I just really enjoyed helping him and also I liked the idea of growing my own stuff. We grew some beans a couple of years back and it was such a small yield, it was great”... “It was a special meal I bet?”.. “Yes, yes.”*

Interviewee 39 is one of 13 who would not practice in her garden even if her garden was larger (i.e. from 63 sqms to 126 sqms). Although she initially grew fruit and vegetables in her garden, five years ago the practice was transferred to an allotment and would not be reinstated in her garden, as she explains how she feels that allotments and gardens serve quite different purposes:

*“It’s basically somewhere I can grow food”. “So the allotment is for growing veg and working in”? “Yeah”.. “And the garden is for?”.. “Relaxing in..Hearing the birds.”*

Thus practice, in this instance, would not depend on having access to a larger garden.

In contrast when asked how existing practice would change with twice as much garden space, (i.e. from 34 sqms to 68 sqms), interviewee 15 stated that she would be keen to extend existing gardening activity to include growing vegetables and whilst



acknowledging that with a bigger garden her children would have more space to play she explained:

*"The thing is I get a lot of enjoyment and relaxation from doing gardening so there is this selfish element in there as well. I'd like space for the children but underneath it, the sub agenda is that I would actually really enjoy that."*

Subsequently in this instance practice *reinstatement* would be dependent on having access to a larger garden.

### **Never practiced**

Interviewees 8 also suggest that with more space (i.e. from 29 sqms to 58 sqms) the practice would be initiated as they explain:

*(Mrs) "I think we definitely would have a stab at a kitchen garden. I think we have spent so much time just actually getting it liveable that we did run out of steam. But it is something I have always fancied doing"..(Mr) "Yeah. Part of what we used the land for at home was growing veg and me dad still does."*

However earlier in the interview when pressed about why they had not put their plan to have a kitchen garden into being it was evident that it was not really lack of space that was a barrier to practice, rather it was lack of interest in gardening and reluctance to put the effort into the practice when a more convenient alternative existing as this piece of dialogue shows:

*"So you have had bigger gardens and smaller gardens and now you have this one. I still don't think I understand , apart from the soil thing, why you are not really very keen on veg growing now?"..(Mr) "Main reason is I can't be arsed".. "Well, that's alright"..(Mr) "I know, ha, ha. I'm not ashamed, ha, ha".. "It's your garden, ha, ha"...(Mr) "Absolutely. We have found a really great organic veg shop that delivers."*

### **Reduced Space**

#### **Current practitioners**

Interviewees 48 are self-taught gardeners who have been vegetable growers for many years and their practice would be sustained even if garden space was reduced (i.e. from 96 sqms to 48 sqms) as they explain:

*(Mrs) "I don't know, because wherever we've lived we've done gardening .We've lived in a garden.".. "Yes. But if you had to say what are your priorities in*



terms of, if you had to pick 3 things that you would definitely have or do, what would be on the top of the list and..”? .. (Mrs) *“What’s most important? Flowers”*..(Mr) *“Yes, well that’s alright”*...(Mrs) *“And a bit of veg.”*

Again, once initiated practice persistence is not dependant on garden size.

Interviewee 70 is one of 10 out of 11 interviewees whose practice would be sustained in a smaller garden. (N.B as this garden was very large at 1011 sqms rather than ask how practice would change with half as much garden space a limit of 100 sqms was set). In addition this interviewee, who is a stay at home parent, indicated that even with less time: *“I would still keep up the veg growing and the kids would help me with it, I would just get some low maintenance planting and, I do try to anyway because to be honest I am out of the house quite a bit.”* Thus, in this instance, whilst practice initiation was dependent of having access to a large garden, now initiated, extent of practice may be dependant on garden size but practice persistence is not.

### **Previous practitioners**

For interviewee 56, whilst she has grown fruit and vegetables in her garden in the past, it is clear by the end of the interview that she perceives that people with larger gardens than her own (120 sqms) grow fruit and vegetables. Moreover, she prefers to use the space she has for growing shrubs and flowers as well as for play space for her grand children, as she indicates in her reply to a question about whether people are either vegetable or flower growers: *“Yeah, me sister she used to do both. But now she just does flowers. She did have a veg plot, you see she has a really big garden, you see. And as I say I have gran kiddies now and they come and they like to play football.”* Consequently in this instance, when considering how practice would change with only access to half the space, growing fruit and vegetables does not get a mention.

### **5.1.9 ‘Freedom to practice’**

#### **Initiation**

Prior to practice initiation the majority of both current fruit and vegetable growers 17 (61%), previous practitioners 11 (69%) and 23 (85%) of those who have never practiced met (or now meet) the necessary condition ‘*freedom to practice*’, in that if they wish, they can practice i.e. they have a garden of their own and: are the sole user or the sole gardener; they share their garden and are the main gardener; or they share



their garden and have permission to practice from other users/owners. As this condition was met in the majority of practitioners it can be concluded that it is a condition that must be met prior to practice being initiated.

### **Persistence**

Now 26 (93%) current practitioners meet the condition *'freedom to practice'* (increased from 61% at initiation) and 13 (87%) previous practitioners continue to meet this condition (again up from 69% at practice initiation). As this condition continues to be met in the majority of practitioners it can be concluded that it is a condition that must be met for practice to persist.

### **Current practitioners**

Interviewee 13 moved into her partner's house over a year ago and was more than willing to 'take-over' the keeping of the garden, as she makes clear in this extract:

*"And you said your partner was not really that bothered about the garden. Are you the veg grower?" .."WELL, yes. My partner hasn't got a clue. I have just noticed that the pepper he has bought, which he put in my tomatoes patch, has been eaten down to the ground so I will have to tell him about that. BUT he is quite enthused by it. He likes the idea, he calls it 'the crops' our crops as if we have arable land somewhere..But he wouldn't, he says what he would like US to grow this year, but he wouldn't really sit and plant them."*

Interviewee 31's wife is not a keen gardener, but as they share their garden, she can and does decide on how other parts of the garden are used, as is explained when he was asked whose garden it was:

*"Mind, she does not do anything with the garden, she does nothing..I like the plants, she won't touch the plants... If I had my way I would certainly have more beds there (points at his wife's lawn). I did want a cottage garden thing, that's what I wanted"... "Lot's of different flowers and vegetables?..."*Yeah, that's what I wanted but of course..."**

Thus *'freedom to practice'* is curtailed and resulting practice is limited.



### **Previous practitioners**

Whilst interviewee 15's partner has no interest in gardening, her interest has grown and with a garden of her own she now feels she has complete control over what she does with her garden as she explained:

*"This is the first house that we bought. So it was really like this is mine, you know it was not like a rented garden, you know"... "Did that feel quite different?".. "Yeah, obviously you are more inclined to spend money on it and get it how you want it. And previously I was always slightly constrained because it was not your property."*

A number of times during the interview interviewee 56 gave examples of instances where it became clear to her that her husband was not always in agreement with what she wanted to do in their garden. In one instance her husband had told her, in no uncertain terms, to take down the canes she had put up to grow some beans and when I asked her why she replied *"..I honestly don't know. I wish I did know because, mind you they did look at mess stuck in front of hut, because he likes to see everything, you know..."*, with the result that the beans were moved to the side of the hut.

Consequently the context is not conducive to practice which may account for the irregularity in practice over the years.

## **5.2 What is it that enables a person to initiate or persist with practice?**

The 11 mechanisms postulated as being capable of generating practice initiation and persistence include the: 'Goes-together'; 'Could do'; 'Can do-internal'; 'Can do-external'; 'Moral responsibility'; 'Positive thinking', 'Will do'; 'Influence'; 'Should do'; 'Guilt'; and 'Habit' mechanisms. In this section evidence supporting the existence of mechanisms postulated as being capable of generating practice initiation and persistence are summarised for current practitioners, previous practitioners and those that have never practiced. In addition, quotes and interview extracts are used to provide evidence to support the existence, or not, of the postulated mechanisms and outcomes are identified in terms of practice initiation, extension or persistence or no practice.

The details are set out in **table 5.2.1**, **table 5.2.2** and **table 5.2.3** for practice initiation and **table 5.2.4** and **table 5.2.5** for practice persistence.



### 5.2.1 'Goes-together' mechanism

#### Initiation

The M1 'Goes-together' mechanism was evident in 13 out of 28 (46%) current practitioners and 8 (50%) previous practitioners prior to practice initiation, but is only evident in a minority 2 (8%) of those who have never practiced.

#### Persistence

The M1 'Goes-together' mechanism continued to be evident in the majority of current practitioners (82% compared to 54% at initiation), but is slightly down from 50% at initiation to 47% for previous practitioners.

#### Current practitioners

Interviewee 9 is a single older man living in a privately rented house and he loves growing plants from seed and has guerrilla gardening tendencies as he explained: *"I've grown other trees, oaks and chestnut from seed and I plant them out when I'm walking. Yes, so I go out at night, to plant the forest"* and when asked if it was the practice of growing that provided the joy and he replied *"Oh, absolutely, yeah"*. Moreover it is evident that looking after the fruit that was already planted in the garden of the house he is renting has suited him down to the ground, as he explains:

*"Last year I had about half a dozen plums and I hope to get fifty or sixty this year. And last year there was one apple, one lousy apple, but we might have a couple of dozen this year. So yeah, ummm I'm keen, I may not be very good, but I am keen on the cooking thing...And the idea of simply going out and getting something and cooking it, but I wouldn't want to do the boring stuff, I never want to do the boring stuff, the sort of stuff that is interesting."*

From this explanation it is evident that he enjoys the acquisition and exercise of skill as well as the produce. Thus, it can be inferred that the increased benefit M1 'Goes-together' mechanism is evident, as from previous 'direct knowledge' of the practice it is clear that practice meets a need and is also compatible with his interest in growing and desire to acquire and use new skills, which results in the practice being **sustained**. However whilst as he said *"I have really enjoyed having, ummmm, all of it (the garden) to myself,"* he has also been unable to make extensive changes to a garden that is not his own, therefore the context is not conducive to more extensive practice and as a result practice remains **limited**.



Interviewee 20 has been growing vegetables for one year and in this extract makes it clear that she values the opportunities to learn and gets real pleasure from 'growing' first and foremost:

*"Last year we grew potatoes and cabbages. But again it was trial and error. Learning not to plant all the cabbages all at once, you know that kind of stuff. And again learning that the purple broccoli was horrible. I don't know what it was but that was learning...We have this great big tome on how to grow vegetables. So we will try anything, whatever we have space for...And it's a pleasure, you know when you make something out of something you have grown. You think 'I GREW that.'*

From which it can be inferred that the increased benefit M1 'Goes-together' mechanism continues to be evident in practice *persistence*, in that, practice provides ongoing opportunities for learning and growing (e.g. 'direct knowledge'), which is valued over and above the produce itself, resulting in increased interest and enthusiasm for the practice.

Interviewee 38's interest in gardening developed in adulthood and led her to seek out new opportunities 'to grow' as her garden matured, as she explained:

*"I think because we were sorting the garden out and I had put the shrubs in and we got to the stage where we would turn the beds over and go and buy a couple of shrubs at the weekend, then there comes a point where all the beds were done and it's what are we going to do now? So then we started by buying small, already started, veg and potting it on. And from there started growing from seed. But really something to keep the interest going."*

From which it can be inferred that the M1 'Goes-together' mechanism is evident in practice *initiation*. In that from 'indirect knowledge' of the practice gained in youth it was clear that the practice was compatible with her growing interest in gardening and as the context was conducive (i.e. garden of her own, with the freedom to practice) practice was *initiated*.

Interviewees 40 have been growing fruit and vegetables since their youth and beautifully describe why they value their fruit trees, as well as delight in the produce:



*(Mr) "Fruit trees you can't beat-em.. That's a Bramley at top. We have had about 4 of these because they grow so fast we can't keep up. I have to take them out and put another in. But to see apple tree's in spring and they are full of blossom and they look like magnificent and the leaves are coming and they are nice and fresh and glistening. Then when they start to sag and look a bit old, the APPLES are there. APPLES with rain on em are as good as apple blossom. To me"...(Mrs) "Next door, apples he has on that"...(Mr) "Big red apples"...(Mrs) "And he does not use them"...(Mr) "And they are really juicy, crisp, they are not sweet..(Mr) "Oooh lovely apples"...(Mrs) "Apple pies I made with those apples last year was unbelievable"...(Mr) "And they don't eat em."*

From which it can be inferred that the M1 'Goes-together' mechanism is evident in practice persistence, in that practice builds 'direct knowledge' and feedback from practice reinforces belief in both utility and aesthetic value. As a result practice ***persists***.

Interviewee 70 struggled with explaining her reasons for growing fruit and vegetables, but eventually gave the following explanation:

*"I honestly don't know why, it's partly wanting to be a greeney type person and being into the sort of organic ethos, I mean if you are going to buy organic vegetables why not just grow them, if you have got the space to do it, it just seems like the best thing to do and the freshest thing to do. It's also a cheap thing to do, so I quite like that."*

From which it can be inferred that the M1 'Goes-together' mechanism was evident in practice ***initiation***, in that from 'indirect knowledge' it was felt that there would be utility in the practice and practice was also felt to be compatible with her lifestyle and values.

This interviewee goes on to describe her experience of the practice as "it's so addictive putting a tiny seed in and it's nice to have the fresh veg". From which it can be inferred that the M1 'Goes-together' mechanism continues to be evident in practice persistence. But now it is practice (i.e. the opportunity for growing), that is valued as well as the produce.





**Figure 5.2.1** showing interviewee 70's garden. This was the biggest garden viewed, at a quarter of an acre. The land, which is in the middle of the back of the block, was bought from an allotment society who owned it. And now this interviewee is very keen on growing vegetables despite having no previous experience.

### Previous practitioners

Interviewee 53 had had a job in a garden in his youth but disputed the idea that this is when his interest in gardening started, as he explained: *"I don't think it was that I think I planted a couple of seeds and they grew and a greenhouse appealed and my partner agreed to..."* From which he became an *"..avid fuchsia grower. Did a lot of cuttings, grew standards.."* and then extended his practice to growing tomatoes. However as he explains his practice was not very successful:

*"One year the watering was a bit haphazard and they got that black spot. Then another season they split, that was to do with the watering as well. It was all very time consuming."*

However he no longer practices, because he has lost interest and has no use for lots of vegetables as he now lives alone for most of the time, as he explains:

*"But I think you have to have an interest and also mostly there is only me to eat them so.... I have to be careful how much I buy now, I have just adjusted cooking for one, the kids have just been here."*

### 5.2.2 'Could do' mechanism

#### Initiation

The M2 'Could do' mechanism was evident in only 2 (7%) current practitioners and 2 (13%) previous practitioners prior to practice initiation, but is only evident in 1 (4%) of those who have never practiced.



### **Persistence**

The M2 'Could do' mechanism is evident in only 1 (4%) current practitioners and no previous practitioners.

### **Current practitioners**

Interviewee 12's father had always grown vegetables in their family garden and whilst she was not encouraged to do so when she was young she did almost expect to do so as an adult, as she explained:

*"So about the interest in the veg and the herbs and that, did it precede this house? Were you already doing it somewhere else"?.. "Yes, I've lived in rented houses before and if I had a bit of garden or a window box and things I'd always grow my own herbs. My dad has always gardened. He's always had a veg plot, so I'm used to it... the expectation that you can grow things to eat not just to look pretty."*

From which it is inferred that, in this instance, the M2 'Could do' mechanism was evident in practice *initiation*, in that from watching her father practice she gained 'indirect knowledge' of the practice which increased her awareness of the possibility of practicing in the future.

Interviewee 43 has been growing fruit and vegetables for many years and now in her eighties delights in learning more and trying new types of vegetables, as she explains:

*"But I have been on a gardening course, down at Walkley Community Centre. It's an organic group. REALLY an inspiration. And I have got some seeds from him, things like rocket and water cress and things like that. So, actually I have planted the watercress and rocket."*

From which it can be inferred that, in this instance, there is evidence of the M2 'Could do' mechanism, in practice *persistence*, in that from attending the gardening course 'indirect knowledge' continues to build and open up new possibilities for what she could now grow.



### 5.2.3 'Can do-internal' mechanism

#### Initiation

The M3 'Can do internal' mechanism was not evident prior to practice initiation in current practitioners, previous practitioners nor in those who have never practiced before.

#### Persistence

The M3 'Can do internal' mechanism is now evident in the majority of current practitioners 16 (57%) but is only evident in 4 (25%) previous practitioners.

#### Current practitioners

Interviewee 31 is retired and has gardened from his youth and whilst carrying out the interview I was able to observe that his greenhouse/hut was full to bursting with seedlings and I asked him if he had always grown from seed and he replied: *"I love growing things from seed, yeah. I do.?. I don't know whether it's because I don't like paying. Me dad always used to, me dad always did, and it was probably him, I used to watch him."*

In addition, it is evident that he has had some success with previous practice as he explained:

*"I have done tomatoes, I have done cucumbers, I even had a go at growing chillies last year"... "How did you do with those?"... "They were grown from seed as well. They were really good. Really easy. Again I put them in pots and did not look after them as much as I ought to...But I had loads of chillies."*

From which it can be inferred that the M3 'Can do-internal' are evident, in that 'direct knowledge' builds from practice, and skills and confidence have developed as a result of trying and succeeding in growing. Additionally, there is obvious joy in ability to grow successfully and as a result interest in the practice is sustained, and practice ***persists***.

Interviewees 40 came from a long line of allotment holders and they themselves had had an allotment for many years before transferring the practice to their garden. From observation in their garden, in a space measuring 2 metres by 4 metres, they were growing: one family apple tree (3 varieties), one family pear tree (3 varieties), 4 potato plants, 10 runner beans, 2 rows each with 6 lettuces, a row of peas and herbs



providing ample evidence of the skills and abilities they had developed over many years of practice. As they both explained, in a small garden, some skill is required to keep larger fruit trees under control:

*(Mrs) "We have a pear tree and an apple tree in that little bit.". (Mr) "Family pear tree. 3 varieties on each"... "And are they good"?..(Mrs) "[They are brilliant]"..(Mr) "[Oh they are brilliant]. Oh yes brilliant. The only trouble is keeping em in toe..It's hard work keeping them that size.. (Mrs) "It is"..(Mr) "They are about 30 year old."*

From which it is inferred that the M3 'Can do-internal' mechanism is evident in this instance, in that ongoing practice continues to build '*direct knowledge*', generate skills and confidence and sustain interest. As a result practice *persists*.

### **Previous practitioners**

Interviewee 56 is a keen gardener enjoying both the challenge of growing from seed and propagating plants from cuttings. But, whilst she has had some successes with growing vegetables in pots, on balance she does not view her practice in a wholly positive light, as she concludes *"I did tomatoes last year. I've done beans. Lettuce, I'm not very good at. Onions I was quite successful with. They were not bad..No I'm not very successful with the veg..."* From which it can be inferred that, in this instance, there is evidence of the M3 'Can do-internal' mechanism, in that previous practice has built '*direct knowledge*'. However, while this has generated skills, confidence appears to be lacking.

### **5.2.4 'Can do-external' mechanism**

#### **Initiation**

The M3\* 'Can do-external' mechanism was evident in 7 (25%) current practitioners but was not evident in either previous practitioners or in those who have never practiced.

#### **Persistence**

The M3\* 'Can do-external' mechanism is evident in 5 (18%) current practitioners and continues not to be evident in any previous practitioners.



### Current practitioners

Interviewee 9 started gardening in his youth and has grown vegetables in his own gardens previously. However currently he is renting a house and part of his tenancy agreement includes maintaining the garden, which contains 2 fruit trees and some fruit bushes and as he explained:

*"I've never had a plum tree or an apple tree but I got good old Alan Titchmarsh out and studied it, you know and WHEN you are responsible,. So when you are the only one, it's you or nobody. You actually start to discover ohh- I can do it...And how do I do it? And you find out. You know there's enough about to tell you how to do it, it's easy."*

Thus whilst he had no previous experience of tending fruit trees he is a keen and able gardener and he puts his enthusiasm for gardening down to his early childhood experience as he says *"it's the confidence that comes from that neighbour who had the patience to show me"*. This provides evidence that the reduced effort M3\* 'Can do-external' and the reduced effort M3 'Can do-internal' mechanisms were activated, in that in already having 'access to the resources' he did not have to think about whether he wanted to plant and grow fruit trees. In addition, previous practice provided him with the 'direct knowledge', skills and confidence needed to get on with doing so. Thus, in this instance, reinstated practice *persists*.

Interviewee 55 is the daughter of interviewee 29 and explains: *"Yeah, because I have to help my mum out with her garden now she is getting older, she's finding the heavy work like one side of the garden is totally all vegetables and I do all that"*.

From which it can be inferred that, in this instance, there is evidence of the M3\* 'Can do-external' mechanism, in that, with the additional help of her daughter (i.e. increased 'access to resources') her mother can continue to be confident that the resources needed to practice are met. As a result practice *persists*.

When interviewee 58 moved into her house there were already a number of fruit trees planted in the garden as she explains:

*"We had the two apple trees at the bottom and we also had a damson tree which we've actually taken down since because it was diseased unfortunately, when we first moved in here we had some really nice damson crops from it and we made damson vodka..So we were very sad to loose that and we do intend to plant another one."*



Thus from never having grown fruit trees before, existing trees have been maintained and their produce used, as well as new trees being planted. Thus it can be inferred that the M3\* 'Can do-external' mechanism is at work, in that as she already had 'access to the resources' (e.g. the fruit trees were already planted), it would take more effort to remove them than to continue to maintain them which resulted in practice being *initiated*.

### **5.2.5 'Moral responsibility' mechanism**

#### **Initiation**

The M4 'Moral responsibility' mechanism was not evident in any current practitioners, previous practitioners or in those that have never practiced, prior to practice initiation.

#### **Persistence**

The M4 'Moral responsibility' mechanism is now evident in only 1 (4%) current practitioners and 1 (7%) previous practitioners.

#### **Non practitioners**

Interviewee 28 gained experience of growing fruit and vegetables in her youth and now lives in a family household with older children. Recently she has become increasingly concerned about the use of chemicals in modern food production as she explained:

*"I suppose yes, as a vegetarian and you know, I like organic you know and I try to grow organically and I like to, if I've got a choice I prefer to buy organic food and that's important. I don't like putting chemicals on.."* and as a consequence she explained how this has increased her willingness to make the changes in her own life that she can:

*"I mean I live here and try to live like that but then they've put a phone mast up and that's out of my control, which I think that's terrible. But loads of people got together but ...that's something that's changed my environment and it's out of my control but the things that I can control myself I'd say I'd do that."*

From which it can be inferred that there is evidence of the M4 'Moral responsibility' mechanism, in that 'awareness of the consequences' of commercially grown fruit and vegetables (in terms of harm to themselves and wider environment from the chemicals used in production) has led her to reconsider her own values and standards and take responsibility for doing something about it (i.e. the condition 'ascription of responsibility')



is met). But as she prefers to use her own small garden for other uses last year she took on an allotment where she now grows fruit and vegetables organically.

### **5.2.6 'Positive thinking' mechanism**

#### **Initiation**

The M5 'Positive thinking' mechanism was only evident in 1 (4%) current practitioners and no previous practitioners prior to practice initiation, but is currently evident for 3 (11%) of those who have never practiced.

#### **Persistence**

The M5 'Positive thinking' mechanism is evident in 2 (7%) current practitioners and 2 (14%) previous practitioners.

#### **Current practitioners**

After one year of practice interviewee 38 has gone from buying and potting on plants to growing from seed and is surprised at how much she has enjoyed it, as she explained:

*"Ummm, yeah, I am surprised I have enjoyed it as much as I have. If somebody had told me ten years ago that I would be growing my own veg I would have said they were mad. Emm, but yes, I am,...I have all sorts of bits and pieces inside that are waiting to come out. So yeah, the veg in particular I have enjoyed."*

From which it can be inferred that the M5 'Positive thinking' mechanism is evident in practice *persistence*, in that practice builds 'direct knowledge' and provides feedback that enjoyment of practice outweighs any difficulties.

### **5.2.7 'Will do' mechanism**

#### **Initiation**

The M6 'Will do' mechanism is evident in 1 (4%) current practitioners and no previous practitioners prior to practice initiation. It is also evident in 1 (4%) of those who have never practiced.



### **Persistence**

The M6 'Will do' mechanism is evident for 5 (18%) current practitioners and 2 (14%) previous practitioners.

### **Current practitioners**

Interviewee 20 gained '*indirect knowledge*' of the practice in her youth from watching her father practice. In adulthood she has become both interested in gardening and increasingly concerned to live in a more 'environmentally friendly' way and as such she sees practice as "*tying in with everything, wanting to grow, wanting to spend time in the garden, having a project that's ongoing, not just somewhere you sit*". From which it can be inferred that the increased benefit M1 'Goes-together' mechanism was evident in that the practice was compatible with her values, lifestyle and interests, but not activated. As at the time, living in a rented house, the context was not conducive to practice until she had sought and gained permission to practice from her landlord. As a result she explained how now: "*We don't have to do the big things we can concentrate on the things we like doing like planting and growing.*" From which it can be inferred that the reduced effort/risk 'Will do' mechanism was evident, in that after permission to practice was gained, potential conflict was removed and she had the '*freedom to practice*' as she wished and could be confident that practice would not be interfered with.

Interviewee's 40 are both retired and are very keen gardeners. However their garden is now very mature and a small permanent vegetable bed provides the most extensive opportunities for gardening. This has caused some conflict in terms of who gets to practice, which has been resolved by one partner wrestling the practice from the other:

*(Mr) "But I don't get even a chance with veg now. THAT was my greenhouse"...(Mrs) "Yeah, but you never used it".. (Mr) "I know, I am not allowed in it now"...HA, ha, ha...(Mrs) "Ha, ha, ha"..(Mr) "That was MY side for a few veg and apple trees. I managed to hang on to runner beans for quite a while but I have lost them now. Virtually, plant wise I don't get a look in".. (Mrs) "Yeah. But you haven't got, he does not do it."*

From which it can be inferred that the M6 'Will do' mechanism continues to be triggered in this instance, with control over practice (i.e. '*freedom to choose*') being wrestled from one partner to the other resulting in practice being **sustained**.



### **Previous-practitioner**

Interviewee 39 was encouraged to garden in her youth but her interest in gardening did not really get going until she had her first home and garden of her own as she explained:

*“MY MOTHER will say I never showed the inclination to help with the garden. But I think that’s because there is a great difference doing it for yourself. And doing the weeding for somebody else..But I think it is something about having your own house.”*

From which it can be inferred that the M6 ‘Will do’ mechanism was evident prior to practice initiation, in that it was only when she had complete ‘freedom to choose’ practice as she desired, in her own garden, that she was willing to initiate practice.

### **5.2.8 ‘Influence’ mechanism**

#### **Initiation**

The M7 ‘Influence’ mechanism was not evident for any current practitioners or previous practitioners prior to practice initiation, but is currently evident for 1 (4%) of those who have never practiced.

#### **Persistence**

The M7 ‘Influence’ mechanism is now evident for 1 (4%) current practitioners and 2 (14%) previous practitioners.

#### **Current practitioners**

Interviewee 11 has a small back garden and has been growing vegetables in pots in the front and side parts of her garden space, where space is under utilised and growing conditions are good. When asked where she thought her practice came from she replied:

*“From my dad. He used to be a farmer before he sold his farm so, this really big patch was all really nice veg and I think that is probably where it came up, because it tastes so much nicer and you get used to it when you are little, you get used to having it every day. When you go to supermarket veg your like, er, it does not actually taste of anything. Potatoes I think are so nice. I’d love to have space for potatoes.”*



As her father passed on his interest to her, she has passed it onto her partner and now they are expecting a baby and intend to persist and pass on practice to the next generation, as she explains:

*"We'll have to be really organised this year and get everything planted earlier so everything is ready now, just need to keep planting the lettuce at regular intervals and the radish and the rest will hopefully look after itself. But I don't know, I think my husband is quite excited about when he's bigger, showing him how to grow things. He's well into it now so he's quite excited about doing things."*

From which it can be inferred that the M7 'Influence' is at work, but not as a result of 'awareness of the consequences' of the practice in terms of benefitting the environment and feelings of moral obligation as postulated, rather in terms of being 'aware of the consequences' in terms of benefits to herself, and therefore encouraging or passing on a practice that is a family (traditional) practice that continues to be valued.



**Figure 5.2.8** showing interviewee 11's preference for using the side of the house, where growing conditions are better, for her runner beans and courgettes.



### **Previous practitioners**

Interviewee 15 has two small children and a house and small garden of her own. In her youth she was encouraged to garden and grow vegetables from which she developed an interest in gardening which continues, as she explained:

*"It would be nice to do that again (grow vegetables), with the children, because it would be nice for them to understand where food comes from really. Because we have a veg box delivered, but I would like them to understand how it grows. And okay they are a bit young at the moment but in time."*



From which it can be inferred that the M1 'Goes-together' and the increase benefit M7 'Influence' mechanisms are evident, in that practice is valued, but again not in terms of moral worth, but because of a desire to make her children more aware and knowledgeable about where food comes from and how it is grown. However due to existing demands and preferences for other uses of her small garden, practice is not reinstated.

Interviewee 28 had previous experience of the practice in her youth and has continued to develop her 'growing' skills and was also keen to pass them onto her children as she explained:

*"I've always read gardening books and probably helped my grandfather with his allotment as a child and it's something I've always really enjoyed, I've got fond memories of picking peas as a child..And in a way you want to pass that on to your own children, so they have enjoyed planting seeds and watching them grow."*

From which it can be inferred that the M7 'influence' mechanism is evident, again because the practice has personal worth or value rather than moral value. But with other demands on her small garden taking preference, the context is not conducive to practice and as a result two years ago she took on an allotment.

### **5.2.9 'Should do' mechanism**

#### **Initiation**

The M8 'Should do' mechanism was evident for 10 (36%) current practitioners and 8 (50%) previous practitioners prior to practice initiation. It is also currently evident in 2 (8%) of those who have never practiced.

#### **Persistence**

The M8 'Should do' mechanism is now only evident for 1 (4%) current practitioners, and 1 (7%) previous practitioners.

#### **Current practitioners**

Interviewee 9 is single, lives alone in rented accommodation and has access to a small garden that already contained 2 fruit trees and 2 fruit bushes. His landlord expects him to maintain this fruit, as he explained: *"I mean I am renting this house but they*



*particularly wanted the garden to be maintained. They did not care how but they did not want it going wild.*" From which you can infer that there is evidence of the M8 'Should do' mechanism, in that he is 'aware of expectations' to maintain the garden, and believes that his landlord would disapprove if he failed to do so. Consequently, because keeping on his landlord's good side is important to him he is willing to take responsibility for tending the garden and the fruit. Additionally in this instance, the effort was not felt to be too great as he had previous experience of the practice. As a result practice is **reinstated**.

Interviewee 12's father had always grown vegetables in their family garden but was not encouraged to do so herself. More recently, as an older adult she had started to grow some vegetables in pots and some of her friends have also started to 'grow their own', as she explained: *"My friend who gave us the raspberry does it (i.e. growing vegetables), and that.. is quite inspiring, she says "oh I've got cucumbers".. We should do that."* Thus, in this case she is increasingly 'aware of expectations' to practice and believed that practice was now also accepted or seen as appropriate by her friend. Consequently because she values her friend's approval her willingness to extend existing practice increases. From which it can be inferred that the M8 'Should do' mechanism is now evident. Thus, in spite of limited time, she has made a permanent bed in her garden for vegetable growing with the result that existing practice is **extended**.

### **Previous practitioners**

Interviewee 44 was not interested in gardening when she was younger but as an older adult started to get into it and enjoyed gardening. Here she explains how her own practice came about:

*"I knew some people who work for the National Trust and they had this lovely little vegetable plot so I thought 'Oooh, I'll grow vegetables' because I am really into cooking. So I grew parsnips and garlic and stuff like that. And it was quite successful."*

From which it is inferred that the increased benefit M1 'Goes-together' and M8 'Should do' mechanisms were evident prior to practice being initiated, in that friends practice increased her familiarity with practice (i.e. increased 'indirect knowledge' and 'awareness of expectations'), which was felt to be compatible with her interest in both friendship and gardening, and she also had a use for the produce. Additionally, at that



time as a single person not having to share her garden the context was conducive to practice and practice was *initiated*.

### **Never practiced**

Recently interviewee 52's neighbours have laid out a vegetable patch and started to grow vegetables and as a keen gardener herself she has watched their progress with interest. It was evident that there was an element of competitiveness between neighbours in terms of extent of practice illustrated in this comment: "*M next door, well you can see they are gardeners, and he has only just bought a compost bin, now that surprises me. And he has only just started that vegetable patch*" and whilst this interviewee did not feel she has time for the practice she did feel she is the 'type' (i.e. has always grown everything from seed and loves to watch things grow). Hence, she is already thinking about how she would go about it as she says: "*Ummm, but I would do it like they are doing it next door, like they did on 'Gardeners World', a tiny little patch and they had 20 different vegetables in it I think.*" From which it can be inferred that the increased benefit M5 'Positive thinking' and M8 'Should do' mechanisms are evident, in that from watching her neighbours she had an '*awareness of expectations*', believed that growing fruit and vegetables was what 'gardeners' do and was keen to show her neighbours that this was understood. Additionally she had enough '*indirect knowledge*' of the practice to know that it was compatible with her interest in gardening. However as she valued other types of growing over and above the approval of (or keeping in with) her neighbours, in this instance practice is not yet initiated.

### **5.2.10 'Guilt' mechanism**

#### **Initiation**

The M9 'Guilt' mechanism was not evident in any current, previous practitioners or those who have never practiced.

#### **Persistence**

The M9 'Guilt' mechanism is now evident for 1(4%) current practitioners, but is not evident for any of the previous practitioners.

#### **Current practitioners**

Interviewee 34 is the only person who linked both '*awareness of consequences*' of not growing fruit and vegetables, in terms of harming the environment, with feelings of guilt as he explained:



*“Well I work as an environmentalist so I feel guilty all the time basically..So for that reason I tend to always think about the wider issues which can be a bit of a bane. Because it would be nice to only think about this in terms of the joy of being able to eat things you have grown and being able to sit out in your own space. But we can't really separate the two.”*

He traces his awareness of environmental issues back to his teachers when he was at school as he explains: *“I guess my school teachers were at school/uni in the era of Carson's 'Silent Spring' and I think they brought environmental awareness into the classroom.”* From which it can be inferred that the M9 'Guilt' mechanism is evident in practice persistence, in that as a result of the information provided by his teachers on environmental issues his *'awareness of the consequences'* to the environment of certain practices increased. Now he also believes that growing fruit and vegetables is beneficial to the environment and values the environment. Consequently he feels a sense of moral obligation to practice and feels guilty when he fails to do so. Thus, to avoid feeling bad about himself he is increasingly willing to take responsibility (i.e. *'ascription of responsibility'*) to **reinstate** and **persist** with practice.

## **5.3 Context**

### **5.3.1 Is 'time of life' significant?**

Again please see summary **table 5.2.1**, **table 5.2.2** and **table 5.2.3** practice initiation and **table 5.2.4** and **table 5.2.5** for practice persistence.

#### **Initiation**

For the majority of current practitioners practice initiation was dependent on 'time of life' in that for 23 (82%) interviewee's 'time of life' was perceived as being significant, for example practice was initiated: in their youth 10 (43%) as part of their socialization; or when moving to their first 'own' home and garden as a young adult 5 (22%); or moving to a new home as an older adult with no children 4 (18%), (here both previous examples can be seen as an extension of 'home-making'); as a young adult prior to having children 3 (13%); or in retirement 1(4%). However for 5 (18%) current practitioners practice initiation did not coincide with any particular 'time of life' and was not perceived as being significant. For 12 (75%) previous practitioners 'time of life' was also perceived as being significant to practice initiation, for example practice was



initiated: in their youth 4 (33%); or as a young adult prior to having a family 4 (33%); when moving to their first home of their own 3 (25%); or as an older adult 1 (9%). For 4 (25%) previous practitioners 'time of life' was not perceived as significant to practice initiation. Similarly for nearly all 25 (93%) of those who have never practiced, 'time of life' has had no effect to date on practice or not, whereas 2 (7%) of those who have never practiced are now thinking that it might be 'the right time' to start practice, as children have grown and/or they have moved home.

### **Persistence**

For just over half of current practitioners, 15 (54%), 'time of life' was also perceived as being significant for practice persistence, in terms of being more able or more inclined to 'make time'. Eight (53%) of these practitioners are retired, 1 (4%) is just about to retire, 1 (4%) now lives in a new home and 3 (11%) are older adults with no children. Whilst for 12 (46%) of current practitioners 'time of life' was not perceived as significant for practice persistence. In contrast for the majority of previous practitioners, 12 (75%), 'time of life' is now not perceived to be significant, but nonetheless practice has ceased. However for 4 (25%) of previous practitioners 'time of life' is now perceived to be significant to practice, in that practice ceased some time ago and reasons given include: constraints on time due to young children and full-time work.

### **Current practitioners**

Interviewee 13 is one of the few current practitioners who have practiced continuously since her youth as she explains:

*"..when I was in London, I was there for about ten years, I did little bits and was quite into buying plants in the flats I was in. And I lived in a house with a big garden for about 2 and ½ years before I came up to Sheffield and then I really got into it. Even though I was renting, it was so lovely, it was kind of big and long garden that had just been turfed but all the beds were empty.. YEAH, so I started experimenting, I think maybe I even grew tomatoes before I lived there. Which you know is really a starting thing as far as I am concerned."*

Currently, even with a young child, her practice continues, as she is able to use her considerable knowledge and experience to adapt practice to fit in with being a new parent:

*"I think I have learnt a bit that I don't have time to do lots of transplanting and repotting and stuff. I did do tomatoes but I have chosen things that I can plant*



*straight out like peas and beans. And calendula and stuff that I quite like, and also staggering it a bit more. So not planting everything. Because I used to do that and we had seeds everywhere, like seed trays everywhere, which is very nice. BUT then you replot them into something bigger, then it's not warm enough, and that's a real pain, I remember taking individual pots outside and it takes about half an hour. Then you have to bring them back in again in the evening".. "I know it can be a pain".. "I think I have got a little bit, yeah, cleverer now."*

From which it is inferred, that in this instance, whilst practice initiation was dependent on 'time of life', practice persistence is not.

Interviewee 14 is now retired, has recently remarried and lives in a bungalow rented from the council with a smaller garden than his previous house. However he is a skilled and knowledgeable gardener, but as he explained his interests have changed as he has got older:

*"Yeah, I have had bigger gardens and a greenhouse and everything when I was younger... I mean I have grown grapes, things like wallflowers and dahlias, BLOOMS you know? All those sorts of things and I have enjoyed doing that.. I don't feel as though it is necessary now to do that (grow lots of vegetables). I think some people haven't got the interests that I've got. Maybe they want to spend more time in garden."*

From which it is inferred, in this instance, that both practice initiation and persistence have been dependant on 'time of life'.

For interviewee 16 growing fruit and vegetables is very much linked to having a home of her own as she explains:

*"NO, this is the funny thing it was only when I had my own garden that I became interested. It's like people who say they are not interested in houses then they buy one and suddenly they are at B&Q every week. Ummm, I remember once mum and dad gave us a little plot sort of four by four to play with in the garden, but we were literally about eight and five at the time. But I was not hugely interested in- I did not help them as a teenager very much and then- I was quite interested in eating the raspberries I remember."*



From which it is inferred, in this instance, that practice initiation was dependant on 'time of life', in that initially it was an extension of 'home-making', but now 'time-of-life' is no longer perceived as significant to practice persistence .

Interviewee 37 does not practice as extensively as she did in her first 'own-home' which had a large garden, but as she explains this is due to lack of time as well as having less space to grow:

*"I have grown vegetables, runner beans and things like that. Ummm, I have grown herbs, rocket and salad stuff in pots. But I don't grow a lot of veg. I did wonder when I retired I have asked next door if I can have the garden to grow veg when I retire. Which would be really good. And she's not bothered. If I can use part of it.. But I will have to wait until I have the time."*

From which it is inferred, in this instance, that whilst practice initiation and the extent of practice has or is dependant on 'time of life', practice persistence is not.

When interviewees 40 moved to their first house with a garden (current house) their children were still young and their first priority was to provide play space for their children as Mrs H explained: *"When kids were little it was just lawn. We left it as lawn for them to play on. You can't garden when you have children can you?"* But practice was sustained at their allotment. However as the couples children got older other family demands increased and they found it increasingly hard to put in the time and effort needed to keep their allotment, and as a result practice was transferred to their garden as they both explained:

*(Mrs) "We would still have an allotment if we had the time. We packed it in when my mum became ill we hadn't time to do it. Every time we went up there were more weeds weren't there?"... (Mr) "It was a losing battle"... (Mrs) "She needed looking after so we just had to pack it in."*

From which it can be inferred, that in this instance, garden practice did depend on 'time of life'.

Interviewee 43 started to grow fruit and vegetables in her youth, with her father. However practice did not continue into adulthood and was only reinstated when her own children had grown up, as she explains:

*"I mean at 20 you have so many other things, more important things to do. As a child if you get that interest you have that to rely on in later life. And you think 'Oh yes I can do that.'*



From which it can be inferred that, in this instance both practice initiation and persistence have depended on 'time of life', in that as a child she had the opportunity and inclination to 'do' as her father did. But in motherhood believed in meeting the needs of her children over and above her own needs and interests and now in retirement can allow her earlier interests to come to the fore.

### **Previous practitioners**

Interviewee 15 currently has two small children and a small garden but has always found the time for gardening. Thus, in this instance lack of practice can be explained by belief that her children's needs for play space come first rather than lack of interest or time to practice. Subsequently with twice as much space the multiple demands on space could more easily be accommodated and as she explained: *"I would definitely do the fruit and veg..I mean time is obviously an element. If I had something bigger I think I would find more time. Do you know what I mean?"* Again, in this instance, practice persistence is dependent on 'time of life'.

Interviewee 41 has grown vegetables when, as she explains: *"I'm pretty sure that was before the children when it was just John and myself here, it's probably some friends were doing it and we thought well, we'll have a go."* However now that her children have grown and left home she is thinking of reinstating the practice, as she explains:

*"In the past, I would probably have just purely gone for a garden that looked after itself so I would have purely said, oh I'd have a bigger lawn so that all I would have to do was mow it and now when I have both got more time and I am keener I think I might have a greenhouse or something where I could do more growing of stuff myself and I think I would definitely try and grow vegetables. Right, I might try again, or I was thinking now, we don't need so much lawn, I might in fact dig up a bit more of the lawn and try and grow veggies."*

From which it can be inferred that, in this instance, both practice initiation and reinstatement have depended on 'time of life'.

Interviewee 66 started to grow fruit and vegetables when he moved into his current house as a young man with no children. Here he explained how his practice changed completely when his children were born and is yet to be reinstated:



*"At that point, this was before our children came along, I had three plots for vegetables. Potatoes, cabbages and things and rotated it".."You had enough space to do that?".."Well that was at the back. When the children came along that had to go because we needed play space".. "Were you sad to lose it"?".."Err, I did not have time to think about it because we had two children very quickly and they were very active children."*

From which it can again be inferred that, in this instance, 'time of life' made a difference to both practice initiation and persistence.

### **5.3.2 Is the garden setting significant?**

#### **Initiation**

For 23 (82%) current practitioners practice was initiated in their own gardens, and of these 23 practice was initiated in previous gardens by 14 (61%) and in their current garden by 9 (39%). However for 5 (18%) current practitioners practice was initiated in a neighbour's garden (1) or in an allotment (4). For previous practitioners 14 (87%) practice initially was garden based and of these 9 (64%) initiated practice in a previous gardens and 5 (36%) initiated practice in their current garden, whilst for two previous practitioners practice was allotment based.

#### **Persistence**

For the majority of current practitioners practice continues to be garden based, with 3 (11%) having transferred allotment practice to their home garden. However for 1 (4%) current practitioner practice has been transferred to an allotment, whereas for 3 out of 16 (18%) previous practitioners practice is allotment based, with 2 transferring garden based practice and one continuing with allotment based practice.

#### **Current practitioners**

For 18 (64%) of the 28 current practitioners practice has always been garden based, whilst for 5 (18%) practice has previously been undertaken in an allotment and for 5 (28%) of current practitioners information was not available. The extent to which practice has been dependent on the garden setting is explained below.

Over recent years interviewee 12 has considered getting an allotment to grow fruit and vegetables in. However, as she explained when asked if allotments could be a substitute for a garden, she did not consider allotment practice convenient or safe:



*"Possibly, it's not the same. I have thought about getting an allotment but 1, I don't really have the time and 2, before they moved to our gennal, that's where the hoodys were hanging out".. "Right, have you got allotments near to here then?"... "Yes there are, just over that way. My friend did have one and I helped her with it for a while but I think she found it too hard work and then she moved to the other side of the city. Yes I think that my problem with an allotment was that you have to actually trek there and spend the whole day there and as a woman on my own I did not feel safe."*

From which it can be inferred, in this instance, that current practice is dependent on the convenience and safety of the garden setting.

Interviewee 31 currently only grows a few vegetables in his garden. However he is keen on the practice and in the past had an allotment where he practiced for a year. But he found having an allotment was incompatible with full-time work, taking holidays at the height of the season and disliked the pressure from the 'public' nature of the practice, as he explains:

*"I only kept it for about a year. The old guy who had had it, he was there every day, you know?".. "He kept coming up to see me to see how I was going on"..."Oh the pressure?".. "Awful"..."I bet it was that, more than anything else, that probably did you in?".. "I was looking at other people's allotments and they were a lot nicer. All guys who had the time. I was working full-time."*

From which it can be inferred, in this instance, that whilst practice has not always been dependent on the garden setting it is now the preferred setting, in terms of both convenience and privacy, for albeit limited practice.

Interviewee 38 is in her second year of growing vegetables in her garden and whilst she had considered getting an allotment she decided it was not as convenient as using her garden as she explains: *"..we decided we would rather put a bit more effort into our garden and put up with the lack of space. Umm. It's also a big commitment and I wouldn't be sure we could take that on."* In addition she preferred the freedom of gardening in a private rather than public space: *"There are certain conventions say to allotment gardening and I don't know to what extent you can just do what you want. Yeah, if I suddenly decided to change the garden I would change it."* From which it can be inferred, that in this instance, practice is dependent on the privacy, freedom from outside control and convenience of the garden setting.



### **Previous practitioners**

For 9 (21%) of the 43 interviewees that do not grow fruit and vegetables in their garden, previous practice has always been garden based, whilst for 6 (14%) practice has not or would not be dependent on the garden setting i.e. 3 non-garden practitioners currently use an allotment, and 3 have or would consider allotment based practice. The extent to which practice has been dependent on the garden setting is explained below.

For interviewee 39, practice was initially carried out in her own garden and she chose to grow both fruit and vegetables alongside shrubs and flowers as she explains:

*"I certainly, I had initially, I had things like courgettes in the garden when I started off. When it was a big empty bed I put things like that out. And I do have various fruit bushes in the garden."*

However as the garden matured less space was available to grow vegetables and an opportunity came up to share an allotment with a friend, which as she explains made taking on an allotment more of an attractive proposition: *"We started off, as I said I did not start on my own, which I don't think I would have done.."* and garden practice was transferred to an allotment. From which it is inferred, in this instance, that practice is no longer dependent on the garden setting, and here the convenience of the garden is traded off for more space to practice in her allotment.

Interviewee 41 has grown fruit and vegetables in her garden before and is thinking about reinstating garden based practice. Here she explains why she prefers garden over allotment based practice:

*"I'm not keen enough to sort of get an allotment and do that, I've got several friends who have got allotments and I've sort of offered my services to them if they've suddenly got a rush on to dig over or that sort of thing but I'm not keen enough to take on one."*

Initially interviewee 44 grew vegetables in her own garden and then when she re-married transferred the practice to an allotment which she shared with her husband. However she has recently divorced which has caused her to rethink allotment based practice, as she explains:

*"..like we have an allotment, it's up the road, but there's no way I can do that on my own. So what I might do now is start another little vegetable plot. Ermmm, because basically it's a full-time job, and it's great but if I was here I could come home from work and I'm there I don't have to think right I've got to travel up to*



*the allotment, take this up and that etc. It's there you can just nip out and water stuff and do other things."*

Thus for this interviewee it is not just that her garden is more convenient, the context is also felt to be more conducive, as she explains:

*"But the thing about the garden is the privacy and the fact that it is your patch. I mean you could say that about an allotment but it's home outside I think. Particularly here, it is an extension of the house."*

### **Never practiced**

Interviewee 26 has recently become more interested in having a go at growing vegetables and it is evident that garden based practice is viewed as more convenient than allotment based practice, when he says:

*"We know 1 or 2 people, 1 or 2 of our friends that recently acquired an allotment and whilst we think, it was a daft idea because you have to travel to it and you spend a lot of time there you need to, I think something in our own garden would be a lot more convenient."*

## **5.4 Discussion**

### **5.4.1 Pre-conditions for practice initiation**

The pre-conditions that were met by the majority of both current practitioners and previous practitioners prior to initiating the practice of growing fruit and vegetables include: *'indirect knowledge'*, *'access to resources'* and *'freedom to choose'* to practice. However, the majority of those who have never practiced now only meet the last two conditions. In addition the condition *'awareness of expectations'* was met by a sizeable minority of both current practitioners and previous practitioners but is met in only a minority of those who have never practiced.

Nearly all current growers and three quarters of previous practitioners gained *'indirect knowledge'* of the practice in their youth from watching a family practitioner, whilst the minority who started growing as an adult, and had had no earlier opportunities to familiarise themselves with the practice, relied instead on reading about the practice. For those who have never practiced only a minority (albeit a sizeable minority) now meet this condition, in that in the main they have not had the same opportunity to become familiar with the practice either as a child or as an adult.



In terms of gaining '*access to the resources*' felt to be needed to initiate practice, for the largest group of current practitioners size of garden was not perceived as significant, in that practice was part of an existing family practice and as such they did not have to consider whether their garden was big enough to initiate practice or not. However for those current practitioners who initiated their 'own' practice slightly more took garden size into consideration than did not. In contrast, previous practitioners were much less likely to consider garden size prior to practice initiation. However for a substantial minority of those who have never practiced, and who currently have a garden of under 70 sqms, garden size was perceived as significant, in that there was interest and practice would be initiated in a larger garden. Unsurprisingly, for those who have never practiced garden size makes no difference to their choice not to practice. The finding that '*access to resources*' is a pre-condition for practice initiation explains the association between the practice of growing fruit and vegetables and garden size, and accords with the reasons for dissatisfaction with garden size found in chapter four.

The majority of both current practitioners and previous practitioners had the '*freedom to choose*' to practice prior to practice being initiated, in that in the main they either did not need permission or sought and gained permission, whereas those who have never practiced are actually much freer to practice but they choose not to.

A sizeable minority of current practitioners had an '*awareness of expectations*' to practice in their youth, stemming from their parents. In contrast for previous practitioners, expectations to practice were as likely to come from friends or family in adulthood as from parents when they were young. However for those who have never practiced there is very little in the way of family or friends expecting practice.

#### **5.4.2 The person and practice initiation**

In the main, what differentiates both current practitioners and previous practitioners from those who have never practiced is familiarity with the practice, from having observed a practitioner in their youth, and desire for produce, gardening interest or interest in the practice of growing as an adult. This suggests that practice initiation can be explained by the 'Goes together' mechanism, which accords with the tentative explanation given in chapter 4, that growing fruit and vegetables might be explained by meeting needs (extrinsic and intrinsic) and compatibility with gardening lifestyle, interest (including intrinsic interest) and values.



In addition, a sizeable minority of current practitioners were encouraged to practice by a parent in their youth and, unbeknownst to themselves, they were minded to do so to either gain approval or avoid disapproval. Previous practitioners however, were more likely to have been encouraged in their youth by a parent or as an adult by a friend or family member, and again in order to gain approval or avoid disapproval initiated practice at the time. This suggests that practice initiation can also be explained by the 'Should do' mechanism.

A sizeable minority of current practitioners also had '*access to resources*' e.g. fruit trees and bushes that were left by previous owners and because little effort was believed to be needed were minded to retain and tend them or equally believed that their garden was big enough for practice to be possible. But this was not evident in either previous practitioners or in those who have never practiced suggesting that practice initiation can also be explained by the 'Can do-external' mechanism.

For current practitioners and previous practitioners 'time of life' did make a difference to practice initiation in that in the main, they were encouraged to practice at a time when they were particularly receptive e.g. in their youth. Also in a minority practice was initiated at a time when 'home-making' was a major preoccupation, or at time when children or work were no longer primary preoccupations.

For the majority of current practitioners practice was initiated in their garden and garden based practice was preferred to the use of an allotment because of: added benefits (i.e. the idea that practice was an extension of the practice of 'home-making'), reduced effort (i.e. in terms of increased convenience of garden based practice particularly when working full-time), or reduced risks (i.e. in terms of feeling safer in the garden/home environment and practice being less open to the rules, scrutiny or interference of others). For the majority of previous practitioners practice was also initially garden based.

### **5.4.3 Pre-conditions for practice persistence**

The pre-conditions now met by the majority of current practitioners and previous practitioners include: '*direct knowledge*'; '*access to resources*' and '*freedom to choose*' to practice. All current practitioners and previous practitioners have hands-on experience (i.e. '*direct knowledge*') of growing fruit and vegetables.



For the majority of current practitioners, practice initiation may have depended on garden size, but once initiated garden size (i.e. either a larger or smaller garden) now makes no difference to practice persistence. However for those current practitioners with smaller gardens it does serve to restrict practice, in that there is still a desire to accommodate other uses. Whereas for previous practitioners, whether garden size made a difference or not to practice initiation, it now makes no difference, in that practice has ceased and would not be reinstated in a larger garden. As for the majority of previous practitioners there is now a preference for other uses of their garden.

Nearly all current practitioners and previous practitioners are now free to choose to continue with practice, in that in the main they either did not need permission or sought and gained permission.

Finally, a sizeable minority of both current and previous practitioners meet the condition '*general environmental awareness*', in that they are now more likely to express a concern or awareness of general environmental issues compared to practice initiation. Also a sizeable minority of current practitioners continue to meet the condition '*indirect knowledge*' whilst previous practitioners do not. In that current practitioners continue to build knowledge of the practice, by reading gardening books, watching gardening programmes and attending specialised courses.

#### **5.4.4 The person and practice persistence?**

In terms of practice persistence, what now differentiates current practitioners from previous practitioners is that a majority (increased from 46% at initiation to 82% now) continue to value the produce, and have more interest in the practice of growing fruit and vegetables and/or particularly value the opportunities to grow from seed, whilst in a minority practice is also seen to be part of living a 'greener' lifestyle. In contrast, in previous practitioners interest in the practice of growing fruit and vegetables has reverted back to interest in growing shrubs and flowers, and in some cases interest in gardening has reduced, and 'lifestyle' has changed from being 'a gardener' to being a different kind of person. This suggests that the 'Goes together' mechanism continues to explain practice persistence. In addition, from practice successes and failures, current practitioners have developed skills and abilities that have made them confident practitioners and have further increased satisfaction and interest in the practice. In contrast in previous practitioners these levels of skill, ability and confidence are



nowhere near as evident. This suggests that the 'Can do-internal' mechanism can explain practice persistence.

'Time of life' continues to make a difference to practice persistence for a small majority of current practitioners, whilst for previous practitioners it does not, suggesting that practice persistence cannot solely be explained by reduced constraints on time.

Current practitioners continue to persist with, and prefer, the convenience of garden based practice. As for some current practitioners garden based practice is viewed as an extension of 'home-making' and as such there has been only minimal transference of practice between gardens and allotments. Moreover, only a minority of previous practitioners, who became very keen and wanted to further extend their practice, have now transferred practice to an allotment.

Finally, although the 'Could do' mechanism, was put forward as a possible explanation for practice initiation, it was also found to play a part in practice persistence for a minority of interviewee's, whereby *'indirect knowledge'* of the practice builds, from attending evening classes or short courses, increasing confidence, interest and willingness to persist with practice. Additionally the 'Influence' mechanism was not found to work as hypothesized. As, in the main, interviewees sought to pass on practice for personal rather than moral reasons because they enjoyed growing fruit and vegetables and were keen to pass on knowledge and understanding.

## **5.5. Closing summation**

This chapter provided the first opportunity to explore the associations and patterns identified in chapter 4 and test out the 11 mechanisms postulated as being capable of generating and sustaining the garden practices of interest developed in chapter 2. In doing so, evidence was found to suggest that the 'Goes together', 'Can do-external' and 'Should do' mechanisms can be used to explain practice initiation, whilst the 'Goes together' and 'Can do-internal' mechanisms can be used to explain practice persistence. The next chapter continues in the same vein, and seeks to provide an explanation for home composting.



## **Chapter 6: Explaining the Practice of Home Composting**

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### **6.0 Introduction**

This chapter continues to provide answers to primary research question 1 “*Why do some people take up ‘sustainable’ garden practices whilst others do not?*” and primary research question 2 “*Why do some of these people persist with practice whilst others do not?*” for the practice of home composting. In chapter 4 a range of associations were found between the practice of composting and demographics, environmental and social garden practices, garden size and benefits. This chapter sought to explore, test and extend possible explanations by using a qualitative method to carry out a causal analysis of the practice of home composting covering both practice initiation and persistence, whereby the ‘*necessary conditions*’ for practice are identified and explained in terms of how ‘*necessary conditions*’ are met and the existence of the postulated mechanisms is verified and compared for current practitioners, previous practitioners and those who have never practiced.

### **6.1 Pre-conditions for practice initiation and persistence**

In this section the extent to which current practitioners, previous practitioners and those that have never practiced meet proposed preconditions for practice initiation and persistence are summarised. Then quotes and extracts of dialogue illustrate each of the nine ‘*necessary conditions*’, and where possible make reference to how these ‘*necessary conditions*’ are met, are discussed for both practice initiation and persistence in home composting. Please note with dialogue, text in italic is the interviewee speaking and text not in italic is the interviewer.

The details of the conditions met prior to practice initiation by current practitioners and previous practitioners are set out in **Table 6.1.1** and **Table 6.1.2** and conditions met currently by those who have never practiced are set out in **Table 6.1.3**. Conditions now met by current practitioners persisting with practice are detailed in **Table 6.1.4** and conditions now met for previous practitioners are detailed in **Table 6.1.5**.







Table 6.1.2: Previous Practitioners: Home Composting- Initiation.

Necessary Conditions	Garden size										Total (+) %
	2	14	23	25	28	31	36	42	63	66	
Interviewee											66
NC1 'General env awareness'										+	1 10
NC2 'Awareness of need'					+						2 20
NC3 'Awareness consequences'											0 0
NC4 'Ascription of responsibility'					+						1 10
NC5 'Awareness expectations'			+								1 10
NC6 'Indirect knowledge'			+		+	+					6 60
NC6* 'Direct knowledge'											0 0
NC7 'Access resources'	+	+	+	+	+	+	+	+	+	+	10 100
NC8 'Freedom to choose'	+	+	+	+	+	+	+	+	+	+	7 70
Conditions met	1	3	3	3	5	4	3	3	2	4	

**The Person**

Interviewee	Garden size										Total (+) %
	2	14	23	25	28	31	36	42	63	66	
M1 'Goes together'		+		+	+	+	+	+	+	+	8 80
M2 'Could do'					+						2 20
M3 'Can do-internal'											0 0
M3* 'Can do-external'	+										1 10
M4 'Moral responsibility'											0 0
M5 'Positive thinking'								+			1 10
M6 'Will do'											0 0
M7 'Influence'											0 0
M8 'Should do'			+								2 20
M9 'Guilt'											0 0
M10 'Habit'											0 0
Mechanisms evident (+)	1	1	1	1	2	2	1	1	1	0	0

**The 'Time'**

'time of life'	2	14	23	25	28	31	36	42	63	66
x	D	D	x	D	D	x	x	x	x	D

**The 'Space'**

size of space	2	14	23	25	28	31	36	42	63	66
x	D	NK	x	x	NA	x	D	x	D	x

**The 'Place'**

Garden setting	2	14	23	25	28	31	36	42	63	66
D	D	D	D	x	D	D	D	D	D	D

**Key:** + = met/evident in youth D = Makes a difference  
 + = met/evident in adulthood x = Makes no difference

Table 6.1.3: Never Practiced: Home Composting- Current.

Interviewee	Garden size up to 50sqm										Total (+) %																
	1	3	4	5	6	7	9	10	11	12		17	18	19	21	24*	26	27	32	45	46	47	49	50	54	61	65
1																											
+			+																								







### **Persistence**

Levels of '*general environmental awareness*' were found to be slightly higher in previous practitioners (30%) compared to current practitioners (23%). Again this suggests that whilst '*general environmental awareness*' may be associated with practice persistence, as it was not met in the majority of current practitioners it is not a condition that must be met in order for practice to persist.

### **Current practitioners**

Interviewee 30 is one of only 2 out of 35 current practitioners who have no interest in gardening and as he explains, whilst environmental concern may now in part explain his practice, originally it did not:

*"But is it (home composting) linked at all to environmental stuff"?.. "WELL I suppose, I think when I started it no. NOW I might sort of feel [half a brownie point there]". "[You might now?]".. "But I don't think it was the reason for starting it... particularly".*

From which it can be inferred that the condition '*general environmental awareness*' or '*awareness of consequences*' (in terms of benefits to the environment) were not met prior to practice initiation, but are now met for practice persistence. However it is not clear how this awareness came about.

Interviewee 44 works in marketing for a local authority and as a result of working on the council's recycling scheme explained how she became more aware of environmental issues and the need to reduce household waste:

*"So I suppose in a way, we do have a recycling scheme at work were you can buy a compost bin, because we have this partnership with the compost people, so I'm kind of just because of where I work I'm very aware of all these green issues I suppose."*

From which it can be inferred that in this instance the condition '*general environmental awareness*' and '*awareness of need*' to reduce waste is met prior to practice initiation, as a result of information supplied by her employer.

### **Previous practitioners**

When interviewee 2 was asked whether wider environmental issues had any effect on what she did in the garden she replied: *"I suppose in terms of like, that makes me think of being green and ecological in that sense. There's been so much in part of my conscience for so long.."* Earlier in the interview she recalled how she was influenced by her father's interest in self-sufficiency, and all that that entailed, in her youth.



*“Yes. I grew up like, you know you grow up watching *The Good Life* and there used to be a TV programme on that was about a small holding that...There’s a woman wrote a book, called *Katie Thear*. (writer on small holding and self-sufficiency).. “That does not ring a bell but I remember the..”.. “But my dad really got into talking about... He was just fascinated by a lot of the aspects about it. You know...I’ve got loads of books...”*

From which it can be inferred that the condition ‘*general environmental awareness*’ was met prior to practice initiation, by information provided by family, television and books.

### **Never practiced**

When interviewee 17 was asked whether she thought about wider environmental issues in terms of what she did in her garden she explained how she had had an interest in environmental issues for many years:

*“Yes, I do, I mean I do, I suppose, I did a geography degree so I’ve always had an interest in or been aware of all that before it’s now much more in the public domain and it’s become an issue that people talk about regularly..”*

From which it can be inferred that the condition ‘*general environmental awareness*’ is met, initially by education and more recently by public discourse.

### **6.1.2 ‘Awareness of need’**

#### **Initiation**

Prior to practice initiation 5 (14%) current practitioners had an ‘*awareness of need*’ to reduce waste compared to 2 (20%) previous practitioners. Again, this suggests that whilst ‘*awareness of need*’ to reduce waste may be associated with practice initiation, as it was not met in the majority of practitioners it is not a condition that must be met prior to practice initiation. As 2 (8%) of those who have never practiced currently meet this condition, it may also be associated with no practice.

#### **Persistence**

In terms of practice persistence levels of ‘*awareness of need*’ to reduce waste were found to be higher in previous practitioners 3 (30%) compared to current practitioners 7 (20%). Thus, whilst ‘*awareness of need*’ may be associated with practice persistence, as it was not met in the majority of current practitioners and indeed is more likely to be met in those who no longer practice, it is not a condition that must be met for practice to persist.



### **Current practitioners**

Interviewee 44 works for a local authority and as she explained she has become more aware of the need to reduce waste as a result of working on particular campaigns for her employer:

*"..So obviously that does spark an interest because you get to learn things."..*  
*"And did that (composting) come the same route? Was it to do with the work you were doing with the environmental group?".. "I did a lot of work with the local authority recycling conference one year".. "Ha, ha, ha. You're constantly under pressure aren't you, from changing departments?".. "Yeah, I stopped smoking because I worked with health promotion, ha, ha, ha".*

From which it can be inferred that the condition 'awareness of need' is met prior to practice initiation, again by information and persuasion from her employer.

### **Previous practitioners**

Prior to this extract interviewee 2 had been talking about experiencing problems with flies when she first started home composting in a previous house and how: *"That's something they don't really talk about"...* "They just talk about oh this is very good for the environment"..*"Reduce your waste"*. As such it is clear that the condition 'awareness of need' to reduce waste is now met, and as this interviewee had previously explained that she had had an interest in self-sufficiency since her youth it is possible that information from family, television and books provided the means to meet this condition.

### **Never practiced**

Interviewee 26 indicated an 'awareness of the need' to reduce waste and a concern for the consequences of disposing of household waste, as when asked to what extent wider environmental issues had an affect on what he did in his garden he replied:

*"Yes, the only thing that does occur to me is that we waste a lot of kitchen waste, it would be nice to have an outlet for that. Other than just throwing it in the bin, which ultimately I think, gets incinerated.. "It's usually land fill isn't it or incineration?".. "It's incineration here."*

A number of interviewees were aware that Sheffield City Council uses incineration to dispose of the majority of the city's household waste and indeed recycles much less waste than many other local authorities. This may in part be due to a campaign run by the local Greenpeace group and reported extensively in the local paper. As such, in this instance, the interviewee is 'aware of the need' to reduce household waste.



### 6.1.3 'Awareness of consequences' of practice

#### Initiation

Prior to practice initiation 8 (23%) current practitioners but no previous practitioners made a link between practice and reducing waste and increasing benefits to themselves, others and the environment, and 2 (8%) of those who have never practiced currently meet this condition. Again, this suggests that whilst 'awareness of consequences' may be associated with practice, as it was not met in the majority of practitioners it is not a condition that must be met prior to practice initiation.

#### Persistence

In terms of practice persistence over one third of current practitioners (rising from 23% at initiation to 40% currently) now make a link between practice and reducing waste and increasing benefits to themselves, and/or others and the environment. In contrast no previous practitioners make this connection. Again, this suggests that whilst 'awareness of consequences' may be associated with practice, as it was not met in the majority of current practitioners it is not a condition that must be met for practice to persist. But this is clearly a condition that differentiates those who continue to practice from those who have ceased to practice.

#### Current practitioners

Interviewees 22 initiated practice after receiving a promotional leaflet from Sheffield City Council highlighting the need to reduce the amount of household waste that was sent to landfill. Now they have been composting for just over one year and in this quote one partner is aware, from looking in her own bin, how practice has reduced household waste:

*(Mrs) "We only took our bin down about once every 3 or 4 weeks because we had nothing in it. We have a paper bin and everything else, all we had in it were food."*

From which it can be inferred that the condition 'awareness of consequences' was met prior to practice *initiation*, initially as a result of information from the local authority, and continues to be met in practice *persistence*, as a result of feedback from practice.

#### Previous practitioners

Whilst interviewee 28 does not home compost she currently collects her garden and food waste to take up to her allotment and as she indicates she is aware of the problem of disposing of household waste and the need to look for alternatives to using landfill sites:



*"I realise the importance of composting and you realise that the landfill sites are, they are stretched to the limit anyway and if you can do that little bit to help and obviously it's going to benefit your garden as well then obviously that is a positive thing to do, so you know I'm aware of that."*

Later in the interview she states that the media, and gardening programs in particular, have increased her awareness, as she explains:

*"I think you are influenced by you know, the media and obviously if you like gardening you may watch garden programmes or that kind of thing, so issues that they touch on obviously is going to have an influence over people."*

From which it can be inferred that the condition 'awareness of consequences' is met, but in this instance, allotment practice is preferred over garden practice.

#### **6.1.4 'Ascription of responsibility' to practice**

##### **Initiation**

Prior to practice initiation 10 (29%) current practitioners and 1 (10%) previous practitioners implicitly or explicitly demonstrate that they felt a personal responsibility to act to reduce waste, but only 4% of those who have never practiced met this condition. This suggests that whilst 'ascription of responsibility' may be associated with practice initiation, as it is not a condition that is met in the majority, it is not a condition that must be met prior to practice initiation.

##### **Persistence**

In terms of practice persistence now 10 (29%) current practitioners, including 7 who met this condition prior to practice initiation and 3 who did not, now implicitly or explicitly demonstrate that they feel a personal responsibility to persist with practice in order to reduce waste and/or reduce harm to the environment, while the same 1(10%) previous practitioner continues to meet this condition. Thus, although 'ascription of responsibility' may be associated with practice persistence, as it is not a condition that is met in the majority of current practitioners, it is not a condition that must be met for practice to persist. However, as with the previous condition, this is clearly a condition that differentiates those who continue to practice from those who have ceased to practice.



### **Current practitioners**

Interviewee 20's father is a keen home composter, and this is the first time that she has initiated her own practice. Asked why she thought she had started the practice she indicated that it was awareness of how much waste they were recycling compared to what was going in her ordinary bin which led her to decide to have a go at reducing that waste, as she explains:

*"..And again the consciousness that we were putting out kind of 3 black bin liners a week and now we don't. It makes a massive difference. I mean we have the blue bins for the paper, and we collect all the plastic and glass. So really our waste is minimal. SO it's important to do that."*

In this instance it can be inferred that the condition 'awareness of need', 'awareness of consequences' and 'ascription of responsibility' were met prior to practice being initiated and are still met in practice persistence.

Interviewee 53 demonstrates that whilst he is concerned with environmental problems and is aware of the problems of disposing of household waste, he does not think that he is ultimately responsible for addressing the 'waste' issue, as this piece of dialogue demonstrates:

*"..what annoys me now is that I can be so concerned that I have got to recycle absolutely everything, I mean I have hardly any rubbish..Because we recycle everything and then I find out that in Sheffield, you can segregate all you like when you get to the tip most of it gets incinerated so. WHY segregate it?".. "I suppose the difference with that is it's kind of under somebody else's control. But when it is totally under your control. So in terms of the composting?".. "Yeah, well I DO IT because I know it is GOOD for my soil. That's it. It's not going to make any iota of difference to whether we go down in this century or the next. The problem is too much bigger than that."*

From which it can be inferred that the conditions 'awareness of need' to reduce waste and 'awareness of the consequences' of acting or failing to act to address the problem are met in practice persistence, in the main as a result of information provided by ongoing national and local press campaigns. However the condition 'ascription of responsibility' is not, in that the failure of his local authority to take effective action, coupled with his knowledge of the scale of the waste problem, effectively diminishes his own sense of responsibility to act.

### **Never practiced**

Interviewee 17 is a keen recycler but does not practice home composting and as she explains this is not because she does not feel that she should reduce her waste or know how to:



*“Yes, I mean because I.. you know.. recycle everything and I feel very bad that I don't have a compost thing so last year I, you know the council were very good in Sheffield, they gave them out free, they have all these days where you can go and get one, so we went to go and get one but they are so big they are absolutely enormous.”*

From which it can be inferred that the conditions ‘*awareness of need*’ to reduce waste and ‘*ascription of responsibility*’ are met, as a result of the local authority’s campaign to promote home composting.

### **6.1.5 ‘Awareness of expectations’ to practice**

#### **Initiation**

Prior to practice initiation nearly one third of current home composters (31%) had family, friends or colleagues who practiced and were either encouraged to practice in their youth 5 (45%) or as an adult 6 (55%) and met the condition ‘*aware of expectations*’ to practice home composting. In comparison, 1 out of 10 (10%) previous practitioners met this condition and was encouraged to practice as a child, whilst 4 (15%) of those who have never practiced have been encouraged by friends or colleagues to practice in their adult life. This suggests that whilst ‘*aware of expectations*’ may be associated with practice initiation, as it is not a condition that is met in the majority of practitioners, it is not a condition that must be met prior to practice initiation. However again, this is clearly a condition that differentiates those who continue to practice from those who have ceased to practice.

#### **Persistence**

In terms of practice persistence only 4 (11%), compared to 31% at practice initiation, current home composters have family, friends or colleagues who practice and/or who expect them to practice. In comparison no previous practitioners, (compared to 10% at practice initiation) now meet this condition. Consequently as ‘*aware of expectations*’ is not a condition that is now met in the majority of current practitioners, it is not a condition that must be met for practice to persist.

#### **Current practitioners**

Interviewee 44 was tasked with getting her employer’s message on recycling out to their constituents. As she explains, in the process she started thinking about her behaviour: *“Well, I think I’m a hypocrite you know I’m doing all this marketing and I really should practice what I am preaching.”*

From which it can be inferred that the condition ‘*awareness of expectations*’ to practice is met, prior to practice initiation.



### **Never practiced**

Interviewee 65 has given over a large part of his garden to his neighbours who are very keen gardeners. As such they have built two large composting bins and whilst he does not use the bins himself, from watching his neighbours practice he does think he should do so as he explains: *"No, I should do but I am lazy, but no I should do. I tell myself that every time I throw food away. I think no, no don't do that."*

From which it can be inferred that the condition 'awareness of expectations' is met, from watching the practice of his neighbours.

### **6.1.6 'Indirect knowledge' of practice**

#### **Initiation**

Prior to practice initiation the majority of current composters 24 (69%) had 'indirect knowledge' of the practice, gained either by from watching a family member or friend as a child 19 (79%) or watching a practitioner and/or reading about the practice as an adult 5 (21%). Similarly 6 (60%) of previous practitioners met this condition, of which 4 (80%) gained their knowledge in their youth, and 2 (20%) in adulthood, whilst only 9 (35%) of those who have never practiced meet this condition currently, and of these 6 (66%) gained this knowledge from watching a family member's, or neighbour's practice, with 3 (33%) gaining knowledge as an adult. Consequently as this condition was met in the majority of practitioners it can be concluded that it is a condition that must be met prior to practice initiation.

#### **Persistence**

In contrast only 1 (3%) current and 1 (10%) previous practitioners continue to meet the condition 'indirect knowledge', from reading about home composting. As such, this is not a condition that must be met for practice to persist.

#### **Current practitioners**

Interviewee 20 gained 'indirect knowledge' of the practice from watching her father practice prior to initiating her own practice, as she explains: *"YEAH, he always had a heap (her father). Several at different stages. At all times there was stuff that was ready to go on the garden."*

Interviewees 48 were already keen gardeners and grew vegetables before they started composting, but with no previous experience they had to rely on advice in gardening magazines to get them started, as they explain: (Mrs) *"No, you read about it in a gardening magazine....And he said, 'oh, we'll try that'.. (Mr) "I can have a compost bin!"*



### **Previous practitioners**

Interviewee 31's dad was a very keen gardener and whilst he was not involved in composting himself he did watch his dad. In his adult life he has continued to build '*indirect knowledge*' of the practice by reading and watching gardening programmes. However as he explains this has not made for successful practice:

*"He did compost because he had a little compost heap at the back... "Was that just for garden waste or-".. It was everything, anything that could go back in.. And I watch stuff on the telly and I read quite a few books. But I'm not always successful."*

### **Never practiced**

Interviewee 11 was able to gain '*indirect knowledge*' of home composting from watching her father but as she explains this has led her to question whether practice, in her small garden, would be compatible with other garden uses:

*"I'd like a compost thing as well but I've just not got, there's just not the space to put one in really".. "Because you can get these subsidised ones?".. "Yes and they are not that expensive are they?".. "No, they are alright actually". "But, you don't want to sit next to your compost bin when you're sitting out?".. "It's difficult isn't it, it is?".. "Or have it underneath your window that's open".. "Have you done things like composting before? Did your dad?"... "Yes they are really keen composters so".. "So you are quite kind of aware of how you do it? And what you need to do? So that does not really put you off?".. "No."*

Interviewee 12 gained '*indirect knowledge*' of the practice by watching her father and the impression she gained was not wholly positive as she explains:

*"Have you done any composting before?".. "No"... "So it would be quite a new thing?".. "I know my dad has in the past, but I just remember this big smelly heap, but that was when they had a large garden. So that's what you remember."*

### **6.1.7 'Direct knowledge' of practice**

#### **Initiation**

'*Direct knowledge*' of the practice is not a condition that is associated with practice initiation.



### **Persistence**

Not surprisingly, all 35 current composters (100%) have *'direct knowledge'* of the practice, with just over 1 in 10 (14%) gaining knowledge from hands on experience in their youth, with the majority 30 (86%) gaining this experience from practice in their adult life. In comparison only 1 (10%) of previous practitioners, have *'direct knowledge'* of the practice gained from hands on experience in their youth, as the majority (90%) gained this experience as an adult. As this condition was met in the majority of practitioners it can be concluded that it is a condition that must be met for practice to persist.

### **Current practitioners**

Interviewee 16 explains how she gained hands on experience of the practice in her youth: *"I had always composted at home".. "You did?".. "So I had a history of separating kitchen waste,..yeah."* From which it can be inferred that, in this instance the condition *'direct knowledge'* is met in practice **persistence**.

### **Previous practitioners**

Interviewee 63 has a large garden but is not currently composting although he has previous experience of the practice as he explains: *"We did try a bin at one time but it was, somehow it just was not successful, I don't know why but it was probably our fault, probably hadn't got a clue what we were doing."*

In this instance, the condition *'direct knowledge'* is met, but as previous practice was unsuccessful this did not result in increased sense of his own capabilities or generate confidence in future ability to practice.

## **6.1.8 'Access to resources' for practice**

### **a. Technology**

#### **Initiation**

Prior to practice initiation all current practitioners and previous practitioners met the condition *'access to resources'* to practice. Whilst those who have never practiced may have had access to the materials needed to practice but did not have bags, a bin or heap. For current practitioners 3 (8%) had access to a family garden; 32 (92%) had access to their own garden. In addition 2 (6%) used black bin bags; 14 (40%) bought a full-price bin; 6 (17%) bought a subsidised bin; 2 (6%) had a bin left by previous occupants; 4 (11%) used their parents bin; 6 (17%) made a bin or heap; 1 (3%) had access to a communal bin and 1 (2%) information was not available. Whereas for



previous practitioners 1 (10%) had access to a family garden, 1 (10%) a rented garden, and 8 (80%) had access to a garden of their own, 3 in a previous garden and 5 in their current garden. In addition 1 (10%) used the landlord's bin, 2 (20%) their parents' or grandparents' bin, and 2 (20%) made a heap; and 5 (50%) bought a bin. Consequently as this condition is met by all prior to initiation this suggests that 'access to resources' is a condition that must be met.

### **Persistence**

In terms of practice persistence, all current practitioners continue to meet the condition 'access to resources' to practice, as all have access to their own garden. Additionally 2 (6%) continue to use black bin bags; more are now using a full price bin (60% compared to 40%); 6 (17%) continue to use a subsidised bin; and 1 (3%) continues to use a bin left by previous occupants; fewer (9% compared to 17%) are using a home made bin; and 2 (6%) now have access to a communal bin. Whereas for previous practitioners 4 continue to have access to the same garden, 5 have a new garden and 1 has an allotment. However only 1 (10%) continues to have access to a bought bin. Consequently as this condition is met by all current practitioners and only one previous practitioner this suggests that 'access to resources' is a condition that must be met for practice to persist.

### **Current practitioners**

Interviewee 15 moved into a rented house that already had a compost bin and then started composting. Currently she has a small garden of 34sqms and did consider siting a communal compost bin in her own garden but felt that she did not have the space. However she was able to gain access to a bin as she explains:

*"Yeah, yeah well the guy who lived there before you see, we all got on very well and so he said he would site it in his garden. So when the new people moved in it was a fait accompli really. So they have got the communal compost bin."*

From which it can be inferred that in this instance the condition 'access to resources' is met prior to practice initiation and prior to practice being reinstated.

Interviewee 37 explains how initially *"I made a compost heap from a pallet off a skip and started composting"*. However more recently she changed to using a plastic bin as the result of *"my mum actually ordered that compost bin and it was too big so she had nowhere to put it in her garden."*

Interviewee 58 was familiar with the practice before she started her own practice. Thus from previous experience she now 'knows that' she has sufficient garden waste to warrant practice as she explains:



*"No, it's a new thing, my dad always used to do it when I was a kid but I'd never done it myself until this garden because we never had a garden big enough really"... "Right".. "To do it in until now"... "So you felt that you had enough garden waste to kind of warrant composting?".. "Yes, and also enough garden to warrant needing the compost to do things with it."*

From which it can be inferred that in this instance the condition 'access to resources' is met, in terms of having access to sufficient garden waste and use for the compost produced from her garden.

Interviewee 53 uses the 'tumbler' type of composter and has found this to be very effective as he explains:

*"I bought that years and years and years ago and it still hasn't rusted. It's fantastic. Put it in the sun and you can make compost in six weeks. I turn it every day".. "Right".. "So what I do is collect my potato peelings and veg peelings and dump them in and then dig it in..I don't like static ones because they are too smelly they are not practical for small gardens. I know the council give them away but they are not practical."*

From which it can be inferred that the condition 'access to resources' is met.

### **Previous practitioners**

Interviewee 2 is a young woman who has previous experience of the practice as she explains: *"In my old house there used to be a bin, a compost bin".... "I don't think we could have done it right because there were 100s of flies."*

From which it can be inferred that, in this instance, the condition "access to resources" was met, in that her landlord provided the bin, prior to practice being *initiated*.

### **Never practiced**

Interviewee 4 has a garden of 34 sqms and has considered, but decided against, composting as she explains:

*"We have thought, well I've thought many a time about having a compost bin but I wouldn't know what to do with it. You know, you generate some compost and the garden's so small it's not like I'm going to use it in the garden and I wouldn't go to the effort of I don't know, selling it or giving it away to anyone else."*

From which it can be inferred that the condition 'access to resources' is not met (in terms of having sufficient garden space to use the compost) and in this instance practice is considered but not initiated.



Interviewee 66 has a large garden (226 sqms) which generates a large amount of garden waste. Subsequently he bought a compost bin to compost the waste but was not happy with the quality of the compost as he explains:

*"It just seemed to end up a horrible squidgy mess".. "It can be very, very wet".. "Just wet".. "It never looks like how it does on the telly".. "No, that's right and so we did away with it."*

From which it can be inferred that the condition 'access to resources' was met prior to practice initiation

## **b. Size of garden space**

### **Initiation**

For 14 (40%) current practitioners size of garden did not make a difference to practice initiation, and of these 12 initiated practice in their current garden, whilst for 1 practice was initiated in a neighbour's garden, and 1 initiated practice in a previous garden, and size of garden played no part in their decision-making process. However for 13 (37%) size of garden was cited as a reason for practice initiation, and of these 2 (15%) initiated practice in a larger previous garden, while 11 (85%) considered the size of their current garden prior to practice being initiated, whereas for 6 (17%) current practitioners practice was initiated in a parents garden or allotment and as such garden size was not considered prior to practice initiation. For 2 (6%) of current practitioners no information was available. For previous practitioners 6 (60%) did not cite garden size as a reason for initiating practice, whilst for 3 (30%) practice initiation was dependent on garden size, and in all 3 cases interviewees were talking about a larger previous garden. In contrast for 7 (39%) of those who have never practiced, who currently have a garden of under 70sqms, having access to a larger garden was cited as a reason to initiate practice. Whereas for 69% of those who have never practiced having a larger garden would make no difference.

### **Persistence**

For a minority of current practitioners (25%) with gardens of under 70 sqms, extent of practice is felt to be dependent on garden size and practice would increase if they had access to a larger garden. However for the majority of practitioners (95%) with larger gardens, practice would be sustained even with access to less space. In contrast, no previous practitioners with gardens of under 70 sqms would reinstate practice if they had access to a garden twice the size of their current garden, whilst for previous practitioners having access to less space would make no difference, in that they would continue not to practice.



## Increased Space

Of the 16 current practitioners with gardens of less than 70 sqms who were asked how their practice would change with twice as much garden space 12 (75%) stated that practice would remain the same and 4 (25%) stated that their practice would increase (with one of these 4 interviewees currently having limited practice).

For the 12 interviewees whose practice would remain the same, 1 had very limited current practice and 11 had more extensive practice, and in these instances extent of practice was not determined by size of garden. However for 4 current practitioners extent of practice was felt to be limited by size of garden.

## Current practitioners

Interviewees 22 have only been composting for 12 months and were initially concerned about the size of the bin and where it could be sited as they explain.

*(Mrs) "When I saw how big it was we went 'OH MY GOD WHERE ARE WE GONNA PUT THIS?' . (Mr) "But thing is finding somewhere to put it. Particularly here because when we lived at Crookes it was a big long garden ..You could put everything at the back and nobody bothered".. "I think it is hard in small gardens in terms of space but also you don't necessarily want to be [looking at it]"..(Mrs) "[At it] that's why I put it there. I don't know if you have noticed but I have put things round it?"*

In addition they are already finding that they are producing more waste than their bin can cope with as is explained: *(Mrs) "I did write that I have 3 bags of stuff ready to put in, but I haven't got any more room"*. However they do not feel they have enough space in their small garden of 36 sqms for another bin which is constraining current practice as is explained:

*"WE DO really. This is one thing I did say, you really do need two. Because by the time that, that, it was probably October or November time was not it. It has not been opened since then. I have looked and there are twigs and some paper but it was right up to the top and it has gone down and there are plenty of worms because I have seen them. But we could do with er, but there is no where to put it...As I say I could be a lot keener".*

It can be concluded that whilst garden size has made a difference to how difficult it was to initiate practice and extent of current practice, practice *initiation* and *persistence* is not dependent on garden size.



### Previous practitioner

Interviewee 2 is a young woman who lives in a rented house with a very small garden which is mainly used for sitting out and line drying. From previous experience of home composting she knows that the practice can be problematic in small gardens as she explains: *"Yes, and there's not so much space to actually... You get so many flies around them in the summer"*. Additionally, it is clear that she attributes the problems that were experienced during previous practice to her own lack of competence rather than the technology or size of the garden when she says: *"I don't think we could have done it right because there were just 100s of flies.. It's ok if it's away from the house or..."* As such, access to a larger garden would not result in practice being reinstated.

Interviewee 31's previous composting practice had not been successful and when asked: "Will anything bring you back round to composting? A different system or something that works a bit quicker?" he replied *"It's the space, I think. If I had a bit more space I would do it. I could probably do it where it is now actually (on a concrete path). I might have a go at it."* However whilst he implies that with more space he might consider reinstating the practice, it is lack of successful practice which now makes him reluctant to continue to give over garden space for the bin, not lack of space per se.

### Never practiced

Interviewee 1 is a young man living in the first house he has ever owned and has considered, but ruled out, home composting in his very small yard (9 sqms), not because he lacks space to site a bin nor use for compost (in his front garden) rather on the grounds that he does not produce enough garden waste. As he explains if he had a larger garden (in this instance four times as much space was considered) he would initiate the practice: *"..I mean if I had a bigger garden I would have a compost heap. I nearly bought a wormery last year. I saw them advertised but I don't think I generate enough green waste."* From which it can be inferred that, in this instance, practice is dependent on size of garden space, in terms of providing the materials for composting.

In contrast interviewee 11, based on previous 'indirect knowledge' of the practice, was more concerned about length of garden (5 metres) rather than garden size as she explains:

*"I mean if it was twice as long, I would definitely have a compost heap at the end of the garden".. "Do you think there's a problem with how near?".. "Yes I think so yes. Because they do smell a bit don't they?".. "They can do yes, it depends if, I mean was it a heap or a bin?".. "It was a heap what we used to have so".. "See I think that people think that's a bit of a problem with a heap..." "Mmmmmmm".. "Well not think, they know". . "Yeah (laughs)."*





**Figure 6.1.8** shows interviewee 11's short, squat garden. Which she feels would need to be twice as long (e.g. 10 metres) before she would initiate home composting.

From which it can be inferred that, in this instance, practice is dependent on length of garden, rather than size of garden.

Interviewee 17 disliked the idea of always being able to see a bin in a small garden which would be remedied with twice as much garden space (i.e. 34 sqms to 68 sqms) as she says: *"Yes I would, compost. Yes, because you could put it behind a bush or something, you don't have to sit and look at it."* From which it can be inferred that, in this instance, practice is dependent on size of garden.

In this extract interviewee 26 explains, in response to a question regarding garden practice and wider environmental issues, how finding space to accommodate a bin and having very little garden to use compost precluded practice:

*"If we had a composting bin, that would be nice, but then we would need a garden to put the compost on. I'd like to do that kind of stuff, do a bit more recycling".. "What is it that's really stopped you from composting?".. "Just the fact that what would we do with compost mainly I think. And also I suppose that the actual footprint of the composter itself". .. "The size of it?" ... "Yes. I just don't know where we'd put it you know?".. "Yes"... "Where it wouldn't be in the way."*

It should be noted that when the question concerning whether existing practice would change with access to twice as much garden size was asked prior to the question concerning wider environmental issues, this interviewee did not suggest that with more space he would start composting.



## **Reduced Space**

### **Current practitioners**

When interviewee 43 asked whether any practices would change if she only had access to half as much space she replied: *"YES, oh yes now I couldn't be without a compost bin, ha, ha, ha. You know it's wonderful, the compost"*. As such practice persistence is not dependent on garden size.

Interviewee 57 indicated that she had had smaller gardens previously and had not practiced since her youth because she had not had enough garden waste to warrant practice: *"The garden in Manchester was mainly paving. I think I would have had a compost bin, but there was not that much garden for waste"*. As such in this instance practice reinstatement has depended on garden size. However now reinstated, practice would persist even in a garden half its current size.

Interviewees 68 had previously had a much smaller garden and as one partner stated: *"I did have compost bins, but I found that my deckchair was almost [too near] the compost bin"*. As such when asked to consider whether his practice would continue in a smaller garden he was unsure, from which it can be inferred that practice persistence may be dependent on size of garden.

### **Previous practitioners and never practiced**

Of the 11 previous practitioners and those who have never practiced with gardens over 70 sqms unsurprisingly none mentioned initiating home composting if they only had access to half their current space.

## **6.1.9 Freedom to choose**

### **Initiation**

Prior to practice initiation, the majority of both current practitioners (71%) and previous practitioners (70%) met the condition *'freedom to practice'*, as did the majority (81%) of those who have never practiced. Again this suggests that *'freedom to choose'* is a condition that must be met prior to practice initiation.

### **Persistence**

In terms of practice persistence the numbers of current practitioners now meeting the condition *'freedom to practice'* has increased from 71% to 89%, whilst for previous practitioners it has reduced from 70% to 60%. Again this suggests that *'freedom to practice'* is a condition that must be met for practice to persist.



### **Current practitioners**

Interviewee 13 has always composted wherever she has lived and just over a year ago moved into her partners home which has a very small garden of 32 sqms. Here she explains how she was able to introduce the practice, but at the same time, was keenly aware that initially her partner was not wholly convinced:

*"My partner was not keen on the idea really, I think because he had never lived with a COMPOST. He thought it was going to be really smelly, in fact we got loads of fruit flies last summer so bless him he is really quite stoic about it all. But he thought it was going to be a nightmare."*

Thus for this interviewee the condition 'freedom to practice' was not met initially and indeed practice persistence continues to depend on her ability to convince her partner that practice is compatible with other uses of the garden e.g. sitting out.

A number of times during her interview interviewee 56 gave examples of instances where there was conflict between what she wanted to do in the garden and what was acceptable to her husband. The outcome, in terms of home composting, was that the site she had identified was seen to conflict with other leisure uses (i.e. sitting out), thus whilst she would like to practice more extensively she is unable to do so as she explains:

*"Well, I would like one but as me husband says 'Where are you going to put it?' but actually I've got bags behind the hut with grass cuttings in".. "Have you?".. "Yes, there is a little bit of space behind there. So I keep throwing bags over. He keeps saying 'What's this bag?' and I say 'Just something I want to put on garden'.. You see it was only last year that we extended the patio and actually we have been able to sit out better" [patio abuts area identified as a potential place for a bin].*

Consequently, in this instance, the condition 'freedom to choose' is not met.

### **Previous practitioners**

For interviewees 23 one partner has previously composted and is a very keen waste minimiser and recycler, while the other has no previous experience and is not as committed to reducing, reusing and recycling waste. Subsequently whilst they have considered composting they are yet to come to an agreement as they explain:



*(Mr) "BUT".. (Ms) "WE were gonna get one of those little compost bins things, weren't we?".. (Mr) "Yeah but"-.. (Ms) "Then we couldn't decide where to put it. Or where it would go cos, we were going to get a small one but that's pretty useless because we do have quite a lot of waste, in terms of vegetable-we have quite a lot of compostable stuff don't [we]?"..(Mr) " [Yeah] the thing is I am rubbish at recycling and B is good at recycling"...(Ms) "He's like "it's going in the bin" and I am like I have a thing about it"...(Mr) " I think we would generate more than we would need. You know what I mean?..(Ms) "I REALLY don't know."*

From which it can be inferred that the 'necessary condition' 'freedom to practice' is not yet met for this couple, and it is evident that a joint decision to practice would be needed for practice to be reinstated.

Interviewees 42 had previously practiced home composting without much success. Quite recently one partner has redesigned the garden and has designed out the washing line and compost bin. This has caused some conflict, which is yet to be resolved, as one partner is still keen to reduce household waste as is evident in this piece of dialogue:

*(Ms) "Yes, there was and that's my next thing, I really miss my compost bin. Because we don't compost nowadays".. "There was one here when you first moved in?".. (Mr) "No, no we put one in when we moved in and we used it and then when we did the garden.. No, I've kind of, this is a kind of minimal maintenance sort of garden, you can sweep up with a dustpan and brush"...(Ms) "Yes, but I still want something to compost in, I do want a compost bin".. (Mr) "Yes you do, that is something we've talked about getting."*

From which it can be inferred, that in this instance the condition 'freedom to practice' is not met and as a result the practice is not reinstated.

### **Never practiced**

Interviewee 19 has a small but very heavily planted garden. His partner now does all the gardening as, due to a stroke, he is restricted to an area of decking that is level with the back door. As a result he is unable, (and whether he wanted to is not clear) to compost and is unconvinced that they have enough garden waste to warrant the practice as he explains:

*"[Compost].Goes in the wheelie bin. WE haven't really got room for a compost heap. And I can't help at all now because I am half paralysed. So I can't insist that my wife takes on work intensive things like doing compost so it is entirely*



*up to her. Also you have to have enough stuff to justify the effort of putting it in. If you only have a few twigs here and there it's hardly worth bothering with. Just chuck them in the bin."*

## **6.2 What is it that enables a person- practice initiation and persistence?**

In this section evidence supporting the existence of the mechanisms postulated as being capable of generating practice initiation and persistence are summarised for current practitioners, previous practitioners and those that have never practiced. In addition, quotes and interview extracts are used to provide evidence to support the existence, or not, of the postulated mechanisms and outcomes are identified in terms of practice initiation, extension or persistence or no practice. Furthermore in instances where there is evidence of more than one mechanism, the contribution made by each mechanism is considered. Again please see summary table 6.2.1, table 6.2.2 and table 6.2.3 for practice initiation and table 6.2.4 and table 6.2.5 for practice persistence.

### **6.2.1 'Goes-together' mechanism**

#### **Initiation**

The M1 'Goes-together' mechanism was evident in the majority i.e. 19 out of 35 (54%) current practitioners and 8 (80%) previous practitioners prior to practice initiation, but is only evident in a minority 3 (11%) of those who have never practiced.

#### **Persistence**

The M1 'Goes-together' mechanism continued to be evident in the majority of current practitioners i.e. 26 out of 35 (74% compared to 53% at initiation). But is down from 80% at initiation to 2 (20%) for previous practitioners.

#### **Current practitioners**

Interviewee 13 gave a number of reasons for initiating her own practice after she had left her family home including: benefitting the environment, dislike of waste, utility for the compost, and familiarity with the practice, as she explains:

*"It was more of an environmental thing. I hate throwing things away and always try to recycle what I can.. Although I did intend to use it, there are people who just do it from an environmental point of view and they never empty them.*



*OKAY right that's kind of half the thing for me. YEAH it was to stop throwing all this veggie waste away which is quite good stuff and because my mum has always had a compost so I knew what you got out of it and how easy it was as well. You know you did not really have to put much work into it and it was a really, really good thing for the plants so yeah ENVIRONMENTAL thing but also I wanted to use it on the garden. I mean the soil was really rubbishy as well. So I did not get any loam I just used the compost and that helped a lot."*

From which it can be inferred that the increased benefit M1 'Goes-together' mechanism is evident, in that from '*indirect knowledge*' of the practice gained in youth it was clear that she felt that practice was compatible with both her interest in gardening and values (i.e. being resourceful and thinking of herself as a 'recycler') and that there was utility in the practice, in that her soil was poor and it was known that the compost was 'good' for her plants.

Interviewee 24 is not a keen gardener although he has always practiced home composting. In this piece of dialogue he indicates that he is aware of the consequences of failing to compost but does not talk about it in environmental terms, rather he talks in terms of how not wasting something that he feels has value (i.e. food waste), is important to him:

*"It does not sound as if you are too bothered about actually getting the compost [out the other end?]. " [Actually making the compost?]. No, no that's secondary that's a secondary issue" .. "So it's thriftiness and not wanting to waste [things]" .. "[Yes]" .. "Rather than thinking I" .. "Not wanting to send good organic stuff, you know, off to the land fill sites or whatever. Or the district heating, you know it's wrong."*

From which it can be inferred that the M1 'Goes-together' mechanism rather than the M4 'Moral responsibility' mechanism is evident in practice ***persistence***.

Interviewee 29 was a child during the Second World War and like many people born at that time does not like to throw anything away. In addition she is a keen flower and vegetable grower. But it is not just that thrift is important to her or that she has a use for the compost because of her gardening interests, you also get the sense that she welcomes the opportunity that practice provides to make a connection with nature (or the living natural world), as she explains:

*"I LIKE to get my hands in the soil, quite honestly. To be honest I like getting my hands in. And I LOVE to get my hand in that compost, because it feels lovely.. Yeah."*



From which it can be inferred that, in this instance, there is evidence of the M1 'Goes-together' mechanism, initially in terms of thinking that practice would be compatible with gardening interests and have extrinsic value (i.e. production of compost), and then in terms of knowing from experience that practice continues to be useful and compatible with interest in gardening and has intrinsic value (i.e. not being wasteful and providing contact with nature).

Interviewee 30 is one of only two home composters who have no interest in gardening. Initially he indicates that his practice was simply to do with nostalgia and his father's practice. But eventually, after the author misinterpreted a number of explanations, he was able to more fully explain why he practices:

*"I'm not very interested in gardens, plants in some ways, but I have always found composting quite satisfying. And I do actually sort of get stuff out of the bottom and I sift it and I put it on the garden, and it's almost not for any particular purpose I just like doing it, in a strange sort of way.".. "I mean most people who are doing composting are fairly keen on gardening?".. "Yeah-".. "But you are [keen on composting?]".. "[No I wouldn't say], YEAH, yeah. Yes I wouldn't fit that...Erm, it's quite, I mean I quite like the idea, it's kind of vaguely environmental but more sort of- I like the idea".."Being resourceful?".. "Yes, almost and I'm not very so it's, they are very SIMPLE things actually, so without a great deal of thought or effort into it but I can sort of feel that I am doing something basic to do with..... the garden and nature I suppose, probably."*

From which it can be inferred that, M1 'Goes-together' mechanism is evident in practice **persistence**. In that he values the simplicity of the practice and finds pleasure in the acquisition and exercise of skills involved in practice. In addition that practice satisfies intrinsic rather than extrinsic needs (i.e. desire to do something good for the garden and to connect to the natural world), as he has very little utility for the compost. Thus in this instance it is not that he can practice (i.e. M3 'Can do-internal' mechanism) but that he values and is interested in the practice itself (i.e. M1 'Goes-together'), rather than the compost that is produced, that would appear to make a greater contribution to sustaining practice.

### **Previous practitioners**

In the past, interviewee 14 had a large garden and was a keen gardener and composter. However he has since moved and remarried and as he explains his interests and lifestyle are now very different:



*“WE haven’t been married very long, only 2 ½ years and it’s both of us second marriages and we both feel it’s a second opportunity...I mean one of the things with composting is when you cook and you have waste from cooking things like cabbages and that. Well we do occasionally have cabbages and things, I’m not saying we never have anything like that. But to be honest we do use quite a bit of frozen and tinned food. And we do go out quite a lot at evenings. We are going out tonight for example.”*

From which it can be inferred that there was evidence of the M1 ‘Goes-together’ mechanism prior to practice initiation, in that practice was felt to be compatible with needs, interest and lifestyle. However, now there is no longer any evidence of this mechanism, as lifestyle and interests have now changed.

### **Never practiced**

Interviewee 4 is familiar with the practice and has considered getting a compost bin. In this extract she demonstrates that she could make the space to site a bin and would value the practice in terms of being able to recycle household waste:

*“I think if we ever got round to moving that little lawn area and the logs there and put the bins in there, I would probably look at getting a compost bin then, just to use that space up and knowing that I would be doing some recycling of the household waste”.. “Yes”. “I don’t know, don’t know.”*

Earlier in the interview she makes it clear what the problem is, when she says:

*“Well I’ve thought many a time about having a compost bin but I wouldn’t know what to do with it. You know, you generate some compost and the garden’s so small it’s not like I’m going to use it in the garden and I wouldn’t go to the effort of I don’t know, selling it or giving it away to anyone else.”*

From which it can be inferred that there is evidence of the M1 ‘Goes-together’ mechanism, in that practice is felt to be compatible with her values, yet in her small garden she very little in the way of utility for the compost which precludes practice.

Interviewee 5 is a keen gardener and has a small garden (24 sqms) and in this extract indicates that whilst she would like to make her own compost she cannot find a convenient place to site the bin:

*“We’ve no room in this garden”.. “Yes”.. “You have to have it under the window and if we had a longer garden, it might be different...because I would sooner do my own compost”.. “Yes”... “I mean if we cleared a bit and put it up the top of the garden, I’m going to loose some plants and I can’t bare to throw anything away.”*



Thus whilst practice is compatible with gardening interest, in her small garden other uses take preference. Nonetheless, it can still be inferred that there is evidence of the M1 'Goes-together' mechanism.

In this extract interviewee 6 explains how having a larger garden would make no difference to whether she composted or not, in that composting is a practice that she associates with keen recyclers and gardeners, which is not compatible with how she sees herself:

*"The garden? I don't see that it would, because I would still be, I'm very awful at recycling and I wouldn't have a compost".. "Is that because of the, you know, the fact that's its another thing to do or?".. "No not because it's another thing to do, I think it's because in my eyes, compost is for keen gardeners and I ain't so I almost don't see the point. If I did it I'd be there thinking, well I've got to use this stuff at some point and then its another thing on my list to do which is really bad I know, especially as my dad built his own compost, he had one side a bonfire and one side compost so, but..."*

From which it can be inferred that there is no evidence of the M1 'Goes-together' mechanism in this instance.

### **6.2.2 'Could do' mechanism**

#### **Initiation**

The M2 'Could do' mechanism was evident in a sizeable minority i.e. 16 out of 35 (46%) current practitioners and 2 (20%) previous practitioners prior to practice initiation, and is only evident in 4 (15%) those who have never practiced.

#### **Persistence**

The M2 'Could do' mechanism is not evident in any current practitioners, but is evident in 1 (10%) previous practitioner.

#### **Current practitioners**

Interviewee 29 uses a compost bin and as she explains in this extract she was able to draw on her own knowledge of her father's practice before initiating her own practice:

*(Mrs) "I knew I couldn't have a heap like dad had. I knew it had to be enclosed".. "The main reason for that?"..(Mrs) "Well I'd soon have some complaints from yonder".. "The smell?".. (Mrs) "Ha, ha, ha. Well probably flies and things."*



From which it can be inferred that prior to practice initiation there was evidence of the M2 'Could do' mechanism, in that from watching her father's practice *'indirect knowledge'* of practice was gained, including familiarity with the conditions that would need to be met before practice was initiated and the risks that could be associated with practice.

Interviewee 38 explained how:

*"We did not have a compost bin at home so I guess it's a recent thing. It's certainly something I wouldn't have given very much thought to before I started gardening seriously. Primarily I suppose I would have to say it was for our own compost and stuff like that. Slightly more than we would for environmental reasons but then you have got the environmental aspect as well."*

Later in the interview she explained how:

*"I have been influenced by my neighbour here. I think we saw her composting and then started looking into it ourselves I was also very aware of the food waste we were creating as a household and that was a major factor in me starting composting."*

From which it can be inferred that there is evidence of the: M1 'Goes-together' mechanism, in that practice is compatible with interest in gardening and she has a use for the compost; and the M2 'Could do' mechanism, in that from watching a neighbour this interviewee became more familiar with the resources and skills involved in practice and from further reading was then able to make a judgement that she was capable of initiating practice; and the M4 'Moral responsibility' mechanism, in that there was awareness of the environmental reasons for practice and concern to act to reduce waste.

Interviewee 53 bought a compost bin prior to initiating his own practice and as he explains in this extract whilst he was had no experience of using a bin he was familiar with the practice:

*"I saw this advertised I wouldn't say that I would know what to do, but I remember seeing them when I was a young lad, me mum had one, an open one stacked to high heaven. Awful stuff to deal with."*

From which it can be inferred that there is evidence that the M2 'Could do' mechanism, is evident prior to practice *initiation*.



**Previous practitioners**

Interviewee 28 had *'indirect knowledge'* of the practice gained from watching her grandfather and reading about home composting. However she did not start collecting household waste until she had an allotment to compost in, as she explains when I asked her if she knew how to compost: *"I know what to do, oh definitely, I mean I've got as you can see I've got many gardening books and I've always read up on it, it's just a subject I'm really interested in."* Thus while the M2 'Could do' mechanism is evident it did not result in home composting because she felt that in her small garden there was nowhere to hide the bin. Additionally she explains that: *"I know 1 or 2 people [including her neighbour with a bin] have said that it attracts mice and rats, which I did not want near the house really so you know. Like I say I put it to good use really."* As a result, allotment practice is preferred to garden-based practice.

Interviewee 31 had *'indirect knowledge'* of the practice from watching his own father practice and as a keen gardener he had use for good quality compost. From which it can be inferred that, in this instance, the M2 'Could do' mechanism, along with the M1 'Goes-together' mechanism were evident and practice was *initiated*. However very quickly he became dissatisfied with the quality of compost being produced and *ceased* practicing after a year as he explains:

*"First time I had it I put it over on the soil and I don't know it did not do any good. It was just one of those things I got fed up with it. I fact if I could I'd get rid of it from there (on concrete path)".. "Looks like a dalek does not it?".. "Yeah, it sits there doing nothing".. "Had you had a go at composting before?".. "Never very good at composting. No I had not done much before".. "When you say you were never very good what-".. "It never seems to work for me".. "Takes a long time or it's slimy or?".. "Probably because it takes too long and it is slimy. When I see these things on television and they come out and make the compost heap and then you see another programme-".. "And they are using it".."They are using it and I think mine's [not like that]".. "[It's really dry and]".. "That got me, it's all got bits of wood and snotty stuff which is what I was getting. I don't know I just packed it in."*

It should also be noted that this interviewee unfavourably compared his own gardening practices with his father's throughout the interview and gave the impression that he found it difficult to live up to the high standards that his father had set.



### Never practiced

Interviewee 12 has *'indirect knowledge'* of the practice gained from both watching her father compost and as she explains: *"I just remember this big smelly heap, but that was when they had a large garden. So that's what you remember"*. In addition she has recently been reading up on home composting and as a result she is now far more aware of the issues that she feels need to be considered before practice can be initiated in her small garden (32sqms) as she explained: *"I'm very unsure about that. About where we put it basically..And what kind of garden waste we are going to have."* From which it is inferred that, in this instance, the M2 'Could do' mechanism whilst evident, serves to raise additional concerns focussed on the risks associated with practice that need to be resolved before practice can be initiated.

### 6.2.3 'Can do-internal' mechanism

#### Initiation

The M3 'Can do-internal' mechanism was not evident prior to practice initiation in current practitioners, previous practitioners nor in those who have never practice before.

#### Persistence

The M3 'Can do internal' mechanism is now evident in a sizeable minority of 13 (37%) current practitioners and 2 (20%) previous practitioners.

#### Current practitioners

Interviewee 13 is an experienced home composter whose partner needed some convincing that they could compost in their small garden. Here as she explains her approach and reasoning her knowledge, skills and confidence in practice are evident:

*"It's not a compost bin, it's a bin with the bottom cut off and the top of the bin left on".. "You adapted an ordinary bin why was that?".. "It was to do with the size of the garden and my partner was not keen on the idea really..and we looked at the compost bins and I said 'We need a certain size or it won't work'.. But it worked before (in another garden) and I thought it would be a good compromise; otherwise I wouldn't be able to do it"... "So kind of- I've got an idea, adapt it and get on and see?".. "Unless I knew this would work because my partner would be quite quick to say 'No way'. In fact it worked quite well. Apart from the fact the lid blows off."*



From which it can be inferred that the M3 'Can do-internal' mechanism is evident in this instance and practice *persists*.

Interviewees 22 have only recently started composting and from direct experience are already developing expertise, as is demonstrated in this extract:

*(Mrs) "Well we filled it up and we put a carpet on top and it has dropped down. But the weather's not been hot enough. WE have composted EVERYTHING.. (Mr) "Everything..We have a bucket".. (Mrs) "So that we did not have to keep taking the lid off. We bought a bucket with a lid on to put inside the porch so that we could keep putting things in until it was full."*

Furthermore after just one year this couple are already onto producing their second lot of compost and Mrs W (who is in her late 70s) has joined the composting club. From which it is inferred that the reduced effort M3 'Can do-internal' mechanism is evident in practice *persistence*, in that ongoing practice builds 'direct knowledge' which continues to build skills and generate confidence and interest in practice.

Interviewee 20 has been practicing for only one year and whilst she was able to watch her father's practice it is clear, in this extract, that she has very little in the way of practice 'know how':

*"Have you had a go at turning it?".. "I haven'- my partner has. I refuse to go near it, it's disgusting. It's covered in flies. We have this ongoing argument that I think you need to keep putting soil on it to get worms in it. He is 'No, no just leave it, it's fine' I know I am right. But I let him do what he thinks is best."*

From which it is inferred that the reduced effort M3 'Can do-internal' mechanism is not evident in practice *persistence*. In that, in the main, she is observing rather than actively participating in all aspects of practice, as such 'direct knowledge' is limited and skills and confidence in practice are not yet evident.

Interviewee 29 has been composting for many years as did her father and as a result she has developed considerable knowledge and confidence, as is exemplified when she is talking about her own practice, and what she has learnt from her experience:

*"..it's easy and you get some gorgeous stuff out of it.. I don't empty it every year. Well, it was on television and she said this will be broken down in six months- it isn't. It takes longer than that."*

From which it is inferred that the reduced effort M3 'Can do-internal' mechanism is evident in practice *persistence*, in that practice from youth has built 'direct knowledge', and skills and generated confidence.



Interviewee 53 explains why he is so wedded to his compost tumbler:

*"I bought that years and years and years ago and it still hasn't rusted. It's fantastic. Put it in the sun and you can make compost in six weeks. I turn it every day".. "I don't like static ones because they are too smelly they are not practical for small gardens. I know the council give them away but they are not practical".. "But it's not something that you have found particularly hard to do?".. "No, because it works so well. I don't think I would do it if there was not anything but the bins. The tumbler is by far the best that I have seen."*

Here the M1 'Goes-together, M3\* 'Can do-external', M10 'Habit' are evident in practice persistence. But as this interviewee explains, his confidence and subsequent commitment to persist with practice is largely put down to the technology he is using, as producing good quality compost is important to him.

Interviewee 60 has been adding mainly kitchen waste to her compost bin for some years. But is yet to produce any compost, as she explains in this extract:

*"Yeah I do it all the time but I haven't used any compost from it. I've been putting it in for years and it just goes down. So I don't know what's happening in there because some of the egg shells and stuff, I just keep putting my compost in, but I actually haven't used any compost".. "Do you put in garden stuff and household stuff? Or is it just garden stuff?".. "NO, household stuff and some garden stuff but you have to be careful haven't you. I don't use that much garden stuff unless it's pure grass really. It's mostly the household stuff that I put in the compost bin."*

However while this extract suggests she is unsure of how to get the correct balance between 'green' and brown' material, from her own practice she knows that the balance is not right. Consequently she is making an effort to increase her knowledge and improve her practice, as she demonstrates in this quote: *"Because I've just been reading, we've got a paper bin, and all our paper goes in there but I have a shredder, because my balance is wrong in there."*

From which it can be inferred that the M3 'Can do-internal' mechanism, along with the M3\* 'Can do-external, M4 'Moral responsibility' and M10 'Habit' mechanisms are evident in practice **persistence**.

### **Previous practitioners**

Interviewee 14 gained direct knowledge of the practice from past experience of composting and in this extract demonstrates that he has the knowledge and skills needed to practice:



*"I have done compost in past but not here. ...But the composting I built it up and everything and I used to shovel it, and put household and garden stuff on top. Then I would get it from underneath and it used to be a nice mulch for garden. It was fine, no problem.. "But you were doing a lot more gardening then, and did the two go together really?".. "Yeah, well I mean, the composting, it were very good because obviously if you buy fertiliser now it can be quite expensive."*

From which it is inferred that, in this instance, that there is evidence of the M3 'Can do-internal' mechanism.

For interviewees 23, one partner has '*direct knowledge*' of the practice gained from helping her parents who were keen composters whilst the other has no experience. As a result she is far more aware of the issues that need to be considered i.e. in terms of getting the right sized bin and siting the bin so as not to conflict with other uses of the garden, before practice can be initiated as this extract demonstrates:

*(Ms) "It's a problem because next door's is not really big enough. But if we had a bigger one were would we put it?".. "It is difficult isn't it"... (Ms) "Apart from outside your back door. And is it not gonna smell? Ha, ha, ha. There's no where to put it".. (Mr) "I would be adverse to putting it near the back door because of the smell , but then I would be adverse to putting it at the back of the garden because that is where we sit".. (Ms) "That's what I mean. It's like" .. "And the way that you are using the garden, there are places to sit as you go up so it's not like you are going to be far away from it anywhere."*

From which it is inferred that, in this instance, the M3 'Can do-internal' mechanism is evident. In that from previous experience she has '*direct knowledge*' of home composting and can do it (i.e. she has the skills). But she (in particular), is neither confident that her garden can accommodate the practice (i.e. the context is not conducive) nor that practice is compatible with the other mainly leisure uses of the garden.

#### **6.2.4 'Can do-external' mechanism**

##### **Initiation**

The M3\* 'Can do-external' mechanism was evident in the majority i.e. 18 out of 35 (54%) current practitioners and 1 (10%) previous practitioners prior to practice initiation, but is not evident in any of those who have never practiced.



### Persistence

The M3\* 'Can do-external' mechanism is evident in 7 out of 35 (20%) current practitioners but is no longer evident in any previous practitioners.

### Current practitioners

Interviewee 15 had no previous knowledge of the practice when she moved into a house that had a compost bin. But as she explains: *"Yeah, because it was there, I sort of started doing it. I don't know how committed to it I was at the time. It was not my house, and I don't think I ever turned it while I was there."* From which it can be inferred that, in this instance, the M3\* 'Can do-external' mechanism was evident prior to practice *initiation*, in that the resources needed to practice were readily available and little effort was required to have a go.

Interviewee 20 identifies a number of factors that played a part in initiating practice as she explains:

*"Yeah, but really the idea came with the house it ties in with the growing vegetables and wanting to recycle more".. "So do you think you were just WAITING for a garden to do that in?".. "The space to do it. And also it tying in with everything, wanting to grow, wanting to spend time in the garden, having a project that's ongoing, not just somewhere you sit."*

From which it can be inferred that, in this instance, the M1 'Goes together' and M4 'Moral responsibility' mechanisms are evident, in that the practice was felt to be compatible with the new practice of growing vegetables and she felt that they should be reducing their waste. But it was the M3\* 'Can do-external' mechanism (i.e. the conditions felt to be necessary for practice were met), in that she had a garden of 35 sqms, that was the immediate cause of practice *initiation*.

Interviewee 57 gained hands-on experience of home composting in her youth, as her parents composted in their family garden. However when asked how she was getting on with her own composting she replied: *"Okay. I don't know if I am doing it right though. I have a compost bin and I just put all my raw waste in it"*, which indicates a lack of knowledge and confidence in her own capabilities. Moreover although her parents are on hand to offer advice this is often confusing and is not always followed as this extract demonstrates:

*"I do put grass cuttings in and things and I know my mum and dad sometimes disagree on what you can do and what you can't. Saying you shouldn't put it in a lot because it goes like slurry. I haven't used it yet actually."*



Moreover, although it is suggested that previous practice increases knowledge, capability and confidence in practice, in this instance this was not the case i.e. there is no evidence that the M3 'Can do-internal' mechanism is at work in practice persistence. However it can be inferred that there is evidence that the M3\* 'Can do-external' mechanism is evident in practice **persistence**, in that she has access to help from her parents. The effect, however, is not as expected, in that there is confusion rather than increased confidence in practice.

### Previous practitioners

Interviewees 25 responded to a council offer of a subsidised compost bin and despite having no previous experience of the practice started composting, believing that in having a compost bin and garden that they had everything they needed to practice successfully. From which it can be inferred that, in this instance, the M3\* 'Can do-external' mechanism was evident and practice was initiated. However, as they explain, they had problems finding a convenient place to site their bin in their small (42 sqms) mostly paved garden and were concerned about the garden-take. Consequently as they explain:

*(Mr) "I was telling you about that because we bought a compost thing but it was like a dalek. It was a nightmare want it B?... because we hadn't anywhere to put it except where it was going to take up some of the garden, down that bottom bit near the tree. And it was a bugger to get to it".. "How long did you have a go for?".. (Mrs) "About a year would you say?".. (Mr) "About a year".. (Mrs) "It was on offer from the council but we realised you had to lift it up there was nothing to lift it out, you had to lift it up every time".. (Mr) "So everything fell out".. (Mrs) "It was a nightmare. So we gave it away"... (Mrs) "It was not convenient at all".*

From which it can be inferred, in this instance that practice did not persist due to problems with getting to the bin and problems with the technology itself, in that it was felt to be too difficult to get the compost out of the bin.



**Figure 6.2.4** shows interviewee 25's small garden and the area to the left, at the back near the small tree, where they sited their compost bin.



Prior to practice initiation interviewee 31 felt he had ‘access to the resources’ he needed to practice successfully, in terms of having the space to site the bin. However as he explains he had not considered how little household and garden waste they would be producing and experienced problems with the technology:

*“The first time I had it I put it over on the soil and I don’t know it did not do any good. It was just one of those things I got fed up with it. I fact if I could I’d get rid of it from there (on concrete path).. “Did you have any problems with smell or flies?”.. “With flies, yeah. But it was not quick enough. It was so big for the amount of rubbish, there are only two of us here. There’s not much that gets in there. And I don’t put grass in it. I leave that on.”*

### **6.2.5 ‘Moral responsibility’ mechanism**

#### **Initiation**

The M4 ‘Moral responsibility’ mechanism was evident in only a minority i.e. 5 out of 35 (14%) current practitioners, no previous practitioners, and is only evident in 2 (8%) of those who have never practiced.

#### **Persistence**

The M4 ‘Moral responsibility’ mechanism is now evident in 5 out of 35 (14%) current practitioners, and continues to be evident in 3. Also it is now evident in 2, where previously it was not. In addition it is now evident in 3 (30%) previous practitioners.

#### **Current practitioners**

Interviewee 16’s involvement in environmental politics precedes her interest in gardening. Here she explains how her composting practice was motivated by feelings of personal obligation and responsibility to reduce waste, rather than utility for the compost:

*“ I wouldn’t say my compost bin was particularly successful. I did not turn it, and I did not aerate it. I always did the thing that I felt morally happy with and worry about the practicalities later. But I knew that I couldn’t not do it.”*

From which it can be inferred that the M4 ‘Moral responsibility’ mechanism is evident in practice *persistence*.

In this extract interviewee 20 explains how feedback from practice maintains her ‘awareness of the consequences’ of home composting, in terms of keeping waste to a minimum, thereby benefitting the environment. She also explains how this then serves



to increase her sense of personal responsibility (i.e. 'ascription of responsibility') and felt obligation to continue with practice:

*"I think having the room to do it. And again the consciousness that we were putting out kind of 3 black bin liners a week and now we don't. It makes a massive difference. I mean we have the blue bins for the paper, and we collect all the plastic and glass. So really our waste is minimal. SO it's important to do that".. "And you can order smaller bins".. "Yeah, but really the idea came with the house it ties in with the growing vegetables and wanting to recycle more."*

From which it can be inferred that in this instance there is evidence that practice **persistence** is co-determined by the M1 'Goes-together and M4 'Moral responsibility' mechanisms, in that, practice continues to be valued because it is both compatible with interest in vegetable growing and concern to reduce waste, thereby reducing harm to the environment.

Interviewee 52 is a keen gardener and has been composting garden and kitchen waste for 4 years and is aware of wider environmental issues as she demonstrates: *"Yeah, I think everybody must do, if you did not you must be deaf and blind, because we get it every angle really in the press, on TV";* links her own practice with specific 'environmental issues when she states: *"A for instance is, we had a patio heater 2 or 3 years ago and I did not know that they were very environmentally unfriendly. So that's gone. And composting is another, as much waste as I can";* feels a sense of personal responsibility to reduce waste and is aware that her practice effectively does so, when she explains: *"I just thought we ought to really. You know I think people ought to. I mean we hardly chuck anything in our bin now. Do you? Yes, I bet our bins are only a third full each week. And four people in the house."*

From which it can be inferred that the M4 'Moral responsibility' mechanism is evident prior to practice initiation. Moreover it continues to be evident in equal measure with 3 others (M1 'Goes-together', M6 'Will do' and M10 'Habit' mechanisms) in practice **persistence**.

In this extract interviewee 60 explains that receiving a leaflet promoting free compost bins was the immediate cause of her practice, but practice initiation was also the result of her increasing awareness of environmental issues and desire to reduce waste:

*"[Yeah] probably and I also became more environmentally aware really and why not compost? And I think this thing came through, would you like a free compost bin and I just thought, I hate throwing things away and I do recycle all my bottles and stuff. I recycle everything."*



With the effect, as she explains: *“Yeah. I feel less guilty. I mean I’m just making asparagus soup and everything you peel just goes in.”* In addition it is clear that other household waste practice feeds into and feeds back into practice, reinforcing ‘awareness’ of the beneficial consequences of practicing home composting, i.e. in terms of reducing household waste and guilt feelings, as she says: *“Well we recycle what we can. My black bin, there is hardly anything in it, and again it’s an effort but I just feel better about it.”* From which it can be inferred that there is evidence that the M4 ‘Moral responsibility’ mechanism is at work in both practice *initiation* and *persistence*.

### **Previous practitioners**

Interviewee 28 is aware of specific problems linked to disposing of household waste and ‘knows that’ home composting is an effective way of addressing this problem (i.e. she has an ‘awareness of the consequences’ of practice in terms of benefits to herself, others and the environment). In addition she feels personally responsible to act to address the problem (i.e. ‘ascription of responsibility’), as she explains:

*“I realise the importance of composting and you realise that the landfill sites are- they are stretched to the limit anyway and if you can do that little bit to help and obviously it’s going to benefit your garden as well then obviously that is a positive thing to do, so you know I’m aware of that and it’s just something that I would like to do anyway, it’s not as if I’m being influenced by any outsiders by saying you must do this, but you hear about you know, that they are going to weigh your bins and things like that and I think if it means people have to be pushed into composting then it’s a good thing really, I’m quite willing to do it voluntarily, it’s not as if I’m going to take much persuasion because I realise it’s a benefit to everyone.”*

From which it can be inferred that there is evidence of the M4 ‘Moral responsibility’ mechanism, in that awareness of the household waste problem (i.e. ‘awareness of need’), together with acknowledgement of the personal and wider community benefits of the practice (i.e. ‘awareness of consequences’), increases her willingness to take personal responsibility to act to address the problem. However due to problems siting a bin in her own small garden, she now collects her household waste and takes it to her allotment for composting.

### **Never practiced**

Interviewee 17 has felt that she should be composting for some time and has made two unsuccessful attempts to initiate practice. The first was due to a council promotion of free bins, which as she explains did not result in practice being initiated:



*“Yes, I mean because I, you know, recycle everything and I feel very bad that I don’t have a compost thing so last year I, you know the council were very good in Sheffield, they gave them out free, they have all these days where you can go and get one, so we went to go and get one but they are so big they are absolutely enormous..I mean you’ve seen the size of our garden, I honestly, I went round and I thought, where are we going to put it, because there is no, well obviously we can’t put it on the decking, we’ve got steps, you can’t put it on the flower bed at the back (the bed is not very wide and raised already by ¾ of a metre) so the only place would be here [where we are sitting].”*

From which it can be inferred, that in this instance, whilst there is evidence of the M3\* ‘Can do-external’, M4 ‘Moral responsibility’ and M9 ‘Guilt’ mechanisms, in that free bins increased ‘access to the resources’ needed to compost, which along with feelings of guilt and sense of personal responsibility (*i.e. ascription of responsibility*) to practice, increased willingness to initiate the practice. However the context was not felt to be conducive due to problems siting the bin including: garden take, ease of access and proximity to sitting-out area. As a result allotment practice was preferred over garden practice.

### **6.2.6 ‘Positive thinking’ mechanism**

#### **Initiation**

The M5 ‘Positive thinking’ mechanism was not evident for any current practitioners or previous practitioners prior to practice initiation. But is currently evident for 2 (8%) those who have never practiced.

#### **Persistence**

The M5 ‘Positive thinking’ mechanism is evident for 4 (11%) current practitioners and 1 (10%) previous practitioner.

#### **Current practitioners**

Although an experienced home composter, interviewee 13 has had considerable problems adapting the practice to work in a very small garden (32 sqms) and well used garden, but as this extract demonstrates despite the difficulties she *persists* with the practice:

*“Yeah they were really bad last year (fruit flies).. “How did you resolve it then?”.. “Squashed a lot”.. “You can leave the bin lid off apparently if you are going away.. “We tried all those kind of things, we left the top off, my partner’s mum*



*said put a layer of newspaper in, then what do you do if you have compost coming out of the kitchen, where do you put it?.. “Have you had any problems with, you said your partner, with a small garden you are sitting with it, it’s not like it is tucked away?”...“Yeah, there was nowhere else I could put it. My mum told me not to put it at the back. No, apart from really in the summer really, because it’s not an open one.. Yeah, when it’s really hot and the actual plastic is heating up. People don’t come round again, ha, ha.”*

From which it can be inferred that the M5 ‘Positive thinking’ mechanism is evident in practice **persistence**, (along with the M1 ‘Goes-together’, M3 ‘Can do-internal’ and M10 ‘Habit’ mechanisms), in that satisfaction from practice (in terms of reducing waste and producing compost) is believed to outweigh difficulties, and as a result positive perception of practice persists.

Interviewee 20 has also had some difficulties with the practice, finding the compost repugnant and the bin difficult to use, but again practice persists:

*“Have you had a go at turning it?.. “I haven’t my partner has. I refuse to go near it, it’s disgusting. It’s covered in flies...And things like I am quite short and it’s quite high”. .“Have you had any other bother with the composting?”..“No, I am waiting for the heat to see if it absolutely stinks. Because obviously in my parent’s house it was not anywhere near where you were sitting. So it was never an issue. So I am waiting to see if it is.”*

From which it can be inferred that the M5 ‘Positive thinking’ mechanism is evident in practice **persistence**, in that satisfaction from practice, in terms of minimising waste (but not the production of compost), continues to outweigh what are considerable difficulties.

Interviewees’ 68 also believe the benefits from composting outweigh the difficulties, in that they value both the opportunity to recycle waste and the compost produced, as they explain:

*“Yeah always recycled things. Recycle nutrients back into the earth”.. “And you have plenty of use for the compost you are making as well?”.. “Definitely, yeah. Unfortunately it has proved very popular with the rats. I have these fantastic battles.”*

From which it can be inferred that the M5 ‘Positive thinking’ mechanism is evident and the M1 ‘Goes-together’ mechanism continues to be evident in practice **persistence**.



### Previous practitioners

Interviewees 42 had no previous experience of composting, but one of the partners was keen to reduce household waste rather than produce good quality compost as she explains:

*(Ms) "Yes, we weren't very good at it, it got a bit, did not do it often enough I don't think but.. I just like the idea of not throwing, I think it was not just the sort of compost it was just sort of not throwing the rubbish in the bin and having smelly bins I like that sort of thing but I did not really use the compost."*

From which it can be inferred, that in this instance, the M5 'Positive thinking' mechanism was evident prior to practice *initiation*, as initially, from 'indirect knowledge' the practice was thought of in a positive way, at least by one of the partners, in that her main concern was to reduce household waste and not to produce good quality compost.

### 6.2.7 'Will do' mechanism

#### Initiation

The M6 'Will do' mechanism was evident for 1 (3%) current practitioner, but no previous practitioners prior to practice initiation. Nor is it evident for those who have never practiced.

#### Persistence

The M6 'Will do' mechanism is evident for 2 (6%) current practitioners but is not evident in any previous practitioners.

#### Current practitioners

Interviewee 15 shares the use of a compost bin with three other households. But as the bin is sited in another neighbour's garden practice relies on the continued agreement of her neighbour to site the bin. In addition whilst she has skills developed from previous experience of the practice she has very little control over what her neighbours put in the bin, or when it is turned or emptied as she explains:

*"Because there are 3 of us putting stuff in it so that's the down side to it, the bin gets full very quickly. Erm".. "How does it work?".. "Well, my next door neighbour, while we were away, he actually did tip it out, emptied it, turned the compost over and put some back in and used some. So we are just kind of keeping on top of it in that way".. "So how do you decide who gets to use it?".. "*I think it's whoever gets there first to be honest, ha, ha, ha*".. "Every person for themselves".. "*It's who can be bothered to take it all out, turn it all over ha, ha,**



*ha and use it really. And as I say my next door neighbour did it while we were away."*

From which it can be inferred that, in this instance, there is no evidence of the M6 'Will do' mechanism in practice persistence. In that this interviewees practice is dependent on the goodwill and competence of others. However the M8 'Should do' mechanism is evident in practice persistence. In that the interviewee has an '*awareness of expectations*' from her neighbours to practice, and feels that it is important to contribute to what is felt to be a communal effort. As a result practice *persists*.

Interviewee 41 uses her next door neighbour's compost bin. But while this worked well for a few years practice ceased when her neighbour moved, as she explains:

*"And as I say in fact in the last couple of years I haven't been using it because I never sort of got round to asking the neighbours it's a bit stupid really but now I have and they said yes."*

From which it can be inferred that, in this instance, the M6 'Will do' mechanism is now evident, in that from seeking permission to practice from her neighbour, she has the '*freedom to choose*' to practice again, and practice is *reinstated*.

When interviewee 51 moved into her current home there was already a compost bin in the garden. As such, practice was not initially the result of her own will or desire, as she explains:

*"That compost was theirs yeah".. "And where's the, is the compost bin still here?".. "Yeah, it's down at the bottom near the greenhouse, that was their compost".. "Right".. "And we've taken over that."*

In addition her new partner is a well practiced home composter as she explains:

*"NEW to me but not to R, because we sold two houses so, R has always used a compost bin, as long as he can remember really, years and years and years. So he is very familiar, really takes control of the composting, he's the one who takes it down and uses it.. It's something I know is going on, he takes it out. I do a lot of the cooking so I do a lot of putting it in the bin. And he does the other side of it, taking it down. And he does the stirring, he does that side."*

From which it can be inferred that, in this instance, the M6 'Will do' mechanism is not evident prior to practice initiation, because she depends on her partner to lead on practice and as a result does not have the '*freedom to choose*' to practice as she may wish. However the M1 'Goes-together and M3\* 'Can do-external' mechanisms were evident, in that she has '*access to resources*' (e.g. a compost bin and the help of her partner), and practice is compatible with her new garden and new partner's interests.



Interviewee 52 is the only gardener in the household. As a result she was able to initiate practice and direct all aspects of compost production, as she explains in this extract:

*“Yes, yeah. Most of it and I know what not to do, like banana skins, the kids keep putting, because that’s there (compost collector next to the sink) and they have eaten a banana they just chuck it in there and I have told them that tea bags don’t do it either. Unless I break them up, tea bags don’t do it. And I have tea bags all over me garden, ha, ha, ha.”*

From which it can be inferred that, in this instance, the M6 ‘Will do’ mechanism is evident in practice *initiation* and *persistence*, in that she has the ‘*freedom to choose*’ to practice as she wishes, which along with the M1 ‘Goes-together, and M4 ‘Moral responsibility’ mechanisms results in practice persisting. But in this instance no one mechanism appears to dominate.

Interviewee 62 had very little control over practice initiation or current practice, in that her mother insisted she start the practice and continues to dominate practice, as this extract demonstrates:

*“I don’t like, I don’t stir it up or anything, ha, ha. My mum keeps control of it. And she says ‘We need to put some garotta in’ or ‘It’s too dry’ and she turns it over. ‘DON’T PUT THAT IN’ and ‘CHOP THAT UP BEFORE YOU PUT IT IN’, ha, ha, ha. [Yeah, alright]”. “[Ha, ha, ha]”. “[HA, ha} ‘THESE PIECES THAT YOU ARE PUTTING IN ARE TOO THICK’.. “ha, ha, ha. Yeah and I looked at mine, I went to a friends at the weekend and they had all sorts chucked in. And I thought ummm.”*

Thus in this instance there is no evidence that the M6 ‘Will do’ mechanism is at work in practice *persistence*, in that she does not have the ‘*freedom to choose*’ to practice entirely as she may like.

### **Previous practitioners and never practiced.**

The M6 ‘Will do’ mechanism is not evident in either previous practitioners or in those who have never practiced.



### 6.2.8 'Influence' mechanism

#### Initiation

The M7 'Influence' mechanism was not evident for any current practitioners or previous practitioners prior to practice initiation. But is currently evident for 1 (4%) of those who have never practiced.

#### Persistence

The M7 'Influence' mechanism is not evident for any current practitioners or previous practitioners.

#### Never practiced

Interviewee 61 has no previous knowledge of the practice and is the only non-practitioner who identified both environmental and social reasons for why she should compost as she indicates when explaining her thinking about the practice:

*"No I think we are just getting more and more eco-friendly really, so we are trying, we think we should have a water butt, we should have a compost heap and good role modelling for the children but we haven't done it before, we have never really had a proper garden before."*

However although there is evidence of increased awareness of environmental issues and the M4 'Moral responsibility' and M7 'Influence' mechanism, in that she feels that she should be practicing and acknowledges that in doing so she would also have an opportunity to influence her children's thinking about the practice, what is missing is any notion that she feels personally responsible to act. Subsequently this interviewee seeks to explain lack of practice with lack of knowledge and experience. However later on in the interview it is evident when she is talking about a recent purchase of a patio heater that she is not willing to accept personal responsibility for a 'problem', when she thinks that other people do not, as she says:

*"Well I don't, you now, I've heard such bad things about patio heaters and stuff like that but now with the smoking ban coming in which I'm all for, all pubs are buying patio heaters so that people can stand outside. So you know I think well if they are going to all be there with their patio heaters.."*

As such, in this instance, intention to practice is yet to translate into actual practice.



### 6.2.9 'Should do' mechanism

#### Initiation

The M8 'Should do' mechanism was evident for 9 (26%) current practitioners and 1 (10%) previous practitioner prior to practice initiation. It is also currently evident in 3 (11%) of those who have never practiced.

#### Persistence

The M8 'Should do' mechanism is evident for 2 (6%) current practitioners, but is no longer evident for any of the previous practitioners.

#### Current practitioners

Interviewee 15's previous experience of the practice was gained in the privacy of a rented house and garden. However she suggests that the communal composting she is now involved in is quite different:

*"Whereas here, because it is kind of like a communal effort as well".. "Do you think people keep a tab on who's not putting enough in?".. "No, I don't think so. We are not quite that bad. And you don't bump into people at the compost bin if you know what I mean. But you do see people going up".. "So there is an element of eyes on the compost?".. "Yeah, and I always see what's in there when I put my stuff in."*

From which it can be inferred that, in this instance, the M8 'Should do' mechanism is evident in practice *persistence*, in that the interviewee is 'aware of expectations' from her neighbours to practice and because cooperating with her neighbours is important to her, she is minded to practice as her neighbours do.

Interviewee 39 has been composting since she was a child and when talking about her mother and father she explained how *"they have always been active composters."* And as a result she explains: *"Yeah, I grew up with it and you just do it. There was always a separate bin for it. You took it out."* From which it can be inferred that, in this instance, the M8 'Should do' mechanism is evident prior to practice *initiation*, in that practice was learned by exposure to, and expectations to take part in, family practice.

In this quote interviewee 62 explains how practice was not initiated out of her own free will, rather it was her mother who encouraged (insisted) her to practice:

*"NO, my mum, that's my mum. She said 'You need a compost bin in the garden' because she's got one. She said 'You need to get one' and of course you can get them from the council. So when they had one of their promotions. So we do, we use the compost out of it."*



Consequently as she had: an '*awareness of expectations*' from her mother, a large garden, increased interest in gardening and easy access to a cheap bin, practice was initiated. From which it can be inferred that in this instance the M8 'Should do' mechanism was evident in practice *initiation*, along with the M1 'Goes-together and M3\* 'Can do-external' mechanisms, in that she implies that acting to gain her mother's approval (or avoid disapproval) was important to her.

Interviewees 64 had no previous experience of home composting prior to initiating their own practice. But as keen gardeners, with a large new garden (204 sqms) they were keen to put into practice what they knew to be appropriate or good gardening practice, as this piece of dialogue demonstrates:

*"Was it something that came from the garden, if you know what I mean? Did you think well we are going to have loads of stuff?"..(Mrs) "I suppose so but also we were just entering that era when composting and water butts were starting to be the things that you did if you were a keen gardener. I mean I used to buy gardening magazines, I don't anymore, but I used to buy a lot of gardening magazines and watch 'Gardeners World' every week and stuff like that ermm so it just seemed the natural thing to do really."*

From which it can be inferred that in this instance both the M8 'Should do' and M1 'Goes-together mechanism were evident prior to practice being *initiated*, in that practice was preceded by increased knowledge of what 'good' gardeners do (i.e. '*awareness of expectations*'). In addition they were becoming increasingly interested in gardening and wanted to demonstrate that they too were 'good' gardeners. As a result their willingness to initiate practice increased.

### **Previous practitioners**

Interviewee 23 was encouraged to practice home composting, with the rest of her family when she was young, explaining how at home "*Yeah, everything. Nothing is thrown away*". From which it can be inferred that, in this instance the M8 'Should do' mechanism was evident in practice *initiation*.

### **Never practiced**

Interviewee 9 lives in a rented house and is currently not practicing home composting, but did bring up the issue during his interview, explaining that:

*"I would love to be able to but at the back there is a hydrangea which would be an ideal spot to but a water butt or some composting bin but I DON'T FEEL that it would be what the owners want."*



When asked why he did not think the owners would want him to compost he replied:

*“I mean they (landlord) are into walking and the countryside and all that but they did not have a bin here, so I”.. “So that’s kind of [like a sign]?”.. “ [Yeah, yeah] it’s such a small garden that if you had a water butt and compost it would actually take a lot of space, proportionally, you know?”*

From which it can be inferred that the absence of a compost bin in the garden served to signal to this interviewee that the landlord did not think that the practice was appropriate. Here it is evident that the rules which govern the relationship between tenant and landlord, for example that as the landlord owns the house the tenant is bound by what the landlord thinks is appropriate, determine what practices are undertaken, rather than what the tenant wanted to do.

Interviewee 12’s sister works for an environmental organisation and seemed keen to encourage her sister to start composting as she explains: *“We haven’t done any composting, but for my birthday in April my sister has bought me a book about making your own compost ..which I immediately started reading much to the disgust of my other half.”* From which it can be inferred that the M8 ‘Should do’ mechanism is evident, in that due to her sister’s encouragement she has an ‘awareness of expectations’ and does not want to disappoint, as a consequence she is now minded to comply with expectations and initiate practice. However as she explained in her small garden (32 sqms) she is finding it difficult to decide which method of composting to use and find a convenient place to site the bin: *“I’m very unsure about that. About where we put it basically.. And what kind of garden waste we are going to have.. I think there will be a way but I’m not sure where but..”*

Interviewee 61 talked about her intention to initiate the practice a number of times during the interview. Moreover she suggested that this was in part due to her increasing awareness of others practice as she explains:

*“Yes, and things like, you go to people’s houses and you can see that they are recycling their plastic and their cans and their bottles and we do all that and then you see that they have got their teabags and eggshells on the side and you start thinking oh... I haven’t done that yet, I should do that so, that will have to come I think.”*

From which it can be inferred that the M8 ‘Should do’ mechanism is evident, but the context is not yet conducive to practice. In that she ‘knows that’ practice is widespread among her peers and does not want to be seen to be acting against this norm and yet this is not important enough for her to initiate practice.



### 6.2.10 'Guilt' mechanism

#### Initiation

The M9 'Guilt' mechanism was evident for 1 (3%) current practitioner but no previous practitioners prior to practice initiation. And is currently evident for 1 (4%) of those who has never practiced.

#### Persistence

The M9 'Guilt' mechanism is evident for 2 (6%) current practitioners, but is no longer evident for any of the previous practitioners.

#### Current practitioners

When interviewee 56 was asked what she does with her garden waste she replied in a regretful tone *"I have to throw it away, I'm sorry"*. But later in the interview explained that she is composting grass cuttings in black bin bags and has considered getting a compost bin as *"I mean I would love to do a compost."* This interviewee is a well-read gardener as she explains *"..oooh if you saw the books what I've got on gardening"* and up until retiring worked within a company that had an environmental focus.

Consequently when asked whether wider environmental issues had an effect on what she does in her garden she replied:

*"I would say I do like to think about the environment and I would like to have a water butt and compost but you know it's-".Where to put it?.. "I know I have a big garden like this and I can't find a place for it, you know."*

From which she implies that she is aware of the environmental issues and acknowledges that home composting would be a way of addressing such issues. In this instance then, there is evidence of the M9 'Guilt' mechanism, in that she is *'aware of the consequences'* of failing to practice and feels bad about not doing more. However whilst practice is *initiated*, it is very limited.

#### Previous practitioners

The M9 'Guilt' mechanism is not evident in previous practitioners.

#### Never practiced

Interviewee 17 replied, when asked what she does with her garden waste: *"Right, well basically I, against my better judgement, I put it in the normal bin and it gets taken, we don't have a green bin, some areas of Sheffield already have the green bins"*. Also it is



clear that she feels she should compost and not doing so goes against her principles and makes her feel guilty as she explains:

*"It's not that I don't want to do it, I honestly think the garden is too small to...Mmm,, because I do feel bad about it ...We do recycle everything else, plastic, paper, clothes, everything, you know, but that is the one thing I fall short on."*

From which it can be inferred that, in this instance, the M9 'Guilt' mechanism is evident, in that she is 'aware of the consequences' of failing to practice, feels bad about not doing more but does not initiate practice due to problems siting a bin in her small garden.

### **6.2.11 'Habit' mechanism**

#### **Initiation**

The M10 'Habit' mechanism is not associated with practice initiation.

#### **Persistence**

The M10 'Habit' mechanism is evident for 24 (69%) current practitioners, but is only evident for the one previous practitioner who now has an allotment.

#### **Current practitioners**

Interviewees 22 are a retired couple who have only been composting for 12 months and as one partner explains it is now a routine practice:

*"But we have got into the habit. We have got to get into the habit again, because I have bought a little box to put everything in on the side of the sink. For teabags and things like that and you just get used to it."*

Thus with a box on the side of the sink and a bigger container at the back door there are a number of cues that help maintain practice, as she explains: *"I mean sometimes you have GOT to do something, you look at something and we've GOT to do that compost bin but you know?"* From which it can be inferred that in this instance the M10 'Habit' mechanism is evident in practice **persistence**, alongside the M3 'Can do-internal' mechanism, in that cues to practice prompt memory for practice and routine and skills and confidence then develop from regular practice.

Interviewee 38 has been composting for 2 years and has a long, thin garden. Her compost bin is sited at the bottom (21 metres away from the house). But while she



indicates that composting is now a routine practice she also suggests that the distance to the bin, particularly in bad weather, undermines the routine:

*"No, I think when it's raining in the winter and it's dark and miserable. It's right down the bottom of the garden and the steps and things so I'm not always as efficient. So you can come home and continually think I must do that..But yes, this time of year (late summer) it goes out every day or two."*

For this interviewee it can be inferred that the M10 'Habit' mechanism is evident in practice **persistence**, in that from regular practice she no longer has to consciously think about it, until conditions change e.g. due to bad weather, which serves to make practice a conscious and more problematic decision.



**Figure 6.2.11** shows the route from the house, down the steps, to the back of interviewee 38's long garden. Not surprisingly, trips to the bin are avoided at night and when the weather is poor.

### **Previous practitioners**

Even though interviewee 28 is not composting at home she has developed a routine for taking her compost to her allotment as she explains:

*"Yes so everything gets composted there, even the grass cuttings I just put in a sack, tip it out and I take it the next time I come up so I may leave a bag at the side of the bin and just as I go up to the allotment, take it up..Every time I go up I take it with me, even if it's just half a bag".*

Consequently for this interviewee it can be inferred that the M10 'Habit' mechanism is evident but as she feels her garden is too small, this results in allotment rather than garden practice persisting.



## 6.3 Context

### 6.3.1 Is 'time of life' significant?

In this section the mediating effect of 'time of life' on practice initiation and persistence are explored.

#### Initiation

For the majority of current practitioners practice initiation was dependent on 'time of life' in that for 23 (66%) interviewees 'time of life' was significant to practice initiation, for example initiation was associated with: their youth, when moving to their first 'own' home and garden as a young adult or moving to a new home as an older adult with no children, when caring responsibilities for children were reduced and in retirement. However for 12 (34%) practitioners 'time of life' was not significant to practice initiation. In contrast 'time of life' was significant to practice initiation for only 4 (40%) previous practitioners. For example practice was initiated: in their youth; or as a young adult prior to having a family. However for 6 (60%) previous practitioners this was not the case, whereas for all bar one (96%) of those who have never practiced, 'time of life' has had no effect to date on practice or not.

#### Persistence

For the majority of current practitioners (94%) 'time of life' is not significant to practice persistence, in contrast to when practice was initiated, whereas for 5 (50%) previous practitioners, 'time of life' was (or is) significant to practice, and practice has ceased. Reasons given include: constraints on time until retirement, change of lifestyle after retirement and leaving behind family practice due to move to first 'own' home and focus on house rather than garden. However for 50% of previous practitioners 'time of life' was not given as a reason for practice ceasing.

#### Current practitioners

Explanations given for how 'time of life' has been significant, or not, to practice are detailed below.

Interviewee 13 is one of the current practitioners who have practiced continuously since her youth, even when she lived in a flat, as she explains:

*"In fact when I was living in Brixton I wanted to compost but we lived in a roof terrace and I did actually think about putting it on the roof. So I bought a bin and put it on the felt roof."*



Now with a young child and a very small garden her practice continues. Thus whilst practice *initiation* did depend on 'time of life', in that she was encouraged to practice by her mother in her youth, practice persistence is not dependent on 'time of life'.

Interviewee 39 came from a family of practitioners and the first thing she did when she had a house of her own was to buy a compost bin and as she explains "*I have always (composted), yeah, yeah.*" Again whilst practice *initiation* depended on 'time of life' practice persistence does not.

Interviewee 43's father taught her how to compost as a young girl. However she has not always been able to sustain her own practice as she explains in this extract:

*"..you said when you had children you were still doing bits of gardening?"..  
 "Yes".. "But things like composting you did not do so much?".. "Yes, I did not bother very much"... "Was there a time when you got the time back or your garden back?".. "Yes. But I did not do too many vegetables, I did some vegetables, then as soon as I had the time I did start the composting again. Then once I had retired that's when I got my allotment. I was on my own with the children you see, and you don't have a lot of time."*

Again it can be inferred that, in this instance, 'time of life' has been significant in both practice *initiation* and *persistence*.

### **Previous practitioners**

Interviewee 36 has previous experience of the practice of composting when she grew vegetables in a previous home as she explains:

*"Yeah, did it with vegetables. In fact I had a compost bin, I mean I made it out of wood.. 2 doors and I cut them up and painted flowers round the outside and put a lid on and got all my compost in there."*

However she has now moved into sheltered accommodation and due to ill health gardening activity is much reduced, and composting practice has ceased, from which it can be inferred that whilst practice initiation was not dependent on 'time of life', 'time of life' has been significant in practice *persistence*.

### **Never practiced**

Interviewee 27 has indirect experience of composting from her youth and has very fond memories of her father's garden and love of gardening. Subsequently when asked whether she would do anything differently whilst she was adamant that she did not



want a larger garden she indicated that she would now consider composting, as a means of connecting her back to her childhood and her father, as she explains:

*"I think I would because at the bottom of my dad's garden he had like a compost pile there and bottom of his garden he had potatoes and carrots and onions.. I mean it were BEAUTIFUL his garden, there weren't a blade of grass, you know when he retired he were out there every day. It really was lovely. So I probably, if I had more time as well, ermm I'd probably do something like that because it reminds me of my childhood as well."*

A little later in the interview she again explains why she had not considered the practice until more recently:

*"Now these are older I wouldn't have done it when they were young".. "Is that because you had so many other things to do?.. "Well yeah, yeah because I was working, working part-time and it was just like".. "Full [on]".. "[Yeah] yeah. But now I have more time and they are older I could do that."*

From which it can be inferred that 'time of life' could in part explain lack of practice, but practice would need to be initiated to confirm that 'time of life' is significant to practice.

### **6.3.2 Is the garden setting significant?**

In this section the mediating effect of the garden setting on practice initiation and persistence are explored.

#### **Initiation**

For 30 (86%) of the 35 current home composters practice was initiated in their own gardens, and of these 6 were previous gardens, while for 5 (14%) current practitioners practice was initiated in a neighbours garden or in an allotment. For previous practitioners 9 (90%) practice was initially garden based, and of these 5 (55%) in previous gardens. However for one previous practitioner practice was allotment based.

#### **Persistence**

For 32 (91%) of the 35 current home composters practice is now garden based. However for 3 (9%) current practitioners practice is not garden based, but takes place in either a neighbour's garden or at an allotment. Moreover for 33 (94%) garden based practice makes a difference to practice persistence, while for 2 (6%) it does not. It should be noted that in only a minority has setting for practice changed, in that one allotment holder have transferred practice to their home garden whilst one other has transferred garden practice to an allotment. For previous practitioners only 1 (10%)



continues with allotment based practice and 9 (90%) no longer practice in any kind of setting. Here for 6 (60%) the garden setting did make a difference to practice persistence whilst for 4 (40%) it did not.

### **Current practitioners**

Interviewee 15 has an end garden in a terrace of four joined by a communal walkway running along the backs of each house. The gardens are small and on two levels, open to each other although there is some planting along her boundary to her neighbours. The communal compost bin is sited in the garden three houses along, which for this interviewee makes a difference to the extent of practice, as she explains:

*“It’s NOT really convenient enough. Because it means going up the garden and along to put stuff in and I probably don’t compost as much as I could for that reason. Because some times, in the middle of everything else going on, it’s in the bin ha, ha. Wheelie bins nearest in it goes. Ermm, but I mean I try to as much as possible and I always put the cuttings out of the garden in it. Because I am in the garden anyway so it’s not that far. It’s more the household stuff that wouldn’t go in. But I do try”.* “There is a thing isn’t there about proximity?”..  
*“Yeah. It did not used to make that much difference when I did not have children to be honest. Whereas now you don’t have a nano-second”.* “Not just time, but also energy and inclination?”.. *“Absolutely. That does make a difference.”*

Interviewee 16 lives in a mid-terrace house in a terrace of four, joined by a communal walkway running along the back of each house, the gardens are small and flat and not open to each other. But although she has exclusive use of her garden, it is not free from overlooking or interference, which has made a significant difference to her practice, as she explains:

*“The compost bin, until my neighbours told me they did not like the smell (sited in the garden nearest to the communal walkway).. “And where was the bin?”.. “Well I put it next to the bins, because as far as I am concerned that’s the waste end of the garden because this is the nice bit (down the garden) and they wanted me to have the bin next to my seat which isn’t where I wanted it. So I got the wormery which they agreed did not smell but said flies were going from my wormery onto their cat litter so they wanted me to move the wormery ermm. And actually I went on holiday and they did move the wormery but they moved it to the flower bed and because it is supposed to be on a hard surface it fell over and broke a leg. And that’s a ninety quid wormery, I have never spent that much on anything, as you can see it is all taken from skips, so ermm.”*



As a result of interference by her neighbour this interviewee has switched from a compost bin to a wormery which has enabled practice to persist, albeit at a reduced level. Furthermore, it has obviously reduced her enjoyment of being in the garden as she explains:

*"I miss not being able to put garden waste in it, I mean you can but, it's what you do to keep the peace. Because they come past my garden eight times a day and I don't want to dread, I mean I do anyway whenever I hear their gate going..."*

Interviewee 39 has been home composting since her youth and bought a compost bin as soon as she moved into her first home. Initially she made and used her compost on her garden. However now she produces more than she needs, but still finds garden based practice more effective than allotment based practice, as she explains:

*"I have taken some because it is far more than I could use here and I do scatter a bit round but generally I bag it up and take it to the allotment. I can actually use it there. It's funny that it does not seem to go very far up there. I do try and compost down there. But I don't have the household."*

In this extract interviewee 60 suggests her garden has a positive effect on her routine home composting practice, in terms of always providing something of interest to take her mind off the task in hand:

*"I try not to think 'Oh I can't be bothered', if I'm taking the compost bin out I try and do something nice or look at things as I'm going up the garden. Look at the plants and turn it into a positive experience rather than a drudge going up to the top of the garden to empty the compost bin then wash it out in the water butt again. So I try and do other things that I quite like while I am doing it."*

### **Previous practitioners**

Interviewee 2 has previous experience of home composting but did not have much success and experienced a lot of problems with flies. Now living in a rented house with a small garden she does not think the practice is compatible with the way the garden is used, which, in the main, is for sitting out and line drying. Here she explains how she has tried to keep composting, but not in her own garden and without much success:

*"We did do it until quite recently because we'd got an allotment and a lot of friends lived over the road and they had a compost bin, but they have moved and... So we could sneak in at night but erm, it was like we were saving it to give to the people who had got an allotment and then if we did not see them, we'd end up with just this smelly, rank mess..."*



As such, it can be inferred that whilst garden based practice would be more convenient it is not considered to be compatible with the leisure use of the small garden.

### **Never practiced**

Interviewee 17 has made three attempts to initiate the practice, one which involved using her own garden and two off site. The second attempt made by this interviewee involved collecting kitchen waste and taking it to her children's school which did result in the practice being initiated but not sustained as she explains:

*"For the household I thought right, what I'll do is I'll get one of those things to put all the vegetable peelings in and the local school down there have got a compost bin which parents are encouraged to drop stuff off, so if they had had it when my kids were at primary school and I was walking down there every day I would have used it but the reality was I'd collect these vegetable things, they'd sit there in the bin and because I'm going to work and things and so I would never get them down there so I ended up, good intentions."*

However this has not deterred this interviewee who has identified a third more convenient option, which again does not involve using her own garden as she explains:

*"What's happened actually, our neighbours next door who we know quite well, they have just literally had their garden done ..but I think they have got an inbuilt compost mate, because K's into gardening and I can see that there is this wooden thing there so I will collect them and if they want them I'll put them in their bin because I do feel really bad about chucking veg away because we eat loads of vegetables."*

However, as both gardens are private and there is no means of access between the two gardens this option would still not appear to be ideal.

## **6.4 Summary and discussion**

### **6.4.1 Pre-conditions for practice initiation**

The pre-conditions that were met by the majority of both current practitioners and previous practitioners prior to initiating home composting include: 'indirect knowledge'; 'access to resources'; and 'freedom to choose'. In contrast the majority of those who have never practiced only met the condition 'freedom to choose'. Moreover of the three practices under investigation the conditions 'awareness of need', 'awareness of consequences' and 'ascription of responsibility' to practice were most likely to be met



for this practice, but were only met in a sizeable minority of current practitioners and a minority of previous practitioners.

As with the practice of growing fruit and vegetables, nearly all current growers and three quarters of previous practitioners gained '*indirect knowledge*' of the practice in their youth from watching a family practitioner, whilst the minority who started composting as an adult, and had had no earlier opportunities to familiarise themselves with the practice, relied on reading about the practice. For those who have never practiced only a minority (albeit a sizeable minority) now meet this condition, in that in the main they had not had the same opportunity to become familiar with the practice when they were young, or as an adult.

For the majority of current practitioners it is their current garden that provided '*access to the resources*' needed to initiate home composting practice, with '*size of garden*' being equally as likely to have been considered prior to initiating home composting, as not. Here interviewees with much larger gardens were particularly more likely to consider garden size before initiating home composting. In contrast for previous practitioners half initiated practice in a previous garden and half in their current garden, and in only a minority was garden size taken into consideration before home composting was initiated. Whereas for those who have never practiced garden size does make a difference to practice, in that a sizeable minority of those with gardens of less than 70 square metres stated that practice would be initiated if they had access to a larger garden.

The finding that '*access to resources*' is a pre-condition for practice initiation explains the association between the practice of composting and garden size, and accords with the reasons for dissatisfaction with garden size, found in chapter four.

As for the practice of growing fruit and vegetables the majority of both current practitioners and previous practitioners were free to choose to practice home composting prior to practice being initiated, in that in the main they either did not need permission or sought and gained permission. However while those who have never practiced are actually much freer to practice, they choose not to. However it was evident that type of tenure was significant to a minority of current practitioners and one interviewee who had never practiced who lived in private rented accommodation, in that permission needed to be sought and gained from one landlord prior to practice initiation and in the other case, whilst there was interest in initiating practice, it was felt not be what the landlord would want. In both instances interviewees had, in the main, had gardens before (but not always) and were keen gardeners.



### **6.4.2 The person and practice initiation**

As for the practice of growing fruit and vegetables, what differentiates both current practitioners and previous practitioners from those who have never practiced is familiarity with the practice from having observed a practitioner in their youth, from which they know that practice can meet needs i.e. they have utility for the compost, and is compatible with gardening interest and particularly growing fruit and vegetables. In addition that for current practitioners the practice was valued in terms of providing a means to reduce waste and exercise thriftiness. This suggests that the 'Goes together' mechanism can be used to explain home composting initiation, which accords with the tentative explanation given in chapter 4 that home composting might be explained by meeting needs (extrinsic and intrinsic) and compatibility with gardening lifestyle, interest (including intrinsic interest) and values.

In addition the majority of current practitioners were also minded to consider whether or not they had '*access to the resources*', in terms of having sufficient garden waste, enough area of planting to use compost, as well as being able to easily site the bin out of sight. As a result they were more confident that the pre-conditions for practice were met. Similarly a sizeable minority, from watching another practitioner (in the main when they were young) or in a few cases reading about the practice as an adult, were familiar with the resources and skills needed to practice. From which they were able to make a judgement as an adult, (particularly in regard to type of technology to use, size and siting of bin), that home composting was something they could do. In contrast fewer previous practitioners and far fewer of those who have never practiced were as familiar with the skills and resources needed to practice, in that in the main they had not been able to watch a practitioner or read up on the practice, and as such that opportunity to make a judgement about their own capabilities was not evident to the same extent as in current practitioners. This suggests that the 'Can do-external' and the 'Could do' mechanisms can also be used to explain home composting initiation.

For current practitioners 'time of life' was significant to practice initiation in that for example: in their youth they were particularly open to learning new practices from family members; or as an adult had more time to practice due to reduced caring responsibilities as children grew up; or a reduction in work commitments at retirement. However in only a minority of previous practitioners did 'time of life' make a difference to practice initiation when, in contrast to current practitioners, practice was initiated prior to having a family.



For the majority of current practitioners practice was initiated in their current garden and is a practice that is unique to their back garden i.e. it was not carried out in any other setting. Similarly for the majority of previous practitioners practice was garden based, however in contrast with current practitioners, practice was initiated in a previous garden i.e. at another time and place. In contrast for those that have never practiced their idea of 'the garden' has never included home composting.

Finally, it is also evident that the 'Can do-external' mechanism does not always work in the way hypothesized, in that 'access to resources', and specifically help from an existing practitioner, does not always result in reduced effort and increased confidence, rather it can cause confusion when advice contradicts what is already thought to be known or when two practitioners give contradictory advice. Additionally, the 'Guilt' mechanism is not always working on the basis of guilt stemming from feelings of moral obligation, rather in a minority of interviewees their guilt stems from not acting in accord with their personal values.

### **6.5.3 Preconditions for practice persistence**

The pre-conditions that are now met by the majority of current practitioners who persist with home composting include: '*direct knowledge*'; '*access to resources*' and '*freedom to choose*' to practice, with the latter being at higher levels than at initiation. In contrast, only two conditions '*direct knowledge*' and '*freedom to choose*' are now met by previous practitioners, with the latter now being at lower levels than at initiation. In addition the conditions '*awareness of need*' to practice, and '*awareness of consequences*' of practice are increasingly being met (but still in only a minority) by current practitioners. But surprisingly, the condition '*awareness of need*' is now met by more previous practitioners than current practitioners.

Consequently, current practitioners, from hands on experience, have built '*direct knowledge*' of the practice and unlike previous practitioners continue to have '*access to the resources*' needed to practice and are increasingly able to choose to continue with practice. In addition a sizeable minority of current practitioners are slightly more aware of the need to practice to reduce waste and increasingly aware of the consequences of practice in terms of benefits to their selves, and in some instances to others and the wider environment; and continue to feel a personal sense of responsibility to reduce waste.



For current practitioners size of garden (either larger or smaller) now makes no difference to practice persistence. Similarly for previous practitioners size of garden (again either larger or smaller) makes no difference to lack of practice, in that all would continue not to practice. Yet explanations given by previous practitioners for not persisting with practice including: problems with the siting bins in locations that are easily accessible and do not conflict with other social uses of the garden; insufficient space to empty bins when turning compost; size of bins and concerns over garden take; problems with mix of brown (garden) and green (kitchen) waste (i.e. in small gardens too little garden waste, in larger gardens too much garden waste, in small households insufficient kitchen waste or large amounts of kitchen waste in larger households); all point to garden size as being one of the reasons for unsuccessful practice.

Overall we can see that in terms of practice initiation, current practitioners were differentiated from previous practitioners, not on the basis of *'indirect knowledge'* or *'access to resources'* or *'freedom to choose'* to practice, rather on the basis that they were much more likely to have had an *'awareness of the consequences'* to themselves, others and the wider environment, of failing to reduce waste, and to have felt a sense of personal responsibility (i.e. *'ascription of responsibility'*) to act to reduce harm. In addition in making a judgement as to whether they were capable of initiating practice, they were far more likely to have taken 'garden size' into consideration and as such be confident that they had a sound basis for their decision. Lastly, current practitioners were more likely to have initiated practice at a 'time of life' that was particularly conducive to practice (i.e. when the effort felt to be needed to initiate practice was not too great), for example prior to having family or increased work responsibilities or when family and work responsibilities were reduced.

In contrast we can see that those who have never practiced have not had anywhere near the opportunities to watch somebody practicing home composting, and as a result have little or no knowledge (i.e. propositional or *'indirect knowledge'*), nor do they have an *'awareness of the need'* to reduce waste, or an *'awareness of the consequences'* of failing to do so. Not surprisingly then, they do not feel a sense of personal responsibility to act to reduce the problem (i.e. *'ascription of responsibility'*). Moreover unlike both current and previous practitioners prior to practice initiation, they have very little interest in gardening, no interest in growing fruit and vegetables, do not value 'thriftiness' and have no interest in reducing the waste that goes in their bin. Thus whilst they are most likely to have the *'freedom to choose'* to compost they have the least reason to do so.



#### **6.5.4 The person and practice persistence**

In comparing summary tables for both current practitioners and previous practitioners fewer of the postulated mechanisms are evident, and where evident, are at much reduced levels in previous practitioners compared to current practitioners. In addition there is evidence of a greater combination of mechanisms in current practitioners (i.e. up to 4 mechanisms), with no or only 1 mechanism now being evident for the majority of previous practitioners.

In terms of practice persistence, overall we can say that what now differentiates current practitioners from previous practitioners is that a larger majority of current practitioners (increased from 54% at initiation to 74% now) continue to: be interested (if not more) in gardening and the practice of growing fruit and vegetables and as a result have utility for the compost; and/or value the opportunities to keep waste to a minimum. In contrast in previous practitioners, interest in the practice has dwindled, due in the main to inability to produce good quality compost whilst in some (but not all) cases interest in gardening has reduced. The majority of current practitioners have also developed and sustain a composting routine, aided by cues to practice provided by small collection bins in kitchens or by back doors, and rarely have to consciously make an effort to practice. This suggests that the 'Goes together' and 'Habit' mechanisms can be used to explain home composting persistence.

Additionally, we can see that in a sizeable minority of current practitioners, from composting successes and failures, skills and abilities have developed which have made them increasingly confident practitioners and this has led to increased satisfaction and interest in the practice of composting. As here, expectations were not solely based on producing good quality compost, although this was a desire, but also included, or were primarily focussed on, reducing waste. Consequently while not all current practitioners thought they were good at making compost, neither did they think that by not producing good quality compost, they were not very good at composting, only that they needed to rethink their approach. In addition problems were more likely to be anticipated and tolerated, or seen as a challenge to be overcome. In contrast these levels of skill, ability and confidence were not as evident in previous practitioners. With previous practitioners citing problems with compost quality, composting taking longer than was expected, and problems with flies and smell (particularly in smaller gardens) as evidence of not being very good at composting, rather than not having access to technology that was appropriate for smaller gardens and/or small households. This suggests that the 'Can do-internal' mechanism can also be used to explain home composting persistence.



In addition for the majority, but not all, current practitioners we can see that home composting continues to be wholly dependent on the convenience of both the home and garden setting, with very few collecting compost to take to allotments or using neighbours gardens. In contrast for previous practitioners practice was not or is no longer compatible with their 'idea' of the garden, as a place for looking at, sitting out and relaxing in, eating and in some cases playing.

Overall we can see that for current practitioners 'time of life' and the idea of the 'right time' are not significant to practice persistence, although for a minority commitment to practice has been tested and as a result practice may have reduced, but does not cease. However for just under half of those who have previously practiced, 'time of life' was significant, in that practice ceased at a particular time( e.g. on leaving home as a young adult) and is yet to be reinstated or practice ceased at no particular time but will not be reinstated until it is the 'right time' (e.g. after retirement).

## ***6.6. Closing summation***

This chapter uses data gathered in 1:1 interviews from both current practitioners and non practitioners to provide evidence of the necessary conditions and the mechanisms that can be used to explain the initiation and persistence of the garden practice home composting. It was found that practice initiation required the same preconditions to be met as for the practice of growing fruit and vegetables but involved a greater combination of mechanisms, also that practice initiation was explained by the 'Goes together', 'Could do' and 'Can do-external' mechanisms in current practitioners and the 'Goes together' mechanism for previous practitioners. Similarly, practice persistence was explained in part by the continued action of the 'Goes together' mechanism as well as the 'Habit' and to a lesser extent 'Can do-internal' mechanisms. Furthermore, as in the garden practice growing fruit and vegetables, lack of practice was explained by unsuccessful previous practice as well as reduced, or lack of gardening interest or preference for other uses of the garden. The next chapter focuses on building an explanation of the garden practice outdoor drying.



## **Chapter 7: Exploratory Phase 4: Explaining the Practice of Outdoor Drying**

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### **7.0 Introduction**

This chapter continues to provide answers to primary research question 1 “*Why do some people take up ‘sustainable’ garden practices whilst others do not?*” and primary research question 2 “*Why do some of these people persist with practice whilst others do not?*” In chapter 4 associations were found between extent of outdoor drying practice and quantity of washing, household size and whether there were young children in the household. This chapter sought to explore, test and extend possible explanations and continues to use a qualitative method to carry out a causal analysis of the practice of outdoor drying covering both practice initiation and persistence, whereby the ‘necessary conditions’ for practice are identified and explained in terms of how necessary conditions are met and the existence of the postulated mechanisms is verified and compared for current practitioners, previous practitioners and those who have never practiced.

### **7.1 Pre-conditions for practice initiation and persistence**

In this section the extent to which current practitioners, previous practitioners and those that have never practiced met or now meet proposed preconditions for practice initiation and persistence are summarised. Then quotes and extracts of dialogue that are illustrative of the each of the ‘*necessary conditions*’ found to be relevant are discussed, and where possible reference to how these ‘*necessary condition*’ are met are identified, for both practice initiation and persistence in outdoor drying. Please note with dialogue, text in italic is the interviewee speaking and text not in italic is the interviewer. Additionally, that the ‘*necessary conditions*’ ‘*general environmental awareness*’, ‘*awareness of need*’ and ‘*ascription of responsibility*’ were found to be irrelevant in practice initiation for all ( or nearly all) those interviewed. While the ‘*necessary conditions*’ ‘*awareness of need*’ and ‘*ascription of responsibility*’ were found to be irrelevant in practice persistence for all (or nearly all) those interviewed.



Consequently the '*necessary conditions*' found to be most relevant provide the focus for the following section. Details of the conditions met prior to practice initiation by current practitioners are detailed in **Table 7.1.1** and **Table 7.1.2** for previous practitioners and **Table 7.1.3** for those who have never practiced, and details of conditions now met by current practitioners persisting with practice are set out in summary **Table 7.1.4** and **Table 7.1.5** for previous practitioners.

### **7.1.1 'General environmental awareness'**

#### **Initiation**

Not found to be relevant for all those interviewed.

#### **Persistence**

Levels of '*general environmental awareness*' are now considerably higher in current practitioners 17 (30% compared to 0% at initiation), compared to 1 (14% compared to 0% at initiation) in previous practitioners. This suggests that whilst '*general environmental awareness*' may be associated with practice persistence, as it was not met in the majority of current practitioners, it is not a condition that must be met in order for practice to persist.

#### **Current practitioners**

When interviewee 27 was asked whether wider environmental issues effect what she does in her garden she replied "*NO, I can't say they do..I just sit there and think this is lovely, you know. No phone ringing. My time, no phones, no stress and I just sit and think 'ooh, this is right nice' and I switch off completely.*" Here 'the garden' is felt to be a retreat or a refuge from both everyday and worldier concerns.

Interviewee 31 also made no connection between what he does in his garden and wider environmental issues as he explained: "*I don't actually think that I am doing anything whatsoever to save the world. I am trying to make the house look nice and tidy and neat.*" This point is reiterated by interviewee 33 as he explains: "*I don't tend to think of environmental issues in relation to my garden..I tend to just think of it as I want something to look nice and I want something to be a little bit of me stamped out there you know?*" Here 'the garden' is very much connected to the idea of 'the home' and 'home-making' and not a place to be concerned about wider environmental issues, from which, in all the above instances, it is concluded that the necessary condition '*general environmental awareness*' is not met.







Table 7.1.2: Previous practitioners: Outdoor drying-Initiation

Necessary Conditions	Interviewee										Total (+)	%
	3	17	18	24*	45	50	59					
NC1 'General env awareness'											0	0
NC2 'Awareness of need'											0	0
NC3 'Awareness of consequences'											0	0
NC4 'Ascription of responsibility'											0	0
NC5 'Awareness of expectations'											1	14
NC6 'Indirect knowledge'											5	71
NC6* 'Direct knowledge'												
NC7 'Access to resources'											7	100
NC8 'Freedom to practice'											6	86
Conditions met	3	3	3	2	3	3	3	3				

Mechanisms	Interviewee										Total (+)	%
	3	17	18	24*	45	50	59					
M1 'Goes- together'											0	0
M2 'Could do'											5	71
M3 'Can do-internal'											0	0
M3* 'Can do-external'											1	14
M4 'Moral responsibility'											0	0
M5 'Positive thinking'											0	0
M6 'Will do'											0	0
M7 'Influence'											0	0
M8 'Should do '											1	14
M9 'Guilt'											0	0
M10 'Habit'												
Mechanisms triggered (+)	1	1	1	1	1	1	1	1				

Context Dependence	Mechanisms triggered (+)									
	3	17	18	24*	45	50	59			
The Time	D	D	D	X	D	D	D	D		
The Space	X	X	X	X	X	X	NA	X		
The Place	D	D	D	D	D	D	D	D		

**Key** + = met/evident in youth  
 + = met/evident as an adult  
 NA= Not applicable

Table 7.1.3: Never practiced: Outdoor drying-Current

Necessary Conditions	Interviewee										Total (+)	%
	19	34	41	47	62	65	68					
NC1 'General env awareness'											1	14
NC2 'Awareness of need'											1	14
NC3 'Awareness of consequences'											1	14
NC4 'Ascription of responsibility'											0	0
NC5 'Awareness of expectations'											0	0
NC6 'Indirect knowledge'											3	43
NC6* 'Direct knowledge'											0	0
NC7 'Access to resources'											4	57
NC8 'Freedom to practice'											6	86
Conditions met	3	4	2	3	1	2	1					

Mechanisms	Interviewee										Total (+)	%
	19	34	41	47	62	65	68					
M1 'Goes- together'											0	0
M2 'Could do'											0	0
M3 'Can do-internal'											0	0
M3* 'Can do-external'											0	0
M4 'Moral responsibility'											0	0
M5 'Positive thinking'											0	0
M6 'Will do'											0	0
M7 'Influence'											0	0
M8 'Should do '											0	0
M9 'Guilt'											0	0
M10 'Habit'											0	0
Mechanisms triggered (+)	0	0	0	0	0	0	0					

Context Dependence	Mechanisms triggered (+)									
	19	34	41	47	62	65	68			
The Time	X	X	X	D	D	D	X			
The Space	X	X	X	X	X	X	X			
The Place	X	X	X	X	X	X	X			

**Key** + = met/evident in youth  
 + = met/evident as an adult  
 NA= Not applicable







**Table 7.1.5: Previous practitioners:Outdoor drying-Current**

Necessary Conditions		Interviewee							Total		
		3	17	18	24*	45	50	59	(+)	%	
NC1	'General env awareness'		+							1	14
NC2	'Awareness of need'									0	0
NC3	'Awareness of consequences'				+			+		2	29
NC4	'Ascription of responsibility'									0	0
NC5	'Awareness of expectations'									0	0
NC6	'Indirect knowledge'										
NC6*	'Direct knowledge'	+	+	+	+	+	+	+		7	100
NC7	'Access to resources'	+			+	+	+	+		5	71
NC8	'Freedom to practice'	+	+	+	+	+	+	+		7	100
Conditions met		3	3	2	4	3	4	3			

Mechanisms		Interviewee							Total		
		3	17	18	24*	45	50	59	(+)	%	
M1	'Goes- together'									0	0
M2	'Could do'									0	0
M3	'Can do-internal'		+							1	14
M3*	'Can do-external'									0	0
M4	'Moral responsibility'				+			+		2	29
M5	'Positive thinking'									0	0
M6	'Will do'									0	0
M7	'Influence'									0	0
M8	'Should do '							+		1	14
M9	'Guilt'						+			1	14
M10	'Habit'									0	0
Mechanisms triggered (+)		0	1	0	1	0	2	1			

**Context Dependence**

<b>The Time</b>	'time of life'	D	D	D	X	D	x	D
<b>The Space</b>	increased	X	X	X	X			
	decreased					X	X	X
<b>The Setting</b>	garden setting	D	x	x	D	x	x	x

<p><b>Key:</b> + = met/evident in youth      D = makes a difference                  + = met/evident as an adult      X = makes no difference</p>
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Interviewee 56 suggests that she is aware of wider environmental issues as a result (in part) of the environmental company that she works and also from her own experience in her garden, in terms of plants that could now survive in her garden that previously did not and earlier flowering times, as she explains:

*“Oooohhh I don’t know. Do I think of the green issues? I think with working where I do? (Works for a company with an environmental focus)..I’m thinking more now, it makes you aware of what’s going on ..I have plants now that are flowering now that don’t usually flower until June or July.”*

From which it can be inferred that, in this instance, the condition ‘general environmental awareness’ is now met.



**Previous practitioners and never practiced.**

The interviewees who meet this condition have already been reported in chapters 5 and 6.

**7.1.2 'Awareness of need'**

**Initiation**

Not found to be relevant.

**Persistence**

Not found to be relevant for the majority of those interviewed.

**7.1.3 'Awareness of consequences' of practice**

**Initiation**

Not found to be relevant.

**Persistence**

In terms of practice persistence 10 (17%) current practitioners and 2 (29%) previous practitioners now make a link between practice and increasing benefits to themselves and in some cases to others and the environment or lack of practice and harm to themselves, others and the wider environment. Again, this suggests that whilst 'awareness of consequences' may be associated with practice, as it was not met in the majority of current practitioners or previous practitioners it is not a condition that must be met for practice to persist.

**Current practitioners**

In this extract Interviewee 11 cites a number of reasons why she prefers line drying to indoor drying, which include reduced energy use, as she says: *"But like we've not got room for a dryer, we've only got a tiny kitchen and it smells nice when you hang it out. It's not using any electricity either."* From which it is inferred that the 'necessary condition' 'awareness of consequences' of practicing to themselves is met, although the link between practice and benefit to others and the wider environment is not explicit.



Interviewee 24 is a single parent, living on benefits and has a tumble dryer. But he prefers to use a washing line whenever possible as he explains: *"I think of the cost, it costs a lot of money to run a dryer. Electricity and gas cost a lot of money now so I like to keep it down when I can."* From which it can be inferred that the condition 'awareness of consequences' of practicing to themselves is met by monitoring electricity bills, but again does not extend to awareness of consequences to others and the wider environment.

Interviewee 49 is a single parent with two children. As this extract demonstrates she is aware of the benefit to herself of choosing to line dry rather than use a tumble dryer, from paying attention to her own electricity bills:

*"I think they are a bit expensive as well tumble dryers." "If you look at your electric bill?" "I mean I try not to use it, I use it as a back up if I can't dry the washing but I have got a line down there as well down in the utility room as well, I've got a rack too.. I can dry it." "You do notice a difference you think?" "Yes, because it's different, my electric, I'll get a lot of money, you know when the end of the summer comes then there will be loads of money left."*

Consequently it can be inferred that the condition 'awareness of consequences' of practicing to the self is met but again does not extend to awareness of consequences to others and the wider environment.

Interviewee 54 has always used a washing line and demonstrates her 'awareness of the consequences' of failing to practice line drying in terms of increased energy use when she is talking about an American friend who she says *"never, never uses her line, everything goes in the dryer but I think that's a cultural thing. But maybe all Americans don't. I know all that electricity."* Again it can be inferred that the 'necessary condition' 'awareness of consequences' of practicing is met but it is not clear whether awareness encompasses harm to others and the wider environment.

### **Previous practitioners**

Interviewee 50 relies almost entirely on using a tumble dryer to dry her family's clothes. But she is fully aware, when she talks about *the money it costs and the environment*", of the harm this does to her own purse and the wider environment. However she then goes onto equivocate over the extent to which her practice is harmful when she says: *"I don't necessarily know whether it is contributing, to a degree it must be. I am not a scientist so I don't know but."* Again it can be inferred that the condition 'awareness of consequences' of practicing to the self and wider environment is met but this



interviewee appears to be reluctant to *'ascribe responsibility'* to herself to act to reduce the harm she has identified.

### **Never practiced**

Interviewee 19 is aware that the use of a tumble dryer increases energy use but it is still preferred over line drying as he explains *"..we have an energy efficient condenser dryer, not as bad as it might be."* Thus again it can be inferred that the condition *'awareness of need'* to conserve energy and *'awareness of consequences'* of failing to practice being harmful is met. But again it not clear who or what it is 'bad' for.

### **7.1.4 'Ascription of responsibility' to practice**

#### **Initiation and Persistence**

Not found to be relevant.

### **7.1.5 'Awareness of expectations' to practice**

#### **Initiation**

Prior to practice initiation only 6 (11%) current practitioners and 1 (14%) previous practitioner had family, friends or colleagues who encouraged them to practice in their youth. However none of those who have never practiced have been encouraged by family, friends or neighbours. This suggests that *'aware of expectations'* is not a condition that is met in the majority of practitioners, and is not a condition that must be met prior to practice initiation.

#### **Persistence**

In terms of practice persistence, 3 (5%) current outdoor dryers continue to be *'aware of expectations'* to practice, in the main from observing the practice of neighbours, but no previous practitioners now meet this condition. Consequently as *'aware of expectations'* is not a condition that is now met in the majority of current practitioners, it is not a condition that must be met for practice to persist.

#### **Current practitioners**

Interviewee 38 explains how: *"We always had a washing line at home. My mum washed everyday so there was always something on the line. It stretched all the way down the garden path and I was expected to help "pegging out."* From which it can be



concluded that the condition *'awareness of expectations'* is met prior to practice initiation.

### **7.1.6 'Indirect knowledge' of practice**

#### **Initiation**

Prior to practice initiation all 57 current practitioners and 5 (71%) previous practitioners had *'indirect knowledge'* of the practice, gained as a child by watching their mother hanging out the washing. However for those who have never practiced there was no evidence of *'indirect knowledge'* of the practice. Consequently as this condition was met in the majority of current and previous practitioners it can be concluded that it is a condition that must be met prior to practice initiation.

#### **Persistence**

The condition *'indirect knowledge'* is not associated with practice persistence.

#### **Current practitioners**

Interviewee 20 was familiar with the practice of line drying from an early age as she explains: *"I have always had, all my growing up we have always had a washing line. Yes, there was always washing on the line."* From which it can be inferred that, in this instance the condition *'indirect knowledge'* of the practice is met.

Similarly interviewee 31 has always used a washing line and as did her mother before her as she explains:

*"They always used one and me mother would always wash on a Monday and if it was awful outside we used to have a huge house with a big, what they called, cellar kitchen and lines used to go across the house and it had err Yorkshire range and a fire and me mother, when we used to come home from school at dinner time, alt sheets, we used to dive under them."*

From which it can be inferred that, in this instance the condition *'indirect knowledge'* of the practice is met.

#### **Previous practitioners**

Interviewee 3 is a single man who lives on his own, and from the beginning of his explanation of why he no longer uses a washing line it is evident that he was aware of his grandmother's practice in his youth:



*"It's old fashioned hanging washing out? I find it is.. "So you think it's old fashioned?". "Putting washing out? Buying pegs, ughhh. Me grandma used to buy pegs, no chance."*

From which it can be inferred that, in this instance the condition '*indirect knowledge*' of the practice is met.

### **7.1.7 'Direct knowledge' of practice**

#### **Initiation**

'*Direct knowledge*' of the practice is not a condition that is associated with practice initiation.

#### **Persistence**

Not surprisingly, all current and previous practitioners have '*direct knowledge*' of the practice. But while 3 (5%) current practitioners gained knowledge from hands on experience in their youth, the majority 54 (95%) gained this experience from practice as a young adult. Similarly all previous practitioners have '*direct knowledge*' of the practice, with 1 (14%) gaining this experience in their youth. However the majority 6 (86%) gained this experience as a young adult. Consequently as this condition was met in the majority of practitioners it can be concluded that it is a condition that must be met for practice to persist.

#### **Current practitioners**

Interviewee 4 has recently installed a rotary dryer in her small yard and when asked if she had always line dried she replied: *"Yes. My parents used one, as far as possible we used one in student houses."* From which it can be inferred that the conditions '*indirect knowledge*' and '*direct knowledge*' are met, in that this interviewee was aware of her parents' practice of outdoor drying prior to initiating her own practice and now has hands on experience of the practice herself.

In this quote interviewee 58 demonstrates that she has been practicing outdoor drying for many years and therefore has '*direct knowledge*' of the practice:

*"Well when we first got married, we lived at Darnall".. "Yes.". "His boss got a house to rent there and course, we never thought because I'd lived up here and it's always been, and it was always clean air and one day one of the neighbours, I'd just got a line of baby clothes out and she came knocking on the door, fetch your washing in quick, the red devil is coming up the hill, and it was the smoke and stuff from the factory at the bottom."*



Moreover, as she explains, the context is now much more conducive to practice *“because there’s not so many factories and steelworks and that, belching out.”*

### **Previous practitioners**

Interviewee 24\* had not used a washing line for outdoor drying before coming to England as she explains: *“I suppose coming from the states I have grown up with a tumble dryer. Even though I lived in Florida. We just don’t USE washing lines.”*

However since living in England she has done so, as is demonstrated when asked if she had outdoor dried before and she replied *“ Yeah, in my old house but same kind of thing (i.e. the washing line was already in place and was used once a blue moon).*

Consequently in this instance the condition ‘*direct knowledge*’ of the practice is now met.

Interviewee 59’s perception of line drying has changed since moving to her current house. Whereas previously she had no alternative but to use a line and found it convenient, now she has a large long garden which runs at a lower level to the house as she explains: *“I always used it in other house because we did not have room for a dryer. And’cos it was flat it was easy to go out and I would use it. But I don’t here. I must admit and I don’t have to iron if I put them in dryer.”* Thus although the ‘*necessary condition*’ ‘*direct knowledge*’ of the practice is met, in that she has had hands on experience of the practice, the use of a tumble dryer is now preferred over line drying as she believes it to require less effort on her part.

### **7.1.8 ‘Access to resources’ for practice**

#### **Initiation**

For all 57 current practitioners size of garden was not given as a reason for practice initiation, and of these 54 (95%) initiated practice in their current garden. However for 3 (5%) practice was initiated in a parent’s garden and as such size of garden played no part in their decision making process. In addition for the majority of current practitioners a washing line was already present in the garden. Similarly, no previous practitioners cited ‘*garden size*’ as a reason for practice initiation, and again, in the main a washing line or rotary line was already present in the garden suggesting that practice was possible. In contrast only 4 (57%) of those who have never practiced now have access to a line or rotary line, and for 3 (53%) a washing line was not present in the garden or has been removed. Furthermore having access to either more space, for those with gardens of less than 70 sqms or less space, for those with gardens of 70 sqms plus,



makes no difference to practice (i.e. practice would not be initiated). As such, lack of practice cannot be explained by garden size.

### **Persistence**

For 1 (3%) of the 35 current practitioners with gardens of under 70 square metres, extent of practice is felt to be dependent on garden size and practice would increase if they had access to a larger garden, whilst for all current practitioners with larger gardens, practice would be sustained even with access to less space. In addition the majority of current practitioners with smaller gardens are using either rotary or retractable lines rather than conventional washing lines. In contrast, no previous practitioners with gardens of under 70 square metres would reinstate practice if they had access to a garden twice the size of their current garden. Moreover only 5 (71%) continue to have a line/rotary in their garden, whilst for previous practitioners with larger gardens having access to less space would make no difference, in that they would continue not to practice. Again, this suggests that lack of practice cannot be explained by garden size.

### **Increased space**

#### **Current practitioners**

Interviewee 13 has a small garden (32 sqms) that is set up a level and has replaced her permanent line with a retractable one. Here she explains how this gives her much more flexibility and is much more compatible with how she wants to use the small space:

*"I think they are a really good idea because when you are sitting out, even if there is no washing on it you have to bend." "It's the change in level that makes it difficult.".. "Exactly, so it's nice to have it collapsible because if we are having barbeques it's okay. It goes from the corner, round the drain pipe. I decided you can't just let it go half way across the garden because I have pulled a few flowers off [with the washing blowing]."*

Interviewee 20 has a small garden (35sqms) and uses a rotary dryer and explains how often she has more washing than can be dried outdoors: *"Like now I have done two loads of bedding and I have no where to put it. Hanging over the doors, shower rail and bathroom."* Consequently with twice as much garden space practice would be **increased**, suggesting that 'garden size' makes a difference to extent of practice.



Interviewee 38 currently uses a rotary washing line in her narrow garden which is not without its difficulties as this extract suggests:

*“Yes, it takes up the whole garden when it's in. Which is why it comes out when it isn't.”.. “A lot of people put them away and then bring them out. Is that a bit of a faff?”. “Yes it is.”*

But living in a two person household she does not always feel the need to line dry, as she explains: *“you know if I have only done one wash I will throw a few bits over the radiator. And in the winter I am not somebody who will still put the washing out right the way through the year.”* Nonetheless she explains how *“most of the time I use it especially if I have more than one load of washing to dry.”* Consequently for this interviewee it is width of garden rather than size of garden that makes a difference to practice.

When her children were small interviewee 40 had lengths of line that criss-crossed her garden. However as they grew she started to reclaim the garden and now in retirement has a garden that is full to overflowing, with fruits trees, shrubs, flowers and vegetables. Now she now no longer has a permanent line in the garden, as she explains:

*“No, I have a rotary it goes in the hole there. Just the other side of the patio. Adequate for us, because there is only two of us now. You know I couldn't dry for five of us on it. Ours is a big one. I can't cope with a washing line on the cross anymore. I haven't got room for one.”*

### **Never practiced**

Interviewee 34 had a washing line in his garden when he first moved in. This has since been replaced with a rotary line in addition to a very small line that his girlfriend put up. But although he has access to the resources needed to line dry as he explains *“I'm not into washing lines really..I've got a tumble dryer, ermmm. I've got kind of one of those whirly things..And it kind of works, but I think I have lost kind of three of the spikes, they've gone.”*

### **Reduced space**

#### **Current practitioners**

Interviewee 51 has recently moved to a house with a much larger garden, whereas previously she only had a yard, but as she explains she has always used a washing



line: *“Yeah...And not intending to give it up..Not at all. We don't have a tumble dryer. No, and don't want a tumble dryer. I will always use outside.”* From which it can be inferred that 'garden size' makes no difference to practice persistence.

### **Never practiced**

Interviewee 62 previously lived in a flat and has never used a washing line. Although she now has large garden she suggests that the narrowness (5 metres wide), the length (40 metres), and the fact that the garden is set up a level to the house and slopes up to the back of the garden, makes it difficult to site a line conveniently as she explains:

*“No, well there is no where to put one. I could have a rotary up on the top garden. But that is too far away, next door neighbour has hers up there. But do I really want that up there? When it's fine I put it out on the airer.”* “I think the levels make it difficult”... *“Yeah, to find- I mean those rotary ones if I put one up the top garden, I mean they come out quite wide, I don't think..the washing would catch on the shrubs.”*

### **7.1.9 'Freedom to practice'**

#### **Initiation**

Prior to practice initiation 53 (93%) current practitioners and 6 (86%) previous practitioners met the necessary condition 'freedom to practice' in that if they wished, they could practice i.e. they had a garden of their own and: were the sole user or the sole practitioner; they shared their garden and were the main practitioner; or they shared their garden and had permission to practice from other users/owners, with 6 (86%) of those who have never practiced also currently meeting this condition. Consequently as this condition was met in the majority of practitioners it can be concluded that it is a condition that must be met for practice to be initiated.

#### **Persistence**

In terms of practice persistence all current and previous practitioners now meet this condition. Consequently as this condition was met in the majority of practitioners it can be concluded that it is a condition that must be met for practice to persist.

This condition has already been illustrated in chapters 5 and 6.



## **7.2 What is it that enables a person to initiate or persist with practice?**

In this section evidence supporting the existence of mechanisms postulated as being capable of generating practice initiation and persistence are summarised for current practitioners, previous practitioners and those that have never practiced. And here, in terms of practice initiation the 'Goes together', 'Can do-external', 'Moral responsibility', 'Positive thinking', 'Will do', and 'Guilt mechanisms were found to be irrelevant for those interviewed. However the 'Could do', 'Influence' and 'Guilt' mechanisms were not found to be relevant for practice persistence.

Quotes and interview extracts are used to provide evidence to support the existence, or not, of the postulated mechanisms and to illustrate how mechanisms work. In addition outcomes are identified in terms of practice initiation, extension or persistence or no practice.

For a summary of mechanisms see **Table 7.1.1**, **Table 7.1.2** and **Table 7.1.3** for practice initiation and **Table 7.1.4** and **Table 7.1.5** for practice persistence.

### **7.2.1 M 1 'Goes-together'**

#### **Initiation**

Not found to be relevant.

#### **Persistence**

The M1 'Goes-together' mechanism is now evident in 20 (35%) current practitioners but is not evident for any previous practitioners.

#### **Current practitioners**

Interviewee 13 has always line dried and with a young baby is finding her need to line dry has increased, as she explains:

*"It's a good job I have a line outside because I have been doing a lot of washing this month..I reckon there is only, maybe only at the weekend when I am not drying washing. So not everyday but on and on."*

From which it can be inferred that there is evidence of the M1 'Goes-together' mechanism in practice **persistence**. In that regular practice builds '*direct knowledge*' and reinforces belief in utility.



Interviewee 20 had previously lived in a flat without a garden and as she explains: *"I suppose until you live in a house without a garden you don't realise how much you know you need a garden, want a garden..Just putting your washing out."* Now she has a garden and practice has been reinstated as she explains: *"I LOVE WASHING. HA, ha, ha. I am always doing something. I have always got people staying so I'm always doing bedding or- ha, ha, ha."* From which it can be inferred that, in this instance, the M1 'Goes-together' mechanism is evident in practice **persistence**. In that regular practice builds '*direct knowledge*' that reinforces belief in utility and pleasure in practice.

Interviewees 22 have a small garden (36sqms). Some time ago it was partly paved and the small beds reshaped so that it was easier to put washing out. As at the time they had a great need for line drying: (Mrs) *"For the washing when my daughter was alive, she had very profound learning difficulties and she had 3 or 4 changes of clothes a day.. So we had stacks of washing."* But now although their drying needs have reduced, practice continues to have utility, from which it can be inferred that, in this instance, the M1 'Goes-together' mechanism is evident in practice **persistence**.

Interviewee 27 has two young children and a span of washing line that can take two loads of washing and as she explains: *"YEAH, so I DO, do quite a lot of washing. I never seem to be on top of it."* From which it can be inferred that there is evidence of the M1 'Goes-together' mechanism in that regular practice builds '*direct knowledge*' that reinforces belief in utility. Consequently as the context is conducive (i.e. young family necessitating lots of washing), the M1 'Goes-together' mechanism is triggered, which along with the M5 'Positive thinking' and M10 'Habit' mechanisms results in practice **persistence**.

When interviewee 39 was asked whether she had always used a washing line she explained: *"[YES], yeah. My parents always had a rotary I have never considered using a dryer and I would never consider using a dryer. But then I live on my own, I don't have lots of children and I don't have to wash everyday."* From which it can be inferred that, in this instance, the M1 'Goes-together' mechanism is evident in practice **initiation** and **persistence**. In that initially from '*indirect knowledge*' it is apparent that there is utility in the practice, and as a single person with no children practice continues to be valued as a means to meet drying needs.



### Previous practitioners

Interviewee 3 had previously used a washing line before he had a tumble dryer. But it is clear that tumble dryer use is not merely a question of convenience as he explains:

*"It's old fashioned hanging washing out? I find it is"... "I mean it costs a bit of money to run a dryer?".. "Yeah, but there's only me you know. I only do 1 wash a week.. Yeah and if people want to see my clothes they can look at what I am wearing not what's on line..And they frighten the birds as well.". "When the washing blows?".. "Yeah."*

From which it can be inferred that there is now no evidence of the M1 'Goes-together' mechanism, in that practice is not felt to be compatible with his current lifestyle, increased desire for privacy and interest in encouraging birds into his garden.

Interviewee 24\* has used a washing line in the past but as she explains for an American line drying has a completely different meaning than it might have in the UK:

*"I think line drying, without sounding snobby, is associated with ermmm lower economic status as well. In the STATES. WELL where I come from and ummm and it's that kind of lifestyle were it is all busy, busy."*

From which it can be inferred that, in this instance, although there is utility, the practice is not compatible with interviewees' cultural norms or lifestyle, and practice does not persist.

Interviewee 45 has practiced line drying in her garden before but is now really interested in attracting birds into her garden, and is very successful at doing so. But as a result she explains how:

*"Well every time I hang washing out it gets pooped on, ha,ha... "Oh, because of the birds?".. "Yes, ha, ha, ha. So-.". "That's not something that I would ever have thought about.". "So, I tend not too, ha, ha, ha."*

Moreover when it was suggested that she might consider putting a line up in her front garden as a means of overcoming the problem she replied: *"Probably not but I think my neighbours would object."*.. *"It's not culturally acceptable is it?".. "NO."* From which it can be inferred that, in this instance, whilst there is utility, the practice is not compatible with interviewees other interests, and practice does not persist.

### Never practiced

Interviewee 19 explains how his wife takes the lead on laundry and consequently: *"No, we have never hung washing out. My wife is American she likes tumble dryers."* In addition the practice is not compatible with their interest in wildlife and sitting in their



small garden as he explains: *“What’s the attraction, washing line in your backyard. Scares the birds away, does not look very nice.”* Thus although it can be inferred that the condition ‘*freedom to practice*’ is not met, in that it is his wife who decides how washing is dried, it is incompatibility with other garden interests that provides an additional explanation for *lack of practice*.

Interviewee 47 did not have a routine for outdoor drying before he moved to his current home as he explained: *“I think before I lived here I lived in rented places and I’d always gone to a laundrette.”* But despite having a washing line in his garden when he moved in, he took it out *“because I’m on my own I don’t have a lot of washing I just hand it up in the bathroom, I don’t need a washing line.”*

From which it can be inferred that there is no evidence of the M1 ‘Goes-together’ mechanism, in that there is no utility in the practice.

### **7.2.2 M2 ‘Could do’**

#### **Initiation**

The M2 ‘Could do’ mechanism was evident in the majority 52 (89%) current practitioners and 5 (71%) previous practitioners prior to practice initiation, and is not evident for any of those who have never practiced.

#### **Persistence**

Not found to be relevant for all those interviewed.

#### **Current practitioners**

Interviewee 49 had ‘*indirect knowledge*’ of line drying from watching her own mother’s practice. Moreover, as this extract suggests, her own practice is a learned accommodation of her mother’s practice:

*“My mum always hangs her washing out.”. “Yes.”. “She still does and she’s 63 and if it’s nice she lugs her washing out so she can hang it out.”. “I know, and you kind of wonder how people can unlearn it, you know it’s like, washing, take it out.”. “Yes, take it out and get it on the line.”*

From which it can be inferred that the M2 ‘Could do’ mechanism was evident in that from watching her mother she was aware that practice was both appropriate and possible. In addition the context was believed to be conducive (i.e. practice complied



with established social norms and could be accommodated in her garden). As a result the M2 'Could do' mechanism was triggered, resulting in practice being *initiated*.

### **Previous practitioners**

Interviewee 45 has now moved back to her mother's home and when asked whether her mother had had a washing line up in the back garden she replied: "*She did, she did I'm afraid. She had one across that way and one down that way,*" indicating that although she was familiar with the practice she was not a fan. But as she explained: "*.. I think I tried hanging it out when I first moved back up here*". From which it can be inferred that there was evidence of the M2 'Could do' mechanism prior to practice *initiation*. In that she had '*indirect knowledge*' of the practice from watching her own mother, was aware of what was needed to practice, from which she was able to make a judgement that she too was capable of practice, but now chooses not to do so.

### **7.2.3 M3 'Can do-internal'**

#### **Initiation**

The M3 'Can do-internal' mechanism is not associated with practice initiation.

#### **Persistence**

The M3 'Can do-internal' mechanism is evident in 3 (5%) current practitioners and 1 (14%) previous practitioner.

#### **Current practitioners**

Interviewee 11 is currently at home during the day time but from experience had the knowledge and skills to maintain practice even when working full-time, as she explains:

*"I'd put the washing on the night before and put it on rinse hold and then just spin it in the morning and just hang it out before work and then it would be dry by the time you got home so, I don't find it, I mean people say, you must be really organised to put your washing out before work but it does not take long so."*

From which it can be inferred that, in this instance, there is evidence of the M3 'Can-do-internal' mechanism, in that from hands on experience she has the skills and confidence needed to adapt practice to fit in with her working life. Consequently as practice is not felt to require too much effort, practice persists.



Interviewee 56 has always used a washing line, as did her mother. Over many years of practice she has built practice 'know how' with the result as she explains: *"Even in winter when it's frosty I put my washing out because it is best thing for your washing. Also if it snows on it, it bleaches it, if you have whites."* In addition she demonstrates confidence and ability in her own practice as she explained how she has tried to encourage her daughter to extend her practice:

*"I said to her in winter time put it outside. But she does have a very big garden and it's a long way down you know. I mean I walk down the garden in the winter to the sunny bit, just to get that bit of heat on it. I suppose she does not fancy doing that."*

From which it can be inferred that the M3 'Can do-internal' mechanism is evident in practice persistence. In that 'direct knowledge' of the practice has built 'know how', skills and confidence, which serves to reduce the effort felt to be needed and increases willingness to persist with practice, throughout the year.

### **Previous practitioners**

Interviewee 17 has previously used a washing line and did try to continue the practice in her current home but as she explains:

*.".it's quite hard to have a washing line here..Because it's on different levels you can't, you know sometimes you know I have had one draped around but it does not work because there's not enough space."*

In addition she had considered using a rotary dryer but explains how *"it's hard to put one of those rotary ones in because you could have only put it in at the top where it is very damp and heavy and does not get any sun."* Nonetheless even though she currently does not practice there is still evidence of the M3 'Can do-internal' mechanism. In that she has enough 'direct knowledge' of the practice to know that the conditions that need to be met for successful practice cannot easily be met without compromising other preferred uses.

### **7.2.4 M3\* 'Can do-external'**

#### **Initiation**

Not found to be relevant to those interviewed.



### **Persistence**

The M3\* 'Can do-external' mechanism is evident in 5 (18%) current practitioners, but is no longer evident in any previous practitioners.

### **Previous practitioners**

In this extract interviewee 17 explains how previous practice would have persisted:

*"I mean if there had been a washing line here when we came or you know, but there just was not . and it's hard to put one of those rotary ones in because you could have only put it in at the top where it is very damp and heavy."*

From which it can be inferred that, in this instance, there is no evidence of the M3\* 'Can do-external' mechanism, in that without 'access to the resources' needed to practice the effort required to reinstate practice was felt to be too great.

When interviewee 24\* first moved to the UK her house had a washing line which she used. Her current home also has a line but again, it is used very rarely. From which it can be inferred that, in this instance, there is evidence of the M3\* 'Can do-external' mechanism in practice initiation, in that having 'access to resources' needed to practice reduced the cost and effort required to give practice a go.

## **7.2.5 M4 'Moral responsibility'**

### **Initiation**

Not found to be relevant to those interviewed.

### **Persistence**

The M4 'Moral responsibility' mechanism is now evident in only 3 (5%) current practitioners and 2 (29%) previous practitioners.

### **Current practitioners**

Interviewee 20 demonstrates an 'awareness of the consequences' of not practicing line drying, in terms of increased energy use and harm to the environment. She also indicates that she feels a sense of personal responsibility to practice as when she recounts an attempt to persuade a friend to use a washing line:

*.".she was bought up in the Bronx and they did not have a washing line. And she is a firm believer in the tumble dryer. I said about the environment and how much electricity they use and she's like 'sorry, I'll not be converted. I will never hang my washing out'."*



From which it can be inferred that the M4 'Moral responsibility' mechanism is evident, in practice *persistence*. In that she is aware of the consequences of practice to herself and the wider environment, and because it is important to her not to act in ways that harm the environment she feels a sense of personal responsibility to persist with practice.

Similarly interviewee 60 also demonstrates an 'awareness of the consequences' of choosing tumble drying over line drying in terms of increased energy use and harm to the environment. In addition she demonstrates her willingness to take personal responsibility to act to reduce this harm as she explains:

*"And I'm trying to save, I'm trying to reduce my carbon footprint so I don't unless I'm absolutely desperate for something. I mean I've got one there (tumble dryer) but I don't use it unless I really need something urgently.. I mean I know it does reduce, I'm amazed when I do tumble dry how much electricity it uses. So, you know, I put it on the radiator. But I do like the smell, the fresh smell from the line."*

From which it can be inferred that the M4 'Moral responsibility' mechanism is evident in practice *persistence*. In that she makes the link between tumble dryer use and increased energy use and harm to the environment. Consequently she feels a sense of personal responsibility to keep her use of the tumble dryer down to a minimum.

### **Previous practitioners**

As an American interviewee 24\* is not pro-line. In that she finds using a tumble dryer much more convenient in terms of reducing both physical and mental effort as she explains:

*"I mean I do use the dryer more than I should do, but- I don't like ironing and I don't want crunchy towels and I don't have time to sit there and iron loads of stuff and I just don't know that it's really that efficient to do things that way.". "So it's a combination of time and effort with a combination of culture.. "Yeah, yeah. But even if I had more time I think I would think it's a waste of time to go out and peg things.". "With all this wind? HA, ha, ha.". "Yeah but you need a nice sunny day, and it's damp out today and I don't want it to get wet again. You know people are at work going 'Ohh my washings out', and I have to worry about it and I just think you know I have more in life to worry about than bloody washing."*

Nonetheless she does acknowledge that tumble dryer use has negative consequences for the environment but, as she explains, she feels that this can be offset with her other



reduce and recycling practice: *"I really, you know, it probably sounds a bit pathetic, and I know it's not eco, but I do lots of recycling and I am very resourceful with food and stuff so I know it's not good but..."* From which it can be inferred that, in this instance, whilst the M4 'Moral responsibility' mechanism is evident in part, but the absence of any real sense of personal obligation/responsibility results in practice not being sustained.

Interviewee 50 would like to be able to use a washing line as she explains when discussing her concern about relying solely on a tumble dryer: *"The money it costs and the environment, I don't necessarily know whether it is contributing, to a degree it must be. I am not a scientist so I don't know but.. But I don't like morally using the dryer BUT FOR MY LIFE it is easier."* From which it can be inferred that there is evidence of the M9 'Guilt' and M4 'Moral Responsibility' mechanism. In that she is aware of the consequences to the environment of failure to practice and talks about using a tumble drier in terms of behaving in a way she feels she should not be, but her fear of insects on line dried washing overrides concern for the environment and sense of guilt.

### **7.2.6 M5 'Positive thinking'**

#### **Initiation**

Not found to be relevant to those interviewed.

#### **Persistence**

The M5 'Positive thinking' mechanism is now evident for 45 (78%) of current practitioners but is not evident in any previous practitioners.

#### **Current practitioners**

Interviewee 6 describes herself as *"an outside line kind of girl"* as she explains *"I hate having laundry in the house, I cannot stand laundry on radiators."* As a result, although she only has a small yard, she uses a retractable washing line which is long enough to dry one load of washing and can be taken down when not in use. Moreover despite owning a tumble dryer she prefers to use a washing line if weather permits but not as she explains: *"If I'd had a sudden influx of washing and I've got loads and loads and loads to do and I haven't got enough space outside."* From which it can be inferred that the M5 'Positive thinking' mechanism is evident in practice **persistence**. In that practice builds *'direct knowledge'* which reinforces perception that practice is convenient and that satisfaction from practice continues to outweigh difficulties.



From which it can be inferred that the M5 'Positive thinking' mechanism is evident in practice *persistence*.

Interviewees 48 have always practiced line drying and found the practice invaluable when they had 3 young children to bring up. Now they are both retired and their children have left home and practice persists, because as well as being useful, practice is convenient and believed to require less effort (in terms of ironing) than other alternatives, as this extract illustrates:

*(Mrs S) "I know not everybody uses a washing line any more, they pay all that money for a, to buy a dryer and I think, get it outside." "Yes." (Mrs S) "Not as much ironing either."*

From which it can be inferred that the M5 'Positive thinking' mechanism is now evident in practice *persistence*.



**Figure 7.2.6** shows interviewee 32's small garden, in which she indulges her 'mania' for washing and drying.

Interviewee 32 describes herself as a "*maniac for washing*" and whilst she has a large cellar that she uses for indoor line drying, as this extract indicates, she has a very positive perception of this garden practice:

*"I love washing, I love to see washing in a garden. Well you said same did not ya?" "I do. I really do, it gladdens my heart." "Ha, ha, ha." "I think it's beautiful." "Oh, I do. And the smell when you bring it in and my daughter you know said 'what do you use mum?' and I just said 'it's just fresh air', well it is isn't it?"*



From which it can be inferred that the M5 'Positive thinking' mechanism is evident in practice *persistence*. In that there is both continued pleasure and satisfaction from practice continue to outweigh difficulties.

Interviewees 64 each have quite different perceptions of the practice of outdoor drying. In the main this is due to the fact that they use a rotary drier that is not a permanent feature in the garden. As this extract demonstrates, this has an effect on the extent of each partner's practice:

*(Mrs) Yeah. You tend to use it more than I do.*. *(Mr) "I can get it out easier than you."*. *(Mrs)"No I can ask you to get it out. No I tend to find it easier, the back bedroom is very warm and I have a big airer and sometimes it is just easier. Especially things like socks. Whereas pegging out a load of socks."*.*(Mr) "If I can I use the washing line. I just like it because it's fresh air. Things smell."*. *"A few people say they don't want to be sitting, looking at it."*. *(Mrs) "Where it is it gets in the way it blocks the access to here (sitting area) it blocks the access to the plants."*. *(Mr) "It takes 30 seconds to put it up and the same to take it down."*. *"I would be one of those people who leaves it in forever and then when I wanted to put it away I'd pull the whole thing up."*. *(Mrs) "I would probably be the same but he is very good at getting it out and putting it away. If it was me I think I wouldn't be but that's probably because it is physically, for me it would be more of a chore."*

From which it can be inferred that in this instance the M5 'Positive thinking' mechanism is only evident in one partner (Mr) during practice persistence, as feedback from practice reinforces belief that practice is convenient and satisfying. However for the other partner, practice is not always convenient and is felt to require too much effort. Moreover, she does not have the same preference for the finished product.

### **Previous practitioners**

Interviewee 59 has a line in her garden but it is some distance from her back door. Also the garden is set down a level and slopes away from the house, and as a result she does not find it convenient to use. However in her previous home she had found the practice convenient as she explains:

*"I always used it in other house because we did not have room for a dryer. And'cos it was flat it was easy to go out and I would use it. But I don't here. I must admit and I don't have to iron if I put them in dryer."*



Thus although she did consider putting a rotary line on the decking area near to her back door she decided against it as *“When I put all the pots there I did not want it there. So...”* From which it can be inferred that in this instance the M5 ‘Positive thinking’ mechanism is no longer evident, as alternatives are felt to require less effort and there is no longer convenience and satisfaction in practice and practice has **ceased**.

### **7.2.7 M6 ‘Will do’**

#### **Initiation**

Not found to be relevant to those interviewed.

#### **Persistence**

The M6 ‘Will do’ mechanism is evident in only 3 out of 57 (5%) current practitioners but is not evident in any previous practitioners.

#### **Current practitioners**

Last year interviewee 58 commissioned a garden designer to redesign her garden. Here she explains the fight she had to ensure that her rotary washing line was included in the new design:

*“And this woman was determined to move my rotary washing line up to the end of the garden somewhere so that it couldn’t be seen anywhere from the house you know, they thought it was so ugly that it had to be banished and they just wouldn’t listen to me when I said that I actually like it here, it’s convenient and I like to look at my washing on the line because it makes me feel good to see clean washing on the line.”*

Subsequently it can be inferred that there is evidence of the M6 ‘Will do’ mechanism in practice **persistence**, in that *‘freedom to choose’* to continue to practice was threatened, but in her garden practice did not depend on gaining permission from the garden designer. Subsequently desire to practice was reasserted and the garden designer was sacked.

Interviewees 42 had a washing line in their garden when they moved into their house but when her partner redesigned the garden as she explains *“..it was not part of the design at all, he’d designed my garden without a washing line. He’s got a tumble dryer, he said it would spoil my garden.”* However eventually they did reach an agreement on



using a rotary dryer and as she explained to her husband *“and all your shirts smell nice now.”* From which it can be inferred that, in this instance, the M6 ‘Will do’ mechanism is evident and practice is **reinstated**, in that conflict is now reduced as agreement has been reached, thus ensuring that one partner can now practice as she wishes.



**Figure 7.2.6** shows interviewee 42’s partner’s rotary washing line, neither complimenting nor conflicting with the new garden design.

Interviewee 66 has only recently reinstated the practice of outdoor drying. As this extract demonstrates reinstating practice has entailed rethinking and renegotiating existing washing practice with his partner, in order to enable a routine of outdoor drying to be re-established:

*“Basically, since I retired. My wife has severe rheumatoid arthritis so she can’t actually hang washing out. So, for a long time we said because she couldn’t get out to put the washing out, we used part of the Disability Living Allowance to pay for the electricity to run the tumble dryer. But now, I am retired, then we don’t use the tumble dryer...”. “So you are getting back into a routine?”. “YES, yes. So as a general rule now I will put the washing out.”. “Sometimes when you change your routine it can be difficult getting back.”. “I think we need, to change when we do the washing actually.”. “Yeah.”. “Because, I mean she still deals with the washing, she tends to put it in at 9.30, 10 o’clockish in the morning. So the washing is not ready until 12 and we have usually gone out by then. So I think we need, and I suggested that she washes last thing at night so that when I get up its done and I can put it out. So I think we shall probably do that.”*

From which it can be inferred that, in this instance, the M6 ‘Will do’ mechanism is evident in that one partner has now taken the lead on drying practice and renegotiating the washing regime. As a result conflict is reduced and sufficient time is now available



for outdoor drying. Here it is also evident that 'time of life' makes a difference, as the interviewee is now at home more and has more time to practice since retirement.

### **7.2.8 M7 'Influence'**

#### **Initiation and persistence**

Not found to be relevant to those interviewed.

### **7.3.9 M8 'Should do'**

#### **Initiation**

The M8 'Should do' mechanism was evident for 6 (11%) current practitioners and 1 (14%) previous practitioner prior to practice initiation, but is currently not evident in any of those who have never practiced.

#### **Persistence**

The M8 'Should do' mechanism is now evident for 4 (7%) current practitioners and 1 (14%) previous practitioner.

#### **Current practitioners**

Interviewee 7 is a young man living in rented accommodation and has always used a washing line as he explains: *"My mother, in particular encouraged me to put out the washing and to keep an eye on the weather in case of rain."*

Interviewee 13 explained how:

*"Yes, my mum always used to hang the washing out at home in the garden on one of those whirly-gig things. And I probably did help, as my mum was at home when I was little. But I can't remember helping much as a teenager though."*

Then on leaving home she lived in a flat and as she says: *"Couldn't take it with me as I was in London without a garden, but I did as soon as I got a garden to hang washing out in."* From which it can be inferred that, in this instance, the M8 'Should do' mechanism is evident in practice *initiation*, in that she was expected to help with practice as a young girl and whether to gain approval or avoid disapproval was willing to comply with her mother's expectations.



Interviewee 43 has always practiced line drying. Moreover she explains how she has a constant reminder of how other householders along her street continue the tradition/custom: *“But if you look up, you know on a good day you can see line after line of washing up and down here it’s really brilliant.”* From which it can be inferred that, in this instance, the M8 ‘Should do’ mechanism is evident in practice **persistence**. In that neighbours practice continues to reinforce normative nature of the practice.

Interviewee 44’s house is set up a level from the garden and from her back door she has a clear view of whether other people on the street are hanging their washing out to dry. Moreover she was particularly aware of her neighbour’s practice as she explains *“Because K has two sons so she was constantly washing.”* However she very rarely used her own washing line until as she explains:

*“My next door neighbour always says ‘you never have any washing out’, I said ‘you ought to see the house it’s like a laundry, all over the doors and banisters’.. But when she said that I started to use it. So at the weekends I do hang things out.”*

From which it can be inferred that, in this instance, the M8 ‘Should do’ mechanism is evident in practice **persistence**. In that, she is aware of the normative nature of the practice, both in terms of what she can see and what her neighbour has said, and because she cares about what her neighbour thinks she is willing to comply with these expectations, but only when she has time to do so.

Interviewee 49 has always line dried as did her mother before her. However when she first moved into her current home she got the impression that it was not the ‘done thing’ in her new neighbourhood as she explains:

*“I know a lot of people when I first moved in here, I was amazed, on hot days and windy days and you’d look out and think nobody has got there washing out and there’s only me got my washing out, what’s going on? And you know like the neighbours down there, suddenly I saw their line started to appear and they started hanging their washing out, it’s like it caught on, you know what I mean, it was like, it catches does not it and you think, oh.”*

From which it can be inferred that, in this instance, the M8 ‘Should do’ mechanism is evident, initially working to undermine practice, in that there were no signs from others that practice was appropriate, and then working to encourage practice **persistence**. Thus for this interviewee both utility and desire to maintain personal norms were more important than fear of social disapproval.



Interviewee 54 has a large garden which was previously very well kept. But with no previous gardening experience she has found the garden difficult to maintain. In contrast she is a keen line dryer as she explains:

*“And I do like to get my washing out. I mean I have got a tumble dryer but I don’t really use it very much at all. It smells nicer. I think it’s something to do with your childhood, I mean you do it because that’s what you did with your mum.”*

From which it can be inferred that, in this instance, the M8 ‘Should do’ mechanism is evident in practice *initiation* and continues to be evident in practice *persistence*, in that the interviewee suggests her practice was learned from her mother’s and continues to be seen as ‘the done thing’.

### **Previous practitioners**

Although interviewee 50 was expected to line dry in her youth and was motivated to do so, as she explained this early experience did not generate any enthusiasm for the practice: *“Well I have had to hang washing out from being a child, we had earwigs in them and all sorts would be on our clothes.”*

From which it can be inferred that, in this instance, the M8 ‘Should do’ mechanism was triggered and resulted in practice being initiated in youth. However practice does not persist due to a phobia of spiders.

### **7.2.10 M9 ‘Guilt’**

#### **Initiation and Persistence**

Not found to be relevant to those interviewed.

### **7.2.11 M10 ‘Habit’**

#### **Initiation**

The M10 ‘Habit’ mechanism is not associated with practice initiation.

#### **Persistence**

The M10 ‘Habit’ mechanism is now evident for 41 (72%) current practitioners but is not evident for any of the previous practitioners.

### **Current practitioners**

Although there was a line in the garden when interviewee 30 moved into his current home the practice was not an already established part of his routine, as he explains:



*“Erm, I am trying to think, we lived in London before we came here in a flat but we did have access to a garden but I suppose it was not erm quite as direct SO I can’t actually remember what we did there. But I don’t think we had a tumble dryer either but you know, probably dried clothes inside I suspect...”*

Thus although line drying is practiced, it is limited to the summer months, and in the main the clothes drying routine is set around tumble dryer use as he explains:

*“Do you think you just get into a routine over it?”. “Oh yeah.”. “Like automatic pilot?”. “Yeah, yeah, it’s pure convenience and I mean at the time we got it, when we just moved in, we bought a new washing machine and we bought a tumble dryer at the same time and we have always used one ever since.”*

From which it can be inferred that there is no evidence of the M10 ‘Habit’ mechanism in this instance.

Interviewee 61 describes herself as *“more of a washing line person than a dryer”* and as this extract demonstrates having a retractable line very close to the house provides the cues needed for routine practice. As well as helping maintain her positive perception of the practice in comparison to using a tumble dryer:

*“Yes, and I do wash about every other day so in fact just before you came I’d just took the washing out off the line because it started raining.”. “How does the washing line and tumble dryer thingy work?”. “Well my dryer is in the garage so it’s actually as much effort to put stuff in the dryer and remember that it’s in there than it is putting out the washing. If it is possible my washing goes out.”. “Yes.”. “Because they are less creased and I don’t have to iron it and things.. I don’t iron anything, ever but I leave stuff in the dryer because I forget it’s in there because it’s in the garage, whereas on the washing line I take it off the washing line and I instantly fold it.”. “Because it’s there and you can see it?”. “Yes, that makes a big difference to me.”*

From which it can be inferred that, in this instance, the M10 ‘Habit’ mechanism is evident in practice **persistence** and serves to reduce the effort needed to practice. In that routine practice is associated with specific cues (e.g. seeing washing hung out to dry) which provides a reminder that practice is in progress and reinforces routine. As such practice is contingent on both fine weather and the proximity of the washing line to the house.



### **Previous practitioners**

Interviewee 17 has a small garden on two levels and has been unable to find a convenient area to site a line or rotary drier. In addition when she moved into the house the plumbing for the washing machine was upstairs in her bathroom and there was sufficient space for indoor drying. As a result a routine of indoor drying quickly developed, as she explains in this extract:

*“Erm, and also I think it’s because having the washing machine upstairs, if it was in the kitchen.”. “Yes it’s kind of pattern behaviour, with the space up there as well.”. “That’s right, we just do it because to have to bring it all the way down”... “Yes, yes, it’s your kind of routine.”. “I don’t like my bathroom being draped with clothes all the time but it suits us so, we do it.”*

At the time she was also working away from home and found indoor drying more convenient as she explained: *“.and I was going out to work, I did not like to put it out because it would rain when we were out, so we’ve just really, really got into the habit of drying everything, we haven’t got a tumble dryer but we just dry it all in doors.”*

From which it is inferred that lack of practice can in part be explained by the difficulties in re-establishing practice and the development of an alternative, convenient, indoor drying routine.

Interviewee 34 had little experience of line drying prior to moving into his current home as he explains: *“Well I lived in flats for a while when I was a student and so you kind of learn to dry stuff around the house, I think.”* As a result a routine of indoor drying rather than line drying is now established.

## **7.3 Context**

### **7.3.1 Is ‘time of life’ significant?**

#### **Initiation**

For all current practitioners ‘time of life’ was significant for practice initiation in that for example practice was initiated: in their youth 6 (11%) (i.e. in terms of how they were brought up); or after leaving their family home as a young adult; or moving to their first ‘own’ home as an older adult 51 (89%).



Similarly, for the majority, 6 (86%) previous practitioners, 'time of life' was significant for practice initiation. For example practice was initiated: in their youth 1 (14%); or as a young adult after having left the family home 4 (57%); or after having children (1) (14%). However for 1 (14%) previous practitioners 'time of life' was not significant for practice initiation. Whereas for the majority 4 (57%) of those who have never practiced, 'time of life' has had no significance to date on practice or not, while for 3 (43%) of those who have never practiced 'time of life' is significant to practice, in that they continue to be single, don't have a lot of washing and have little need or desire to practice.

### **Persistence**

For the majority of current practitioners 42 (74%) 'time of life' is significant for practice persistence. In that: retirement results in reduced washing, increased time and convenience, thereby reducing the effort needed to practice 13 (31%); or as an older adult with no children and reduced constraints on time and amount of washing compared to those who have children 9 (21%); or due to having children the amount of washing increases which increases need to practice 13 (31%); or as a young adult in their first home of their own practice is believed to be 'appropriate' thereby reducing risk of inappropriate practice. However for 15 (26%) of current practitioners 'time of life' is not significant for practice persistence.

Similarly for the majority of previous practitioners 6 (86%), 'time of life' continues to be significant to practice. In that for older adults with no children there is little need/benefit from practice (2), or for the family with young children the benefit from use of their small garden for play outweigh the benefit from using it for drying (1), or full-time work (and caring responsibilities in one case) has reduced the time and therefore increased the effort felt to be needed to practice (2) and poor health in older age has increased the effort needed to practice (1). However for 2 (29%) of previous practitioners 'time of life' is not significant to practice.

### **Current practitioners**

When interviewee 28 first moved into her current home she did not have children and as she explains: *"No, we were just a couple but I've always hung my washing out."* From which it can be inferred again that, in this instance, practice has not depended on 'time of life'.



Interviewee 37 has a washing line and tumble dryer and as she explains: *"I do like to put things on the line."* However the extent of practice is dependent on fine weather and being at home as she explains:

*"It's to do with, if I am at home then I use the washing line because I have time to put them out and take them in if it rains. If it looks a bit doubtful and I am at school then I put them on the clothes rack upstairs. I don't use the dryer very much. So it's a matter of what the weathers like and what time I have got."*

From which it can be inferred that 'time of life' does make a difference to extent of practice, in that working away from home, increases the risk that practice will not be effective.

Interviewee 38 started helping her mother pegging out the washing when she was a child, but as she explains although practice did not continue in early adulthood eventually it was reinstated:

*"I did not use a washing line myself when I was a student and lived in rented accommodation. But I have ever since I got myself a nice respectable house with a mortgage..As I have got older I have definitely sought to bring things I remember from my childhood back into my life, and gardening and washing habits are, I guess, part of that."*

From which it can be inferred that 'time of life' has made a difference to practice.

Interviewee 44 only occasionally uses her washing line and gives the following explanation: *"Of course when you work all the time, a lot of the washing I do in the evening or I'll maybe use it at weekends."* From which it can be inferred that 'time of life' does make a difference to extent of practice. In that full-time work is out of synch with the process of line drying (i.e. washing over night and hanging out in the morning).

### **Previous practitioners**

Ill health now limits the extent to which interviewee 18 can now be outside and whilst he previously practiced when his children were young, as he explains now *"WE have a tumble dryer now so everything is done within the house rather than outside. But we did have, we did have yeah."* From which it can be inferred that 'time of life' does now make a difference to practice, in terms of reduced utility and increased effort felt to needed, and practice has ceased.



Interviewee 24\* explains:

*"I have been a single parent quite a lot in my lifetime with both children so it's always been a convenience factor, because I get home it's a big rush. I actually try and put my laundry in mid week so I'm not doing it all at the weekend."*

From which it can be inferred that 'time of life' continues to make a difference to practice, in terms of amount of washing and constraints on time due to caring and work responsibilities. As a result practice has ceased.

### **Never practiced**

Interviewee 41 has never practiced line drying, not even when her children were young. As she explains: *"No, we've got an attic and we put our washing lines in the attic and I could never be bothered to sort of worry about what the weather was going to do so I started just always going in to the attic."* From which it can be inferred that practice is not dependant on 'time of life'.

### **7.3.2 Is the garden setting significant?**

#### **Initiation**

For all current practitioners practice and previous practitioners practice was initiated in previous gardens, and in the main the only alternative was indoor drying on clothes horses or radiators. However for those who have never practiced their gardens have never been used for outdoor drying and they prefer to dry indoors, using a tumble dryer 3 (43%), or a designated drying area 1 (14%), or dry on radiators or clothes horses 3 (43%).

#### **Persistence**

For all current practitioners outdoor drying (garden based practice) persists and is preferred to indoor drying by 52 (91%). For 15 (29%) of these, a tumble dryer is used as an alternative, while for 37 (71%) the only alternative is drying on radiators or clothes horses. Of the 5 current practitioners who persist with practice, but do not have a preference for outdoor drying, 4 use a tumble dryer, and 1 is happy to rely on using radiators or a clothes horse.



### **Current practitioners**

Interviewee 2 explains how: *"I think I've got a bit of a thing about washing..especially in the summer when it all dries so quickly."* Moreover with no tumble dryer and no alternative but to dry on radiators, she has a clear preference for outdoor drying. As she explains:

*"Because actually I think there's nothing better than washing that's been drying out side. Oh I love it because I hate, you know you've got washing hanging everywhere... "It gets a real bind does not it?".. "It never quite properly dries and you're just like..". "Yes.". "One lot out one lot in."*

From which it can be inferred that, in this instance, outdoor drying is preferred in that it is felt to be more convenient and efficient. But whilst there is very little satisfaction involved in indoor drying, it can be a substitute for outdoor drying. However the extent to which it can do so is limited in her small house which is shared by 3 people.

Interviewee 7 lives in a small terraced house and does not have a tumble dryer and although indoor space is limited he will dry indoors if the weather is bad. However as he explains he was aware at an early age that his mother favoured the practice over indoor drying *"There was repeated utterances that drying outside made the clothes smell better, which I now happen to agree with."* As he explains:

*"I mean drying inside especially during the winter months it can feel, if you are sitting watching TV and you have washing everywhere it can feel like you are in a sauna basically. And it's just nicer to have it outside I think."*

Again it can be inferred that the garden setting does make a difference to practice persistence, indirectly, in terms of benefitting indoor air quality.

Interviewee 15 has always line dried her clothes and as she explains *"No, I don't even think about not hanging it out unless it's chucking down with rain.. I have never had a tumble dryer so that has never been an option."* In addition, line drying is preferred to indoor drying because as she explains: *"It is so much nicer anyway, it's so much fresher. I don't like wet washing all round the house, it does not feel healthy somehow."* Moreover she has found drying indoors to be very problematic as she explains:

*"Well we have quite bad condensation at the moment and our damp proof course has stopped working. And we were kind of thinking why is that? Well, now we are washing with two children, all over the winter. So it was like we need to make a concerted effort to dry things outside as much as possible."*



Again it can be inferred that the garden setting does make a difference to practice, resulting in increased levels of satisfaction, in terms of quality of the dried washing, and benefits, in terms of indoor air quality and health. In addition the ability to trade off between outdoor and indoor drying is now very limited.

Interviewee 60 explicitly links the practice of line drying to reducing her carbon footprint and in doing so implies that there is a greater 'depth' to the practice than simply being a method of drying clothes. In addition in this quote she implies that her garden enhances, and in some way transforms routine garden practices:

*"I just try and be more positive about things because things have to be done anyway, and you either do them with a bad attitude or a good attitude. So I try and try and think positive..when you're hanging the washing out you can quite enjoy it by looking around-I like looking at the birds and stuff like that.. And seeing what's coming on and –."*

From which it can be inferred that the garden setting, in allowing what can sometimes be a mundane practice to be reframed, does make a difference to practice ***persistence***.

### **Previous practitioners**

Interviewee 24\* gives a number of reasons why she prefers not to dry outdoors, including the fact that her garden is not private or secure, as she says *"I don't want everybody looking at my underwear. Know what I mean? I mean I have known people who have had jeans pinched. I mean not round here, but you know? So I-."* In addition she prefers tumbled dried washing as she explains: *"I don't like ironing and I don't want crunchy towels and I don't have time to sit there and iron loads of stuff."* From which it can be inferred that the garden setting does make a difference to practice, but not in a positive way, in that her garden is not free from overlooking from housing opposite. As a result practice does not persist.

### **Never practiced**

Interviewee 47 explained how *"My Mum and Dad used a washing line all the time"* but before moving to his current home *"I think before I lived here I lived in rented places and I'd always gone to a laundrette. I never really felt that I had ownership of the gardens, I never did any maintenance and never used them for anything either."* Now he has a large garden of his own which is not used as he explains:



*“And because I’m on my own I don’t have a lot of washing I just hand it up in the bathroom, I don’t need a washing line.”*

Consequently for this interviewee garden setting makes no difference to drying practice, because his needs can be met by indoor drying without any reduction in satisfaction from doing so.

## **7.4 Summary and discussion**

### **7.4.1 Pre-conditions for practice initiation**

The pre-conditions that were met by the majority (nearly all) current practitioners and the majority of previous practitioners prior to outdoor drying being initiated include: *‘indirect knowledge’*; *‘access to resources’*; and *‘freedom to practice’*. However the majority of those who have never practiced currently only meet the last two of these three conditions.

As for the practices of growing fruit and vegetables and home composting, both current and previous practitioners were more likely to have gained *‘indirect knowledge’* of the practice, from watching a parent (usually their mother), in their youth, hanging out the washing. In contrast those who have never practiced were less familiar with the practice and had not had the same opportunities to observe outdoor drying.

Both current and previous practitioners had *‘access to the resources’* needed to practice in that they had their own or a family garden. In both cases *‘size of garden’* was not a consideration prior to practice initiation, as the majority of gardens already had a washing line erected. Similarly for those who have never practiced, *‘size of garden’* (either too small or too large) is not given as a reason for not practicing.

As for the practices growing fruit and vegetables and home composting, in the main, both current and previous practitioners were *‘free to choose’* to practice, in that in the main, this is a practice that is easily accommodated and as such does not require prior permission.



### **7.4.2 The person and practice initiation**

Current and previous practitioners and those who have never practiced outdoor drying differ in the extent to which they are familiar with the practice. In that from having observed a practitioner in their youth they knew that the practice required little in the way of resources or particular skills and risks could be managed simply by paying attention to what the weather was doing. From which they were able to make the judgement that it was something they could do. In addition a minority of current and previous practitioners were encouraged to practice by a parent in their youth and either to gain approval or avoid disapproval were minded to do so. This suggests that it is the 'Could do', more than the 'Should-do' mechanism, that can explain practice initiation.

For both current and previous practitioners 'time of life' made a difference to practice initiation, in that practice was initiated in either youth, or was a family practice that was continued or initiated when they left home for the first time or when they had children of their own. However for those who have never practiced 'time of life' makes a difference to only a sizeable minority, in that they either do not have children or are single and can dry what washing they have conveniently indoors. Or they do have young children and more washing that they feel can conveniently be dried outdoors. In addition for current and previous practitioners outdoor drying was seen as the most efficient and convenient way to dry clothing, and preferred to the only alternative, which for the majority was indoor drying. In contrast those who have never practiced prefer the convenience of indoor to outdoor drying, and the majority have an alternative to drying washing on radiators or clothes horses (i.e. they have a tumble dryer or designated drying area).

### **7.4.3 Pre-conditions for practice persistence**

The pre-conditions that are now met (or continue to be met) by the all current practitioners and previous practitioners, are the same as for the two previous garden practices and include: '*direct knowledge*' from hands on experience of outdoor drying; '*access to resources*' in that they have a line or rotary dryer in their garden and '*freedom to choose*' to practice in that permission was either not needed or sought and gained.



In addition the conditions '*general environmental awareness*', and '*awareness of consequences*' of failing to practice are increasingly met by current practitioners in practice persistence, but are still only met in a minority. In addition '*awareness of the consequences*' of outdoor drying is restricted to cost and convenience, and does not (in the main) extend to health benefits to the self or harm to others or the wider environment. More surprisingly for previous practitioners the condition '*awareness of consequences*' of failing to practice outdoor drying, in terms of increased cost and energy use, is now nearly double that of current practitioners

Furthermore as with practice initiation, neither practice nor lack of practice can be explained by garden size. In that neither increasing nor decreasing available garden space makes any difference to practice in either current or previous practitioners.

#### **7.4.4 The person and persistence with outdoor drying**

In terms of practice persistence, what now differentiates current practitioners from previous practitioners is that the majority (increased from 0% at initiation to 78% now) of current practitioners now have a positive perception of the practice of outdoor drying, and feel that convenience and satisfaction from practice outweigh any difficulties. Improvements in washing machine technology in terms of: increased spin cycle speeds which extract more water from washing thereby reduced drying times; short wash cycles; programs that include rinse holds so that washing can be washed during the night and rinsed and hung out in the morning or programs that can be set to finish in the morning so that clean washing is not sitting in the machine for hours before being put out to dry, now make outdoor drying more convenient than ever. Indeed current practitioners maintain a preference for outdoor drying over indoor drying (whatever method is used), whereas those who previously practiced do not, preferring to use a tumble dryer, because clothes can be dried in the privacy of their homes or because of the qualities of the finished product. This suggests that the 'Positive thinking' mechanism can be used to explain the persistence of outdoor drying practice.

In addition for the majority of current practitioners outdoor drying is something that they have always done. Here seeing a full wash basket, hearing the washing cycle finishing, looking out and seeing that the weather is fine and seeing washing drying provide ongoing cues to practice, whilst repeated practice further embeds routine. In contrast previous practitioners have well established indoor drying routines. Not surprisingly



then, this suggests that the 'Habit' mechanism can be used, in part, to explain outdoor drying practice persistence.

In a sizeable minority of current practitioners repeated practice also builds '*direct knowledge*', which reinforces belief that practice met needs and is compatible with values (i.e. making use of free/renewable resources) and lifestyle (i.e. being in the garden and living in a more sustainable way). As a result willingness to persist with practice is strengthened. This suggest that the 'Goes together' mechanism can be used, in part, to explain practice persistence. This would also explain the associations found in chapter four between practice and amount of washing, household size and whether or not there were young children in the household.

Furthermore while the majority of current practitioners have always practiced, 'time of life' continues to make a difference to practice persistence in terms of: increased need for drying due to having children in the home; or reduced need and increased convenience due to children leaving home or retirement affording more choice over when to practice; or because practice continues to be convenient because they do not have children and live on their own and do not need to do loads of washing. Similarly 'time of life' continues to make a difference to previous practitioners in that practice is now not felt to be convenient due to full-time working away from the home or requires too much effort in old age (and poor health) or where other needs take preference (i.e. for small children's play).

## **7.5 Closing summation**

This chapter continues to use data gathered in 1: 1 interviews from both current practitioners and non-practitioners to provide evidence of the necessary conditions and the mechanisms that can be used to explain the initiation, persistence, extension and cessation of the garden practice of outdoor drying. It was found that the 'Could do' mechanism explained practice initiation in both current and previous practitioners. Furthermore as in the garden practices growing fruit and vegetables and composting, practice persistence was characterised by some of the same '*necessary conditions*' but different mechanisms than those found in practice initiation, and again that practice persistence often involved a greater combination of mechanisms. In the main practice persistence was explained by the 'Goes together', 'Positive thinking' and 'Habit'



mechanisms and was characterised by utility, interest, positive perceptions of the practice, as well as routine. But unlike the practices growing fruit and vegetables and composting, lack of practice was explained by preference for other types of drying, and indoor drying routines that are perceived to be more compatible with current lifestyles and 'time of life', rather than lack of familiarity or previous experience of outdoor drying.



## **Chapter 8: Conclusions and Recommendations**

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### **8.0 Introduction**

Since the end of the nineteenth century urban gardens have been seen as an essential ingredient of a decent home and provision has explicitly been linked to issues of quality of life, well being and social justice, all issues that now resonate in sustainable development discourse. However, the approach currently taken by the UK Government, with its focus on urban containment and compaction, demonstrates that in practice there are alternative ways of interpreting the idea of sustainable development. Indeed, in both theory and practice it is evident that there are multiple models or pathways, and therefore a range of policy options not simply based on urban redesign and the compact city, that could contribute to the creation of sustainable cities (Guy and Marvin, 2000). Hence, Bramley et al. (2009) caution against the 'one size fits all' approach to the reshaping of existing cities and planning for future urban developments and conclude that in order produce happy, well-functioning communities *"..there will be a need to provide a range of environments for different groups in different locations"* (p.2139).

The sustainable development 'idea' can be unpicked to identify 'core ideas', which can then be translated into objectives for urban areas, from which it is then possible to link garden provision and garden practices (e.g. growing fruit and vegetables, composting, collecting and reusing water, line drying and encouraging wildlife) to the delivery of both environmental and social sustainable urban development objectives. However, the contributions made by urban gardens to the components of sustainable development are not fixed or assured but depend on maintaining existing coverage, configuration and distribution of garden provision and levels of the garden practices specified above. This suggested that research should focus on better understanding why it is that some people choose to initiate, and then maintain, the specified garden practices, whilst others do not. This research set out to explore this issue and this concluding section draws together findings that summarise the analysis and explanation of the process of behaviour change for the garden practices of interest.

The focus of this research was directed by the premise that whilst practice initiation and persistence in a range of garden practices including growing fruit and vegetables, home composting, collecting and reusing water, line drying, and encouraging wildlife



were key to explaining the contribution that urban gardens made to sustainable development, they were very little understood. It took a different approach from previously published research on Environmentally Beneficial Behaviour (EBB), which had failed to identify the factors which could be used to explain EBB initiation and persistence (i.e. the process of behaviour change and maintenance), yet had demonstrated a substantial amount of thinking about causality. Instead, using a critical realist approach was thought to provide a more robust framework to answer research questions, which focussed on causality, required explanation and were concerned with identifying potential for behaviour change. The principal objective of this research was therefore to provide a fuller understanding and explanation for why some people choose to engage in and persist with a range of garden practices of interest by investigating the mechanisms by which each practice was developed- that is, the process of behaviour change. The questions felt to be most relevant were as follows:

*“Why do some people take up the garden practices of interest whilst others do not?”*

And

*“Why do some of these people persist with practice whilst others do not?”*

The results of this research are presented in this chapter at two levels of generality. The most specific are the analyses of behaviour change for the three practices- growing fruit and vegetables, home composting and outdoor drying, which formed the bulk of the empirical research. At a more general level it is suggested that the process of behaviour change, in terms of the structures and mechanisms identified, will be generally applicable to other people in other places, and to other garden practices where the underlying interest is in gardening. This analysis also provides the basis for speculating on how the issue of behaviour change might be approached for the practices of growing fruit and vegetables, home composting and outdoor drying.

The next section sets out the conclusions from this research and is followed by reflections on the overall approach, considering whether the conception of the process of behaviour change, which in turn depended on the critical realist approach taken and methodology used, were appropriate and effective. In the light of these conclusions questions which remain unanswered and require further research are identified.

### ***8.1 Explaining garden practices***

This research shows that the majority of people who contributed to this study: tend their own garden; hang their washing out to dry rather than dry it indoors or at the



laundrette; and use their gardens for sitting out and relaxing. Many but not all said they are 'gardeners' but none called themselves 'good gardeners', a sizeable minority grew fruit and vegetables, a minority produced good quality compost although many more were composting, a minority, spent time trying to work out how to connect a water butt to their down pipe in order to collect and then reuse rainwater, only to find that when they needed it most it was empty, and a sizeable minority were actively seeking to encourage wildlife in their gardens. All currently practice, (with the exception of the practice of line drying) not out of necessity, but by choice. Furthermore whilst practice can, in part, be explained as needs-meeting, these needs do not stem from necessity but obligation, to themselves, others and the environment, and interest in 'the garden' and the practice of gardening. In that findings suggest that not everybody has the same propensity to initiate these garden practices, in that there are those who are interested in gardening and those who are not (for the practices growing fruit and vegetables and home composting) and those who prefer outdoor drying to other alternatives and those who do not.

## ***8.2 Explaining the practice of growing fruit and vegetables***

This research shows that only a minority of householders were found to be practicing growing fruit and vegetables, suggesting that this was an interest-related practice rather than a practice that had broad appeal. This practice was described in terms of being significantly associated with an extensive range of 'environmental' garden practices (including outdoor drying and home composting), gardening practices (including growing from seed, growing flowers and shrubs, garden maintenance and frequency of gardening) and 'social' garden practices (including sitting out and relaxing, watching wildlife and cooking and eating in the garden), with the likelihood of practice being greater if practice was undertaken along with other 'environmental' practices. Commonalities between growing fruit and vegetables and home composting mechanisms were found for both practice initiation and persistence. This suggests that an interest in growing/gardening underlies these practices and that these practices relate to each other in a practical way.

Previous research findings on relationships between EBBs is inconclusive, in that strong (Berger, 1997), weak (Corral-Verdugo, 1997; Harland et al., 1999) or no correlation (Oskamp et al., 1991) has been found between EBBs. However it is suggested that relationships between behaviours within the same domain (e.g. recycling) are stronger than behaviours across domains (e.g. recycling and reduce and



reuse waste) (Tucker and Speirs, 2001). In contrast, this research showed that there are strong relationships both within and across domains, in that growing fruit and vegetables (and outdoor drying) can be considered as energy conservation behaviours whilst home composting falls under the recycling domain.

This research showed that garden size was significant to the practice of growing fruit and vegetables, in that as garden size increased incidence of practice increased. At the same time, householders cited lack of space to initiate the growing of fruit and vegetables or to extend existing practice, as the reason for dissatisfaction with smaller gardens. This is not to suggest that there was a clear threshold which once met enabled all who desired to grow fruit and vegetables to do so, in that across a range of garden sizes householders felt that more space was needed to enable practice to be initiated or extended.

This research also shows that where gardens already contained vegetable patches, retention rates were high. One possible explanation for this was that there was either utility and/or interest in growing vegetables. Indeed provision of fresh fruit and vegetables and 'provides interest' were two benefits found to be highly associated with the practice, along with a range of other benefits intrinsic to the practice including providing opportunities for contact with nature and nurturing. In addition the benefit 'cheers me up' and 'helps me unwind' were also found to be highly associated with the practice. These findings accord with those of Kaplan (1973) who found that neither age nor extent of gardening experience predicted benefits from gardening however interest in growing vegetables and flowers was a significant predictor of gardening satisfaction.

### **8.2.1 Practice initiation**

More detailed exploration of the practice found two possible explanations for practice initiation. The first was the explanation provided by the 'Goes-together' and 'Can do-external' mechanisms, that is that *'indirect knowledge'* of the practice, usually gained by watching a family practitioner, in the family garden, increased familiarity with the practice. This often generated interest in the practice from an early age. Then in either childhood or adulthood *'access to the resources'* (i.e. a family garden or a garden of their own) reduced the effort needed to initiate practice. Hence, practice was either a means to exercise interest in growing (particularly in childhood) or the result of increasing gardening interest and activity (particularly in adulthood). As such growing fruit and vegetables was believed to be compatible with gardening interests and valued as a means to extend gardening activity. In both instances there was also utility for the



produce. However, in only a few instances was garden size considered before practice was initiated. Furthermore, in adulthood garden based practice was preferred over allotment based practice, in that it was believed to be most convenient and did not require the extent of effort and commitment required to take-up an allotment,

The second explanation was provided by the 'Should do' mechanism, in that being encouraged to practice as a child, usually by a family practitioner in the family garden, raised '*awareness of expectations*' to practice, and increased confidence in ability. Here, it was inferred that gaining approval (or avoiding disapproval) of a parent was felt to be important, which resulted in increased willingness to comply with parental expectations to initiate practice.

The first explanation, based on interest rather than compliance, more accurately reflected practice initiation for current practitioners, whilst both the first and second explanation, (i.e. compliance and interest) equally explained practice initiation for previous practitioners. Both these explanations accord with Tiller and Fazio (1982) who concluded that if people can be induced to engage in a given practice with minimal coercion, then the attitude change that results will persist and be predictive of future behaviour. These two explanations also accord with Deci and Ryan (2000) who found that people whose motivation comes from themselves rather than from an external source have more interest, excitement, and confidence in practice "*which in turn is manifest both as enhanced performance, persistence and creativity*" (p.69) and other research that concludes that motivating people to engage in EBBs by using external means does not result in enduring change in behaviour (Vining and Ebreo, 2002). This suggests that providing opportunities to engage in gardening in general or growing fruit and vegetables could be the way to encourage enduring behaviour change in this practice.

The first explanation differs from that of Gross and Lane (2007), who found that almost all adult home owners described their interest in creating a garden and gardening as arising once they owned their own home for the first time. In contrast, in this research it is evident that interest in growing fruit and vegetables preceded home ownership and having a home and garden of their own provided a context that was conducive to growing fruit and vegetables, in accord with their existing interests. Here findings may conflict because the sample and the context (i.e. small villages and towns unknown cultivation culture) were very different to those in this study (i.e. City of Sheffield with a long history of guinea gardens and allotments etc. within the city).



### **8.2.2 Practice persistence**

Persistence in the practice of growing fruit and vegetables can be explained, in part, by the pre-conditions met prior to practice initiation continuing to be met, in that there is continued 'access to resources' and 'freedom to choose' to persist with practice. In addition continued practice builds 'direct knowledge' and feedback from practice increased interest in the practice itself. Now, practice is valued for the opportunities to grow and learn, as well as for the produce. As such practice persistence continues to be explained by the 'Goes together' mechanism and additionally by the 'Can do-internal mechanism, as from practice successes and failures 'direct knowledge' builds and skills develop. As a result, ability and confidence in practice increases, as does satisfaction from competence. Furthermore, as the felt benefits increase and effort reduces there is increased interest and willingness to persist with practice. In addition, 'time of life' continues to be conducive to practice, in that current practitioners now have more time or want to make time for growing fruit and vegetables. Finally, garden based practice continues to be more conducive than allotment based practice.

This explanation accords with that of De Young (2000) who argues that the immediate mechanism that underlies EBB is self-interest in the form of intrinsic satisfaction (e.g. sense of competence and the satisfaction that derive from it). In addition, this explanation accords with Cooper (2006) and Benton (2008) who conclude that utilitarian and instrumental explanations are inadequate to explain the significance of gardening practices such as growing vegetables. Instead the explanation provided by this research acknowledges, as Cooper (2006) suggests, the complexity and interest or 'depth' to this practice as well as its 'distinctiveness' (i.e. it is not just a practice that happens to be pursued in a garden, indistinguishable apart from their location from practices pursued elsewhere). Hence, this research found that the continued preference for garden based practice was based on consideration of both the meaning and attributes of the garden itself, in that the garden was seen as an extension of the home, and valued for its proximity and convenience, as well its privacy (and particularly freedom from interference) and safety. This explanation accords with Kaplan's (1973) findings, but is distinct from Cook's (1968) much earlier assertions that people were more concerned with the activities that could be accommodated in their garden's rather than on "*the attributes of the garden itself*" (p.218).



### **8.3 Explaining the practice of home composting**

Only a minority of householders were found to be practicing home composting, again suggesting that this was an interest-related practice rather than a practice that had broad appeal. This practice was described in terms of being significantly associated with a range of both 'environmental' garden practices (including outdoor drying and growing fruit and vegetables), gardening practices (including growing from seed, growing flowers and shrubs, garden maintenance and frequency of gardening). This accords with Tucker et al.'s (2003) findings that gardening interest, gardening activity and garden size are all highly correlated with home composting behaviour. Significant associations were also found between home composting and 'social' garden practices (including sitting out and relaxing, watching wildlife, family play and cooking and eating in the garden), but again the likelihood of practice was greater if practice was undertaken along with other 'environmental' practices than if not. In addition, garden size was found to be significant to practice, in that as garden size increased incidence of practice increased, which accords with both Qasim (1997) and Tucker et al.'s (2003) findings. However householders rarely cited lack of space for siting a composter or lack of garden waste for composting as the reason for dissatisfaction with smaller gardens.

In addition, while retention rates for compost heaps and bins were high, the majority were added by current householders suggesting utility and/or interest. However, desire to reduce waste and increase recycling was only cited by a minority of householders as the reason for adding these features.

#### **8.3.1 Practice initiation**

This research shows that a combination of factors influenced the initiation of home composting in current practitioners and that practice initiation can be explained, firstly by the 'Could do' and 'Goes together' mechanisms. In that *'indirect knowledge'* of the practice, gained (in the main) by watching a family practitioner, in the family garden, increased familiarity with the practice, in terms of the resources, skills and risks involved. This then often generated interest in the practice from an early age. Then in adulthood, either after moving out of the family home or moving into their first 'own' home, or when children were grown or in retirement, with *'access to the resources'* (i.e. a garden of their own), practice was felt to be compatible with gardening interest and activity (particularly where gardening included growing fruit and vegetables). In addition, there was utility for the compost and practice was also valued as an opportunity to reduce waste.



Secondly, practice can be explained by the 'Can do-external' mechanism, in that there was confidence that the pre-conditions for practice were met; in terms of having 'access to the resources' to site a bin, generate sufficient garden waste to warrant composting and to make use of the compost produced, thereby reducing the effort needed to initiate practice. In addition people believed they had the skills and could cope with the risks associated with practice. Finally, consideration was given to garden size and whether or not the setting was conducive, before practice was initiated.

In contrast, for previous practitioners practice initiation was explained, in the main, by the 'Could do' mechanism, in that they had '*indirect knowledge*' of the practice, in terms of the resources, skills and risks thought to be involved in practice. This then raised expectations and confidence in their own capabilities, thereby reducing the risks and effort believed to be associated with practice initiation.

Both explanations accord with Åberg et al. (1996) who identified earlier experiences of watching or taking part in composting garden waste (i.e. both '*indirect*' and '*direct knowledge*') from childhood along with interest in gardening and appreciation of the compost, as specific motivators for both the initiation and reinstatement of home composting, but not practice persistence. In addition the first explanation accords with De Young (2000) who found that across EBB studies people justified engaging in certain practices in terms of what they get out of the practice itself, including satisfaction in developing resource competence and taking action that makes a difference.

### **8.3.2 Practice persistence**

This research shows that the explanation for the persistence in the practice of home composting is very similar to that of the practice of growing fruit and vegetables, in that two of the three pre-conditions met prior to practice initiation (including 'access to resources' and 'freedom to choose') continue to be met in practice persistence. In addition, practice persistence continues to be explained by the 'Goes together' mechanism along with the 'Habit' mechanism. In that, practice builds '*direct knowledge*' and provides feedback that practice is now valued more for providing an opportunity to exercise thrift and keep waste to a minimum, than solely for the provision of compost. This then serves to increase interest in the practice itself. In addition, continued practice enables a composting routine to develop, aided by cues to practice provided by small collection bins in kitchens or by back doors and proximity of bin to the house. As a result, the effort needed for practice to persist is reduced.



To a lesser extent practice persistence can also be explained by the 'Can do-internal' mechanism, in that from practice successes and failure '*direct knowledge*' builds and skills develop. As a result, ability to cope with problems increases, as does confidence in ability and satisfaction from competence. This in turn is manifest in both increased interest and willingness to persist with practice. In addition, 'time of life' and the garden setting continue to be sufficiently (if not totally) conducive to practice and garden size is no longer a consideration and as a result practice persists

This explanation for practice persistence in current practitioners accords with Bandura (1982) who concludes that judgements of self-efficacy (for example based on previous successful practice) determine how much effort and for how long people are willing to put into practice in the face of difficulties or bad experiences . Thus, although problems with flies etc were experienced by current practitioners with small gardens, from previous successful practice, they felt confident in their abilities and had the skills to try and adapt practice to suit their smaller gardens.

This research shows that whilst previous practitioners also gained '*direct knowledge*' from practicing home composting, feedback from practice was negative. In that first and foremost, they had wanted to produce good quality compost, rather than reduce waste and were not able to. This in turn resulted in reduced confidence in ability, reduced interest in practice and increased preference for other uses of the area set aside for composting. Or secondly, that experience of practice highlighted conditions that must be met before practice could be reinstated at a later date (i.e. garden must be of sufficient size to site bin out of sight, and away from sitting out areas etc.). Hence, practice was now felt to be incompatible with leisure uses.

This explanation for previous practitioners cessation of practice accords with Bandura (1982) who suggests that "*Situational factors that often accompany poor performance can in themselves instil a sense of incompetence that is unwarranted*" (p.142). As in this instance, previous practitioners blamed themselves, believing that home composting was something that they were not good at, rather than concluding that the problems they experienced were due to the compost bin technology. Thus, as a result of inappropriate technology the opportunity to make enduring changes to behaviour was lost. Moreover it could be also be argued that it is much less likely to be realised in the future, in that, if from direct experience people reason that they are not good at something, they are surely much less likely to seek to reinstate practice in the future.



This explanation for previous practitioners cessation of practice also accords with Åberg et al. (1996) who found that conflict could arise between household members, when due to problems with smells and flies, composting was not felt to be compatible with other householder's social use of the garden, which subsequently created an obstacle to routinisation and persistence of the practice. In addition it accords with Åberg et al. (1996) findings that limited knowledge of the composting process and lack of functionality of the technology (compost bin), were a barrier to practice persistence, but not practice initiation.

## ***8.4 Explaining the practice of outdoor drying***

The practice of outdoor drying was found to be both the most popular and most frequently engaged in garden practice. However this practice was found to be less extensively associated with other garden practices, although significant associations were found with the 'environmental' garden practices growing fruit and vegetables and home composting. In nearly all gardens that had washing lines left by previous owners, lines were retained, suggesting utility. In addition, although incidence of the practice was not associated with any particular demographics, the frequency of the practice was found to be associated with household size and composition, particularly the presence of young children in a family. In addition the frequency of practice was found to be highly contingent on season. However ownership of tumble dryers was not found to make a difference to extent of outdoor drying practice, in that owners of tumble dryers were found to be outdoor drying as frequently as those who did not own a dryer, suggesting utility and at least no specific preference for one practice over another. In addition, length of garden rather than garden size was found to make a difference to practice, in that householders with shorter gardens were more frequent outdoor dryers.

### ***8.4.1 Practice initiation***

Further, more detailed, exploration of the practice of outdoor drying found the same pre-conditions must be met prior to practice initiation as for the other two garden practices, including: '*indirect knowledge*', '*access to resources*' and '*freedom to choose*' to practice. In addition, that practice initiation could be explained by the 'Could do' mechanism, in that '*indirect knowledge*' of the practice, gained (in the main) by watching a family practitioner in the family garden, made outdoor drying, in terms of the resources, skills and risks involved, a familiar practice. Then in adulthood, either after moving out of the family home or moving into their first 'own' home, or after having



children of their own, with access to a garden of their own, practice was felt to be desirable. In addition, many people already had a preference for outdoor drying, in that outdoor drying was believed to be more convenient than drying indoors.

This explanation accords with Sayer (1992) who argues that *“Much of what we do does not proceed on the basis of a model of ‘rational choice’ but involves a learned accommodation to familiar circumstance”* (p.15).

#### **8.4.2 Practice persistence**

The explanation for the persistence in the practice of outdoor drying has some similarities to that of the practice of growing fruit and vegetables and composting, in that two of the three the pre-conditions met prior to practice initiation continue to be met including ‘access to resources’ and ‘freedom to choose’ to continue with practice. However now practice is best explained by both the ‘Positive thinking’ and ‘Habit’ mechanism, in that continued practice builds ‘direct knowledge’ which provides feedback that practice is convenient, efficient and effective. In addition, the satisfactions from outdoor drying compared to indoor drying including: increased amount of washing that can be dried, reduced drying time, smell and feel of the dried washing; reduction in ironing; and the fact that it is free, continue to outweigh any difficulties. This in turn generates both a positive perception and continued preference for outdoor drying. Additionally, that the development of an outdoor drying routine is facilitated, aided by cues to practice provided within the house and in the garden, particularly by proximity of the line/rotary dryer to the house, which in turn reduces effort involved in practice persistence compared to when practice was initiated.

In addition, in a substantial minority the ‘Goes-together’ mechanism also explains practice persistence, as feedback now verifies that practice continues to meet both extrinsic (i.e. to dry washing) and intrinsic needs, in that practice is valued for providing ongoing opportunities to make use of a free and renewable resource, as well as providing a connection with the past, to loved ones or, happy times.

Thus outdoor drying can be seen as an example of one of Cooper’s (2006) garden practices that *“require, or are enhanced to the point of being transformed by, a combination of conditions”* found in the garden including sunshine, open air, sufficient space, privacy and familiarity (p.76). Indeed as interviewees testified, outdoor drying is different in character to indoor drying, in that the qualities that distinguish outdoor drying are lost when the practice is transferred indoors.



### ***8.5 Identifying the potential for behaviour change***

In both theory and practice it is often presupposed that behaviour change is the result of increasing knowledge, but to date there is little empirical evidence for this. This research finds that, in both theory and practice, knowledge is a necessary condition (i.e. a condition that must be met) for practice initiation and persistence. This finding is distinct from those of other behavioural (Ajzen, 2002) and EBB specific research (Tucker and Speirs, 2003), but accords with other research that considers knowledge to be a necessary but not sufficient predictor of EBB and argues that knowledge's influence on EBB has been systematically underestimated (Kaiser and Fuhrer, 2003).

Moreover in contrast to the majority of previous research, this research differentiates between different forms of knowledge, for example people's knowledge of: what is right for themselves, what other people do, what they can do, the consequences of failing or succeeding in address environmental need, the positive and negative outcomes of practice, what they are free to do, what is the moral thing to do and what people think they should do and demonstrates that different types of knowledge play a part in the mechanisms that generate practice initiation and persistence in growing fruit and vegetables, home composting and outdoor drying.

This research also shows that the key assumption that underlies much of research on EBBs, i.e. that such behaviours are not about immediate clearly perceived benefits to the individual, rather they are about environmental benefits shared by society at large, benefits which may be viewed by the individual as uncertain and far off in time and place (Nickerson, 2003), or that the personal costs of pro-environmental behaviour are usually much more prominent than its personal benefits (Harland et al., 2007), do not hold for the garden practices studied in this research. In that, this research shows that for each of the three practices beliefs (or knowledge) of both instrumental or extrinsic and intrinsic benefits plays a part in generating both practice initiation (in the main this involves consideration of extrinsic benefits) and practice persistence (in the main this involves consideration of intrinsic benefits).

The implications of these findings for the behaviour change message for each of the practices of interest- growing fruit and vegetables, home composting and outdoor drying, are now considered in more detail.



### **8.5.1 Growing fruit and vegetables**

This research shows that exposing children to growing fruit and vegetables is an effective way of 'installing' the idea, increasing familiarity and generating interest in practice. This suggests that both existing and new practitioners have an important role to play in passing on this practice to their children. Additionally, that initiatives such as The Royal Horticultural Society's campaign for school gardening initiated in September 2007, aimed at getting 80% of primary schools growing fruit and vegetables by the end of 2010, and Morrisons' 'Let's Grow' campaign launched in September 2008, again aimed at getting children to grow their own vegetables, are moving in the right direction. However what is not known is the extent to which the school and teacher, rather than the family garden and parent, will make a difference both to 'the idea' and interest in practice.

This research shows that not everybody has the same propensity to practice growing fruit and vegetables, as it is interest in gardening (and particularly interest in growing) that underlies both practice initiation and persistence. Thus, current practitioners made an extensive appraisal of the practice prior to practice initiation, which included a consideration of the difficulty and consequences of performing this practice, as well as the favourability of the outcomes. In contrast the appraisal made by previous practitioners was found to be less extensive and consequently failed to consider or may have underestimated the control needed to continue with practice or over estimated the favourability of the outcomes.

This research found that many current practitioners initially saw growing fruit and vegetables as a means to extend and/or sustain regular gardening/growing activity, in that as gardens mature, there are fewer opportunities for new growing and planting as the focus of practice changes to bringing on/ maintaining what is already there (i.e. pruning, feeding and dividing plants etc). Consequently once initiated practice was valued for the ongoing opportunities to grow as well as try new varieties and types of vegetables.

These findings suggest that any initiatives aimed at increasing interest in gardening may also eventually have a knock on effect on the practice of growing fruit and vegetables, and that the opportunity provided by this practice to expand and extend gardening activity could be a potentially persuasive social marketing message aimed at those people who already have a more general gardening interest and ability.



This research shows that people initiate and persist with the practice of growing fruit and vegetables not out of necessity but out of interest. This is not to say that necessity will not have an effect on future levels of both practices: over the course of this research seed companies have reported sales of vegetable seeds outstripping flower seeds for the first time since the Second World War (Vidal, 2007) and 2008 saw Michelle Obama digging up the lawn at the White House and replacing it with what is being called a 'Victory Garden'. In the UK, in response to the economic down turn, many national newspapers (including The Times and The Guardian) have run their own 'grow your own' series. Indeed, the Dig for Victory campaign has a fresh resonance at a time when there is growing concern over the effects of global warming and rising fuel prices on both affordability and food security and there are signs that concern over these issues may be starting to overcome preference for other types of growing, or other uses of gardens. As Best and Ward (1956) noted when rationing had finally come to an end after the Second World War *"The potential output (of food from gardens) is far greater as a large area of gardens...not at present utilized for food production, could easily be swung over to this use should circumstances require it"* (p.26), which is as relevant today as it was in the 1950's.

This research shows that the perception that larger gardens or more space is needed to grow fruit and vegetables is widespread, but often masks a preference for other types of growing and/or leisure uses of the garden. This would suggest that more work is needed to demonstrate that vegetable growing can be compatible with other types of planting (see Strickland, 2008 on the ornamental and culinary use of vegetables) and growing vegetables in small gardens (see Dowding, 2008 on year-round salad growing on the smallest of scales).

This research shows that 'time of life' does make a difference to the practice of growing fruit and vegetables, in that for many people practice was initiated when other constraints e.g. lack of time due to caring responsibilities including young children or elderly parents, or competing activities like going to the pub, were reduced or removed. This suggests that there may be opportunities to target 'grow your own' campaigns specifically at these groups (i.e. over 25 years old and over 50's). The BBC's 'Dig In' campaign with the stated aim *"to make growing your own grub cooler than a cucumber in shades"* which follows the Radio 1 DJ Sara Cox (who is in her early thirties) through her first attempts at growing fruit and vegetables, using regular updates on the television programme 'Gardeners' World' as well as a blog on the BBC's website, is one example of how this is already being approached (BBC, 2009).



### **8.5.2 Home composting**

This research shows that exposing children to home composting is an effective way of 'installing' the idea, increasing familiarity and generating interest in practice. Again, this suggests that both existing and new practitioners have an important role to play in passing on this practice to their children. In addition, campaigns to encourage schools to grow fruit and vegetables could naturally be followed by campaigns to encourage composting at school.

This research shows that current practitioners made an extensive appraisal of home composting prior to practice initiation, which in the main draws from previous experience of watching a family practitioner. This enabled consideration of the difficulty and risks associated with home composting, as well as the favourability of non-gardening and gardening outcomes. In contrast previous practitioners made a less extensive appraisal and failed to consider or may have underestimated the resources needed and risks involved, leading to unrealistic expectations of this practice. As a result, a substantial number of people who have tried home composting have been discouraged by their experience.

This suggests that in terms of behaviour change, initiating new home composting practice and then sustaining that practice would depend on addressing issues such as the: look of the vessels; footprint of bins; problems with flies; and smell in order to demonstrate that practice is compatible with small gardens, small families, other leisure uses of gardens i.e. play, sitting out and relaxing and eating in the garden. This would call for the use of either additional or improved composting technology, e.g. the use of Bokashi bins alongside traditional compost bins or the use of closed, rotating, dual compartment composters (see Smartsoil Ltd, 2009 for example). Either approach would enable home composting to be marketed to those that do not identify themselves as 'gardeners' (indeed this is exactly Smartsoil Ltd's approach) by putting the emphasis on the waste reduction, rather than the compost production outcome of practice, as well as those who identify themselves as 'gardeners', by putting the emphasis on the soil improver aspect of practice.

Without wholesale improvements in home composting technology, local authorities cannot hope to ensure positive outcomes (i.e. outcomes which would support continuation of practice), for all those households targeted by campaigns. This suggests that those who are running home composting campaigns should be mindful of the conditions that must be met for both practice initiation and persistence. Hence,



householders should be encouraged to consider the effort, benefits and risks of home composting and information provided on what could go wrong and where difficulties may be experienced, before encouraging people to initiate the practice. Doing so could increase persistence with the behaviour suggested as people might then infer that it was possible to initiate the practice despite the possibility of negative consequences (Albarracín and McNatt, 2005). This message is distinct from that of Tucker and Speirs (2001) who concluded that the behaviour change message should focus on convincing people that composting does not require a lot of waste, and that compost bins add aesthetically to the garden, and that they will not be a magnet for rats and flies.

This research shows that for the practice of home composting knowledge of *'awareness of the need'* to reduce waste and *'awareness of the consequences'* of failing to practice, in terms of causing harm to the self, others and wider environment, are not conditions that must be met for practice initiation or persistence. Nonetheless, they are conditions that are more likely to be met in current practitioners than previous practitioners. This suggests that providing information that links the need for practice and consequences of practicing in terms of benefits to the self, others and wider environment, could have a part to play in maintaining practice.

In addition it is evident that for many current practitioners putting their bins out every week provides regular feedback that this practice is keeping their waste to a minimum and there is further scope to use the bins that are out on public streets as a waste reduction message board, to both feedback the difference practice is making to reducing waste, say in the city, as well as publicise to non-practitioners their neighbourhood norms. An example of this approach has already been tried and found to be successful, in terms of increasing the number of people adopting home composting, where a Canadian home composting campaign sought to raise awareness of the existing, but hidden from view, social norm of home composting, by providing stickers for participating households to put on their bins, thereby demonstrating their involvement to the rest of the neighbourhood (Prendergrast et al., 2008).

The environmental (and indeed social) benefits of home composting are premised on householders both making and using compost. This research shows that the majority of home composters, whether keen gardeners or not, are not regularly (i.e. on an annual basis) taking and using compost, as a consequence the potential benefits of using home compost as a soil improver are not fully realised. This research shows that the fact that many householders are not realising the production of good quality compost is



down, in the main, to the use of technology that is not appropriate for smaller gardens or households.

Tucker and Speirs (2001) acknowledge that whilst there may be scientific and practical reasons for the perception that composting is not compatible with small gardens, on grounds of sustainability they contend that it is key factor that needs to be addressed, and suggest emphasising composting as a waste disposal option rather than as a means to produce compost (p.vii). However, this research suggests that simply changing the emphasis will not work in that, in the main, it was found that previous practitioners were most concerned to produce good quality compost and not to reduce waste, whilst current practitioners were willing to put up with the practice taking along time and not producing great compost because practice was compatible with their idea of what their garden was for and already valued the practice because it reduced waste.

This research shows that 'time of life' does make a difference to the practice of home composting, in that practice was initiated in youth or in later adulthood, as a result of increasing gardening interest and activity, which developed after moving into there own home, or when caring responsibilities for young children were reduced. This suggests that there may be opportunities to target home composting campaigns specifically at both the over 25's and over 40's.

### **8.5.3 Outdoor Drying**

This research shows that, as for the two previous practices, exposing children to outdoor drying is an effective way of 'installing' the idea and increasing familiarity with practice. Again, this suggests that both existing and new practitioners have an important role to play in passing on this practice to their children.

This research shows that of all the garden practices that have been considered, it is the practice of outdoor drying that has the greatest potential to contribute to reducing the use of non-renewable resources. Yet, in many households the practice of outdoor drying is unable to cope with the sheer amount of washing that is being done. However Shove (2003) cautions against focusing solely on consumers' choices and the adoption of more sustainable products and practices, rather she concludes that "*A revised agenda of consumption, everyday life and sustainability needs to..concentrate on the processes through which habits are acquired and jettisoned, and on the relation between consumption and convention, technology and practice*" (p.199).



It has been suggested that environmental benefits and economic advantages could be used as incentives to encourage the practice of line drying (Morris et al., 1980). This presumes that those who are currently not practicing are not aware of the consequences in terms of benefits to themselves and the wider environment of outdoor drying. However this research shows that although this was found to be the case for those who have never practiced, it was not for those who have previously practiced, in that they were more likely to be aware of the consequences of failing to practice, in terms of cost to the self and harm to the environment, than those who currently practice. This would suggest that promoting the environmental benefits and economic advantages of outdoor drying alone would not encourage practice in all non-practitioners.

This research shows that whilst the majority of people were aware of the monetary benefits of outdoor drying, in terms of reduced electricity use, they were unaware of the health benefits, in terms of improved indoor air quality, that outdoor drying brings. This would suggest that there is additional scope to include such information in social marketing campaigns to encourage outdoor drying.

This research also shows that the positive perception of practice that characterises outdoor drying persistence is based on both dislike of drying indoors (e.g. on radiators and clothes horses) and preference for the smell and feel of outdoor-dried laundry, whereas the routinisation of practice depends on the siting of a permanent line/rotary, in close proximity to the house. This suggests that it is both convenience and specifically the quality of the finished outdoor dried laundry that holds the key to practice persistence, the latter of which could be a particularly persuasive marketing tool.

Not surprisingly, this research found that for both current and previous practitioners outdoor drying is contingent on fine (sunshine) or drying weather (wind but not necessarily sunshine). Thus whilst the national press ran headlines such as “Pegs back as eco-concerns set sales soaring” (Wallop, 2007) a more likely explanation would be that practice was the result of the long, warm, dry spell experienced across the UK in April 2007. This suggests that practice may well be reduced if, as is forecasted, the weather becomes more unpredictable due to the effect of climate change on rainfall (Smith, 2008). This is not to suggest that the means to reduce outdoor drying’s contingency on fine weather are not available, in that washing line covers for rotary dryers that enable outdoor drying even when weather is poor are now available, but are not widely publicised.



Additionally, it was found that the transition from family home to living independently, can make or break the routine practices of home composting and outdoor drying. This would suggest that more attention should be given to enabling these practices to continue after leaving home. Thus while, for example, some universities have already introduced on-site composting as part of their carbon reduction strategies (Environmental Association for Universities and Colleges, 2009), enabling students to start to, or continue to, separate out compostable food waste, there are few, if any, halls of residence that have outdoor drying facilities, though most advertise launderettes (for example see University of Sheffield, 2009).

## 8.6 Summary of recommendations

A number of recommendations, relevant to central and local government, non-governmental organisations e.g. The RHS and house builders, can be drawn from this research and are summarised as follows:

### **Government (Central and local)**

***Recommendation 1:*** *New home composting campaigns and promotional media (in whatever form) should highlight the difficulties that may be experienced in home composting as well as the benefits of home composting for the individual, wider community and environment, at a level that the home composter can relate to e.g. the city, suburb or town.*

***Recommendation 2:*** *Previous and new home composting promotional campaigns should be followed with regular trouble shooting advice, particularly in areas which are known to have small gardens or smaller households.*

***Recommendation 3:*** *The social and environmental benefits of outdoor drying should be acknowledged and the need for both indoor and outdoor drying facilities highlighted. Accordingly, outdoor provision should score higher than indoor and there should be higher scores still for joint provision.*

***Recommendation 4:*** *Future campaigns to promote outdoor drying should highlight the superiority of the finished product and the health benefits of the practice, as well as wider environmental benefits of outdoor drying.*



## **Non-governmental organisations**

**Recommendation 5:** *Members should be encouraged to provide opportunities for their children to observe what they are doing in their garden or allotment, with the aim of enabling rather than expecting interest to develop.*

**Recommendation 6:** *The gardening benefits of home composting and growing fruit and vegetables should regularly be extolled to members (and visitors) in gardens, publications and shows.*

**Recommendation 7:** *Campaigns for school gardening should continue to be developed and extended, to include further interest based opportunities (e.g. gardening clubs) as well as educational opportunities.*

**Recommendation 8:** *In print and practice there should be regular demonstrations of how fruit and vegetable growing can be made to be compatible with other types of planting and non gardening uses and be accommodated in even the smallest yard or balcony.*

**Recommendation 9:** *Consideration should be given to targeting and tailoring home composting and 'grow your own' campaigns and programmes to the over 25's and over 50's.*

**Recommendation 10:** *In print and practice there should be regular home composting trouble shooting tips, highlighting the shortcomings of the technology and not the home composter.*

## **House builders**

**Recommendation 11:** *New housing developments should aim to provide a range of garden sizes to cater for a range of household needs and gardening interest.*

**Recommendation 12:** *New housing should include both indoor and outdoor facilities for drying washing.*

**Recommendation 13:** *Outdoor drying equipment should be provided in a sunny part of the garden, where it can be seen from the home.*

## **8.7 Reflections on the research**

Working from the realist basis of the research gives good reason to suppose that many of the characteristics of these behaviour change processes would be shared by other people, at other times, and in other places in the UK.



Reflecting on the overall approach taken in this study, the critical realist approach provided a robust organising framework for thinking, interpretation, revision and final explanation building. The critical realist approach taken and methodology used were particularly appropriate and effective for answering research questions that were focussed on identifying causality, building robust explanations and identifying the potential for behaviour change in the garden practices of interest. Moreover, whilst making use of existing research to hypothesise mechanisms was a tortuous process, taking months rather than weeks, this eventually did produce a robust set of hypotheses to test in new empirical research. Furthermore, whilst not all mechanisms identified were involved in building explanations for each practice, in the main, hypothesised mechanisms worked in the way suggested. Additionally, in that critical realists view behaviour change as an internal process, based on reducing ignorance and illusion and increasing knowledge, rather than one that needs to be externally manipulated, this approach also enabled the potential for enduring rather than short-term behaviour change to be identified.

However not all aspects went to plan or delivered what was intended. For example much closer attention should have been paid to questionnaire returns early on. This would have enabled the poor returns from those living in public and privately rented housing to be picked up, and does suggest that a self-administered, questionnaire survey was not an appropriate method to engage with public renters and those from more diverse ethnic backgrounds. As such, the possible explanations put forward to explain the associations found between type of tenure and a range of garden practices could not be tested or verified to any extent. In addition, although initial attempts to explore the question of leisure travel and access to a garden were made in the questionnaire, insufficient time was set aside to analyse this data and as a result this issue was not followed through in interviews. As a consequence the associations found between access to a garden and leisure time travel by Holden and Norlund (2005) could not be tested nor was any further explanation developed. Lastly, in the questionnaire retention rates were found to be high for a range of environmental features and yet the interview sample included only a few people who had, for example, retained compost bins when previously they had never tried composting. Consequently it was not possible to explore the idea put forward by Bamberg and Moser (2007) that existing features (e.g. a compost bin) may provide information on what behaviour is appropriate, beneficial and doable, which in turn, it is suggested, increases willingness to try the practice.



In addition, the set of questions used in the interviews did not all work equally well, particularly the question “How do wider environmental issues affect what you do in your garden?” This was despite numerous attempts at rephrasing. However, whilst there is some consolation that others have found it an equally difficult question to ask, for example that used by Clayton (2007) “*Do you think your landscape practices affect the local ecosystem?*” (p.218), this whole issue needs further consideration in terms of how it is approached. This is mainly because many of those interviewed did not consider wider environmental issues in terms of what they did in their gardens or how they did it, but in asking whether they did so or not, in some way, suggested that they should.

In the light of these conclusions the questions which remain unanswered and that require further research are identified as follows:

- How can lack of garden practices (i.e. home composting and growing vegetables) be explained for people who live in public rented housing?
- How does the use of the wider environment argument for the garden practices of interest affect existing meaning/value of practices and how this might influence initiation and practice persistence?
- How can the associations found between access to a garden and reductions in leisure time travel found in previous research be explained?
- How does the presence of features (e.g. compost bins and water butts) in gardens, affect the initiation and persistence in home composting and collecting and reusing water?

## **8.8 Closing Summation**

This research demonstrated that gardens in cities provide an alternative model and pathway to creating sustainable cities. In addition that urban gardens' contribution to sustainable development depends on the initiation and maintenance of a range of garden practices including: growing fruit and vegetables, home composting, outdoor drying, encouraging wildlife and collecting and reusing water. Findings show that there are complex reasons for why people initiate and then maintain EBBs in gardens and that from these a number of practical policy recommendations follow. Overall this research hopes to have contributed to understanding and to have identified practical steps towards achieving more sustainable cities.