# Household Food Gardening: Its Contribution to Urban Resilience

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# ABSTRACT

This study set out to determine what, if any, role household food gardening (HFG) might play in the development of urban resilience. It presents a qualitative exploration of the place of household food gardening in the lives of twenty gardeners who grow food at home in Dublin. A grounded theory methodology was employed and interviews were conducted in participants' homes and gardens. Based on the evidence in this study, external concerns about environmental sustainability, financial savings or food quality are very much secondary issues in the decision to grow food at home. By uncovering the overlapping, sometimes supportive and sometimes conflictual relationships, in both the social and natural systems within which the *process* of HFG occurs, this study provides a more complete conceptualisation of HFG than has been available to date. The findings of this research suggest that urban resilience is strengthened as social capital is developed via the networks of trust and reciprocity through which gardeners exchange knowledge, plants and produce. In addition, the retention of food growing skills within an urban population and a heightened awareness among participants of the importance of healthy ecological systems both increase the adaptive capacity of the city.

I hereby certify that the submitted work is my own work, was completed while registered as a candidate for the degree of MLitt, and I have not obtained a degree elsewhere on the basis of the research presented in this submitted work.

Signed: .....

Maria Walsh

Dated: 8th June 2015

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# CHAPTER 1: INTRODUCTION

## 1.1 Introduction

This study investigates the role that household food gardening (HFG) plays in the development of urban resilience through a qualitative exploration of the role of food gardening in the lives of twenty gardeners in Dublin. In a city where food is readily accessed through supermarkets and other outlets, and where food security for low-income households is ensured through social welfare transfers, why do gardeners continue to grow food? An understanding of the factors that support and constrain this practice is necessary if we are to correctly assess its actual and potential value in the development of a resilient city. For the purposes of this research project, a garden is defined as the area of land attached to a house whose residents have control of that land. Household food gardeners are defined as gardeners who grow fruit, vegetables and herbs, or any combination thereof, in their own gardens.

## 1.2. Research Context

Urbanisation is a profound and irreversible force that will see three-quarters of the world's population living in urban areas by 2050. In Europe, the urban population is projected to rise from the current sixty-seven percent to eighty-two percent by 2050 (United Nations, 2012). Urban areas generate a range of services, including employment, healthcare, education, transport and housing and these are interlinked with ecosystem processes such as recreational services, clean water, sewage and waste management (Ernstson et al., 2010). Cities are considered to be social-ecological systems because social, political and ecological processes are inextricably linked (Pickett et al., 2008) and, because of their major impact on eco-systems, cities also have the greatest power to remediate the damage caused (Pincetl, 2012). Urban sprawl, which sees urban areas expand in physical size at double the rate of population expansion, puts pressure on local agricultural land and increases energy demands for transport and storage by pushing food production further away from population centres. Furthermore, the separation of sites of food production so far from sites of consumption increases wastage at all stages of the supply chain and

prevents the recycling of nutrients in production processes, leading for instance, to concerns about the overuse of phosphorous. The increasing geographic distance between producers and consumers has also been implicated in the lack of awareness of urban populations of the social and environmental costs at sites of production. Consumers, it is also argued, do not understand the risks or benefits of modern food technologies, including genetic modification and complex supply chains because they are cognitively distanced from modes of production (Eden et al., 2008). A series of recent food adulteration or misrepresentation scandals, such as the horsemeat scandal (Wall, 2014), have shaken consumer confidence in the quality of their food. Redressing the balance between cities as sites of consumption and rural areas as sites of production by producing food in urban areas can help re-engage urban dwellers with the natural cycles of planting, growing and harvesting, thereby demonstrating to them their interconnection with, and interdependence on, ecosystems at all scales from global to local (Turner et al., 2011, Iannetta et al., 2010, Delind, 2006). Producing food in cities may also act as a conduit for policies which are aimed at addressing current concerns such as climate change, urban resilience, global food security and obesity.

A resilient city must be able to ensure that its citizens have access to a secure supply of affordable and nutritious food grown, processed and distributed in a sustainable manner. However, there is compelling evidence that the current resource intensive agri-food model is increasingly unsustainable and also a recognition that it is failing to supply urban populations with affordable and nutritious diets (Morgan and Sonnino, 2010). Traditionally, food policy issues have been viewed as part of rural and agricultural planning and not seen in the context of urban food access and security (Donald and Blay-Palmer, 2006). In addition, food policies have been addressed at national and supra-national rather than urban scales, reinforcing the view of the urban as separate from food issues. However, that has begun to change recently with, for instance, the UK Government producing several reports on food security over recent years (House of Commons Environment Food and Rural Affairs Committee, 2014). In North America, many cities have adopted policies that aim to integrate planning, health, food security and environmental sustainability in a coherent policy (Newsom, 2009, Hatfield, 2012). By contrast, the Irish Government continues to frame questions of food security in terms of its export potential and

value to the Irish economy and has yet to address issues such as Ireland's vulnerability to interruptions in long and complex global supply chains (Department of Agriculture Fisheries and Food, 2010). This has led to the charge that Ireland is sleepwalking into a food security crisis (Wilde, 2012).

Across the world, it is estimated that more than six hundred million city dwellers are cultivating food in spaces ranging from domestic gardens to allotments and from patios to rooftops (Petts, 2005). Much of the research into urban household food gardening has focused on its contribution to food security and income generation in the Global South where it is part of day-to-day urban life (Mougeot, 2005a), unlike in high-income countries, where it is thought to be related to social and environmental goals (Pearson et al., 2010). Community gardening in particular has been the subject of substantial research, much of which is focused on the twin issues of social and environmental health in low-income areas. Community gardens are frequently established to address problems commonly found in marginalised communities, e.g. urban blight, anti-social behaviour, social exclusion or mental health difficulties. It has also been claimed that food production in community gardens can produce yields which are five times greater of those of commercial farms (Baker, 2004). However, there are many barriers frustrating the establishment of community gardens, including problems of land access, competition for land use, difficulties in accessing suitable sites and bureaucratic hurdles to be scaled. Without such barriers, the domestic garden, seen as a haven from the world of work, a site of leisure and a setting for creativity, would appear to have greater food growing potential in terms of urban food production. In fact, it has been argued that the total amount of food grown in domestic gardens is likely to far exceed production in community gardens (Taylor and Lovell, 2014). There are many examples across the world of how, in times of political and social crisis, cities have managed to increase local production of fresh produce by cultivating public parks, allotments and domestic gardens in a short period of time. Over twenty years ago, cities across Latin America increased urban food production significantly in response to the stresses caused by the imposition of Structural Adjustment Policies by global financial institutions and, more famously, Havana's response to the fall of the Soviet Union was to increase local food production to meet ninety per cent of its food needs (Buchmann, 2009). During the second World War, urban victory gardens grew forty percent of the national

vegetable crop of the United States and there was a similar response to the British Dig for Victory campaigns during the second World War (Pothukuchi, 2009).

Household food gardening in private back gardens in cities of the advanced industrial economies has only recently come into focus as a topic of research, with a number of studies from North America, Europe, Australia and New Zealand emerging within the past three years. Most of them have been quantitative studies and many of them have provided estimates of how many households in their respective urban areas were engaged in household food gardening. There is currently no such data for Dublin although, in 2011, a Bord Bia survey found that forty-five per cent of people in Ireland intended to grow some of their own food, a figure that was up seventeen per cent from 2008, with purchasers attributing this decision to a search for better flavour, better value and to a desire to have a healthy diet (Amarach-Research., 2011). However, according to European Quality of Life information, before 2008 only five per cent of Irish households engaged in some level of food gardening, one of the lowest rates in the European Union (Church et al., 2015). What is clear is that most of the information, both nationally and internationally, has been sourced through surveys and it is therefore limited by the survey design. The next section discusses how this study intends to provide an alternative picture of household food gardening.

## 1.3 Research Aims

The broad aim of this research is to explore the topic of household food gardening and its potential contribution to the development of urban resilience. This will be done by understanding its significance to the lives of food growers and by identifying the factors that support or constrain its practice. A grounded theory methodology will be employed. Using a grounded theory approach means that the research process starts without either specific questions to be answered or hypotheses to be tested. Instead, topics of possible relevance will be explored in the first stage of the interview process, with the focus changing where necessary to reflect emerging themes as data collection proceeds. Issues identified for the first stage data collection centre around the question of the food produced by participants, how it is used and what impact, if any, that it has on the household diet and budget. Food growers concerns about environmental issues and about the quality and safety of the food produced by the global food system will also be explored. The qualitative study

of a group of food gardeners should allow the political, social, environmental and economic motivations to be unpicked. Identifying the factors that support or impede HFG should lead to a better understanding of its potential role in the development of urban resilience, resilience being understood as the ability to absorb shocks and to reorganise and adapt to changing conditions (Barthel and Isendahl, 2013).

## 1.4 Methodology

Grounded Theory Methodology, which is particularly suited to topics that are under-researched, offers a highly structured route through the entire research process at the end of which the researcher will have generated a theoretical explanation for the subject under investigation. The theory generated will be grounded in the data because of, firstly, the absence of any preconceiving researcher bias and, secondly, the continual and iterative sampling and analysis of the data. This methodological approach reflects the aim of the study which is to focus on the participants and their experiences and to hear from them the reasons why they started, and continue, to grow food. This approach will also allow for the identification of the factors that influence the type and quantity of food grown. Data will be collected through a series of interviews with food gardeners. There are several important points to be noted that are particular to Grounded Theory studies. In the first case, as outlined in Section 1.3 above, the study starts with topics to be explored rather than specific questions to be answered. In the second instance, sampling is not pre-determined. Instead, data collection and analysis continue in an iterative process until the properties and dimensions of the emerging themes or categories are developed sufficiently enough for the researcher to have confidence that the theory generated provides a logical explanation of the subject under research. Finally, although a pre-research review will be undertaken of the broad topics under study, i.e. urban food systems and gardens, the most comprehensive review will take place when categories have been developed as it is only then that the most relevant literatures can be identified. In summary, Grounded Theory proceeds in an iterative process of data collection and analysis, without predetermined formulations and structures. These iterations and changes of focus are difficult to reflect in the traditional, linear, formats of academic theses. Nevertheless, grounded theorists continue to use

established formats in order to meet disciplinary requirements and to make such studies as accessible as possible.

## 1.5 Thesis Structure

Following this introductory chapter, Chapter 2 presents a discussion of the literatures on both urban food issues and gardens and gardening. It then considers two concepts, as follows: Social-Ecological Systems theory which is employed as a helpful framework to understand HFG in the context of urban resilience; and Ingold's (2000) concept of Dwelling, which is used to explore the relationship between food gardeners and the natural world. Chapter 3 provides a comprehensive account of Grounded Theory, its epistemological underpinnings, its core tenets and the implications of this methodology for the structure and outcome of this study. The application of grounded theory through the research project, from data collection to sampling to theoretical development is then discussed. This is followed by an assessment of the use of NVIVO software and a discussion on reflexivity before, finally, the effectiveness of grounded theory as the chosen methodology for this project is considered. Chapter 4 discusses the concepts that emerged from interviews with the twenty participants including the important role that HFG holds in the lives of food gardeners by generating and sustaining relationships in both human and non-human spheres. This and other factors, such as the importance of childhood exposure to gardening and/or growing food, are discussed in terms of their impact on the type and quantity of food grown and on how that food was used. To conclude, the need to assess the potential of HFG in the development of urban resilience in light of these findings was discussed. Chapter 5 presented an overview of the research project, its process and findings.

# CHAPTER 2: LITERATURE REVIEW AND CONCEPTS USED

## 2.1. Introduction

As discussed in Chapter 1, the aim of this thesis is to explore the subject of HFG in order to gain a more complete understanding of its role in the context of urban resilience. In Chapter 3, the Grounded Theory Methodology (GTM) is outlined more fully but briefly it can be described as a rigorous research method that leads to the systematic generation of a theory which provides a logical and economical explanation for the topic under study through a highly structured but flexible set of rules that involve the continual and iterative sampling and analysis of data (Pidgeon, 1996). One of the most common misconceptions about GTM is that the researcher comes to the research with no preconceived ideas and without doing a literature review when it may be better to say that grounded theorists start without having a theory to prove or disprove (Urquhart and Fernández, 2013). This misconception arises out of Glaser's advice that doing a pre-research literature review may prevent the researcher from being 'as free and as open as possible to discovery and to emergence of concepts, problems and interpretations from the data' (Glaser, 1998 p.67). Objectivist grounded theorists like Glaser worry that considering prior theories may lead to preconceived ideas and deductive thinking (Glaser, 2001, 1992). On the other hand, Constructivist grounded theorists argue that since researchers already possess some knowledge of their chosen area of study, rather than ignore the literature, researchers must be reflexive about the preconceptions and assumptions that inform their research in order to prevent prior conceptions becoming preconceptions (Urquhart, 2013, Dey, 1999). For a more detailed comparison of Objectivist and Constructivist Grounded Theory, see Section 3.3. This research follows the Constructivist Grounded Theory Method (GTM) and, keeping in mind the warnings that theories in the literature review should not be allowed to derail the emerging theory (Nathaniel, 2006), a pre-research literature review on Gardens, Social-Ecological Systems, Global Food Systems and Alternative Food Networks was undertaken. It would not have been possible to start the interview and coding processes without the use of sensitising concepts which were developed from reviewing the literature to guide the development of questions and initial codes. As Dey comments, 'there is a difference between an open mind and an empty head'

(1999 p.251). Both Objectivist and Constructivist grounded theorists agree that the literature review is an ongoing process that helps build the theory which is, in turn, related back to the literature. In practice, the researcher does not know ahead of the emergence of the theory which body of literature is going to be relevant and any pre-research literature reviews may well be far from germane (Glaser, 1998). As this research progressed, it became clear that the emerging theory had a lot less to do with food provision and much more to do with human-nature relations than originally understood. This opened up a new field of literature to be reviewed in tandem with later interviews, constant comparative analysis and theoretical saturation. All of the relevant bodies of research gathered throughout the research process are examined in this chapter.

Gardens and food systems are complex, multi-scalar and multi-dimensional. The academic literature on gardens acknowledges that the garden is a social-ecological system, but it then diverges, with one strand concentrating on the social and cultural elements and a second strand examining the biophysical and ecological elements of gardens and gardening. The garden, the area of ground that, although immediately outside the house, remains spatially contained within its boundary hedge or wall, is seen as a haven from the world of work, a site of leisure and a setting for creativity (Sime, 1993). Crucially, being a piece of ground attached to a privately owned or rented residence, the residents are considered to have autonomy over that space (Cameron et al., 2012). The literature on gardeners, as opposed to gardens, and their experiences of working in, or thinking about, their gardens focuses in general on the socio-cultural or therapeutic elements of gardening with, for instance, studies on gardening across the lifespan (Gross and Lane, 2007), gardening practices of immigrants (Head et al., 2004), gender and gardening (Bhatti, 2014), social class and gardening (Taylor, 2012) and psychological benefits (Adevi and Lieberg, 2012). Studies on gardeners who grow food in the Global North have tended to be quantitative in nature, from North America and, more recently, from Australia (Taylor and Lovell, 2014). Research focuses on the type and quantity of harvest more than on the process of growing food. It is the food output, potential and actual, rather than the gardeners and their experiences, that has engaged the research community to date. This emphasis on the food produced is reflected in the various terms used to describe the activity of growing food in domestic gardens, e.g. household food

production (Kortright and Wakefield, 2011), food self-provisioning (Jehlička et al., 2013), informal food production (Alber and Kohler, 2008). and food gardening (Tagtow and Richey, 2012). Household food gardening (HFG) has been adopted here because it better reflects the combination of gardening and growing food that is the experience of the participants in this study.

The next section will firstly explore aspects of the literature on food before turning to the question of gardens and gardening. Because the broad aim of this research is to understand how HFG might contribute to urban resilience, a review of current urban food issues of supply, security and production is presented, followed by a closer exploration of household food gardening in the Global North before, finally, the literature on gardens and gardening is considered.

## 2.2. Food

Because of the absence of a significant body of work on the topic of HFG in the Global North, the literatures on urban food issues and gardening have been explored in addition to a consideration of the literature that deals specifically with household food gardening.

### 2.2.1. Food Networks

As in the case of urban gardens, food systems may also be seen as complex adaptive systems, given the dense, multi-scalar, multi-level interconnections between producers, consumers, distributors, retailers and policymakers (Stroink and Nelson, 2013). The global food system, which is made up of a complex network of activities including the production, harvesting, processing, transportation, retailing and consumption of food, occurring in various regions and at various scales, is facing 'a perfect storm' scenario whereby the world, by 2030, will need to produce fifty per cent more food but with less land, water and energy and at the same time, as it is implementing measures to mitigate climate change (Beddington, 2009, Godfray et al., 2010). The complexity of the global food system has resulted in a loss of knowledge and awareness of the production and preparation processes behind the food on our plates, including the social, ethical, environmental and economic costs embedded in current models of food production (Iannetta et al., 2010). Horizontal and vertical integration of agricultural and food firms have led to a concentration of control in the food system while standardised production methods and

homogenisation of products have displaced local food knowledge and weakened the link between farmers and local ecosystems (Sundkvist et al., 2005).

In response to these developments, there has been a growing emphasis on the importance of urban agriculture and alternative food networks (AFN) which include locally grown produce from community gardens or local farms and either distributed free to those who participate in the cultivation of that produce or sold through local farmers' markets. AFNs, which have developed around community gardens, have been proposed as a useful way to address issues of community and household food insecurity and urban blight in deindustrialising cities (Metcalf and Widener, 2011, Colasanti et al., 2012). AFNs have also been proposed as a way to reduce the unsustainable environmental costs of the current global food system by reducing the transport and storage costs of produce (Pretty et al., 2005, Garnett, 2003). AFNs, which may include locally produced foods, including food from household gardens, farmers' markets, farm shops, organic box schemes, slow food movement, fair-trade products, ethical farming, local small producers and retailers and others, could provide part of the solution to urban food insecurity and unsustainability. However, it is not always clear exactly what is meant by the term AFN, nor to what it is an alternative (Eden et al., 2008). In North America, AFNs are understood as a socio-political movement that seeks to challenge the corporate industrial agro-food system with the establishment of a local, sustainable and just food system (Buttel, 1997). European AFNs have been framed as sites of resistance to globalisation and neo-liberalism by supporting alternative economic spaces for food producers (Murdoch et al., 2000). Watts et al (2005) suggests that we should distinguish between alternative food *networks* and alternative *food* networks which includes high quality niche products that are really a niche product of the global food system that they claim to challenge. Alternative food *networks* on the other hand are organised around networks of trust developed through short supply chains, localism, traceability and personal relationships, thus bypassing conventional food chains, and they concentrate on unprocessed food products, (Watts et al., 2005, Driscoll et al., 2003). Gardeners who share produce from their own gardens might also be considered to contribute to alternative food *networks*. This distinction has led some researchers to argue that there is nothing inherently good, sustainable or just about the local (Born and Purcell, 2006, Morgan and Sonnino, 2010). The concept of AFNs idealises some

forms of production and consumption over others and there is an implicit understanding that small scale and local are inherently of higher quality, are less profit driven and have better environmental credentials than large scale production and mass retailers (Raynolds, 2000). However, the producer-consumer binary (with the consumer having a passive role) remains the fundamental relationship in AFNs while AFN activists continue to ignore or marginalise the sensual, emotional and expressive elements in people's relationships with both food and place (Turner, 2011). By perpetuating a disembodied relationship with food based on kilometres and carbon emissions, AFN activists ignore the importance of nurturing 'an emotional, a spiritual and a physical glue to create loyalty, not to a product but to layered sets of embodied relationships' that sustain the concept of 'local' (Delind, 2006 p.126).

Much of the literature on urban agriculture (UA) in the Global North is focused on the idea of small scale food production in household or community gardens as an act of resistance to the commodification of food (Lang and Heasman, 2004) as well as to socio-economic marginalisation (Sonnino and Marsden, 2006) and dominant planning paradigms (Schmelzkopf, 2002, Baker, 2004, Smith and Kurtz, 2003). One difficulty facing community or alternative food networks is their conceptualisation as small, locally embedded, marginalised, heterogeneous systems when what is needed is an understanding of their aggregate potential as a viable alternative to the contemporary industrial food system (Marsden and Franklin, 2013). In addition, while the mainstream global food system is supported by the homogenising effects of the current rigid food regulatory system, AFNs struggle to manage within current policy frameworks (Stroink and Nelson, 2013). The desire of some individuals to step away from capitalist systems of exchange by growing their own food has, however, been co-opted for political expediency during the current economic recession with the British Government drawing a clear link between today's austerity discourses and the wartime spirit behind the Dig for Victory narrative of the Second World War to encourage people to embrace thrift and self-sufficiency (Bramall, 2013, Hinton and Redclift, 2009). Similarly, in the 19$^{th}$ century, in Europe and the United States, gardening was promoted as a form of social control, with allotments and community gardens developed for working class and immigrant groups (Lawson, 2005, Gaskell, 1980).

### 2.2.2. Urban Agriculture

Urban agriculture (UA) is fundamental to sustainable cities, just as sustainable cities are fundamental to sustainable development. UA can be defined as the growing of crops and raising of livestock and their associated activities in an urban setting (van Veenhuizen, 2006). Its main defining characteristic is not that it takes place in urban areas but that it is an integral part of the urban economic, social and ecological system because it uses urban resources such as land, labour, waste and water to produce food for local residents (Mougeot et al., 2006). UA is capable of transforming urban wastes into food and jobs and, at the same time, improving urban environments, public health and nutrition, biodiversity and community development, while supporting ecosystems, reducing energy consumption and saving natural resources (Smit and Nasr, 1999). Nevertheless, it faces many objections, including charges that it is inefficient and unsightly and that it occupies land that would be better suited to development (Smit et al., 2001b). UA has a long history and it is expected to play an increasing part in the future of cities in the face of increased pressures on ecosystems and natural resources (Redwood, 2009). Although household and community food gardening are important parts of urban agriculture, food farming in cities globally encompasses a much greater range of production methods, including aquaculture, hydroponics, livestock, poultry and dairy farming on scales from large commercial enterprises to food production for domestic consumption only (Smit et al., 2001a). Globally, it is thought that 600 million people are engaged in urban food production in household gardens, community and school gardens, allotments, institutions, roadside verges, balconies, rooftops or anywhere there is suitable unused space (Grewal and Grewal, 2012). The diversity of production systems and the degree to which UA can be practised makes it compatible with a wide range of urban activities, meshing with the urban fabric at different scales (Mougeot, 2005a).

In the Global South, UA provides up to ninety per cent of the fresh produce in Accra, Antananarivo and Dar es Salaam (Mougeot, 2005b). It is a similar situation in Cuba, where urban residents are almost completely dependent on urban and peri-urban agriculture to meet their fresh produce needs (Companioni et al., 2002). Many governments in the rapidly urbanising Global South recognise the essential role of UA in feeding local populations (Halweil and Nierenberg, 2007). On the other hand,

in the Global North, food policy issues have traditionally been viewed as part of rural and agricultural planning and are not seen in the context of urban food access and security (Donald and Blay-Palmer, 2006). In addition, food policies have been addressed at national and supra-national rather than urban scales, reinforcing the view of the urban as separate from food issues (Pothukuchi and Kaufman, 1999). It is only when there is a threat to national security as a result of extreme political or economic disruption, e.g. during both World Wars or the depression of the 1930s, that governments become involved in the question of urban food security (Warner and Durlach, 1987, Bettencourt and Sheldon, 2001). Recently, attempts have been made to quantify the potential total food production and food requirements of a particular area, for instance, in the case of the US city of Buffalo (Grewal and Grewal, 2012) or Oakland, California (McClintock et al., 2013). By maximising food production, Grewal and Grewal (2012) have shown that Buffalo could aim to be largely self-reliant in terms of fresh fruit and vegetables, honey and eggs if circumstances required it.

### 2.2.3. Food Security

> *Food security exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life* (Food and Agriculture Organisation of the United Nations, 2012 p.57).
>
> *As well as being protective and respectful of biodiversity and ecosystems, the FAO defines sustainable diets as being accessible, affordable, nutritious and safe* (Burlingame, 2010 p.7).

The interactive and interdependent nature of the global food supply chain means that a shock to one part of the system can affect food security across much of the world. Increasing incidents of severe weather events, droughts and floods have resulted in reduced agricultural outputs, including staple crops such as wheat, maize and rice, while high oil prices, increasing urbanisation and rising incomes in many countries are all driving food price rises and reducing food security for many (Foresight, 2011). Western diets, which are currently being adopted in many other areas of the world, are energy-dense, protein based, dependent on meat and dairy and with high levels of sugar and saturated fats. Despite requiring high inputs, this type of diet is failing to

meet the nutrition needs of its consumers and is held to be responsible for soaring levels of obesity, diabetes, hypertension, osteo-arthritis and other chronic and costly health problems. Obesity has been described as a global epidemic, and has been classed as the most prevalent childhood disease (National Taskforce on Obesity, 2005, World Health Organisation, 2012). Paradoxically, obesity is often accompanied by mal- or under-nutrition as the energy-dense foods that lead to obesity are highly processed products containing high levels of sugar, fat and sodium rather than nutrients (Walker et al., 2010). There is also a socio-economic dimension to the obesity issue, with low-income neighbourhoods having little or no easy access to affordable, fresh food (Pothukuchi, 2009). Much of the research into urban food gardening has focused on its contribution to food security and income generation. A 2002 study in Toronto suggested that forty per cent of residents there were involved in some level of food gardening (City Farmer, 2002). Research has consistently shown that gardeners have healthier diets than non-gardeners (Pomerleau et al., 2005) and that growing food increases access to healthy and nutritious food, improves knowledge of food preparation, and provides exercise opportunities for those involved, thereby making a potential contribution to the problem of obesity (Lautenschlager and Smith, 2007, Litt et al., 2011). Unfortunately, while the urban poor depend on cheap but nutritionally inadequate food, the oversupply of food to cities through inefficient production and supply chains means that, for example, New York sends fifty percent of its daily food, unsold or uneaten, to waste facilities (Decker et al., 2000, Heynen et al., 2006b, Allen, 2010, Yates and Gutberlet, 2011). What foods are produced, how and where they are distributed and how much they cost all govern what people eat in cities today but so also do literacy levels and knowledge of food production, preparation and storage (McDonald, 2010). The concept of food deserts, i.e. areas in a city where people experience difficulties, economically and physically, accessing healthy, fresh foods, has been linked to food insecurity and poor nutrition (Shaw, 2006, Hawkes, 2008, Schafft et al., 2009, Walker et al., 2010). Gardens, whether community projects or domestic spaces, provide families with an opportunity to supplement their diets with a greater variety of fresh produce, provide access to culturally appropriate food and enhance food sovereignty and self-reliance (Baker, 2004, Lautenschlager and Smith, 2007, Alaimo et al., 2008, Litt et al., 2011).

### 2.2.4. Household Food Gardening

Following many years of neglect by a research community more interested in community gardening, food gardening in the Global North has been the subject of a number of studies since 2010. Possible reasons for the previous lack of interest in domestic gardens as sites of food production include: the fragmentary nature of such gardens, that makes them difficult to access and study (Dewaelheyns et al., 2013); the view that domestic gardens are too trivial and mundane for serious academic study (Hondagneu-Sotelo, 2010); that gardeners' knowledge is 'indigenous' and so of less value than 'scientific' knowledge (Ellen and Harris, 2003); and finally, that food produced in this way has no value in the formal economy (Gibson-Graham, 2006). Food gardening has remained invisible to the research community and policy makers for so long largely because of the absence of entrepreneurialism, commercialisation and commodification of food, it has also been argued (Jehlicka and Smith, 2011). Much of the recent attention has been in the form of quantitative studies looking at the motivations of food gardeners and there has also been demographic profiling of household and individual food growers. Another focus of interest has been an investigation of the contribution of food gardening to community and household food security.

There have been several efforts to produce a socio-demographic profile of the typical household food producer. For instance, in the United Kingdom, they are likely to be older women, having less than £125 disposable income at the end of each month, reflecting their lower middle-class or working class status (Yougov, 2014). On the other hand, a National Gardening Association (NGA) survey in 2008 found that, in the United States, food gardeners were most likely to be middle-aged and older, college educated women who earned $50,000 or more annually (Butterfield, 2009). This survey also found that the economic downturn had very little impact on the decision to grow food. Similarly, a study in Wisconsin has found that it is wealthier households that engage in food production because, it is suggested, their socio-economic advantage allowed them to access the time, money and security of tenure necessary to develop their gardens (Smith et al., 2013). By contrast, in Ohio, it was found that the households most likely to engage in food gardening were those adjusting to loss of income (Schupp and Sharp, 2012).

The economic benefits of food gardening to individual households is difficult to quantify because the cases are so fragmented and the variables so complex. For instance, the economic benefit of a crop of carrots to a particular household must be assessed in the context of the overall income of that household; the retail cost of comparable carrots locally; whether the home grown carrots replace or are consumed in addition to bought produce; whether the crop is consumed by the household, is traded or exchanged for other goods or is given away; the cost of inputs; the cost of disposal of waste/surplus; the value of the time spent growing the carrots; and the difficulty estimating the amount of the crop grown. Nevertheless, there have been attempts to quantify the amount and value of food produced in domestic gardens in Flanders where it has been estimated that the amount of apples, tomatoes and potatoes grown per food producing household exceeds twenty per cent of the annual cost to the household of each of those three foods (Dewaelheyns et al., 2014). The value of food produced at household level will be higher to the household where household incomes are lower, where crops are chosen to maximise the value of production and where there is a greater proportion of garden space allocated to fruit and vegetable cultivation (Reyes-García et al., 2012). In general, across all gardens in a given area there is a very high degree of diversity of space allocated, gardening practices adopted and type of crops grown (Zainuddin and Mercer, 2014). For the most part, however, food cultivation occupies only a small proportion of the garden area (Head and Muir, 2007). For households experiencing financial difficulties, whether temporary or permanent, growing food at home has been found to enhance both household food security and to improve the quality and type of food consumed. In a qualitative study of food gardening, Kortright and Wakefield (2011) concluded that it had the potential to improve community food security in Toronto by improving self-reliance, food knowledge, nutrition and well-being. People in low-income households who grow their own food have been shown to eat more, and a greater variety of, fresh fruit and vegetables than non-food producers because calorie rich foods which contain added sugar and fats are cheaper and more easily accessed by poorer households (Drewnowski and Specter, 2004, Gray et al., 2013, Sarlio-Lähteenkorva and Lahelma, 2001). The increase in consumption of fresh produce by individuals who improve their access to fruit and vegetables by growing food in community or school gardens has frequently been cited as a benefit of school and community gardens (Alaimo et al., 2008, Ober Allen et al., 2008, Blair, 2009). In

addition, the sharing of food with friends, neighbours, colleagues and family has been noted in several of the surveys as a favoured strategy for dealing with surplus foods and nurturing relationships. For instance, in one Brazilian-based study, seventy-one per cent of households shared food among their social networks (WinklerPrins, 2002). High levels of sharing have also been noted in the Czech Republic (Jehlička et al., 2013), Belgium (Dewaelheyns et al., 2014), Australia (Lake and Milfont, 2012) and Spain (Reyes-García et al., 2012) but sharing has not been noted as significant in some of the North American studies, particularly those focused on urban areas (Kortright and Wakefield, 2011). Morton et al (2008) have identified a significantly higher level of food sharing and exchange in low income rural areas compared to low income urban areas in Iowa. This is explained in part by the fact that rural households are more likely to grow their own food simply because they have access to the necessary space. However it has also been shown that food sharing in rural communities is driven by the presence of stronger social bonds among neighbours and family. Sharing or exchanging home grown produce is seen as a valuable way to create, maintain and strengthen social ties and this aspect of HFG is as integral to the practice of HFG as is growing to improve household food security (Quandt et al., 2001).

In Europe, Australia and New Zealand, food gardening is generally viewed more as a leisure pursuit rather than a necessary way to enhance food security. There is significant variation across the different surveys on the numbers of households engaged in growing food, a reflection in part of the difficulty of reaching these households. The self-selection of participants who answer surveys has possibly resulted in over-estimations of the number of food gardeners in some cases, a fact acknowledged by researchers, e.g. Lake and Milfont's (2012) investigation into psycho-social influences on food gardening in New Zealand. However, estimates of the numbers of households involved range from eighty-nine per cent in New Zealand (Lake and Milfont, 2012), to sixty-eight per cent in Belgium (Dewaelheyns et al., 2014), to fifty-four per cent in Toronto, Canada (Kortright and Wakefield, 2011), thirty-three per cent in Adelaide, Australia (Kellett, 2011) and thirty-one per cent across the US (Butterfield, 2009). Food gardening rates in Southern and Western Europe have been found to vary from five per cent of households in Ireland (Church et al., 2015) to twenty per cent in Luxembourg but in central and eastern European countries

(CEECs), rates have been shown to be higher, ranging from thirty per cent in the Czech Republic to sixty per cent in Slovakia (Alber and Kohler, 2008). They argue that, because Western and Southern European countries are wealthier, growing food is a hobby that has little impact on subjective well-being in contrast to the situation in the CEECs where, because growing food is a coping mechanism to counter low incomes and food insecurity, it has a significant impact on general well-being. This conclusion has since been robustly challenged by a study on food gardening in the Czech Republic (Jehlička et al., 2013). Jehlicka and his co-authors challenge the binary concepts of food gardening as either a coping strategy for low-income households in poorer countries or as a leisure pursuit by wealthier households in advanced industrial economies because it does not take into account the multi-faceted nature of this activity. They compare how the issue is framed in a positive light of health, lifestyle, sustainability, social justice and empowerment in literatures from Western Europe and North America but in a negative light in the context of the CEECs where it is seen to be a coping strategy to deal with irregular food supplies and poverty. In the Czech Republic, where forty-two percent of households produced some food in 2005, they find a variety of motivations, including growing as a hobby, as a way to access organic produce, tradition and, less importantly, as a way to save money. Growing food at home in the Czech Republic is an individual choice, an 'articulation of self-identity and authenticity' and based on informal knowledge exchange that is carried on by better off rather than poorer households, probably because they are the ones with access to the necessary land and skills (Jehlicka and Smith, 2011 p.365). An earlier study that dealt with the post-Soviet dacha also argued that research in the area of urban agriculture needed to explore more than the purely economic element to properly reflect the experiences of gardeners who receive social as well as economic dividends from their activities (Zavisca, 2003).

Many of the recent studies have explored the motivations behind food gardening and there is broad agreement on the factors at play but differences in how they are ranked. What is clear is that saving money is low down on the motivational scale as are concerns about the global environment while, on the other hand, accessing affordable organic, fresh, tasty and healthy produce is very important (Reyes-García et al., 2012, Morton et al., 2008, Gray et al., 2013, Wise, 2014). However, food

quality was not seen to be an influencing factor in Belgium where upholding tradition was considered important by food gardeners (Dewaelheyns et al., 2014). All of the studies make reference to the psychological benefits of growing food and working in the garden although it is conceptualised broadly as 'being good for the mind and the soul' (Wise, 2014), classed as lifestyle and spirituality (Zainuddin and Mercer, 2014) or expressed as a wish to spend more time outdoors (Butterfield, 2009). The results of surveys are limited, however, because respondents respond only to what issues are raised, their responses are restricted by how those issues are framed and these frames in turn are restricted by the aims of the various researchers. For instance, the idea that growing food is about carrying on family or community tradition, which has been noted in qualitative studies, does not appear on survey questionnaires so its significance remains unexamined (Jehlička et al., 2013, Kortright and Wakefield, 2011, Dewaelheyns et al., 2014). By focusing on the overt outcome, i.e. the food harvest and improved food security, researchers are overlooking the more important and ongoing processes of gardening with which participants are engaged. Using grounded theory as the methodology, and thus avoiding preconceiving ideas about the importance of the harvest, this study allows the participants to identify all of the aspects of their food gardening practices that are important to them, together with the spatial and relational contexts within which their gardening takes place. Having undertaken a broad review of the literature on urban food issues of supply and production, the next section turns to the second element of food gardening by exploring how domestic gardens have been conceptualised as sites of significance in psychosocial and cultural literatures, thereby providing context for the practice of growing food.

## 2.3. Gardens and Gardening

While the previous section focused on the broad literature related to urban food systems, food security and then household food gardening, this next section explores the current literature on gardens and gardening practices in order to provide a spatial and socio-cultural context within which food growing takes place. Conceptualising the garden involves understanding the interaction of the place with the social, cultural and psychological processes that are involved in making it (Cook et al., 2012). The garden may be seen as a dynamic psycho-social process in which

“the body, time and memory, place, identity and sociations” interact and are interlinked during the life course (Bhatti, 2006). Gardens are reflective of, and maintain, their gardeners’ own identities (Kiesling and Manning, 2010). Culturally, gardens have been conceptualised as sign-bearing, i.e. as ‘the most profound and tangible manifestation’ of the character and social class of their owners (Taylor, 2012 p.6). In other words, we cannot look at a garden without considering the processes that shaped it and neither can we properly understand the idea of it unless we have some knowledge of the processes that led to its creation (Francis and Hester Jr., 1990). Gardens reflect local culture, meanings and social class (Larson et al., 2009, Larson et al., 2010) and vary depending on whether they are for public display or private use (Cameron et al., 2012, Kirkpatrick et al., 2009). Gardeners seek to control nature (Power, 2005) by supporting selected wildlife, e.g. garden birds or bees (Cammack et al., 2011) and destroying what they designate as garden pests (Ginn, 2013). Whatever way a gardener views his garden, e.g. as a public display of his good character, as a wildlife haven, as a productive or social space, the business of gardening is an ongoing process which never reaches completion (Jepson, 2014). Although the choice of housing type available to people is constrained by their economic circumstances and by urban planners, municipal authorities, architects and developers, people from various socio-economic and cultural backgrounds consistently prefer a house with garden as their ideal home (Howley et al., 2009, Mallett, 2004).

Traditionally, gardens have had two functions: firstly, as a site of domestic food production and secondly, to fulfil a desire to modify the landscape for aesthetic purposes. The practice of growing food in domestic gardens falls in response to economic prosperity and political stability, and rises in times of crisis (Lawson, 2005). Food gardening in urban areas is sometimes seen as anachronistic or eccentric, something done by rural migrants or newly arrived immigrants and the change of garden vegetation from productive to ornamental is an important demarcation of socio-economic success (Head et al., 2004, Holmes et al., 2008). The desire to have beautiful gardens has grown with the spread of suburbia, increasing levels of disposable income and the commodification of nature by the horticultural and gardening industries (Ramírez and Hondagneu-Sotelo, 2009). The popularity of television garden make-over programmes in the decade preceding the financial crisis

in 2008 attested to the aspiration of many homeowners to acquire an instant garden that functioned as an outdoor room for entertaining (Palmer, 2004). Productive gardens, i.e. those in which food is grown, on the other hand, are not considered as aesthetically pleasing in the manner of these “outdoor rooms” and therefore not suitable for clean, modern urban spaces, though their aesthetic appeal, correlated to a harmonious, relaxing and neat appearance, was shown to increase significantly when such gardens include an element of ornamental planting (Beck, 2002). However, food gardeners are less concerned with the aesthetics of the garden and more engaged with the processes involved in gardening and these processes are largely the result of the gardener’s interaction with the natural world.

Gardeners, whether growing food or ornamental plants, benefit from the wide range of psychological, cognitive, physiological, social, spiritual and tangible benefits that accrue from their interactions with nature (Ryan et al., 2010, Maller, 2009, Kaplan, 1973). A garden can offer a highly effective recovery from mental fatigue as it removes a person away from the source of that fatigue to an entirely different world where he can enjoy the natural processes of growth and change in a comfortable, accessible place (Kaplan et al., 1998). Gardening has been shown to improve the quality of life for older people (Bhatti, 2006), immigrants (Wen Li et al., 2010) and those with mental health problems where, for instance, it is currently supporting psychological and physical therapy for injured military personnel (Hamilton, 2011, McVeigh, 2014). Social and therapeutic horticulture provides vulnerable individuals with work they value because they understand it to have purpose and coherence (Sempik et al., 2004). Gardeners in general, and older gardeners in particular, also benefit from the physical activity offered by community gardening and what are claimed to be the synergies obtained by exercising in green space (Kingsley et al., 2009, Pretty et al., 2007). The claims that there are synergies available from exercising outdoors have been challenged as simplistic, with researchers noting a post-exercise sense of well-being being evident regardless of whether the exercise took place outside or indoors (Bodin and Hartig, 2003). There is also some evidence to suggest that childhood interaction with nature, through gardening and other outdoor activities, may influence their lifelong attitudes to the environment (Kerr et al., 2006, Chawla, 1998).

Gardening is frequently described as a hobby but that implies that it is the same sort of activity as cooking or woodwork, i.e. one that can be stopped and started at times that suit. It has been noted that less enthusiastic gardeners claim not to have enough time to maintain their gardens while the keenest gardeners prioritise gardening over other activities (Kellett, 2011). The garden as an action may have most resonance for gardeners because the activities involved in gardening, e.g. digging, planting, pruning, etc., require an intimate connection with the earth, the elements and natural processes. Gardeners, including those who grow food at home, regularly report that the most enjoyable elements of gardening, and the reason why they continue to garden, are the primary gardening experiences of working the earth, being totally absorbed in both the activity and the moment, being outside in the fresh air, planning, nurturing and learning (Kiesling and Manning, 2010). For many gardeners, it is difficult to articulate this sense of being part of the world so it is not fully reflected in studies which look at why people grow food as a leisure pursuit. More easily articulated reasons for growing food at home include producing healthier, fresh food, saving money, concern for the environment and carrying on a family tradition (Dewaelheyns et al., 2014, Kortright and Wakefield, 2011). Poorly defined reasons that mention, for instance, lifestyle, creativity or mindfulness, are, it is argued here, attempts to verbally describe the elusive and ephemeral elements of the process of growing food that are so satisfying. To understand this better, it is necessary to explore the relationship between humans and the natural world, that is, the processes through which people encounter the natural world and how they make sense of that world through their embodied practices.

Understanding the garden as a psycho-social and cultural process is to understand it from a human perspective that does not fully account for the deep connection that gardeners feel with the natural world. Gardening is frequently understood to be an attempt to impose order on nature which is represented as a ‘passive other’ subject to the gardener’s wishes (Power, 2005). For serious gardeners who are engaged in a mutual enterprise with their gardens that includes a level of personal and normative commitment to their plants, gardening constrains and shapes their lives (Hitchings, 2006). The life of the gardener is one of “voluntary dependence”, according to Goethe, not unlike the position of someone who loves another person (Cooper, 2006

p.76). Gardeners are conscious of the fact that they are engaged in a mutual enterprise, with plants, soil, wildlife, weather, etc., all of which play an active role in the progress of the garden. Rather than being passive actors under the control of gardeners, plants behave unpredictably and play an active role in demanding care (Hitchings, 2003). When talking about plants, gardeners use language that suggests parallels between human and plant lives. Plants are ascribed characteristics, e.g. they are regarded as being clever, devious or thuggish, and are spoken of as though they were babies that need to be nurtured and kept warm but that may also be fussy feeders (Degnen, 2009). Plants are repositories of memories and become embodied with the actions of love, care, learning and commitment that are performed by the gardener (Crouch, 2003a). Similarly, soil is not an inert material into which a plant is placed to grow. Instead, it is a complex living system co-created by gardeners over time and in its constituting, it reflects the values, identities and embodied practices of the gardeners who cultivate and nourish it as it, in turn, nourishes the gardeners through the plants it supports and is supported by (Salisbury, 2012, Wells, 2006). While gardeners, plants and soil may appear to work in harmony to produce food, the garden can only flourish by the exclusion, sometimes violently, of other inhabitants. Weeds, for instance, commonly understood as plants that are either unwanted or are growing in the wrong place (Blatchley, 2013), engage in an unrelenting battle for resources with both the gardener and the other plants and are dealt with ruthlessly. In the case of pests, gardeners who are unwilling to engage in violence towards slugs and reluctant to forcibly relocate them, tolerate losses, modify their choice of plants and garden in a perpetual state of longing for the absence of the slugs and other pests (Ginn, 2013). In summary, then, gardens are neither human creations or natural environments but instead are constantly emerging from the socio-cultural, biological and ecological processes that provide the contexts to understand them (Sander-Regier, 2009). Any attempt to understand HFG and its potential contribution to urban resilience must take account of how all of the situational and relational contexts of both the garden and the gardener, as discussed above, influence the quantity and type of food grown in domestic gardens. In the next section, two key concepts, Social-Ecological Systems (SES) and Dwelling are discussed as they are relevant to understanding the data presented in Chapter Four.

## 2.4. Social-Ecological Systems Theory

As one of the aims of this research is to understand the actual or potential contribution of HFG to urban resilience, this section discusses firstly, the literature on SES and urban resilience and then the contribution of domestic gardens to urban resilience. Although all urban gardens contain multi-scalar and overlapping social, cultural, ecological and economic dimensions, studies of urban gardens in the Global North have been conducted largely in ecological or sociological terms. In fact, it may be more productive to see them as social-ecological systems (SES), a theoretical stance that reflects the view that human actions and social structures cannot be separated from the natural world and that to do so is artificial and arbitrary (Smith, 2006, Heynen et al., 2006b). This convergence of social and ecological theories signalled a move away from the command and control management of resources that aimed to manage one variable, e.g. over grazing, without understanding any of the interlinked and interdependent variables working at different spatial and temporal scales (Folke, 2006). Furthermore, the state of the social-ecological world is always the result of changes to pre-existing states that are themselves both social and natural (Heynen et al., 2006a). In taking account of multi-scalar and overlapping social, cultural, ecological and economic processes that create the increasingly urbanised world, researchers hope to build increased resilience to economic, social and environmental disruption.

### 2.4.1. Resilience

Resilience is a commonly employed concept in urban studies and it is used across many fields, e.g. urban ecology, disaster planning, regional economics and urban governance (Leichenko, 2011, Gleeson, 2008). It has become widely accepted as a desirable property and an essential element of ecological sustainability but there is still disagreement on what constitutes resilience and how it might be measured (Buchmann, 2009, Leichenko, 2011). Resilience has been examined using two different frameworks: equilibrium analysis and complex adaptive systems analysis

Resilience is most often understood as a return to normality, to an equilibrium, and conceptualised as such it is applied across many disciplines to explain and quantify the “bounce back” to a previous stable state (Pendall et al., 2010). Resilience was first used by physicists to describe the capacity of a material in a linear system to return to its original state and the speed at which it recovered, following external

shocks (Folke, 2006, Davoudi, 2012). This requires a stable state in a predictable world (Folke, 2006). In physics, a system is said to be at equilibrium if the forces acting on it are in balance while ecosystems are said to be resilient when they maintain their integrity in the face of disturbance (Ludwig et al., 2002). When applied to ecological studies, resilience was initially understood as being a quantifiable measure of stability that could be managed in a command and control system that aimed to resist disturbance (Wilkinson, 2012, Folke, 2006). However, the natural world was studied exclusive of any social context as a system to be exploited and managed (Smith, 2006). Ecological resilience offered an alternative to the positivist thinking behind engineering resilience of a single, stable equilibrium to which a resilient system must return. Instead, it promoted the concept of various equilibria to which a system could either return or switch. In a seminal article in 1973, Holling described the difference between engineering and ecological resilience, with engineering resilience being measured as the resistance to disturbance and the speed with which a system returned to its pre-shock state (Davoudi, 2012). In contrast, ecological resilience was measured by the amount of disturbance a system could absorb before changing its structure and the focus shifted from stability to variability, the balance of nature paradigm (Folke, 2006, Davoudi, 2012, Walker, 2002). Rather than bouncing back to a previous state, a system may instead find a new normal state as can be seen in New Orleans after Hurricane Katrina where recovery to its previous state would have been unacceptable to very many residents (Pendall et al., 2010).

Holling continued to develop his theory by outlining the Adaptive Cycle framework in which ecosystems interact endlessly along various space and time scales in a panarchy of nested adaptive cycles (Folke, 2006, Gallopín, 2006, Ostrom, 2004). In the adaptive cycle framework, resilience becomes a process within which there are varying levels of resilience at different stages rather than an end state to be arrived at (Pendall et al., 2010, Berkes et al., 2003). The adaptive renewal cycle contains four phases of change which endlessly repeat and which are nested across scales in a system whereby each system is continually adapting and responding to systems at other scales and times (Ostrom, 2004). The Adaptive renewal cycle proposes that ecosystem dynamics occur over “four phases of development driven by discontinuous events and processes” with periods of gradual, then rapid change

triggered by disturbance, which are in turn followed by reorganisation and renewal (Folke, 2006 p.258) The ability to absorb shocks, and to reorganise and adapt both before and after severe shocks are the hallmarks of resilience (Adger, 2006). Systems are most resilient during times of uncertainty, such as during their initial establishment or following a major shock unlike stable systems that have become dependent on positive feedback loops and are unable to change (Pendall et al., 2010, Kuecker and Hall, 2011).

Urban systems could improve their resilience to shocks by locally sourcing, processing and disposing of as many resources as possible. It has been argued that, if resources such as food were sourced and disposed of locally, residents would be more aware of the environmental stresses involved in meeting their needs and so they would be less inclined to waste these resources (Low, 2005). Urban food systems have proven to be resilient at times of significant economic or political disruption with, for instance, the development of victory gardens in the US during the Second World War (Pothukuchi and Kaufman, 1999). More interesting is the claim that the 'Dig for Victory' campaign by the British Government during the same period was as much about building social and political resilience around a coherent narrative as it was about feeding the British public (Ginn, 2012). More recently, the rapid increase in food gardening in Cuba following the disastrous economic impact of the collapse of the Soviet Union is an example of the adaptive capacity of both the individual household and the State (Buchmann, 2009, Febles-González et al., 2011).

### **2.4.2.** Social Ecological Systems and Gardens

The lack of a body of literature on HFG and its contribution to urban resilience has led to the inclusion in this review of literatures on community gardens, non-food gardens in the Global North and food gardens in the Global South. Urban gardens are complex adaptive systems within which multiple biophysical and social processes and feedbacks occur at multiple scales from the individual garden to community level and up to watershed and regional level (Cook et al., 2012). It has been estimated that residential landscapes occupy forty-one per cent of urban land area globally and as such, they are a primary site of daily interactions between humans and the environment (United Nations, 2012). Gardens are repositories of biological diversity (Galluzzi et al., 2010) and, when combined with other urban green spaces, provide habitats, corridors and resources for urban flora and fauna (Goddard et al., 2010).

Urban gardening practices can result in sizeable changes to local ecosystems by altering local vegetation patterns and habitats and thereby disturbing the composition of local plant and animal species. A decision to replace green space by hard landscaping can have a cumulative, negative impact on biodiversity by destroying wildlife habitats and reducing the city's ability to deal with storm water run-off. Consequently, policymakers in the UK have instigated a new approach to tracking biodiversity and ecosystem changes such that the proportion of gardens being managed in a wildlife friendly manner is being used as a biodiversity indicator in urban areas (Loram et al., 2011). In spite of their ubiquity, however, there is relatively little information on the contribution, positive or negative, of gardens to local and broader ecosystems, perhaps because their fragmentary nature makes systematic data collection very difficult (Dewaelheyns et al., 2013).

It is estimated that about fifty per cent of all residential land has some level of vegetation (Gaston et al., 2005, Mathieu et al., 2007), but there is considerable variation in the structure of gardens within and between neighbourhoods (Crow et al., 2006, Loram et al., 2008). Although front gardens tend to be the focus of most ecological studies simply because they are more accessible, there has been some research comparing the differences between the more public front gardens and the private back gardens. In general, back gardens have a greater variety of uses, including flower and vegetable beds, than the more manicured front gardens (Daniels and Kirkpatrick, 2006, Larsen and Harlan, 2006). Nevertheless, characteristics such as the amount of vegetative cover, hard landscaping, e.g. patios or driveways, and the level of cultivation are closely related to garden size, the lifestage of the household and to the socio-economic profile of individual owners (Smith et al., 2005, Hope et al., 2003). In fact, socio-cultural variables, including household income, environmental and aesthetic values and advertising, have been found to have a greater degree of influence than physical-ecological variables, e.g. garden size or soil type, on urban ecology because of the role they play in the management decisions of gardeners (Byrne and Grewal, 2008). Gardeners decide how much money, time and garden space to allocate to growing food based on numerous considerations including: whether there is a playground nearby so that the children need less garden space to play (Kortright and Wakefield, 2011); and bio-physical conditions such as local climate, site aspect or quality of soil (Kaye et al., 2006). Other considerations

include whether the householder sees growing food as a necessary chore or an enjoyable task; has a preference for local, fresh, organic or culturally appropriate food (Baker, 2004); has the necessary knowledge, time and energy to engage in growing food (Dewaelheyns et al., 2014); or even whether the garden space is mainly to the rear of the house and not governed by neighbourhood norms of appropriate use (Kurz and Baudains, 2012).

While most of the above relates to the garden in the Global North, home food gardens in the Global South have been shown to strengthen social-ecological resilience at both community and household level. For instance, Cuban gardeners have to adapt to sometimes very sudden infrastructural damage caused by hurricanes and they manage that successfully by constantly reviewing and improving cultivation techniques, improving plant diversity through seed and plant exchange, by sharing information and building social networks of gardeners, all of which supports and develops social, ecological and economic resilience (Buchmann, 2009). Similarly, in the face of climate, demographic and economic changes, Mexican gardeners build social-ecological resilience by managing resources and exchanging knowledge in their gardening practices through seed and plant exchange (Aguilar-Støen et al., 2009). By facilitating the transmission of social-ecological memory across generations, community gardens play a crucial role in countering ecological illiteracy and in encouraging individuals to become involved in environmental stewardship (Barthel et al., 2010, Colding and Barthel, 2013). Community gardens that require active management and participation by local residents help build resilience in their neighbourhoods by encouraging innovation, diversity, adaptability and social interaction (Krasny and Tidball, 2012). This has been recognised in recent years by local authorities in the Greater Dublin Area, several of whom have adopted policies to support the development of community garden projects in low-income neighbourhoods as a way to foster social and environmental improvements for residents (South Dublin County Council, 2014, Fingal County Council. et al., 2008). In Europe, difficulties with food access are generally resolved through social security systems or price controls (DEFRA, 2009), so that intensive food growing is not a primary goal of urban agriculture or community gardens (Tomkins, 2014). Many cities in North America have instigated food policy initiatives in response to the perceived failures of current urban food systems to deliver affordable, healthy and

nutritious food to all citizens (Hatfield, 2012). Community food gardens are an integral part of these initiatives and they have been particularly aimed at improving household food security in low-income neighbourhoods (Newsom, 2009). Therefore there is considerable focus on yields and productivity (Hatfield, 2012), but they have also been recognised as fulfilling a role as support to community development (Carney et al., 2012, Beilin and Hunter, 2011).

This section has considered how the development of urban resilience must take account of the interlinked and interdependent social and ecological variables outlined in SES theory. It also explored the ways in which domestic and community gardens can improve the resilience of urban food and ecological systems, particularly in the Global North. To understand the implications of the multiple social and ecological variables that impact on the food harvest of domestic gardens, it is necessary to consider how the gardeners themselves relate to the natural world. The next section, therefore, deals with the question of human-nature relations and Ingold's (2000) theory of Dwelling, which are fundamental to the discussion that takes place in Chapter 4.

## 2.5. Human-Nature Relations

Having considered the theory of social-ecological systems and its role in explaining urban resilience, this study now focuses on the relationship between the gardener and the natural world. As previously discussed, quantitative studies, currently the most common approach to investigating food gardening, are limited in the degree to which they can uncover the motivations behind this activity. All of the surveys as mentioned above, note some connection between the gardeners who participated and the natural world, although this connection is conceptualised differently in each survey. Previous qualitative investigations into ornamental gardening, though not into food gardening, have allowed the gardeners to articulate in more detail their positive and sometimes conflictual relationship with the natural world and the non-human participants who share in their endeavours. Motivations for growing food are complex and multi-layered but common to all the gardeners, and what keeps them engaged year after year, is that connection they feel with the natural world. Understanding this human-nature relationship is key to understanding the appeal of growing food for the participants in this study. In an effort to understand this

connection, the 'building' vs. 'dwelling' concept proposed by Tim Ingold (2000) is discussed in Section 2.5.2. below. Absent from the HFG literature to date has been a recognition of what food gardeners understand to be their reciprocal relationship with plants, soil and other non-humans in the perpetual co-production of the world. A contribution of this study, therefore, is to highlight the importance of the human-nature relationship that was uncovered through the grounded theory approach adopted, how it may be understood and how the food gardener discovers and makes sense of his place in the world through his day-to-day practices in the garden.

### 2.5.1. Human Alienation from Nature

It is commonly argued by researchers and policy makers that humans are increasingly disconnected from the natural world through processes of urbanisation and technology which have divided people from the land and from the production, and even preparation, of food (Latour, 2009). For instance, urban dwellers live on hard surfaces on which nothing grows and thus they have lost the interaction with the ground, the soil, on which all life depends, from which all life emerges and to which all life returns (Ingold, 2014). Many live and work in 'thermally neutral climatic fortresses', with season changes passing by unnoticed and where lives are ruled by hours and minutes, with no recognition of the natural rhythms of life (Hitchings, 2010). The rhythms of human activities should connect with other rhythmic phenomena such as the tides, the seasons, cycles of light and dark, and of growth and decay as these are 'incorporated into our very constitution as biological organisms' (Ingold, 2000 p.200). Instead, urban dwellers have managed to switch off the influence of these rhythms, further alienating themselves from their world.

Theoretical discourses on the environment are rooted in the 'human-impact agenda' (Castree, 2005 p.111), the world being divided into either social or natural spheres (Murdoch, 2001). Social scientists have, it is argued, left the material world to engineers and scientists while they have constructed a world of actors devoid of things (Boivin, 2011). This dualistic way of seeing the world, involving the subjective human mind and objective physical matter, entrenches the alienation of humans from the natural world, resulting in 'a spatial and temporal separation from the human subject's context', with nature being commodified and valued in economic terms (Dickens, 1992 p.158). It has been suggested that this alienation from nature has resulted in an ontological insecurity for people as they have been removed from both

their own bodies and the world on which they depend, materially and psychologically (Hawkes and Acott, 2013). Nature, conceptualised as 'the environment', has become 'fragile and finite' , there to be managed, conserved and controlled (Franklin, 2002 p.19). In disciplines such as human geography and psychology, the focus is on the visual consumption of nature through visits to parks or scenic locations (Eden and Bear, 2011). Research that looks at how individuals engage with nature, using wilderness and tourist sites, offer accounts of human-nature relations that do not acknowledge the engagement with the natural world that humans experience on a daily basis. Apart from gardening, these engagements include caring for a pet, wearing seasonally appropriate clothing, walking, sitting, running, eating outdoors, eating an apple, feeding garden birds, or even buying and using 'natural' body lotions or herbal medicines. Despite their daily interactions with the natural world, people do not see 'the environment', particularly the global environment, as being part of their daily lives. In response, the concept of nature 'out there' has been rejected by those who argue that humans and non-humans, e.g. plants, animals, landscapes, mutually co-produce the world (Ingold, 2000, Whatmore, 2006, Hinchliffe, 2007, Latour, 2009).

There have been efforts in recent years to address this human-nature divide in sociological, anthropological and human geographical research in a move towards post-humanism (Carter and Charles, 2011). It is accepted that humans and their concerns are enmeshed in a more-than-human world within which human action happens only in relation to a whole host of non-human entities that range from biological organisms (Davies et al., 2012), to geological forces (Clark, 2010), affective atmospheres (Dawney, 2013, Roberts, 2012), and everyday objects (Bennett, 2010). New Materialism has sought to address humanist ontologies by exploring processual and vital understandings of matter (Bennett, 2010). Specifically in relation to gardening, this has resulted in a move from understanding gardening as rooted solely in the control of nature by, for instance, applying agency to plants (Hitchings, 2003) and to soil (Salisbury, 2012).

### 2.5.2. Building vs Dwelling

To resolve the difficulties caused by the human-nature dichotomy, Ingold developed the concept of the dwelling perspective. His intention was to counter the pervasiveness of Cartesian dualities of mind/body and nature/culture that underpinned the building perspective. The building perspective may be defined as

the supposition that worlds are made before they are lived in and they are given life and value through a culturally constructed reality (Cosgrove and Daniels, 1988). Seeing the landscape as a blank canvas upon which cultural meaning is projected 'assumes and reproduces a fundamental distinction between the *ideas of culture* and the *matter of nature'* (Wylie, 2007 p.154, emphases in original text). The difficulty for Ingold is the suggestion that humans inhabit 'discursive worlds of culturally constructed significance [because this implies] that they have already taken a step out of the world of nature within which the lives of all other creatures are confined' (Ingold, 2000 p.14). Problematically, the building perspective also requires that the body become a mere puppet figure, with bodily actions and performance being the expression of meanings emanating from a cultural source (Ingold, 2000).

The dwelling perspective, on the other hand, denies that the place to start understanding the world is with a mind detached from a pre-figured world. Instead, it supposes that human beings are 'immersed from the start, like other creatures, in an active, practical and perceptual engagement with the constituents of the dwelt-in world' (Ingold, 2000 p.42). Rather than being a mere puppet, the body, and its actions, are the means by which a human is a being-in-the-world, totally immersed in its environment (Merleau-Ponty, 2013). Humans and environments, e.g. nature or landscape, are not fixed, stable entities separated from each other. Instead, they are each active participants, each changing and being changed continually, by their interactions with the land, the humans and the non-humans that dwell in the world (Ingold, 2000). Ocularcentric ideology was the term Heidegger used in his writings about how the world has been transformed into images and nature treated as spectacle – the building perspective – that separates mind from the world out there (Heidegger, 1977). The process of embodiment, through which individuals engage with, and make sense of, the world, is multi-sensual in opposition to Cartesian ideas of landscape and nature as two-dimensional visual spaces that belong to the detached observer (Cosgrove, 1985). Rather than being out there to be observed, nature is discovered, experienced, made sense of, constituted and challenged through the physicality of everyday performance (Crouch, 2003b). In other words, the mind, body and world are in a 'state of perpetual co-production' (Carolan, 2009).

An individual dwells by performing tasks which are defined as 'any practical operation, carried out by a skilled agent in an environment as part of his or her

normal business of life' (Ingold, 2000 p.195). According to Ingold, no task exists in a vacuum. Rather, they are all mutually interlocked and, in their entirety, they constitute the taskscape. The passage of time is, in effect, the succession of tasks and their relation to each other (Evans-Pritchard, 1940). Restated, the passage of time is 'none other than our own journey through the taskscape in the business of dwelling' (Ingold, 2000 p.196). In the same way that the landscape is perpetually under construction, so too is the taskscape always ongoing, as individuals dwell in the co-constituted world. Tasks do not transform an inanimate world but are part of the world's transforming itself (Ingold, 2000). This is a conception that is experienced, though not usually articulated, by gardeners as they perform an unending series of tasks in their forever unfinished and mutually constructed gardens.

Despite being one of the most common sites of engagement with the natural world, particularly for urban dwellers, the domestic garden is generally overlooked in accounts of how people experience nature. For gardeners, the idea that nature is out there to be observed as spectacle does not reflect their daily experiences in the garden where nature is constituted and made sense of through embodied practice. The garden is a world-in-formation, a becoming-a-world, where human and non-human, beings and materials, are continually and reciprocally bringing each other into being in an act of co-production (Merleau-Ponty, 1964). This world that is always becoming and never finished is referred to by Massey as the 'simultaneity of stories-so-far' (Massey, 2005 p.9). The world, and the garden that is part of that world, are both formed in a relational field, a meshwork of interwoven lines of growth that are comprehensively entangled and it is along those lines that beings grow (Ingold, 2011 pps 70-71). This meshwork must be distinguished from a network because a network implies that the elements must be individually separate, before being linked, and therefore any two elements can act together to the exclusion of others (Larson et al., 2007). Using the meshwork metaphor, the gardener, as one element of a tissue of knots, contributes to its 'ever-evolving weave' (Ingold, 2011 p.71).

It is through feeling and doing gardening, e.g. nurturing plants, sharing space with others both human and non-human or tending the soil that gardeners feel and understand their role in the co-production of the world. Embodiment, the process by which an individual works and reworks his/her identities, values, knowledge and

social relations through everyday practices, is multi-sensual, multi-dimensional, and sense-making (Crouch, 2000). Knowing about soil in the abstract is a different knowledge to that which is developed through the embodied practice of cultivating a vegetable patch that involves physical engagement and sensual interpretation (Delind, 2006). The personal ontology a gardener develops through his day-to-day embodied practices in the garden is highly significant and reassuring in the context of a complex and uncertain world of human alienation and this reassurance goes some way to explaining what it is about gardening, and growing food, that offers such a sense of well-being to gardeners (Hawkes and Acott, 2013). In contrast to a distancing, visual engagement with the world, haptic engagement is the multi-sensual engagement of the body connecting with all the elements in the garden. The gardener 'sees' the garden, or reads the garden, using all of his senses and interprets what he sees, hears, smells and feels based on the practical knowledge he has developed through repeated doing, experimenting, assessing, considering and doing again in a way that makes his garden a lived, embodied and practised space (Bhatti, 2014). It is a 'felt and sensed world of experience' that does not recognise the human/nature binary of socio-cultural theory (Szerszynski et al., 2003 p.4). Rather, the gardener develops an intimate and personal understanding of the natural world and his/her position within constantly evolving systems that are subject to the agency of other non-human elements. It is the dynamic nature of a garden that draws the gardener back again and again, as he looks for, and experiences, changes, minute by minute, day by day and season by season.

By overlooking this ephemeral, elusive human-nature relationship, researchers are in danger of forming incomplete theories of why gardeners grow food. For a great many food gardeners in those areas of the world where food security is met through market mechanisms and where social welfare provides a safety net for low-income households, the quantity of the harvest is of no great importance. Instead, for the food gardeners involved, the success of a harvest is judged according to the benefits and enjoyment obtained from the relationships that are developed, sustained and understood through the day-to-day practices in the garden. Through their every day engagement with the natural world afforded by their food growing practices, food gardeners develop their personal ontologies, understanding themselves to be enmeshed with other human and non-human beings in the reciprocal and continuous

process of making the world. HFG is the process through which food gardeners develop the personal ontology that explains their place in the world. As such, HFG should be understood as a process having a far greater significance in the lives of food gardeners than current conceptualisations of HFG that focus on the harvest would suggest.

## 2.6. Summary

Chapter 2 began by outlining the impact on the development of a literature review of the Grounded Theory methodology used. Given that the broad aim of the research was to explore the potential contribution of HFG to urban resilience, the question of urban food systems was identified as relevant at the start of the research process while the topic of human-nature relations was included in response to concepts that emerged during data analysis. An overview of the current literature on urban food issues noted persistent concerns about the sustainability of the current global food system upon which urban dwellers are almost entirely dependent before exploring the arguments that alternative food networks may address the vulnerabilities in the global food system. The issue of food security was examined as was the potential of local food production in the form of urban agriculture and HFG to improve the resilience of the urban food system. Having examined issues of urban food, the focus moved to examine how the questions of gardens and gardening have been conceptualised in socio-cultural, psychological and materials literatures before moving to consider the two concepts that are employed in the discussion in Chapter 4. SES theory provides a framework to understand the multi-layered, interlinked and interdependent variables that must be considered if urban resilience is to be accurately assessed and developed. The role of domestic and community gardens in improving the ecological and food resilience of urban areas was then examined. The second concept to be used in the discussion in Chapter 4 related to the issue of human-nature relations, the alienation from the natural world that is evident in technology-heavy modern cities and the way that food gardeners use their day-to-day practices in the garden to develop an understanding of the natural world and their role in it. Chapter 3 presents the methodology used and this is accompanied by a discussion of the assumptions and implications embedded in that choice.

# CHAPTER 3: METHODOLOGY

## 3.1. Introduction

The previous Chapter presented an overview of the literatures relevant to HFG, looking at urban food systems in the context of urban resilience and also examining current approaches to conceptualising gardens and gardening, before outlining the main aspects of the two concepts, SES and the Dwelling perspective, to be used in the discussion in Chapter 4. As already discussed, the majority of research to date into HFG in the Global North has been quantitative in approach, with a focus on the concrete and observable, for example, the contribution made by home grown food to the economic security and dietary well-being of low-income households. There has been very little research into the place of HFG in the lives of the gardeners involved or into the beliefs, behaviours and attitudes that accompany the growing of food at home (Kortright and Wakefield, 2011). When there has been little previous research on a topic or when existing theories no longer fit changing circumstances or actors, the exploratory nature of qualitative research allows the researcher the flexibility to generate new theories (Creswell, 2009). It has been suggested that, although in aggregate the amount of food grown in private gardens far exceeds that grown in more visible community gardens and allotments, as a sector it remains ignored and understudied by local governments, NGOs and academics (Taylor and Lovell, 2014). The methodological approach taken in this study reflects the aim of the study which is to understand the role of HFG in the context of urban resilience and to do this by focusing on the gardeners and their experiences and to hear from them the reasons why they started, and indeed continue, to grow food. Qualitative research may be inter- or trans-disciplinary, crosscutting human, social and physical sciences, which makes it particularly appropriate for uncovering the social, economic and ecological behaviours, attitudes and opinions of gardeners who grow food (Denzin and Lincoln, 2008). Qualitative research models of interviewing are designed to understand the world from the point of view of the interviewee, to uncover the meaning of his lived experiences rather than projecting a structure onto what is being studied (Kvale and Flick, 2007).

The next section introduces the Grounded Theory Methodology (GTM) used in this research, including a short history of its evolution, and then discusses the reasons

why it was considered the most suitable approach for this particular study. Section 3.3 deals with the different epistemological positions adopted by the Constructivist and Objectivist proponents of GTM while Section 3.4 outlines the three core tenets of GTM, i.e. theoretical sampling, constant comparative analysis and theoretical saturation. The application of Grounded Theory methods is discussed in Section 3.5 while Section 3.6 discusses sampling, how it is approached using GTM and how it was conducted in this particular research project. Data collection and data analysis are covered in Sections 3.7 and 3.8 respectively, followed by a discussion on the use of computer software for data analysis and data management in Section 3.9. Reflexivity, a core feature of Constructivist grounded theory, is discussed in Section 3.10 and, finally, an evaluation of GTM's suitability for this specific research project appears in Section 3.11.

## 3.2. Grounded Theory

Interviewing is the most commonly used data collection method for qualitative studies and grounded theory (GT) is the method most frequently used across disciplines and professions to analyse qualitative data (Morse et al., 2009, Yamazaki et al., 2009, Bryant and Charmaz, 2007). Although to date, GTM has not featured strongly as a research methodology in Human Geography, it has been widely used in disciplines such as social, behavioural and cultural sciences, education, nursing, medicine, social work, business, science and technology (Olesen, 2007). Grounded theory is the chosen method for this research because it offers a systematic, step-by-step path through the entire research process and, more importantly, it facilitates complex and layered analyses of data to produce theory. Before proceeding any further, it is important to distinguish grounded theory as a method (GTM) from grounded theory (GT). It is the objective of GTM to produce a theory grounded in the data, using a method that resists "all rigid a priori researcher imposed formulations of structure, function, purpose and attribution" (Urquhart, 2007 p.340). GTM offers a method to construct social scientific theory (Charmaz, 2011). It is a rigorous research method that leads to the systematic generation of theory through a highly structured but flexible set of rules that involve the continual and iterative sampling and analysis of data (Glaser, 1998, Pidgeon, 1996). The substantive, explanatory models that are developed are grounded in the data, i.e. they provide logical and economical

explanations from observations of empirical data (Hutchison et al., 2010). Rather than findings or facts, what GTM produces is a "set of integrated conceptual hypotheses, organised around a core category" that has emerged from rigorous analysis of the data (Glaser, 2003 p.2). In other words, grounded theorists make theoretical statements by relating concepts to concepts, not concepts to people and as such, they do not produce descriptive accounts of people (Glaser, 1978).

Although GTM has a great initial appeal for novice researchers because it provides rules for every stage of the research process, it has been subject to numerous misunderstandings that have led to its being partially or incorrectly applied to a large number of generic inductive qualitative studies (Jones and Noble, 2007, Hood, 2007, Suddaby, 2006). This situation has arisen in part because of the controversial evolution of GTM since its inception and the ensuing lack of clarity on the precise differences between the various GT models (Duchscher and Morgan, 2004, Glaser and Strauss, 1967, Glaser, 1992). These various GT models reflect the different analytic traditions of GT founders, Glaser and Strauss, and their not always successful efforts to marry rival epistemologies (Dey, 1999). Starting in 1990 with a rift between its founders, GT has evolved to become a family of methods, classified into as many as seven different approaches (Denzin, 2007). Each of the various approaches has retained key characteristics of the original while evolving to meet differing contextual, disciplinary, epistemological and logistical needs (Bryant and Charmaz, 2007). There now exists a situation where disciples of the different approaches dismiss research based on alternative GTMs as invalid for diverging from what they view as the one true GTM, a situation described as being "not unlike the way exponents of various cults bicker over the right interpretation of a religion" (Dey, 1999 p.2). In order to appreciate the strengths and weaknesses of GTM as well as its suitability for this research project, it is essential to understand the reasons behind the disputes as well as the core areas of agreement among the major GT strands. Each approach has its own implications for the research process and the resulting outcomes. Because the researcher's own ontological and epistemological position, which is reflected in the choice of a particular GTM, has implications for how data are coded and analysed, it is imperative to state clearly which method is being used in any research project (Duchscher and Morgan, 2004, Suddaby, 2006).

## 3.3. Epistemology

Epistemologically, there are two distinct lines, objectivist (Glaserian) and constructivist (Charmazian), with post-positivist (Straussian) grounded theory taking various positions at different times in between Glaser and Charmaz (Urquhart, 2013, Bryant and Charmaz, 2007). However, it can also be argued that Glaser and Strauss have each shown a level of inconsistency in their philosophical outlook as they have each, and sometimes simultaneously, favoured post-positivism and objectivism (Urquhart, 2002). To complicate matters further, each of these three strands has at various stages undergone clarification and modification by its proponents. Classic or Glaserian GT is objectivist in outlook, assuming that the researcher is a neutral observer of data that exist in an external reality. Glaser takes the view that GTM is "abstract of time, place and people" and therefore the researcher is not concerned with context, interpretation and construction in generating conceptual hypotheses (Glaser, 2008). According to this viewpoint, data are there to be mined by researchers who believe that "bias data or subjective or objective data or misinterpreted data" do not exist in GTM (Glaser, 2002). How data are defined, produced and recorded remains unexplored, while theories emerge almost magically from the data through the rigorous application of research methods.

While Glaser confers agency on data and methodology, Strauss sees the researcher as the agent of theory development (Locke, 1996). Strauss and Corbin published "Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory" in 1990 with the intention of providing novice researchers with a guiding framework of coding matrices for data analysis. Reflecting their pragmatic approach, Strauss and Corbin, while acknowledging that reality is fluid, also believed that they could to some extent capture it (Charmaz, 2011). However, novice researchers have been left confused by their various contradictory statements on the nature of data: in 1998, for example, they stated that researchers do not create data (1998) at the same time as Corbin (1998) was writing about how difficult it was for a researcher to remain outside the interpretive process when analysing data. Table 3.1, below, presents the main areas of difference in the epistemologies of the two GTM schools:

| Objectivist GT | Constructivist GT |
|---|---|
| Assumes an external reality | Assumes multiple realities |
| Assumes discovery of data | Assumes mutual construction of data |
| Assumes conceptualisations emerge from data | Assumes researcher constructs categorisations |
| Views representation of data as unproblematic | Views representations of data as problematic, relativist, situational and partial |
| Assumes the neutrality, passivity and authority of the observer | Assumes the observer's values, priorities and positions, and actions affect views |
| Views data analysis as an objective process | Acknowledges subjectivities in data analysis, recognises co-construction of data, engages in reflexivity |
| Gives priority to researcher's views | Seeks participants' views and voices as integral to analysis |
| Aims to achieve context-free generalisations | Views generalisations as partial, conditional and situated in time, space, position, actions and interactions |
| Focuses on developing abstractions | Focuses on constructing interpretations |
| Aims for parsimonious explanation | Aims for interpretative understanding |

**Table 3.1: Objectivist and Constructivist Grounded Theory (Charmaz, 2008 p.470)**

The constructivist view of the world argues that "a goodly proportion of social phenomena consists of the meaning-making activities of groups and individuals [and it is the] meaning-making, sense-making attributional activities that shape action (or inaction)" (Lincoln et al., 2011 p.116). Constructivist GT emerged because of concerns that the positivistic approach of Glaser and Strauss ignored the researcher's agency in constructing data and developing concepts, ignored power relations, the role of reflexivity and also overlooked ethical concerns (Olesen, 2007). They therefore argued that GT should be revised to acknowledge and capture

researcher perspective and the co-construction of data (Pidgeon, 1996). The proponents of Constructivist Grounded Theory argue that by paying close attention to the perspective of the researcher, the production of data, social, spatial and temporal locations and other influences, researchers avoid the “hegemonic reach of over-generalisation” (Bryant and Charmaz, 2007 p.50). This approach to GTM, built on the assumption that it offers an interpretation rather than a replication of experience by taking account of partial knowledge, uncertainties and multiple perspectives, is the model employed in this research.

The definitions of GTM provided by the differing strands are similar in nature and conflicts tend generally to be of a technical or procedural nature arising from the need to accommodate differing epistemological positions (Hutchison et al., 2011). For instance, at the core of the “cataclysmic” dispute between Glaser and Strauss is the forcing versus emergence debate (Urquhart, 2013 p.18). The concept of emergence is fundamental to grounded theory. There should be no specific preconceived questions, including the who, what, where, etc., or questions about age, gender, or other variables as these preconceive relevance (Glaser, 1992). Having a specific research question at the start of a project is preconceiving which leads to forcing of data. Following GTM means allowing the problem under study, together with relevant variables and concepts, to gradually emerge from the data. According to Glaser, Strauss and Corbin (1990b) departed from grounded theory when their adherence to paradigm models, analytic questions and hypotheses led to forced preconceived conceptual description rather than generation of emergent grounded theory (Glaser, 1992). In fact, Glaser argues that this leads the researcher to contaminate, corrupt, pre-empt and obstruct understanding of the data with the end result being forced conceptual description and not grounded theory (Locke, 1996).

Regardless of the impact on the research process of their differing philosophical outlooks, Glaser and Strauss both agree that the end purpose is the discovery of enduring theory that reflects the reality of the research area, is understood by the research participants and provides a comprehensive explanation of the relationships amongst the emergent concepts (Duchscher and Morgan, 2004). Unlike Glaser,

however, Strauss also, though inconsistently, found it acceptable that GTM be used to generate conceptual description rather than theory (Strauss and Corbin, 1990a).

## 3.4. Methodological Approaches

GTM is a highly structured, systematic and rigorous approach to data analysis that provides rules for every stage of the research (Glaser, 1998). Despite the epistemological differences of the various GT approaches, there are several core tenets that are held in common by all, although with varying degrees of emphasis. It is these core strategies of constant comparative analysis, theoretical sampling and theoretical saturation that distinguish GTM from generic inductive qualitative research that also involves analysing data using codes and themes (Hood, 2007). The major difference, however, is the focus in GTM on generating theory from the data rather than remaining at the descriptive level of generic qualitative analysis (Glaser, 1992). All strands of GTM rest upon three principles: the "troublesome trinity" of theoretical sampling, constant comparative analysis and theoretical saturation (Hood, 2007 p.164).

### 3.4.1. Theoretical Sampling

In order to be clearly understood, theoretical sampling needs to be distinguished from other forms of sampling. Theoretical sampling is not aimed at addressing initial research questions or identifying negative cases, and neither is it intended to reflect population distributions (Charmaz, 2014). Sample size is relevant to grounded theory *only* to the extent that it allows theoretical categories to be explored sufficiently to produce a conceptually rich, dense and contextually grounded account of the phenomenon (Pidgeon, 1996). It is strategic, specific and systematic, and it both directs and is directed by emerging theory.

> *Theoretical Sampling is the process of data collection for generating theory whereby the analyst jointly collects, codes and analyses his data and decides what data to collect next and where to find them, in order to develop his theory as it emerges* (Glaser and Strauss, 1967 p.45).

In this case, additional interviews were conducted in response to emerging categories that needed further development.

### 3.4.2. Constant Comparative Analysis

As data are coded, they are continually compared with previous codes to see where they fit. Where necessary, previous codes are refined or new codes created. Constant comparisons are made between data and data, data and codes, data and concepts and so on. As categories are generated, new incidents are compared with categories and this identifies category property. As data are gradually added to the project, the application of constant comparative analysis means that the researcher is never overwhelmed by data and it also ensures that analysis remains grounded in the data. By continually sifting and sorting through elements of data, the researcher begins thinking about the dimensions and properties of a category, the conditions under which it occurs or is stalled, its major consequences and its relation to other categories (Glaser and Strauss, 1967).

### 3.4.3. Theoretical Saturation

Theoretical Saturation can be claimed to have occurred when no new data emerge in respect of a category, when that category has well developed properties and dimensions and when the relationships among categories are well established (Strauss and Corbin, 1998). In other words, categories are saturated when "no additional data are being found whereby the [researcher] can develop the properties of the category" (Glaser and Strauss, 1967 p.61). Identifying when theoretical saturation has occurred is a pragmatic decision that is to some extent dependent on the researcher's expertise but signs of saturation also include repetition of information and confirmation of existing conceptual categories (Suddaby, 2006).

## 3.5. Applying Grounded Theory Methods

Although this Methodology Chapter is laid out in sequential stages, the research process was iterative, with sampling, data collection and analysis proceeding concurrently as required in a GT study. There were several significant implications to be noted in the application of GTM for this study including the fact that the number of participants required was unknown at the start and remained unsettled until it was determined that theoretical saturation had been reached. In the case of interviews, keywords rather than specific questions were employed to guide interviews. In addition, as far as possible given the need to accommodate participants schedules, each interview was transcribed and coded to identify emerging categories before the

next interview was conducted. Finally, codes and accompanying memos were analysed in more depth using the constant comparative method as interviews proceeded.

## 3.6. Sampling

As already discussed in Section 3.4.1, sampling in GTM is aimed specifically at collecting sufficient data to develop fully theoretical concepts that emerge from the data analysis that is happening in tandem with data collection. Furthermore, this sampling carries on until, and only until, a logical and economical explanation of the issue under investigation has been produced. Therefore, as previously noted, the number of participants could not be determined at the outset.

Grow it Yourself (GIY), founded in Waterford in 2009, brings people together in clubs around Ireland and elsewhere, to inspire and support them to grow food. As a foundation, GIY supports eight hundred projects, including school, hospital and other institutional and community gardens and allotments. It also runs a website which includes a lively forum for food gardeners and claims to have fifty thousand online and group members (GIY, 2013). Under the GIY banner, there are now over sixty GIY groups across Ireland, each of which holds a monthly meeting for local food growers to swop information, seedlings and surpluses, to listen to guest speakers and to organise events such as garden visits. The GIY presence in Dublin is illustrated in Appendix 4. In general, these groups provide a social outlet as well as practical advice for new and more experienced gardeners. It was the potential access to food gardeners that initially attracted attention for the purposes of this research. Each of the GIY groups has email or mobile phone contact details on the GIY website and this information was used to contact five of the Dublin GIY groups, of whom three responded positively. Two GIY group meetings were addressed in June 2013 where the reasons for and aims of the research project were outlined. Information sheets (see Appendix 2), which provided a summary of this information and also researcher contact details, were also handed out. At the meetings, many people offered their contact details but a number of them later declined to take part for a variety of reasons, including issues of convenience or suitability. Twelve GIY members from three groups in the Dublin area were eventually recruited. Because of initial, though unfounded, concerns that GIY members would be new to growing

food, a further eight gardeners were recruited by way of snowball sampling. No-one in this snowball sample was aware of the GIY organisation. Twenty participants in total were recruited at various stages as data analysis proceeded, and four of them were re-interviewed at a later stage. A schedule of the interviews is presented in Section 3.7.1. The criteria set for participant suitability were very straightforward. They should be currently growing food at home. Several volunteers were excluded because they grew food on allotments only but one participant grew food at home as well as on an allotment. The amount of food produced or the length of time that someone had been engaged in growing food was not considered relevant in the initial round of interviews and these factors did not emerge as being important concepts during analysis. Although there was no effort made to engage in socio-demographic profiling of participants as this was not considered relevant in this study, there was a spread of ages from twenty-seven to sixty-five years. There was one married couple, who were each interviewed separately. Most participants were employed, some were unemployed or retired. Most, but not all, were computer literate and engaged with the GIY members' forum online or used other websites to answer gardening queries.

## 3.7. Data Collection

### 3.7.1. Interviews

The qualitative interview is "one of the most common and powerful ways in which we try to understand our fellow human beings" (Fontana and Frey, 2000 p.645). In line with Constructivist Grounded Theory, an interview is taken to be a social interaction located in time, place and context rather than a vessel of topics to be raided (Warren, 2012). Similarly, the interviewee is not simply a passive vessel of answers to be mined for data but is a co-constructer who is engaged in "role playing and impression management" as is the interviewer (Miller and Dingwall, 1997 p.56). Therefore an issue such as the location of the interview and who should choose that location is more than simply a logistical question of comfort and convenience (Herzog, 2012).

In general, interviews lasted between forty-five and ninety minutes. As can be seen in Table 3.2, below, there was a gap of four weeks following the first six interviews. This break was taken to allow time for the more significant concepts to emerge and for consideration of the best approach to adopt for the next set of interviews. In

Table 3.2, below, S, e.g. S01, refers to participants recruited through snowball sampling and G, e.g. G01, refers to GIY members.

**Schedule of Interviews**

| Date | Participant |
|---|---|
| 2013 | |
| 9th June | S01 |
| 25th June | G08 |
| 29th June | G01 |
| 1st July | G09 |
| 4th July | G10 |
| 8th July | G02 |
| 7th August | G03 |
| 13th August | G04 |
| 13th August | G05 |
| 21st August | G06 |
| 4th Sept | G11 |
| 10th Sept | G12 |
| 13th Sept | S02 |
| 20th Sept | S03 |
| 27th Sept | S04 |
| 7th Oct | S05 |
| 21st Oct | S06 |
| 2014 | |
| 7th Oct | G03 Re-interview |
| 10th Oct | G05 Re-interview |
| 16th Oct | G06 Re-interview |
| 16th Nov | S07 |
| 24th Nov | S08 |
| 29th Nov | S01 Re-interview |

**Table 3.2: Schedule of Interviews**

The first eighteen interviews took place between June and October 2013, during what, in terms of weather conditions, was a very good year for vegetable growing, after a very late spring. This mattered to the gardeners as it meant that their growing season was productive and they felt they had something worth showing during the garden visits. The final six interviews, four of which were conducted with previously interviewed participants, took place twelve months later.

#### 3.7.1.1. Interview Location

In qualitative research methodologies, place is more usually a metaphorical social, cultural or theoretical location of gender, age, race, class, etc., but the physical site of an interview also affects identities and relationships between parties (Preston, 1999). The physical setting of an interview can have a significant impact both on the language used and the insights gained during the research process (Elwood and Martin, 2000). The site of the interview produces microgeographies which reflect the multiple socio-cultural relationships between the researcher, the interviewee and the site, all of which impact on both interviewer and interviewee (McDowell, 1998). Viewing the garden and seeing the interviewee interact with his or her plants provided valuable additional data to the more formal interview recorded indoors. This is in accordance with previous research into gardens and gardening which employed a mobile methodology, i.e. holding the interview, entirely or in part, during a walk around the garden of the interviewee (Barthel et al., 2010, Gross and Lane, 2007, Head et al., 2004, Hitchings and Jones, 2004, Kortright and Wakefield, 2011). This has been considered to be a useful strategy in overcoming the difficulties that many gardeners have in articulating their everyday physical and psycho-social experiences in and of their gardens. Conducting interviews in the garden can also be a useful way of disrupting power hierarchies and emphasising the expertise of the interviewee and the value of his or her contributions (Elwood and Martin, 2000). In addition, through the visual clues present it can trigger memories of previous experiences with plants or nature, past activities and events or changes over time (Palys and Atchison, 2012). One study found that, in their efforts to meet the researcher's perceived expectations, interviewees gave more formal responses to questions asked when they were interviewed inside the house but the responses they gave when walking in the garden resulted in a much deeper exploration of the relationship between gardeners and their gardens (Hitchings and Jones, 2004).

Interviews that take place while walking in the garden result in an “unstructured dialogue where all actors participate in a conversational, geographical and informational pathway creation” which allows access to emotions, memories, atmosphere and beliefs that may not be revealed in a more formal setting (Anderson, 2004 p.260). During the time spent in the various gardens, the close relationship many of these participants had with their food crops and even with individual plants became apparent and some participants became more expansive in their contributions, perhaps because they were on home ground. Viewing participants’ gardens also provided a useful opportunity to triangulate data.

#### 3.7.1.2. Interview Questions

For grounded theorists, interview questions must be broad enough to encompass a range of interviewee experiences and to leave room for unexpected responses while at the same time being explicit enough to explore an individual’s specific experience (Charmaz and Liska Belgrave, 2012). Disciplinary perspectives and background reading provide the point of departure and sensitising concepts supply the tentative tools with which to form interview questions, to look at data, to listen to interviewees, and to think analytically about the data. Sensitising concepts are adopted or dropped as their significance or irrelevance becomes clear and they become supplemented or displaced by emergent concepts (Padgett, 2003). Rather than approach each interview with a list of questions, an evolving list of key words or phrases was employed to guide the interview. This use of keywords kept the interviews as loosely structured as possible but at the same time ensured that the domains of inquiry were eventually covered if they did not arise naturally in our discussion (Karp, 2009). The list of key words evolved throughout the entire interview schedule in response to ongoing data analysis. Table 3.3 below, provides a comparison of the keywords used in the initial six interviews and those that were used by the time of the eighteenth interview.

## Keywords for use during Interviews

| First Interview Plan – Keywords Interviews 1-6 | Fifth Interview Plan – Keywords Interviews 17 and 18 |
|---|---|
| Deciding to grow food | Deciding to grow food |
| Costs of growing food | Appeal of gardening in general |
| Diet – better since growing? | What growing food brings to gardening |
| Shopping – changed since growing? | Relationship with ornamentals vs food plants |
| Cooking – changed since growing? | Impact of growing food on life outside garden |
| Savings made | Sharing garden with non-humans |
| Dealing with surplus/glut | Boredom? |
| Crops grown – Vegetables, fruit, herbs | Empathy for plants? |
| Food Waste – less since growing? | Empathy for pests? |
| Choice of crops to grow | Family connection |
| Concerns about taste, freshness | Social side to growing? |
| Crop losses – what impact? | Crop losses – what impact? |
| Growing veg in front garden | Compost |
| Learning to grow | Seedsaving? |
| Concerns about industrial food: Sustainability, pesticides, etc. | If growing food was banned, how would you react? |
| Stress reduction | |
| Environmental concerns: wildlife friendly, organic | |
| Time spent growing food | |
| Space allocated to growing food | |
| Compost? | |
| Pests | |
| What do you do in winter? | |
| GIY | |

**Table 3.3: Interview Keywords**

In this case, the initial interview questions covered general concepts about growing food, using that produce and about gardening practices and the responses received suggested that preference should be given to some lines of questioning over others. For instance, it became clear early on that exploring the concept of saving money was not going to be fruitful as all interviewees were quick to dismiss it as an irrelevance to their lives in the garden. On the other hand, the different relationships that gardeners had with food plants and ornamental plants emerged quite early on and was explored in subsequent interviews.

#### 3.7.1.3. Recording of Interviews

Glaser (1998) is adamant that grounded theorists should use field notes rather than tape interviews because, he argues, the level of data obtained from tapes overwhelms the researcher with unnecessary data, slows the analysis and is useful only for those who are looking to produce non-conceptual descriptive completeness rather than generating theory (Glaser, 1998). The problem with Glaser's position, however, is that field notes do not allow the interview event to be revisited and the only interpretation of that interview is from the obvious perspective of the researcher, with the interviewee's voice being lost (Hamo, 2004). It has also been noted that use of field notes alone results in the loss of up to seventy-five percent of interview data (Tessier, 2012). On the other hand, digital recordings of interviews allows for unlimited encounters with the interview event through repeated listening. Further, replaying recordings in conjunction with the reading of transcripts during data analysis prevents the loss of useful information contained in intonation, hesitations, emphasis and so on that were not noted in transcripts. In this research project, the combined use of recordings and transcripts during data analysis reflected the fact that transcripts are more easily analysed while recordings provide more robust evidence.

#### 3.7.1.4. Transcription

Transcripts are routinely treated as objective accounts of recorded data, and transcription is understood as the mere "mechanical selection and application of notation symbols" (Davidson, 2009 p.38). In this research, however, transcripts are recognised as being constructed. In the first instance, a decision had to be made on what should be omitted or included, e.g. intonation, pauses, repetitions, etc., and, secondly, judging what is significant, e.g. sighs, pacing, volume, non-lexical

vocalisations and so on, is based on a transcriber's own cultural knowledge (Hammersley, 2010). Given that transcription is such an integral part of the data analysis process, with decisions on what to omit or include being driven by epistemological, social, cultural and linguistic imperatives, it was decided that quality control and consistency were best achieved by not outsourcing transcription (Bird, 2005). The decision to transcribe interviews required that consideration be given to the level of detail required in the transcripts for the purposes of this research. In general, transcripts can be naturalised or denaturalised. Naturalised transcripts conform to writing conventions so they include punctuation and other features that do not occur in oral language in contrast to denaturalised transcripts which preserve the features of spoken language, including "um" and "ah", and they also note hesitations, pauses, pacing and so on to a level that is necessary for discourse analysis (Bucholtz, 2000). However, such complex transcripts were considered unsuitable for the purposes of this research because they result in texts that are both time-consuming to produce and difficult to read. Therefore, the decision to produce naturalised transcripts was straightforward but this in turn raised issues about what exactly should be included or omitted from the recordings in order to render a transcript that provided a clear account of what was said and also maintained the integrity of the data. Each decision to include or omit a part of a recording underlined the transcription process as reflexive and constructivist rather than a mechanical application of putting words on paper (Lapadat and Lindsay, 1999). When a participant digressed from the topic under discussion or where there was an interruption by a third party, this was noted but not included in the transcript.

In order to make transcripts as accessible as possible, pauses, hesitations and intonations were not noted. However, there was no attempt made to tidy up speech patterns so repetitions, incomplete or unfinished sentences were included. Emotions were not noted apart from an occasional laugh which is noted to clarify a statement. Where a quotation is employed for illustrative purposes, an edited version which excludes repetitions and non-lexical vocalisations has been used to increase readability (Mondada, 2007). The disadvantage of tidying up quotations for illustrative purposes is that, given their greater coherence, they may be viewed as objective data rather than an interpretation of interview data (Charmaz, 2014). This is compounded by the decontextualisation of the quotation. All transcripts include a

header that outlines the date and place of recording as well as a brief profile of the participant, i.e. age range, employment status, life cycle stage, household composition, short description of garden properties and length of time gardening. Although in general these characteristics proved to be irrelevant in the generation of a grounded theory, they did help to identify the relevant participant. This was particularly helpful in the earlier stages as each participant was given an alpha-numeric code for anonymising purposes from the very first encounter.

During early data analysis, transcripts and recordings were used in tandem which allowed for occasions where there was inconsistency between what was literally said and what was meant, with differences being noted through the use of pauses, intonation, pace, laughter, etc., that were clear on the recording but not transcribed in the interests of ease of use of transcripts. There would also have been a danger that working only with the relatively clean, sterile, emotionless, transcripts would lead to incomplete data and a less developed understanding of the interviewee's real experiences.

#### 3.7.1.5. Field Notes

A recording and its accompanying transcript cannot reproduce the original interview but they do allow us to revisit the event under changed conditions (Duranti, 2006). In this case, almost all of the interviews were recorded and field notes were made immediately or as soon as practicable following each interview. The field notes were felt to be a necessary addition to address two gaps in the recordings. Firstly, recordings do not include useful non-verbal information of social, temporal and spatial context leading to the charge that they are "an impoverished basis for interpretation" (Kvale, 1996 p.167). Secondly, many interviewees impart useful information both before and after the recorded segment of an interview. In this case, field notes contained details of the interview, e.g. date and time, location, interruptions, descriptions of the gardens and the vegetable plots. They also contained notes of the sometimes lengthy and relevant conversations that took place, for instance at the front door, before and after the recorded section. There was also an element of reflexive analysis as field notes contained ideas of how to improve subsequent interviews and how questions might be approached in a different manner. For instance, it was noted in the first interview that the presence of neighbours in their garden next door acted as a barrier to the discussion so that part

of the interview was cut short. This was something that had not been considered when the plans to conduct interviews in the garden were formulated. On another occasion, it was noted that the segment of the interview recorded in the garden was unintelligible because of the very windy conditions on the day. Impressions of the gardeners and their approach to the interview process was noted, with some taking the opportunity to question someone they mistakenly understood was a gardening expert rather than an academic researcher while others were delighted to act as teacher and offered a great deal of advice. Section 3.10 contains further discussion on reflexivity and the research process. Although participants were generous with the time they gave to the interview in a couple of instances interviews were cut short because of unexpected changes to the plans of the interviewees. In general, the information recorded in the field notes proved useful in leading to the evolution and improvement of the interviewing technique of a novice researcher and these changes may in turn have led to improved data collection.

## 3.8. Data Analysis

In GTM, regardless of the epistemological stance of the researcher, there are core strategies that must be employed and these include constant comparative analysis, theoretical sampling and theoretical saturation, as discussed in Section 3.4 above, and also coding and memo-writing, which are discussed in Sections 3.8.1 and 3.8.2, respectively. Constructivist grounded theorists also consider their own assumptions, research principles and practices because, while these may direct their attention, they must not determine their research (Charmaz, 2008). Again, it is important to note that although these strategies are dealt with sequentially here, data analysis was iterative, with initial coding being repeated or data recoded to meet the demands of conceptual development. The use of constant comparative analysis also involved going over and back between various segments of data, codes and concepts. Memos were constantly amended to reflect developments as analysis proceeded. The developing theory was constantly revised and modified to fit new data in line with Glaser's dictum that neither the theory nor the data are wrong; rather the theory gets modified to fit the data and new data is simply compared into the theory (Glaser, 1998).

### 3.8.1. Coding

Analysis is “the search for patterns in data and for ideas that help explain why those patterns are there in the first place” (Bernard, 2011 p.338). Coding is the first stage in this analysis and, as such, it should be more than simply applying deterministic labels to the data. Instead, coding is “essentially heuristic, providing ways of interacting with and thinking about the data” (Coffey and Atkinson, 1996 p.30). Although coding and categorising data help us to order our data, boundaries may occasionally be fuzzy so consistency is important (Dey, 2007). The labelling of lines or segments of text is a deliberate and thoughtful exercise in categorisation of data into themes for analysis (Gibbs, 2008). This coding is a process of “ breaking down, examining, comparing, conceptualising and categorising data”, the result of which is data that can be reordered in various ways, e.g. by theme or hierarchies, for comparative purposes (Strauss and Corbin, 1990a p.61). Line by line coding allows the researcher to engage closely with what the subject is saying which helps prevent the imposition of the researcher’s own values and assumptions (Gibbs, 2008). There are two main phases of coding in GTM: firstly, initial or open coding and, secondly, focused or selective coding. Both Glaser (1998) and Charmaz (2014) recommend speed and spontaneity in initial coding as it prevents the researcher getting bogged down in analysis, prevents over-interpretation of the data and it helps spark ideas. During initial coding, incidents were coded into as many categories as possible in order to keep analytic possibilities open. For instance, the following response from G04 to a question about how long she had been growing vegetables was coded to reflect the references to length of time growing food, the role of GIY in encouraging her, the social aspect, the willingness to try something new:

> *Oh, probably in the last three or four years, more since I got involved with GIY but there would have been a kind of informal thing like with a few of us before that, with tomatoes one year, we tried tomatoes and then we might try, you know, something else, but we’ve kind of flexed our wings with GIY.*

These initial codes were considered tentative, provisional and comparative and some data were recoded at later stages to further develop the properties of categories of data. An important point to note is that, with GTM, rather than accurately portraying the data, codes indicate possibilities suggested by the data, so the aim is for codes to fit the data and not the reverse (Charmaz, 2014). Gerund coding, done line-by-line

or sentence by sentence, is a useful initial coding method as it preserves the fluidity of the participant's experience and illuminates the actions being done rather than the individuals that are doing them (Seale, 2012). Focusing on individuals carries the danger of the research project ending with conceptual description as it leads to participants being seen as one-dimensional, frozen in time and space (Charmaz, 2014). On the other hand, a focus on comparing actions or incidents is more likely to lead to concept development and to the ultimate goal of grounded theory, i.e. theory generation. Following the first six interviews, there was a break of 30 days before interviewing resumed. This time was spent reviewing codes and identifying categories to which groups of codes might be assigned and generally allowing ideas to percolate. At this stage, the codes were compared for coherence and consistency, a review which led to a number of them being amalgamated because they dealt with such closely related or overlapping issues. For instance, a code labelled "Expanding the vegetable plot" was merged with another code, "Constantly evolving garden" as they both dealt with the changes that happen in a regularly worked garden. Each code that was created during data analysis had a memo attached and this was where codes justified their existence and where relevant ideas and questions were explored. The constant comparative analysis of data with codes, and codes with codes, was also recorded in these memos. In all, during coding and constant comparative analysis of the first six interview transcripts sixty-seven codes were created, as follows:

| Name | | Name |
|---|---|---|
| Anticipating enjoyment of fresh food | | Controlling elements, pests, nature, etc. |
| Being Self-sufficient | | Composting |
| Choosing crops | | Appreciating aesthetics of all garden plants |
| Choosing crops that will be eaten | | Extending growing season |
| Dealing with surplus or glut | | Communing with nature |
| Developing awareness of embedded costs of producing food | | Constantly evolving garden |
| Developing new cooking/eating habits | | Having sense of wonder about cycle of life |
| Eating own Produce | | Worrying about welfare of plants |
| Gardening as productive act | | Enjoying routine work |
| Gardening as response to global food system | | Facilitating pollinators |
| Harvesting own crop | | Caring for Soil |
| Investing and saving | | Lacking space |
| Reacting to crop losses | | Growing |
| Shifting focus between flowers and vegetables | | Knowing own plot intimately |
| Shopping adapted to productivity | | Having duty of care to plants |
| Storing the harvest | | Lacking time |
| Using food from garden | | Obsessing about garden |
| Growing to eat fresh food | | Accommodating Wildlife |
| Teaching and Supporting Others | | Closing nutrient loop |
| Linking gardening to family and childhood | | Growing from seed |
| Sharing gardening experiences | | Having duty of care to plants |
| Working together | | Relating differently to food and ornamental plants |
| Finding support in GIY | | Treading lightly |
| Socialising around gardening | | You get out what you put in |
| Experimenting as motivator | | Persisting in the face of failure |
| Learning | | Responding to changed circumstances |
| Trying it out, nothing to lose | | Succeeding as motivator |
| Satisfaction from gardening | | Looking forward |
| Lifelong growing | | Giving up |
| Feeling secure in ability | | Integrating vegetables and ornamentals |
| Gardening mentally | | Monitoring progress of plants |
| Gardening for Health | | Cheating |
| Destressing | | Gardening as a political act |
| Challenging oneself | | |

**Table 3.4: Codes from first six transcripts**

### 3.8.2 Constant Comparative Analysis

Constant comparative analysis initially involves comparing data to data and data to codes to identify categories and then to identify the full dimensions and properties of those categories. The use of constant comparative analysis from the earliest stages of the research project provided a systematic way to handle the data but, very importantly, it also prevented the sudden appearance at any stage of an overwhelming amount of data. Appropriately for a grounded theory study, constant comparative analysis ensures that categories and concepts are firmly grounded in the data. Several categories began to emerge from the initial coding and memo-writing. For instance, sharing the garden space with others, e.g. plants and wildlife, became a category to be compared with the concept of gardening as being about controlling nature and space. Personal development was considered as a possible category that would include challenging oneself through experimenting, learning and teaching others. There also appeared to be the potential to organise a category around the sense of peace, calmness, tranquillity or security that all of the participants referred to and all of these ideas were marked for further exploration in the next set of interviews.

Focused coding, the second major phase of coding, concentrates on the most significant or most frequently occurring codes from the initial coding process, thereby allowing sorting, synthesis and analysis of large amounts of data without sacrificing the detail contained in the data (Charmaz, 2014). Categories are developed as new incidents are compared and added once their relevance has been identified. The core category identifies the primary theme, problem or issue that concerns the participants (Saldana, 2012). The broad aim of the study was to explore the potential contribution of HFG to urban resilience and to do this successfully it was necessary to understand why people grow food and what encourages or deters them from this practice. As core concepts emerged from the data, it became clear that any understanding of HFG must take account of the relational and spatial contexts which determine what and how much food is grown in domestic gardens. The core category is central, occurring frequently in the data, accounting for variations in patterns of behaviour and relating meaningfully to other categories (Dey, 1999). Once the core category has been identified, all coding is then focused on developing and refining the properties and dimensions of that category. At this stage, theoretical

sampling is employed to collect data aimed solely at developing this category. It became clear as coding proceeded that participants were less concerned about external factors such as saving money, storing harvests, or having access to organic produce than had initially been expected. The major categories that emerged were centred around relationships, with both humans and non-humans, e.g. the social element of gardening; the link to parents, grandparents and childhood homes; the gardener/plant relationship; the relationship with other garden inhabitants; the care and development of the soil. Another important category concerned the ongoing process of learning by doing, commonly expressed as 'just giving it a go'. Also emerging was the sense that these gardeners were enjoying being engaged in a joint endeavour with the plants, soil and the other inhabitants of the garden. Although the gardeners did their best to obtain a favourable outcome by creating the best conditions they could, they all recognised that they were not in control of the process. The differences lay in how they defined and created the best conditions for growth, how they dealt with adversities such as crop failure, poor soil and pest predation.

The development of the core category Gardening as Relational is set out in Table 3.5 below:

| First Round Codes | Focused Coding | Categories | Concept |
|---|---|---|---|
| **Social World:** | | HFG in a Social World | HFG as Relational |
| Linking garden to childhood | Link to Childhood | | |
| Parents gardening | | | |
| Teaching others | Sharing Knowledge | | |
| Learning | | | |
| Sharing gardening experiences | | | |
| Working together | | | |
| GIY | Sharing Plants, Seeds, etc. | | |
| Socialising around gardening | | | |
| Sharing gardening space | Sharing Space | | |
| Sharing garden produce | Sharing Produce | | |
| **Natural World:** | | HFG in a Natural World | |
| Controlling elements, pests, etc. | Controlling Nature | | |
| Cheating nature | | | |
| Treading lightly | Acting Ethically | | |
| Composting | Understanding Soil as Living Entity | | |
| Caring for soil | | | |
| Worrying about plant welfare | Understanding Plants as Sentient Beings | | |
| Growing from seed | | | |
| Relating differently to food and ornamental plants | | | |
| Accommodating wildlife | Sharing space with wildlife | | |
| Monitoring changes in garden | Understanding Nature as dynamic | | |
| Constantly evolving garden | | | |
| Communing with nature | | | |

**Table 3.5: Development of a Concept**

### 3.8.3. Memos

Memo-writing provides the "methodological link, the distillation process, through which the researcher transforms data into theory" (Lempert, 2007 p.345). Memo-writing, which keeps the researcher actively engaged with the data, provides space to develop ideas and to engaged in critical reflexivity (Charmaz, 2014). Memo-writing ensures that "one is forced to question what one knows, how such knowledge has been acquired, the degree of certainty of such knowledge and what further lines of inquiry are implied" (Hammersley and Atkinson, 1983 p.165). By continually capturing the "frontier of the analyst's thinking" throughout the entire research process, memos provide an audit trail as well as the foundation of the final write-up (Glaser, 1978 p.83, Urquhart, 2013). Because memos in GTM are written about ideas and concepts, sorting through them involves sifting through ideas and relating concepts to each other, a process that can aid creativity and spark fresh insights (Glaser, 2014). Memos were written from the start of this research to set out disciplinary perspectives and initial assumptions about the area of enquiry and to explore methodological issues, including the reasons for choosing GTM over alternatives such as generic qualitative research (Caelli et al., 2003) or discourse analysis (Fairclough, 2010). Memos were organised into categories, i.e. administrative, methodological and theorising and taken together they provide a clear account of how the research process progressed.

Every time a new code was created, a memo was generated to justify its creation and to record all incidents that were relevant to that code. The memo provided the space to explore the codes and the categories into which those codes were eventually sorted. Each category had a memo that defined it, identified its properties, noted the conditions under which it arose or was stalled, discussed its significance and its relationships with other categories. Constant comparative analysis of data with data, data with codes, codes and categories and of categories and concepts was conducted through the use of memos. Relationships between categories were also explored in this way. Memos provided space for conjecture and these conjectures were marked for further exploration during data collection and, later, during literature reviews. Memo-writing was a very helpful strategy in developing concepts, noting where they were underdeveloped and what further information was needed for clarification. All of the memos were seen as provisional and incomplete

but reviewing and revising them was central to conceptualisation and theorising. Memos were also used during the literature review to summarise key articles and to explore the relevance of current theories to what was emerging in the data analysis. A memo was written every time a code was created but memos were also used to record ideas that might move the analysis forward, heeding the "hard and fast rule" that all activity must stop at any moment to capture an emergent idea (Glaser, 1998 p.182). On occasion, this meant jotting down a few points or questions on a scrap of paper before the idea vanished but all memos were eventually incorporated into the NVIVO programme which simplified their management, as discussed in Section 3.9, below. Most importantly of all, memo-writing sustained the momentum of the research process.

## 3.9. Computer Assisted Qualitative Data Analysis Software

The use of Computer Assisted/Aided Qualitative Data Analysis Software (CAQDAS) has become somewhat less controversial as the software has improved and as its use has become ubiquitous. Nevertheless, some grounded theorists remain opposed to, or at the least, concerned about its use in GTM. Glaser argues that the use of software packages leads to conceptual description rather than theory generation because it stifles the creativity that is a fundamental part of conceptualisation and theory generation (Glaser, 2005). Other critics claim that the use of software reduces the interaction with data to a mechanical process and distances the researcher from the data (Holton, 2007). One assumption made about the use of software is that it encourages a "code first, think later" approach, i.e. that the tedious and mechanical task of coding must proceed the more exciting task of data analysis (Dey, 1999 p.129). In fact, coding is an integral stage in this analysis and, as such, it should be regarded as more than simply applying deterministic labels to the data. On the other hand, CAQDAS has been shown to be of use in both Glaserian and Constructivist GT studies where coding and analysis must happen together (Bringer et al., 2006, Hutchison et al., 2010). By paying close attention to the core GTM strategy of constant comparative analysis, researchers can move beyond a mechanistic mindset of coding and analysis to conceptual analysis. In other words, the GTM researcher is not led or constrained by the software design but uses it as a project management tool that facilitates ease of access to, and movement

between, source data, conceptual codes, memos, models, etc. (Silver and Fielding, 2007). CAQDAS also helps maintain an audit trail. Following a review of the literature on the use of CAQDAS in grounded theory studies, QSR-NVivo 10 was employed from the start of this research project since it seemed to offer useful project management tools. Bazeley & Jackson's guide to NVIVO, user supports on the QSR website and video guides on YouTube (Bazeley and Jackson, 2013) were all consulted as learning resources. This learning continued through much of the practical work of the project as queries and difficulties arose.

NVivo was able to accommodate all sources of data, i.e. field notes, transcripts, recordings and photographs. The most relevant journal articles were also imported, summarised in memo form and then those memos were linked to appropriate concepts. Where NVivo proved to be of greatest benefit was in data management, i.e. in sorting, matching and linking codes and concepts. Constant comparative analysis, which is a defining element of GTM, was greatly aided by the efficient identification and retrieval of codes and data. For instance, following the advice of Glaser, many segments of text were initially coded in several ways to keep the analysis as open as possible in the early stages. The coding stripes function on NVivo allowed me to see, at once and together, all of the codes each segment was coded to and thus to identify easily the most commonly used codes and any potential relationships between particular codes. The ease with which this exploration was done greatly facilitated the identification of emergent ideas and their incorporation into subsequent interview questions. NVIVO also simplified the management of memos by allowing the various memos to be linked to the relevant data, code, category, methodological point or literature source. It allowed for easy retrieval and revision of memos, so that they could be resorted and prioritised depending on their status and the stage of the research.

## 3.10. Reflexivity

Reflexivity, which is now considered a defining feature of qualitative research across many disciplines, may be understood as facilitating a "critical attitude towards locating the impact of research(er) context and subjectivity on project design, data collection, data analysis and presentation of findings" (Finlay and Gough, 2003 p.16). It is an explicit concern for practitioners of Constructivist GTM, discussed in

Section 3.3 above. Constructivist grounded theorists challenge the idea of the silent author (Charmaz and Mitchell, 1996) that underpins the positivist epistemologies which maintain that there is a fixed, objective reality that is separate from the researcher and others and, furthermore, to engage in reflexivity is to introduce woolliness and bias into research (Shaw, 2010). Constructivist grounded theorists argue instead that reality is fluid and constituted in a particular time and place and results are co-constituted through the interactions and shared meanings within the researcher-participant dynamic (Finlay, 2002).

This research project arose out of a combined interest in urban studies and gardening, each of which informed the assumptions behind the initial conceptualisation of HFG as being fundamentally different from ornamental gardening. From personal experience, ornamental gardening is about the process of creating an aesthetically pleasing space while HFG, according to the academic literature, seemed to be driven more by external motivations such as a desire to save money or concerns about environmental sustainability and doubts about the safety of chemically treated industrialised food. In other words it was all about the outcome rather than the process. Therefore, during initial data collection, the focus of interviews was directed more towards the topic of food, for instance, what was grown, how it was used, and what impact growing food had on food shopping.

During the interviews, participants understood that there was a shared interest in gardening and this shaped the power dynamic of the interview in two different ways with some participants seeking “expert” advice for specific gardening problems and, more rarely, participants choosing to offer instruction on the best way to grow particular crops. The desire of both parties to be seen as accommodating and agreeable also meant that interviews were regularly in danger of veering off into unfocused exchanges of gardening experiences. In response to this situation, there was occasionally a greater use of more structured questions leading to possibly shorter answers than originally intended. Given the shared interest in gardening and the similarity in backgrounds of interviewer and many participants, it was important to guard against the supposition that values and understandings were also shared as this might have led to central issues being ignored. On the other hand, having a gardener’s ability to read a garden and identify plants or techniques was an advantage during the walking part of the interviews as points of interest were less

likely to be overlooked. To improve the integrity of the research, it was important that all of these issues were considered as the research progressed rather than their being reflected on at the end of the process.

## 3.11. Methodological Evaluation

The choice of GTM for this research project worked particularly well when compared to other potential methods which would, for instance, have required a more fixed pre-selection of topics to be explored or which may have resulted only in a descriptive account of HGF. For a novice researcher, there was an element of reassurance in the step-by-step path offered through the entire research process and the use of constant comparative analysis from the early stages of data analysis prevented any sense of being overwhelmed by either tasks to be completed or ideas to be considered. There was a significant amount of reading done at the start of the project and, in hindsight, much of this was unnecessary. For instance, broad reviews were conducted of the literature on environmental psychology and global food systems and, since one of the aims of the research was to explore the motivations of gardeners who grow food, an exploration of the literature on motivation was also undertaken. All of this reading was done in part because only the topic, and not the methodology, had been chosen at that stage. However, once the methodology was chosen, it was difficult for a novice researcher to trust the idea that prior reading might be unhelpful so that even then some reading continued. This lack of trust in one element of the methodology was unfounded since one of the most pleasurable aspects of this research project was arriving at a final, previously unconsidered, category of human-non-human relations and then discovering a body of literature, in Anthropology, that addressed this issue. The iterative nature of the data collection and data analysis process meant that when assumptions of HFG as being about outcome were identified as being unhelpful following early data analysis, it was a simple matter to adjust the focus of questioning. The focus of interview questions was, in fact, adjusted regularly as new data were collected and new ideas emerged from the ongoing analysis. The memo-writing requirement, which is integral to GTM, facilitated a disciplined approach to the work by ensuring that all thoughts, choices and decisions were recorded and justified, with the result that there was a record of the entire process. The use of GTM in geographical research is a rare event and the

implications of this were not understood at the start of the study. Consequently, the methodology needed to be explained fully while common misconceptions around literature reviews, sampling and theoretical saturation needed to be challenged regularly. Despite some lingering scepticism, it is clear that the use of GTM in this study has allowed the voices and experiences of participants to be heard and this, in turn, has led to a more complete understanding of HFG than previously existed.

## 3.12. Conclusion

As has been illustrated with reference to this specific research project, GT happens 'sequentially, subsequently, simultaneously, serendipitously and scheduled but not in this or any other predetermined order' (Glaser, 1998 p.15). In other words, GTM is non-linear, with tasks happening simultaneously and, occasionally, the researcher needs to go back to the start to deal with new data. All the while, during this iterative process that is subject to constant readjustment, the researcher remains open to being surprised by new ideas and emerging concepts. Although there must be a rough schedule for task completion, it too is subject to revision. Despite these apparent uncertainties, the process is never chaotic; rather, it provides rules for the researcher so that s/he knows what to do immediately and in subsequent steps but, as a methodology, GTM is flexible enough to allow concepts to emerge without forcing (Glaser, 1998). The aim is to eventually arrive at a point where a theory is generated that can explain relevant behaviour in the substantive area of research and that can be adjusted to take account of new data as it emerges. In a grounded theory study, there are no explicit, well-defined questions or no hypotheses to test, only an area of research. In this case, the focus of the research is to understand HFG and its role in urban resilience. Reflecting Glaser's (1992) warning that more often than not the apparent problem or question that prompted the research is not the one that is addressed by the core category, this study has found that HFG is not driven by the food produced but by the process and the relationships sustained by that process.

This chapter introduced GTM, its evolution and variations, before setting out the reasons why it was considered the most appropriate choice for this research project, i.e. it provides a systematic, rigorous, step-by-step course through the research process while also facilitating the complex and multi-layered analyses of data that

can lead to the generation of a theory. Furthermore, it has been deemed to be particularly suitable for under-researched topics such as HFG. The core tenets of constant comparative analysis, theoretical sampling, theoretical saturation, coding and memo-writing were discussed and illustrated with reference to this specific research project. The decision to use CAQDAS and its value to the project were discussed in Section 3.9, Reflexivity, a central tenet of Constructivist Grounded Theory, was reviewed in Section 3.10 and the effectiveness of GTM as the chosen methodology was discussed in Section 3.11.

In the next chapter, the major concepts that emerged from data analysis, namely the social and environmental contexts within which HFG is practised, are discussed as are the resultant implications for the type and quantity of food produced.

# CHAPTER 4: RESULTS AND DISCUSSION

## 4.1. Introduction

As discussed in the previous chapter, using Grounded Theory as the framework through which to explore household food gardening meant that there were no specific questions set out at the start of the study. With other inductive methodologies, the more common approach would have been to formulate questions from identified gaps in the current literature. However, with Grounded Theory, the literature review comes later in the process so that domains of enquiry, rather than specific questions, broadly guided the initial interviews. Consequently, participants were allowed the space to identify the most important issues for them, to provide the context for their gardening activities and to relate their experiences as they understand them rather than being restricted to following pre-determined lines of enquiry. The concepts used in this discussion are Social-Ecological Systems Theory (SES) and Ingold's (2000) Dwelling concept, which are discussed in Sections 2.4 and 2.5, respectively. SES is used to frame HFG in the context of urban resilience. In academic and popular writing, HFG is generally seen in terms of the tangible benefits, i.e. food, and is therefore considered in terms of its potential contribution to urban agriculture and local food systems. One aim of this study, then, was to explore the harvest, the contexts in which it was produced and the impact of those contexts on the type and quantity of food produced. In addition, by allowing participants to take the lead in identifying the most important aspects to them of their food growing practices, this study has been able to identify the fundamental importance to them of their interactions with the natural world.

This chapter initially discusses the legacy of childhood and family norms on the decision to grow food before exploring the social contexts within which HFG takes place. The role of non-human actors and agentic materials, i.e. plants, soil and wildlife, in the production of food is then discussed and, finally, the harvest itself is considered.

## 4.2. Gardening through life

This section will examine how and when participants started to garden and to grow food and how the practice has been adapted as circumstances change over the life

course. Sociologists consider that the legacy of norms bequeathed by families are the most influential social frames of references for individuals (Kurczewska, 2006). This may explain something that previous studies of HFG have noted in passing, i.e. that food gardeners tend to grow up in families who grow food (Carney et al., 2012, Dewaelheyns et al., 2014, Jehlička et al., 2013). Sociologists also recognise the importance of gardens and gardening across the lifespan to the psycho-social lives of gardeners for the role they play in the shaping of memory, place and identity (Bhatti et al., 2009). Until now, however, the literature that deals with HFG has ignored how the practice of growing food provides a way for gardeners to interact with childhood and family. What this section aims to do is to show how important that connection to childhood and family is in the decision to garden and, specifically, how it influences the decision to grow food.

A lifelong practice of food gardening is the exception, it being much more common to see an uptake in adulthood, as circumstances allow, as exemplified by G09:

> *They* [parents] *were always gardening, so it was always around but I was never really interested in it. I think it must have sunk in because one day I said oh I'd like to try that and we lived in an apartment so I grew in pots to start with*.

However, for the minority of participants who have always gardened, some of their earliest memories revolve around happy times working alongside a parent and being given their own jobs, e.g. tending the compost, as well as their own specially designated plots. S06's experience is typical for this type of gardener:

> *Since I was a little boy, since I was probably able to walk more or less, I was always tinkering about in the garden and sometimes not doing the right things but I was always tinkering about in the garden so I would say from a very young child, probably gardening proper from the age of probably seven or eight, I was sowing my own little section of the garden. My dad had given me my own little section, so, and there was fierce competition (laughs)*.

A UK study of gardening across the lifespan found that young adults in gardening households preferred to spend time away from home but they remained engaged with the outdoors through their sporting and social activities (Gross and Lane, 2007).

The same study found that young adults from gardening households began gardening again as they settled down in their own homes. Some look ahead to the time they have their own homes, as in the case of G02, a 27-year old who has claimed a tiny piece of her father's garden:

> *I'm taking this time now to kind of experiment so that some day when I have my own house, hopefully in the next couple of years, I'll know what to do and if I have a garden ..... I'll be confident enough at that stage to start planting things in the garden and have an actual, proper vegetable garden* (G02).

Participants typically start with a few containers or a very small patch of ground and expand their activities as confidence increases and circumstances dictate. For novice gardeners, starting small means that they are always in control and are therefore never overwhelmed or demotivated by attempting too much. Access to the smallest outside space is enough to allow someone to grow food so that not having a garden acts as a constraint only on the scale of growing and the variety of crops produced but not on the practice of growing food. Household composition and life stage impact on the layout of the garden, so that family gardens tend to have space for children and pets to play while active retirees may prefer to have more growing space as they have more time to work in the garden (Gross and Lane, 2007). The participants in this study cite a lack of time, not space, as the major constraint on their gardening activities but it is clear from the evidence that, although work and family commitments are a constraint on food growing activities, they do not prevent it. Kellett (2011) found that the most enthusiastic gardeners prioritised gardening over other activities so always found some time to garden. Participants expand and contract their growing activities as circumstances such as life stage and available space allow. To understand the evolution of any garden, it is therefore necessary to know the context in which the gardener works. For the lifelong food growers, their growing activities are carried on regardless of various changes in personal circumstances and migration, as S06 explains:

> *For short periods when I haven't had access to a garden or anything like that, it just used to really annoy me to be honest with you. So, even when I only had a little apartment, I had the balcony filled, now I say balcony but it wasn't much bigger than the fireplace there, you know, you could step out onto it and*

*that's it but I still had boxes on the railing, I had one at the back and one at the front ..... so I was determined to grow something (laughs) but even at that on the edible side of it I grew herbs so I still had to grow something to eat*.

S08, who cultivated a large vegetable patch for over twenty years, reduced her growing to a greenhouse and some pots for the past two years (Figure 4.1) because of work commitments. She plans to increase her gardening again next year by taking on an allotment, reflecting her increased free time.

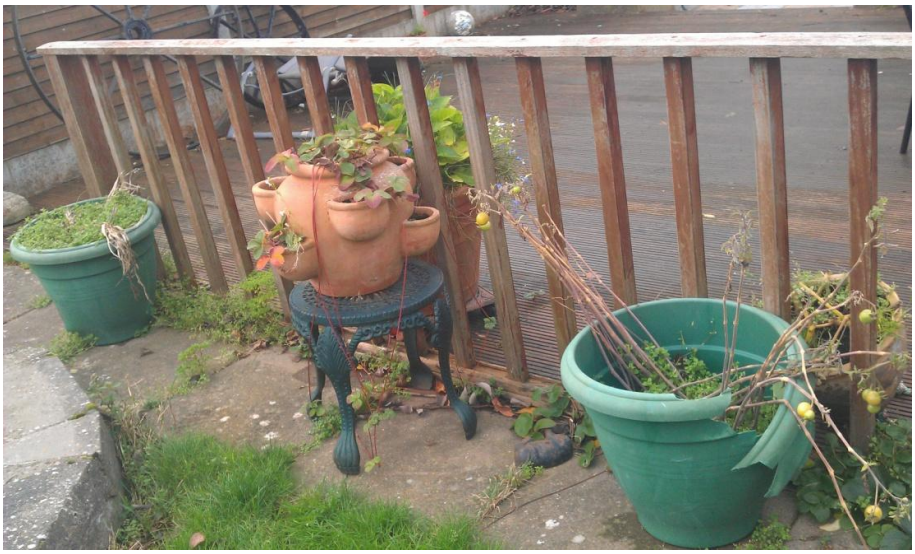

**Figure 4.1: S08's constrained activities (Author 2014)**

Some participants had scaled down their gardening activities in response to the increasing demands of work or the decrease in household size as children grew up and moved away. In another case, however, children leaving home freed up garden space into which another participant spread his vegetable growing. A house move provided an ideal opportunity for many of the participants to increase the scale of food production, with the characteristics of the garden being a determining factor in the choice of house. Having plans to change the layout or extent of the vegetable plot, or to invest in a piece of infrastructure, e.g. a greenhouse or watering system, is a constant feature of the food growing experience of participants, most of whom are growing in garden spaces with room to expand as opposed to being confined to balconies or roofs. Planning ahead, in terms of infrastructural developments and also in terms of crop choice is the default position of the participants. They think in

terms of moving forward and are always looking forward to the next season or next stage in the on-going process of growing food

Although food growing by these participants is described as being a choice, not a chore, for many of them, as explained by S06 above, it is more a compulsion than a choice. The sense of well-being that is induced by serving this compulsion to grow something is not dependent on the volume of food produced but is all bound up in the *process* of growing food. Participants can afford to be so flexible in their food production because, unlike low income households elsewhere, they are not dependent on home grown food either financially or as a source of nutrition. Therefore, the economic context in which they grow food is not comparable to most of the North American studies which focus on low-income households. However, we should also remember, as Jehlicka et al (2013) argued in their study of Czech food gardeners, the binary concepts of HFG as either a chore for poorer households or a leisure pursuit for wealthier individuals is not supported by the evidence in qualitative studies where food growers themselves have taken the lead in identifying the most important issues for them.

The participants in this study grew up mainly in suburban houses or come from mixed farming backgrounds in Ireland and Europe, and their current gardening activities range from tending a few pots to having large, highly productive gardens. What is most striking about their backgrounds is that all of them were exposed as children to the concept of gardening and/or growing food, by parents and sometimes grandparents, as epitomised by G12, who comes from a farming background:

> *I just recall going through the [garden] and really enjoying it but not necessarily picking up the knowledge but just the enthusiasm of doing it and looking forward to it, you know, looking forward to the harvest and stuff more so than anything else and yeah and it kind of stuck. It was never an all consuming kind of passion but it always stuck with me that some day I'd like to be able to do that* [and] *when I moved up to Dublin I was I suppose mainly living in an apartment and had a few tubs and stuff out on the balcony*.

Some participants were also inspired in adulthood by the food producing success of friends. The link between food gardeners and their childhood environment has been noted in passing by Kortright and Wakefield (2011) during a qualitative exploration of

food gardening in Toronto, Canada. The importance of carrying on a family tradition has also been noted in studies from Belgium (Dewaelheyns et al., 2014) and the Czech Republic (Jehlička et al., 2013). Even then, to suggest that there is a conscious decision to carry on that tradition implies that it is a more thought out and deliberate strategy than it often is. For the most part, starting to grow food is not something that is carefully planned out and researched ahead of time but much more a spontaneous, "let's just give it a go and see what happens" development. Starting out requires minimal investment, time and skill and is often a spur of the moment decision, as in the case of G02, currently in her second season of growing:

> *I saw a few seeds, tomato seeds, they were going cheap and I thought sure I'll try this. I tried that and some cayenne peppers and they worked and then I planted a few more things and they worked as well.*

Gardening may be understood as a biographical act "steeped in emotion, family history and self-identity" (Bhatti, 1999 p.184), with plants in particular embodying a range of social, emotional and experiential memories (Taylor, 2012). Repeated encounters with a landscape, in this case the garden, during childhood lead to the development of deep emotional ties with both the garden landscape and the plants therein (Jones, 2005). In the case of plants, this is particularly true of ornamental gardens where plants live for many years and where cuttings are passed on to friends and family. An ornamental gardener can point to various plants or trees and talk about the individuals from whose gardens they were obtained. Even in this study of food gardeners, several of the participants spoke with fondness of particular plants that came from elsewhere and thrived in their new location, e.g. a rosebush from a grandmother's rural garden. Childhood gardens are remembered for the people, plants and animals that occupied them and current gardens can reconnect to that past either literally with the transplanting of a plant or garden bench or symbolically by, for instance, planting the same vegetables as a parent (Bhatti, 2014). Most of the vegetables that appeared in this study, however, are grown as annuals so they do not have the same longevity as shrubs and perennial ornamentals. Instead, memories are embedded in particular vegetables or varieties, as G08 illustrates:

> *My favourite plant is scarlet runners because I grew scarlet runners when I was twelve and they grew and the red flowers came out and then the beans*

*came on them, Scarlet Emperor ..... yeah, I had a great crop of them, ever since then, I have always grown that*.

Many participants are keenly aware of the role their food growing plays in maintaining a link to parents and to a homeplace, with some, like S08, speaking of imagined discussions with dead parents about what they are growing and how they are going about it:

*I find myself going around saying Oh if my Dad was alive, he would have been really pleased with that one or he would really be impressed with that one, you know*.

Urban life today is lived in a "perpetual present" of instant news, with each new item presented as a drama or crisis that neutralises the previous news headlines (Hervieu-Léger, 2000 p.128). The overwhelming speed and fragmentation of news and information interferes with the ability of individuals to develop a coherent and collective sense of their lineage. Without understanding their links to the past, it is difficult for people to imagine a future. Participants who know their parents and grandparents cultivated the soil experience a clear link to their past. For those participants who encourage their young children to spend time in the garden, they are extending the links in the chain into the future. The participants with young children spoke of their wish to teach their children about food and where it comes from in the same way that their parents taught them. S02, who grew up in suburban Dublin, was spurred to begin growing food specifically to recreate the learning experience that he enjoyed as a child:

*The main reason I grow food mainly is because my parents always grew just a little bit of fruit and things like that and I think, again the reason for that was to show us as kids how all this stuff came to be.*

The argument that we are what we remember (Middleton and Brown, 2005), is a concept that is familiar to many participants, particularly those who are further from childhood homes in time and distance. S03, a lifelong gardener who grew up in Eastern Europe, is very clear about the importance of her gardening to her sense of who she is and where she comes from:

*It's really important to me that I have this [garden] and I think it's for my mental balance and I would have sort of have phone calls every week with my parents and they are still big growers..... I think it's part of being connected with them and you know asking questions, you know, how do I do that, what do I do here or my dad asking me because he forgot because he, you know, he's losing his memory a little bit so I think if I didn't have it I wouldn't have, there would be a big part of me missing.*

This relevance of childhood, family and place of origin to current garden practices was repeated a number of times particularly by older participants or those far from childhood homes. In general, it was an emotional link and one that had some influence on the choice of crops. Every year S03, above, grows some of the same foods she grew as a child, partly because they are the familiar comforting foods of childhood and partly because particular childhood favourites, like kohlrabi, have been difficult to source in Dublin until recently. In the case of those participants who spent time growing, as opposed to playing, in the garden as children, the techniques they learned from the adults around them are still employed, partly as a reminder of a dead or elderly parent elsewhere but also because they still regard that parent as the expert in their relationship. This preservation of knowledge about growing food, caring for plants, tending soil, making compost, etc., is at least as important to the development of urban resilience as is the quantity of food produced. The reason that cities have previously been able to scale up food production very rapidly and effectively has been partly because of the existence of knowledge transmitted from previous generations. This transfer of knowledge is also credited with preventing or at least reducing the ecological illiteracy that comes with living in a denaturalised urban environment (Barthel et al., 2010). In addition, being a link in a chain of gardeners, and part of a community of practice, provides individuals with the strong sense of identity that is essential for positive mental well-being.

## 4.3. Social World of Food Gardening

Although growing food in a domestic garden is usually perceived as a solo pursuit, there are many occasions of social interaction both driving, and arising from, the growing of food. While the garden may be conceptualised as a private, carefully guarded space, (Bhatti et al., 2014) and entered by invitation only, the act of

gardening and the food grown both depend on and support permeable boundaries as knowledge and harvest are exchanged through social interaction with the gardening and non-gardening community. It is worth restating that twelve of the twenty participants were recruited through the GIY organisation (see Section 3.6), with the result that GIY features more frequently in these data than might be the case had a different set of food growers participated. There is a higher degree of planned interaction and exchange between participants who are members of GIY groups when compared to the non-GIY members who show a much wider variation and greater randomness in the amount of social interaction based on their gardening activities. This section discusses participants' experiences of how growing food influences, and is influenced by, their social interactions with fellow gardeners and non-gardeners. These interactions are dealt with as follows; firstly, through the exchange of knowledge, plants and food and, secondly, by creating a link to childhood. Finally, the implications of these interactions on the food produced is discussed.

Part of the attraction of gardening is the opportunity to withdraw from other commitments, including social obligations, even one as simple as having a two-way conversation. The back garden, generally the site of food production, is a private space, out of sight of public view, and experienced as a sanctuary. During the interviews, working alone in the garden emerged as the most common experience and preferred state for participants. Their growing practices allow participants to exercise autonomy over at least one area of their lives, particularly where there is no-one else who shares an interest in growing food. They and they alone decide on garden management and crop choices, constrained only by the spatial demands of children, partners and pets and their own values. For those few who do share gardening activities, either the garden is divided into separate areas of responsibility or the work is divided by type, typically along gender lines where there are heterosexual couples, i.e. the male uses power tools, does heavy digging and grows vegetables while the female partner does weeding and grows flowers and herbs. Sharing the garden requires on-going negotiation over greenhouse space, plant placement, etc. However, for those that do share the work with another gardener, they also enjoy the companionable nature of a shared endeavour, as in the case of G10, who works the garden with her partner:

*It is, particularly if it is the two of us that are doing it, even if we don't talk, it is very enjoyable, something we can do together*.

Even when it is the garden and not the work that is being shared, it can be good to have someone else who notices the work done and the effort that went into it or appreciates the changes as they happen, as with S01 who has her own sections of a shared garden:

*It's quite delightful coming out here after a week's work and discovering something has changed and being able to share that with somebody.*

In general, the participants are in sole charge of their gardens and greatly appreciate the autonomy that results from that situation. However, the data suggest that socialising through the practice of growing food is a valued act that allows participants to become part of a community of food producers within which their expertise is acknowledged by their peers and where they are inspired by others to expand their activities and skills in a mutually supportive relationship. By sharing garden produce with the wider, non-food-producing community, the expertise and values of the participant are again acknowledged. Altogether, the opportunity to socialise does not impact positively or negatively on the decision to grow food; rather, it is viewed as an unexpected bonus, as explained by G09, an experienced gardener:

*I could have done it on my own. I just discovered it [GIY] by chance, went along and it's nice to chat to other like-minded people.*

It could be argued that GIY appeals to the more sociable food growers but that is not clear from this research. There is a wider variation of social interaction that is of a more random, ad hoc nature among non-GIY members. Strikingly, there was no awareness among non-members of the GIY organisation but this is not to suggest that they would have joined en masse had they known about it. In general, non-GIY members were indifferent to the idea of joining a group, partly because of their reluctance to commit to even more social obligations given the time constraints many of them were working under.

### 4.3.1 GIY (Grow it Yourself)

GIY has become very popular very quickly and not just with novice gardeners. It was established in 2009 with the aim of inspiring and supporting people to grow their own food (Kelly, 2013). GIY meetings, for those participants who attend, are useful fora for the exchange of information and advice, where novices are reassured and encouraged and where more experienced gardeners are inspired to try new techniques or varieties. G12, a GIY activist explains the attraction:

> *it's like minded people, it's good people, you know, that level of enthusiasm everyone kind of feeds off each other, it's great yeah, it's really infectious.*

The urge to spend time with other food growers at GIY meetings is not confined to those for whom, because their growing food is a solo endeavour, may feel in need of moral support. G10, an experienced gardener who shares her food growing activities with her partner explains that:

> *We didn't need it from the point of view of starting because by the time I joined we had a lot of veg growing already and most information we need about pests are things I would have learned.... but sometimes it's nice to share you know…. you can get different views and you pool your own.*

There is some evidence from participants to suggest that the strong organic ethos of the organisation, reflected in articles on its website and its weekly e-newsletter, influences its members to become more organic in practice by developing informal norms of community practice. This message is reinforced at group meetings by invited speakers and particularly through the exchange of information and experiences with other members. GIY also encourages and facilitates members to become socially engaged by volunteering in community gardens or organising and helping in school or hospital gardens (GIY, 2014). Members of two of the branches from which participants were drawn were involved in setting up school gardens, providing volunteers to work with the children and tending the gardens over summer holidays. One branch had also helped set up a food-producing hospital garden locally (Kelly, 2014). Growing food offers opportunities for social exchange as and how participants need it but all of the participants engage socially with others strictly on their own terms.

It had been anticipated that most GIY members would be novice growers seeking advice and encouragement but this turned out not to be the case. It may have started out that way but has evolved into something altogether more social. New friendships and communities of gardeners are built out of a common interest in growing food, the sharing of information, and the support and reciprocity found at GIY meetings. The sentiment expressed below by G12 encapsulates the experience of many of the GIY participants:

> *There's people I've known now for nearly three years that I would see at least once a month and spend a few hours with them so you know it does become, you know, you build friendships out of it which I hadn't really expected. It's strange, oh it's lovely like, it's great but it's unexpected.*

The literature on community gardening and allotments focuses on the benefits that are fostered by community bonding, but domestic food production can facilitate this same sense of community. GIY eases the move to a new area for those food growers who are inclined to attend meetings by providing a ready-made community of gardeners for them to join, as in the case of G11, a gardener for many years:

> *I suppose also the fact that we've just moved back to Ireland and we're not that far from where we used to live but, we have some very nice neighbours but it's also good to have, you know, to have networks, community, to be part of a community and I enjoy that. I enjoy, I'm beginning to know the people now and they're beginning to get to know me.*

The community benefits outside the GIY network are not as obvious since they happen randomly and informally. Among the participants who are not involved with GIY, and so do not have a scheduled time to meet other food growers, there is also plenty of evidence of social engagement around plant swaps and produce sharing, babysitting of gardens or simply chatting over the garden wall with neighbours. S03, a lifelong gardener, also sees the benefits of building local social networks through her gardening activities:

> *My neighbour has started to grow as well so we often exchange our ideas over the wall. They never used to but I think when we came they kind of realised we can use our garden for more than just sitting outside..... They're*

*away quite a bit so I hop over the wall and I water and deslug, and that's nice and it wouldn't have happened when they weren't growing themselves, you know.*

All HFG is relational and, although sometimes shaped by GIY, there are commonalities in the experiences of all participants, whether GIY members or not, in how social relations sustain, and are sustained by, food gardening. The next section explores how participants learn from others and, in turn, share their expertise. They are inspired to try new ways of growing or to become more organic. They share seeds and plants with other gardeners. Social interaction around growing food is also noted as taking place between growers and non-growers as produce is shared with colleagues, friends and neighbours.

### 4.3.2 Knowledge Exchange

Growing up in a household that engaged in growing, regardless of whether it was done on a farm, smallholding or suburban garden, has a major influence in the decision to grow food. For most participants, it was something that their parents or grandparents did, that they took no particular notice of beyond occasionally being sent out to water or to pick something for the kitchen. Therefore, when they came to garden themselves, without the benefit of inter-generational knowledge transfer, they largely taught themselves by reading and, more importantly, by doing. G09 explains the appeal of just doing it:

*Yeah, it's exciting because it might work. If it works, great. If it doesn't, well, you know, you haven't lost anything and you can't really fail at gardening. You can only be of a certain level and then get better.*

Maintaining a productive garden is a never-ending process that continuously takes place under different conditions and with different materials such that knowing how to grow food is an ongoing process, always changing, always emergent. Therefore, learning, whether by doing, by reading or by personal interaction, is an integral part of the process of growing food. Ryle's distinction between "knowing that" and "knowing how" (Lyons, 1980), although open to the challenge that they overlap and merge at times, is useful in understanding how participants learn to garden and grow food. Knowing how to do something is a skill, i.e. it is "tacit and situation-dependent, performative and non-propositional" as opposed to knowing that which is

propositional, i.e. factual (Harris, 2007 p.3). The skills that food gardeners need comprise "both practical knowledge and knowledgeable practice" (Ingold, 2000 p.316). This knowledge is acquired through the gardener's haptic engagement with the material world around them, what Crouch calls "lay geographies" (2000) that involve the everyday practices that are worked and reworked as the gardener learns about how food growing fits into the natural world. *Having a go* is mainly how these participants learn, and indeed how they start growing food in the first instance. However, discussion, casually or through more organised GIY meetings, with other food growers is a major source of information and advice on all aspects of gardening, from pest control to crop choices. Emphasising the spatially embedded nature of growing food, participants suggest that the reasons they prefer face-to-face knowledge transfer is that they all share the same local growing conditions and available varieties, whereas most of the books they use are written for gardeners in Britain. This preference for local advice is also the reason why the GIY website is so valued by those who are aware of it. Although learning by doing is integral to the process and appeal of growing food, all of the participants, whether novices or experienced growers, value the advice of others and take the opportunity to avail of it where possible. This is helpful when problems arise or when less experienced participants are in need of reassurance in the face of crop failure or other problems. But, given that so many of the participants try new crops or varieties each year, or are faced with a different set of conditions, e.g. extreme weather or an unidentified pest, there is always something to be learned from interaction with other food growers. One of the pleasures of growing food for these participants is that there is always a new variety of tomato, or a newly discovered source of seaweed or farmyard manure or a revolutionary 'natural' control for slugs. Gardens are always happening, they are never static, and gardening is about reacting to changes and there is always a change to observe and learn from. Even where they have not discovered something new, they enjoy the reassurance that comes from the recognition that they are part of a community of practice. This knowledge exchange is a two-way process as G07, an experienced gardener puts it:

> *"It's nice to have other people who are prepared to discuss for twenty minutes in detail what is the best way to grow courgettes*".

All of the participants are delighted to share their knowledge with others in what becomes a reciprocal relationship as even novice gardeners quickly reach the stage of feeling they can usefully contribute their experiences in discussions with other gardeners.

> G08: *I went up* [to his first GIY meeting] *and expected to maybe get a lot of answers, and I said I'd get a few tips here and I actually ended up people talking to me and I was giving them tips*

It is thought that novice gardeners see discussion with more experienced gardeners as the most valuable source of advice, and while participants commonly seek advice on the internet, they consider that local advice is superior as it reflects local social-ecological conditions (Barthel et al., 2010). This implies that face-to-face exchange of knowledge has a role to play in the improvement of urban resilience as it preserves local social-ecological knowledge that would other otherwise be lost. Novice gardeners are introduced to community practices and preferred norms by more experienced gardeners while, in turn, the perceived 'experts', like G08 above, enjoy increased social standing. This sharing of information also motivates and inspires growers to try new varieties of crops or new ways of doing things.

Most of the gardeners came from families where the previous generation grew some food, but, as previously stated, they did not generally learn as children. However, as they become gardeners in their own right, many of them seek advice from parents and older gardeners. For more experienced gardeners, sharing information with novices affords them the opportunity to pass on what was shared with them as they were starting out. It also allows them to persuade others of the benefits, tangible and intangible, of growing their own food. G08, a retiree who is cultivating a relationship with his future son-in-law through their common interest, explains:

> *He comes over here now and we'd have long chats while I'd be putting stuff into the garden about this and that and what his grandfather did and why I was doing this and that, so he'd be looking for an awful lot of seeds off me next year and that, so that's grand, no bother. Spread the faith.*

The sharing of seeds that G08 mentions, and which emerged during interviews as an important part of the practice of HFG, is discussed in the next section

### 4.3.3 Reciprocity

A UK study has noted that nineteen percent of germplasm used on a UK allotment was obtained through exchange or as a gift (Ellen and Platten, 2011). Germplasm is defined as any kind of propagative plant material, e.g. bulbs, cuttings, seeds, tubers, etc. Although the scale of food production carried on by the participants in this project is highly variable and on a smaller scale than would happen on an allotment site, for GIY members in particular, the impact of seed and plant exchange on the type of crop grown is important, as G05, a novice grower, explains:

> *I had seeds left over from last year that I brought to the GIY swop and I swopped seeds with other people so I didn't even have to buy seeds.*

In the same way that GIY facilitates the exchange of knowledge among those who attend their regular meetings, germplasm in the form of immature plants and seeds is swapped or given away during the monthly meeting. It is something akin to a book club, where members read a book nominated by one member that they would not have chosen for themselves. GIY members like G04, below, regularly find themselves sowing or planting a vegetable that they would not have chosen themselves but which was made available by another member:

> *I love the randomness of the GIY where we all bring up bits and pieces of things*.

This exchange adds to the interest for many of the growers as they like the challenge of growing something new each year. The exchange of germplasm between gardeners is part of an informal gift economy which, although discounted as trivial, is in fact "recurrent, predictable and socially regulated" (Ellen and Platten, 2011). Almost all of the vegetables grown by participants were grown from seed, despite the time and attention this required. This is partly because it is very much cheaper to buy a packet of seeds than to buy young plants from retail outlets but it is also seen as an integral part of the whole process of growing vegetables. Indeed, for many participants, spending time in the darkest winter period poring over seed catalogues and ordering seeds is enjoyable and very comforting, looking forward as it does to the warmer, brighter days of the year and a new season of activity in the garden. Not growing from seed may be viewed as cheating, acceptable only where plants had been received as a gift or were needed as an emergency replacement in the case of

an unexpected crop failure. On the other hand, buying in young plants is the only way to circumvent the severe time constraints that some gardeners work under and makes the difference between growing and not growing in any year. Most participants like to grow something different each year, either a new crop or at least a new variety, for the interest and challenge. In some cases, the choice of what they grow is almost entirely random, decided by impulsive purchases of packets of seeds or by obtaining seeds or plants from other gardeners. G06 explains the impact of GIY membership on his crop selection:

> *when we were swopping seedlings, there were things that people had that I thought, oh I never thought of growing, like, a pepper plant or whatever or a bean, particularly, so they were things that I picked up and I wouldn't have grown perhaps unless I had picked them up from the group*.

Growing from seed is an uncertain venture for even the most experienced participants and that is part of its appeal. They can never be sure whether some or all of the seeds will germinate and thrive, so they sow more than they need. This means that they are often faced with surplus young plants and, although composting is a convenient way to deal with them, not everyone has a compost heap and even when they do, sharing is the preferred option. This sharing reinforces the 'community' element of GIY and of the social relationships between family, neighbours and friends. Unlike the sharing of produce, however, sharing of germplasm is confined to the gardening community itself. Sharing surplus plants and seeds is one way in which gardening knowledge is transmitted between participants as the donation is also accompanied, if needed, by information on the most suitable conditions for that plant, when and what to feed it, best soil type, how and when to harvest. The plants that are swopped are tried and tested varieties that suit the locality. This type of information is particularly useful in encouraging novice gardeners, such as G04, below, to expand their repertoire of crops grown:

> *it has saved us money by sharing of the bits and pieces and that but by sharing and things like that and having people that were used to growing things, you know, you could ask questions*

It also facilitates less experienced growers who have experienced germination failures or who have mistimed their sowing or transplanting tasks. The donation may

also come with biographical information as the gardener talks about how he learned to grow it, when he first grew it and how he eventually uses the produce. Being able to donate or exchange plants means that his expertise is acknowledged by others in his network and it allows him to return the help and plant material he got from others when he himself was a novice food grower.

Although the sharing of seeds and plants is confined to the growers themselves, the sharing of produce allows an interaction with the wider, non-gardening community. The most common way by far of dealing with surplus produce or a glut of vegetables is to share it with others. Indeed, sharing produce is seen as an integral part of food gardening and extends the process of growing beyond the spatial confines of the garden. Food is given sometimes as a gift and sometimes in exchange for other considerations. There is a reluctance to engage in food preservation and storage, in large part because participants do not have the necessary skills and lack the interest in developing those skills. During the interviews, it was noticeable also how many participants were not particularly interested in what happened to the produce when it left the garden, once again emphasising that the interest is in the gardening process and not the end result. If the harvest embodies relational and spatial meaning, then so too do the decisions of how to use that harvest. It was noticeable how many participants choose to grow an unfamiliar vegetable or variety each year, regardless of whether they were going to use it or not, as outlined by G09. Although he expanded his growing activities to help the family food budget during a period of financial instability, he did not restrict his choice of crops to what would be used by the family:

> *I grow what I like to eat, what I eat, but sometimes I don't. Sometimes I just grow stuff, I try and grow something different every year, that I've never grown before. Sometimes I don't like it, like I'm not mad on broccoli but I wanted to grow it just to see....there's stuff I've never even tried. I'm growing, like, Jerusalem artichokes. I'd never even heard of them til I read a book on them.*

This quotation touches on one reason why gardeners grow food, i.e. in a never-ending and dynamic process there is always the opportunity to challenge oneself and to learn. When, as with these participants, growing food is not about food security or

economic necessity, the decision of what to grow is guided in part by curiosity and a desire to experiment. Although sitting down with seed catalogues to plan the next season's planting scheme is a pleasurable substitute for working in the garden during winter, these plans are always open to change if there are some free seedlings on offer from another gardener. The approach to planting may even be entirely haphazard, with impulse buying of seeds or seed and plant swops dictating what is to be grown. This is particularly the case with GIY members, some of whose gardening decisions are based almost entirely on what is on offer at swop meetings. The fact that they have a regular schedule of meetings means they can depend on accessing plants and seeds in this way. Given that there is such randomness in crop choices, it is hardly surprising that not all of the food produced will be consumed by the household, as G03 explains:

> *We'll eat the potatoes and we'll eat the peas and we'll eat the beetroot, you know, but I'm not particularly bothered whether we eat it or not.... It's the joy of watching it grow, yes.*

So what happens to this food? It is either given away or, on occasion, sent directly to the compost heap. There is a widely held assumption in the various literatures dealing with HFG and urban food systems that HFG is a sustainable alternative to current industrialised food production. Implicit in this assumption is the belief that all food produced in domestic gardens is being consumed but that does not appear to be the case with at least some of the participants in this study. There has been very little work done to date on the environmental sustainability of HFG. A notable exception, by Dewaelheyns et al (2013), has suggested that the overuse of pesticides and fertilizers, a common practice in domestic as opposed to commercial horticulture, and other garden management decisions may be causing unintended negative feedbacks in local environments. Although the produce that is not used or shared by participants in this study generally finds its way to the compost heap and is not therefore regarded as waste by the gardeners, its production involved the input of some resources. Therefore, the fact that it is not eaten should raise questions about the environmental sustainability of the practice. The decision to share produce rather than store it for later use has been noted in studies in Brazil (WinklerPrins and de Souza, 2005), Belgium (Dewaelheyns et al., 2014) and Australia (Lake and

Milfont, 2012) but has not been shown to be as significant in studies from North America (Kortright and Wakefield, 2011), possibly because the focus there was on low-income households and their need to improve food security. Sharing or exchanging produce creates, maintains and strengthens relationships with neighbours, colleagues, etc., and it is valued for this reason. G12 sees sharing produce with others as a very important part of growing food:

> *you know a product of [growing food] is being able to go into my workplace and say here you go, here's a basket of tomatoes and you know, that kind of sense of interaction and, yeah, satisfaction at being able to produce this stuff where people are appreciative and stuff, you know, it's a wider kind of interaction with community* .

Having produce that they can share with others is as important for participants as growing food that they and their families will use. The acknowledgement from non-gardeners that what they are engaged in is appreciated and worthwhile confirms their own belief that what they are doing is a good and valuable thing.

Storing food by freezing or preserving was done by very few participants and even then it was done only for particular crops, e.g. apples, soft fruit, tomatoes. There were several reasons for the lack of preservation of food. Firstly, many of those interviewed had no interest in cooking or preparing food. Their interest was confined to growing only. Secondly, storing food would also require the development of a new skill that many had no interest in mastering. Thirdly, freezing food and using it later required a level of organisation and planning that some participants were not prepared to entertain. G12, a GIY activist who expends considerable time and energy organising and working in his large garden, exemplifies this trend of not being prepared to invest in something that is of no real interest:

> *I did try it before but I found then it was, it was involving a lot of planning, defrosting stuff and what have you and decide the meal you want and all the rest of it.*

Lastly, and most importantly, even for those who did engage in some level of food preservation, is the pleasure and sense of pride that is to be had from sharing food

with appreciative non-gardeners. S06, a lifelong gardener, finds that sharing increases the enjoyment of growing the produce in the first place:

> *it's something I love to do. I love to go around to the neighbours with a bag of stuff or something like that, you know, or [someone] will ring up and say have you got any lettuce.*

To summarise, the significance of the food grown by participants is judged not just on its food value but on the role it plays in creating and strengthening social ties. Social capital, which is considered to be essential in the development of community and urban resilience, evolves from the networks of social interaction that build trust and reciprocity in both informal, individual social relationships and the formal networks of community organisations (Adger, 2003). Community gardens have been promoted by policy makers and municipal authorities across the Global North as one step on the way to improving urban resilience because, it is argued, they help build community resilience by encouraging innovation, diversity, adaptability and social interaction (Krasny and Tidball, 2012). The benefits of community gardening include improved physical and psychological well-being for both participants and, to a lesser extent, the wider community. Based on this research, it is evident that many of the benefits attributed to community gardens also apply to HFG. Growing food successfully requires the gardener to constantly adapt to changing conditions and it facilitates the social interaction of participants through the exchange of knowledge, plants and surplus produce. Communities of practice form the basis of community building in local areas, especially through gardening groups such as GIY. The face-to-face transmission of knowledge from experienced food growers to novices in a local area includes information on local growing conditions, on plants best suited to the local soil, and it is often accompanied by biographical information, all of which helps foster local community networks. There is an abundance of literature outlining the benefits of human-nature interaction to the psychological well-being of individuals. By facilitating inter-generational transmission of ecological knowledge, community gardens also encourage citizens to engage in pro-environmental behaviours (Barthel et al., 2010). In general, the literature on community gardens focuses on the social and cultural benefits and assumes that ecological impacts are likely to be positive. The next section explores the interactions that take place daily between the participants and the natural world.

## 4.4. Non-Human World

For food gardeners, the garden is the most common site of engagement with the natural world. Nature is experienced through the embodied practices of the gardener rather than being understood as existing in a decontextualised, separate world to be regarded in terms of resources and risks. Instead of seeing nature as the "universal prey" (Ingold, 2000 p.21) to be manipulated as required, gardeners know that all activities in the garden involve negotiated relationships with non-human beings and agentic materials. Gardens are regularly conceptualised as sites where nature is controlled but the experience of participants here suggests a more complex and nuanced set of interdependent relationships of inclusion and exclusion with a dynamic and multi-faceted natural world. Nature is constituted and understood through the gardener's practices in the garden and it is mobilised as a partner in the mutual endeavour of growing food. There are many aspects to growing food that are beyond the control of the gardener, including the behaviour of the plants themselves. Among participants, there is wide variation in the level of control exerted on the plants, pests and other dynamic elements in the process of growing food. The agency of the material elements in the garden is recognised by participants as they collaborate, negotiate, challenge and compete with non-human beings and materials to achieve their goal of growing food (Power, 2005). This is particularly evident in the relationship between gardeners and their plants, both wanted and unwanted. The sometimes conflictual nature of their relationship with wildlife is highlighted by gardeners who seek to support bees and hoverflies but also to deter pigeons, blackbirds, slugs and the cabbage white butterfly. In the next section, the gardener-plant relationship, participants' understanding of soil and its role in co-producing the food garden and the gardener-wildlife dynamic are considered in a discussion of how the participants experience nature and embody nature in their gardening practices.

Participants fall into three categories: those who have only ever considered growing food; those who are shifting from ornamental gardening to growing food; and those who see both ornamental and food gardening as an integral part of their overall gardening activities. There were no participants who were shifting away from food production to ornamental gardening. This may be explained by the difference in the relationship that participants have with their ornamental and their productive plants.

As their experience of growing food plants develops, participants find that they view ornamental plants with less favour. The ornamental plants that participants carry on growing are chosen for their supportive role in food production, e.g., in attracting pollinators or acting as companion plants. Ornamental plants are expected to protect vegetable plants by either acting as camouflage or attracting the predators which control pests or they are expected to generally enhance the growing conditions for fruit and vegetable plants. Ornamental plants become valued for their utility rather than their aesthetic qualities and are chosen because they are self-seeding species that do not need a great deal of care. Rather than relying on their aesthetic qualities, ornamental plants have to work harder to justify their existence in order to compete with food plants, as explained by experienced grower S07:

> *As the years have gone on, I'd be much more utilitarian about the ornamental stuff. If it's ornamental it has to do a lot more than be pretty. It has to feed birds, it has to have a nice scent, it actually has to work much harder*.

For the participants who originally grew only ornamental plants, for twenty years or more in some cases, interest in them declined rapidly to the extent that only self-seeding species and those that can *just get on with it* are cultivated in order that the gardener can devote time, care and attention to food plants. G07 explains:

> *the ornamental side has become so neglected now..... I've genuinely thought about digging it all up. I used to love it when I put more effort in and had more colour throughout the year but the reward of eating your own veg compared to looking at pretty flowers for me is much bigger.*

Low-maintenance becomes an attractive characteristic in ornamental plants, an odd development in a community of gardeners, albeit food producing gardeners. *If they grow, they grow and if they don't, they don't* was a phrase that was used by several participants about their ornamental plants. The reason for the displacement of interest from ornamental to productive plants has to do with the more reciprocal relationship that develops between grower and food plants, as S08 tries to explain:

> *I absolutely love growing potatoes (laughs), because I love digging them up, it's like finding gold, you know. You don't know exactly what you're going to get when you dig them and what size they're going to be or whatever, like*

*that...I like eating the potatoes I grow, so I like the taste of them and because there's so many stages to growing them, you know. You have to earth them up, check them for blight and all this, it's kind of an interaction between me and the growing potatoes, you know, it's not just putting them in the ground and leaving them there.*

How participants in this study understand their relationship with plants as a reciprocal one is in contrast to horticultural and ecological understandings of plants as non-sentient entities that are a resource to be manipulated and exploited by and for humans (Degnen, 2009). This relationship surprises and engages growers in a way that ornamental plants never did in part because of the sense that these plants are giving the grower something tangible in return for his care. Because food plants are giving something tangible in return, participants are prepared to involve themselves more closely in the welfare of their food plants. G02, a novice grower, is surprised by her level of involvement in the lives of her peppers and tomatoes:

*I look forward to it then coming home in the evening and wondering oh I wonder how they got on today or worrying about them because it was so hot.*

The language used to talk about plants is the language of parents talking about their children, with its implied responsibility for the welfare of those children, and indeed several participants referred to their plants as *babies*. Plants are *happy out* (G08) once they are watched over, protected from danger, fed and watered properly. Their different, sometimes wayward, characteristics are fondly noted, all of which accords with Ingold's (2000) assertion that raising plants is similar to raising children in that they are mothered, nurtured and cosseted. And just like children, plants are the embodiment of the care, tenderness, effort and commitment that was invested in their development. While G04 describes successfully inserting a treehouse in an old apple tree without using nails because she did not want to hurt her apple tree, not every gardener feels such empathy with their plants. Nevertheless, they all feel responsible to a greater or lesser degree for the well-being of the plants in their gardens. Hitchings (2003) argues that, rather than being under the control of gardeners, plants collaborate with gardeners when it is in their best interests to so do. Moreover, they are adept at extracting the support and attention they need from gardeners. Certainly their right to life is accepted, for instance by S03, who learned

to grow food as a child in Eastern Europe at a time when growing your own food was the only way to ensure access to fresh produce throughout the winter:

> *If something doesn't thrive I'm very slow to take it out and get rid of it because I feel it's kind of there, it has its place and just because it doesn't produce any fruit, you know, who am I to throw it out so I kind of, I just let them be then and just have their life for the season you know.*

Echoing this sentiment, G01 explained how he had discarded strawberry plants and then rescued them from the compost heap because he felt guilty about killing them but on the other hand, he is considering cutting down a tree that is casting too much shade on his garden. Such decisions, enacted daily in the vegetable garden, reflect the value-laden judgements of what plants are worthy of space in the garden. The concept of weeds only exists because humans identify some plants as unwanted or in the wrong place at a particular time (Blatchley, 2013). None of the participants, even someone like S03 above, who accepts that her plants are sentient beings with a right to live out their lives, hesitates to designate some plants as weeds to be removed and destroyed.

Weeding is an integral part of growing food and one that involves repeated embodied engagement with the soil, the plants, insects and birds in the garden. In line with Hitchings' (2003) claims about the agency of plants, the persistent ability of weeds to defy the gardener's authority in the garden underlines the need to understand HFG as an endeavour that is subject to more than human agency. The sensuous embodied engagement afforded by weeding the garden explains the ambiguous role of weeds which, through their unwelcome presence, provide the participants with more reasons to be present in the garden. G07 explains why she loves weeding:

> *I'll say to my husband I'm going to go [out] for an hour or two and he's like, uhuh, and like four or five hours later I'll come back and oh, I'm sorry, I lost track and I do. He says it's my church and it's true because I'd go down on my knees when I'm weeding. It's like a zen place for me, it really is.*

Plants die and crops fail, events that are shrugged off by all participants as there is always next year. For those participants who compost, death and failure are not attributes they associate with plants. For them, these plants are reborn and perhaps

even eaten the following season through their transformation in the compost heap. This is an unending cycle of life in the garden that is interrupted only by the introduction of seeds brought in from elsewhere. In the rare cases where participants compost and save seeds from year to year, they are overtly participating in the unending and co-constitutive making of the world.

One of the most enjoyable aspects of being a gardener is the autonomy to make decisions about the management of the vegetable plot. In general, these decisions do not need to be justified to anyone else and no-one is going to judge the gardener's moral standing based on these decisions. However, even in gardening, some practices have become so imbued with moral values that their omission must be justified or guiltily excused. In the food growing community these issues include a gardener's approach to dealing with compost and wildlife. Implicit in the media discourse surrounding the growing of food at home is an assumption that food gardeners are environmentally aware and organic in practice. Also implicit in academic and public discourses is the idea that to grow food at home is to engage in pro-environmental behaviour. That is not supported by the evidence here as a number of gardeners are unwilling, or feel unable, to compost, not every gardener follows organic principles in the garden, and there is a level of inconsistency in the approaches adopted by all participants. As previously noted by Turner (2011) and others, there is clear evidence, that, although they are sympathetic to the idea of environmental sustainability, participants "bracket out" abstract ideas such as climate change or pollution from their daily lives. Day-to-day activities in the garden are driven by local contexts and immediate concerns such as lack of time or convenience but that does not stop participants from feeling slightly guilty about not being fully organic in practice. This was particularly highlighted in two areas under discussion: firstly, where participants felt they had to justify the lack of home composting, and secondly, the lack of an organic and wildlife friendly approach.

Some participants compost ineffectively and others not at all because they feel they do not know how to go about it properly. They find the wide array of information and advice online overly technical and intimidating. This lack of confidence in the face of what should be a straightforward process may well be evidence of the deskilling that is an integral part of the commodification of gardening by a horticulture industry intent on selling compost, soil conditioner, plant plugs, grow bags, etc., with the promise of

simplifying gardening practice. Fear of, or experience of, rodent problems in the compost was also cited as a further reason not to compost. The most efficient composters are experienced gardeners, some of whom learned to compost as children. They see composting as an integral part of their gardening philosophy, where nothing is wasted and crops have never failed, they are simply recycled into next year's food. Although recognised as being an environmentally friendly way to deal with garden and kitchen waste, for participants this was more an incidental benefit rather than a motivating factor. A major motivation for composting was the idea that, since you are what you eat, you should know what goes into the food you eat and using home made compost was the best way to ensure that. A second motivating factor was the pleasure obtained from the alchemy that produces what S07 describes as brown gold. S07 describes composting as her favourite bit of gardening:

> *I'm in awe of it constantly, there's a mass of slimy cuttings and peelings and stuff pulled out of the garden and I will come back to that in four or five months time and there'll be the most divine crumbly, and there's all these worms, busy and happy, and slugs busy and happy, like, it's just wonderful. I just, I could genuflect in front of it*.

While not everyone is as expressive about their compost, the successful composters are very attached to, and attentive of, their compost heaps. They recognise the compost heap as yet another living entity in the garden, and therefore one that needs to be fed, watered, allowed to breathe and generally looked after.

Participants, even novice gardeners are also very attentive to their soil, recognising it as a living entity that needs to be fed, watered and even kept warm on occasion. GIY members have learned at meetings how important it is to replace the nutrients, as retiree and experienced gardener, G08 learned during a talk given by a guest speaker:

> *I need to do a bit of work on the soil this autumn if I'm going to keep going with growing because you have to remember the balance. It's very important..... manure, seaweed, horse manure or whatever it is, be very very aware to put back into the ground what you are taking out. If you're going to garden and mess with nature, make sure you treat it with a bit of respect too.*

Non-GIY members were content with their own compost for the most part but GIY members, because of various discussions at meetings, were enthusiastically exploring the no-dig method and using seaweed, which again reflects the spatial context of Dublin gardens, their proximity to the coast and the scarcity of farmyard manure in an urban or suburban area. The physical interaction of gardener, compost and soil, as together they bring life to new plants, is central to the understanding of the natural world that gardeners develop through their gardening practices. They understand soil to be a living thing, full of worms, insects and microbes, and like all living things, it can grow or die. It is not an inert material, a surface of the world. Like all living things, the soil in a garden, and even in an individual bed, has its own complex characteristics. It was noticeable when walking around participants' gardens, that they distinguished their various vegetable beds according to soil characteristics in the first instance, in the way that we might distinguish any animate being from another. Their knowledge of their own soil is developed through the embodied practices of digging, weeding and planting, when they are in physical contact with it. They spend years feeding, watering and tending the soil and it contains traces of every one of these acts of care. Soil, much more than the more ephemeral plants, embodies the lifework, practices and knowledge of the gardener and it is through tending the soil that the gardener claims his place in the landscape. He builds his hopes for future harvests, and the relationships that accrue from those harvests, on the soil in his garden.

The conceptualisation of nature as "a set of passive objects to be used and worked on by people" (Macnaghten and Urry, 1995 p.206) implies that the "other" is never heard from. As previously discussed, this is far from the experience of the participants here, whose gardening wishes are regularly supported, challenged and impeded by the non-human beings with which they share their garden space. The idea that the gardener can control nature is driven in part by the availability of pesticides, which were heavily promoted throughout much of the twentieth century. There has been a sea change in attitudes to their use in domestic gardens over the past twenty-five years, with alternative, more natural approaches being promoted by influential gardening programmes such as the BBC's *Gardener's World* and *Gardener's Question Time*. This change of attitude is reflected in the views of participants and chemicals are used to a very limited extent and are generally seen

as a last resort. As discussed above in the case of compost, participants who use slug pellets or sprays feel the need to defend their use, usually on the grounds that organic methods have been tried and failed. Interestingly, the use of chemicals as a last resort is not solely the preserve of those participants who started gardening many years ago when pesticide use was standard practice. There would appear to be no relationship between participants who compost and those who garden organically, and curiously, those who use chemicals do not necessarily see any contradiction between these interventions and their desire to have a wildlife friendly garden. The conflict between wanting a wildlife friendly garden and successfully growing food was discussed by many participants, with G09 illustrating his quandary very clearly:

> *This is the third year I've tried to grow French beans and this year I've got a couple left, but they always get eaten. I think its pigeons..... it's a consequence I suppose of making a habitat that's suitable for birds and wildlife. You can't really pick which ones you get.*

Participants are acutely conscious of widespread concerns over the decline in the bee population, and many are choosing to grow plants that will attract pollinators. However, it is very difficult to reconcile the desire to do no harm to wildlife with the goal of growing food. For instance, a garden that is attractive to birds and butterflies will inevitably attract the "wrong" birds, e.g. pigeons and blackbirds, and the "wrong" butterflies as G11 discovered:

> *[Previously] I had cabbages that were about a metre and a half tall because they'd gone, they'd gone to flower and to seed but I left, I left one or two of them basically to provide a habitat for the butterflies..... I have a whole bunch of things that are bolted and I'm quite relaxed about leaving them there but I have a slightly more conflicted relationship with the butterflies now because I saw what they did to the cabbage I was planning to eat.*

In general, physical barriers are employed to deter pests such as birds and butterflies but this again causes difficulties for those participants, like G11, who do not want their gardens to look like an untidy allotment.

The most pervasive pest, detested by all, is that "domestic monster" the slug (Ginn, 2013 p.532), with an estimated two hundred slugs in an average suburban garden in Britain, each consuming 800gms of plant material in a year (Ford, 2012). The level of tolerance for slugs in the garden varied, with some participants accepting Ginn's (2013) argument that, simply by being there, slugs are entitled to some consideration. In that case, they tolerate the losses or opt to relocate the slugs, unharmed, away from the garden. At the opposite end of the spectrum of tolerance, slugs were collected and ruthlessly killed. For many participants, the pragmatic decision was to protect young seedlings and choose crops that are not favoured by slugs. The preferred option was for those slugs to simply disappear by themselves so that participants are not faced with the dilemma of how to deal with them. Overall, considering its position as the most potent non-human being in the garden, able to direct and constrain many day-to-day management decisions, the slug is for the most part unremarked in gardening literatures.

There is a persistent argument in academic and popular discourse that increasing urbanisation has led to an alienation of people from the natural world. Technological developments have allowed urban dwellers to bypass the less appealing aspects of nature, e.g. weather extremes or the restrictions caused by the seasonality of food. They spend their lives on inert, hard surfaces in cities that are awake for twenty-four hour days. They buy and consume products without any idea of how and by whom these products were made. This idea of nature as separate and alien, however, is not the experience of food gardeners who have "made sense of, challenged, constituted, refigured" nature through their multi-sensuous day-to-day engagements in the garden (Crouch, 2003a). Gardeners instinctively understand Ingold's dwelling perspective which proposes that nature, continually developing and interacting with the gardener, is an active force in the ongoing unfolding of life (Wylie, 2007 p.159). Humans are not discrete, self-propelled entities situated on the surface of the world. Instead, along with every surface they encounter, e.g. ground, water, plant or building, they are *in* the world so that, rather than being understood as consisting of separate and prefigured natural and human fields, the world is better viewed as an ever-emerging "domain of entanglement" (Ingold, 2011 p.71). Through their sensory or haptic engagement with the garden and all of its inhabitants, participants understand this concept of entanglement. In order to weed, the participant gets

down on hands and knees and comes face-to-face with plants, which can be touched and smelled. The participant hears the buzzing of bees or rustle of birds in the undergrowth and feels the warmth of the sun or the movement of the wind on the skin. According to Ingold, this haptic engagement, of a mindful body working with materials and land, is the gardener "sewing [him]self in to the textures of the world along the pathways of sensory involvement" (Ingold, 2011 p.113). They come to know their garden and learn their gardening skills by becoming a part of the "total field of relations" in the garden and beyond (Ingold, 2000 p.353).

Gardening is a practical activity that has a value in and by itself and gardeners are not used to having to justify it in words. Despite the difficulties participants encountered in articulating their experience of haptic engagement it was clear that this is what draws them back to the garden time and again. The total engagement of the mindful body in the task at hand blocks out the stresses of everyday life by freeing the gardener from conscious thought and thereby provides the sense of peace and tranquillity, of being at ease with themselves and the world, that participants find working in the garden, and only in the garden. This haptic engagement, which can only be felt, is very difficult for participants to express verbally, as discussed by S07:

> *Language won't capture it because it's prior to language, it's definitely prior to language..... and that makes it a very restful place to be and language, like, the mind will always try to control, in terms of language, it will always look to control every situation. This is the one time you can drop right back out and that's what kind of makes it a bit mystical as well because that's a very, what I imagine people would go to church would get but certainly I would recognise it from childhood of the magical moments in church as a child, the same space.*

In summary, then, the participants are intimately engaged in the natural world and this has implications for the preservation of urban ecology. Wildlife, i.e. non-domesticated non-human beings, are just as at home in urban areas as are the people who have built these towns and cities. Gardeners come face-to-face with the insects, slugs, birds and animals that share this space in a way not afforded to most other urban dwellers. They understand the interdependency at play in the relationships between slugs, hedgehogs, birds and plants for instance, that when it

works properly allows plants to mature. Participants have an understanding of wildlife in cities that is not confined to occasional early morning glimpses of charismatic foxes or sightings of grey squirrels in the local park. Urban greenspace plays a vital role in the development of urban resilience. Because the participants interact with the natural world in a way that is not available to most urban dwellers, they are more aware of the variety of non-human beings that depend on urban greenspace for habitats and corridors. They also have some understanding of the interdependence of human and non-human beings and how that relationship is integral to the proper functioning of social-ecological systems. Further, gardeners are more likely to protect urban greenspace from being lost to development as they prefer garden space to be available for growing rather than as hard landscaping. On the other hand, despite the perception of HFG as an environmentally friendly pursuit, participants are adept at ignoring practices that are inconvenient. There is no consistent approach in most cases with, for instance, some participants adopting organic principles but refusing to compost for various reasons. S07, whose gardening practices are designed to support birds and insects, has nevertheless paved a large area to improve her enjoyment of the space, see below:

**Figure 4.2: S07's paved space (Author 2014)**

## 4.5. Harvest

In the previous section, the relational contexts of HFG were discussed. The influence of family background and social relationships on both the decision to grow and to continue to grow food were discussed as were the roles of the non-human beings and agentic materials in the garden in the process of HFG. This section now examines how those factors influence the outcome of that process, by exploring the topic of the food produced and how spatial and relational contexts influence both the type of food that is grown and the variation in the quantity of food produced.

There is a large body of literature from qualitative studies into gardening that has identified the ongoing nature of gardening and the relationships between gardeners and their garden space and plants as being of primary importance to the gardeners involved. On the other hand, a great deal of the research to date into HFG has focused on the tangible outcome, i.e. the harvest and ignored the relational aspects. Based on the responses of the participants involved in this study, the process of growing and the intangibles that are cultivated, e.g. relationships and a sense of well-being, are of far more importance than the quantifiable harvest of food.

**Figure 4.3: G02's garden space (Author 2013)**

G02, growing for her second season and sharing space in her father's intensively cultivated garden is currently confined to growing in containers but that does not in any way diminish the enjoyment that she derives from nurturing her plants (Figure 4.3 above).

Basing an assessment of the potential or actual contribution to urban resilience solely on the amount of food produced results in the practice of HFG being separated, or decontextualised, from the embodied practices and the relationships embedded within the harvest. Drawing a connection between the amount of land in urban gardens and the productivity of that land is to ignore the socio-cultural variables that influence how much food may be harvested from any garden, regardless of its size. If we are to understand how food produced in domestic gardens might contribute to urban food security and thus urban resilience, we must first understand the network of relationships within which that food gardening takes place. Even within the small cohort of food growers who participated in this study, there is a very wide span of productivity, stretching from one novice gardener having just a few pots to a more experienced gardener who, working with her partner, can supply all her vegetable requirements. In general, more experienced gardeners manage more productive gardens, and this is particularly the case when there is more than one gardener to share the work. This section begins by examining the responses of the participants, focusing on: firstly, their insistence that growing food is integral to their gardening activities; secondly, how they approach the task of producing a harvest; and, thirdly, how they understand the value of the harvest itself.

One of the questions participants addressed was whether or not they would be just as happy growing ornamental plants, e.g. flowers and shrubs, as fruit, vegetables and herbs. Each of them was adamant that growing food plants was what they wanted to do and that growing ornamentals would be a poor, or no, substitute for the thrill of producing an edible crop. There were several distinct pleasures associated specifically with food gardening which could not be obtained from growing ornamental plants: firstly, the reciprocal relationship with the food plants; secondly, the thrill of holding a home grown vegetable; thirdly, the pleasure of eating fresh produce straight from the plant; and, lastly, the pleasure to be had from sharing that produce with others. All of these pleasures can be obtained by growing just a few

plants, as so clearly captured by G04 who has been growing on a small scale for several years:

> *Now last year I got two seed potatoes from GIY and I put one into one bucket and the other into another and she kept digging up one, the dog, and the other one grew very successfully so much so* [her non-gardening partner] *even decided we'd watch this potato plant with great interest and eventually we harvested and we got about twenty-five potatoes, out of one plant. It was very successful and the thrill of actually eating what you grow is just amazing, it really is.*

As well as capturing the excitement of nurturing a plant and consuming the end product, however small, this quotation also illustrates some of the spatial and relational context within which this harvest was produced, including the unplanned acquisition of seed potatoes, their cultivation in a container rather than in the ground, the interest shown by her partner and the fact that the garden space is for the dog as much as for cultivation of plants. Successful food gardening is not defined solely in terms of achieving a harvest. A successful year in the garden may be seen in terms of the human and non-human relationships nurtured, or when other goals, such as the wish to spend more time outdoors, have been achieved. G04, above, deems her potato growing a success not only because she successfully produced twenty-five potatoes but also because the potato plant engaged her emotionally. Hitchings (2003) would argue that the surviving plant enrolled her in a mutual project where it was nurtured, fed and watered in return for the promise of a harvest. G04 also includes the unexpected enthusiasm of her non-gardening partner for this project when she considers its value.

All of these participants are urban dwellers whose food needs are met through local shops, restaurants, farmers' markets and other commercial outlets. They are not growing food in order to feed themselves and their families so they do not judge success on the amount of food they harvest. It is undeniable that the food they grow is fresher than that available in retail outlets. Participants also insist that the food they grow is tastier than commercially available varieties. Given that taste is subjective, it could be suggested that their own produce is more appealing in part

because it embodies the emotion and effort that went into its production. S03, a lifelong gardener in her forties, still finds pleasure in growing her own produce:

> *I love going out and just picking some herbs and picking a courgette..... I think being able to weigh a courgette in my hand I feel like,.. I wouldn't say it's a sense of pride but a sort of happiness that I can actually, that I can do that.*

In eating food from his/her garden, an individual is making concrete "one of the specific modes of relation between a person and the world" (Giard et al., 1998 p.183). Food that is harvested from the garden is not instantly separated from its site of production or from the embodied practices that led to its existence. Rather, it carries with it the narrative of its life and of the relationships through which it came into being. So when G04, above, speaks of the thrill of eating what she has grown, it is this that has made her potatoes special and not just the fact that she produced twenty-five potatoes or that they are particularly fresh. It is these contexts and relations that differentiate household garden produce from the decontextualised agricultural produce that has become simply a 'thing', an abstract commodity. The decision of what and how much to grow, discussed in the next section, is similarly imbued with stories of produce shared and harvests past, both recent and from childhood in the same way that seeds or plants obtained from friends or other gardeners embody those relationships. Participants can harvest only what they grow and to understand their crop choices, we should take all of the relational factors outlined above into consideration. To start with, being free from budgetary pressures to grow food to feed the family or to sell allows participants to choose crops that they wish to grow for personal and emotional reasons such as a vegetable that embodies happy childhood memories, or one that presents a new challenge, or simply crops that suit the time and space available at that particular moment.

For these participants, food is readily available from their local supermarket and, as they readily acknowledge, at less cost than growing it themselves. Many of them mentioned that it cost them more to grow than to buy the food but that this cost was irrelevant to their decisions about what and how much to grow. The sentiments expressed by S06, that it would be easier and cheaper to buy the food in the supermarket, are commonly repeated by other participants:

*I think if I was to really look at that and analyse what it takes in time to produce what I produce out there, you'd think it's never worth it. It's easier to go to the supermarket and buy it but...it's something that never really crosses my mind because I don't think about what it costs me to actually grow it out there but I know overall it would be cheaper.... at the end of the year to go up and buy it in the supermarket.*

The choice of which crops to grow is spatially contextualised as the gardener decides on a suitable placement for a particular crop, depending on available space, aspect, previous use of ground for rotation purposes, drainage, etc. Many participants had separate vegetable beds whereas a small number had vegetable plants and ornamental plants intermingled in a cohesive design. In these cases, the aesthetics of the plants were of greater importance to the participants. G11, who saw his move two years ago to his current house as an opportunity to remodel the garden has constructed four raised beds, (Figure 4.2), and his food growing activities will have to fit in with the overall aesthetic of his garden, particularly as these beds are clearly visible from the house. The crops grown, therefore, will be chosen for their aesthetic qualities and because they do not require obtrusive netting or supports.

**Figure 4.4: G11's vegetable beds (Author 2013)**

In a garden shared with children, pets and partners, participants claimed a space for growing food by the construction of bordered or raised beds, frameworks to support plants, a greenhouse or cloches and so on. Space was also claimed to store all of the accoutrements, such as the less than attractive collections of old plastic pots, netting, half empty bags of compost and so on that are an essential part of food growing in domestic gardens as opposed to large open areas of monocrop agriculture. Although some studies have looked at the amount of urban land given over to gardens and projected the potential amount of harvested produce based on yield per square metre, such calculations do not take account of competing demands for the space nor for the variety in yield per acre that domestic gardens can produce (Taylor and Lovell, 2012, Grewal and Grewal, 2012). In fact, abstracting household food yields from their spatial and relational contexts may lead to inaccurate or overly optimistic estimations of the potential of HFG to contribute to urban food security and thus urban resilience.

Commercial fruit and vegetable growers cultivate a narrow range of crop varieties which have been bred for their uniform appearance and their ability to survive their journey through the global food supply chain, as demanded by the major supermarkets. On the other hand, gardens are often claimed to be sites for the preservation of biodiversity, including the preservation of 'heritage' varieties of fruit and vegetables, i.e. landrace strains of seeds and plants that have been locally developed over many years to be particularly suited to the local environmental conditions. Because they are not subject to the same economic pressures as commercial growers who need to produce a profitable harvest, home gardeners have the freedom to save their own seeds, grow heritage varieties of vegetables and risk losing a crop. However, seed saving and cultivating heritage varieties of vegetables are not widespread activities, partly because of their perceived unreliability and susceptibility to disease. The exception here are the heritage apple trees found in some participants' gardens and which were the source of considerable pride for their owners as they discussed the superior flavour and authentic appearance of the fruit and their ability to cope with wet Irish summers. All discussions of these trees also involved stories of how they were inherited or, more usually, sourced following research and trips to far flung nurseries in the south or west of the country, G11, the very proud owner of four apple trees, explained:

*Seedsavers do guided tours where you can walk around the orchard and you can taste the different apples so what we did was we went down there and we did the tour and in fact we had the guide to ourselves and he'd walk around and he'd show us the different things…..It's a bit like a wine tasting, you know, it's only when somebody points it out that you realise the variety there is in the flavour of apples so I got an early, a middle and a late cropper and one cooker and then one pear.*

In this case, heritage apple trees are named old Irish varieties which are available on a limited scale from a small number of Irish nurseries, such as Irish Seedsavers in Co. Clare. Implicit in the choice of heritage varieties of fruit and vegetables are concerns about the sustainability of the globalised and industrialised food system and the resultant loss in biodiversity. In the same way that all gardening practices embody the values and tastes of the gardener, the presence of these heritage apple trees in Irish gardens may be seen as cultural objects through which participants claim their connection to an elite with enlightened views, the resources to acquire them and the space to grow them (Jordan, 2007). Participants who grow heritage varieties are cultivating the right to be identified with this elite and their impeccable green credentials.

There are ecological consequences to all crop choices, apart from the increase in biodiversity achieved by increased cultivation of heritage varieties. Buying in young plants saves time and may be the difference between a participant growing or not growing in any one season, but it also means that the gardener can only grow whatever varieties are available from garden centres and nurseries. The same commercial pressures that apply to fruit and vegetable markets apply in the horticultural trade, with suppliers producing a very narrow range of robust young plants for sale. Although the major commercial seed companies also control what most food gardeners grow from seed, the variety of seeds available is much wider than the choice of young plants. Alternative sources of heritage, exotic or limited interest seeds are also readily available online. Most of the gardeners grow mainstream fruit and vegetables but some participants are rethinking their choice of crops. Based on the time and effort invested in their gardening activities, they have decided that it makes more sense to grow foods that are difficult to store, are expensive to buy or difficult to find rather than growing the staples that are so readily

and cheaply available in any supermarket. Gardening writer Mark Diacono, who has spoken at GIY events, was cited as an influence in this regard and some are following, or at least considering, his suggestions to grow soft fruits, nuts, spices and other exotics (Diacono et al., 2011). The decision to grow more exotic species is not just based on a cost-benefit analysis but is also seen as a way for participants to continue to challenge themselves. There may well be ecological implications, both positive and negative, for biodiversity locally in the decision to grow exotic imports but these remain unquantified as yet.

There has been no attempt to quantify the amounts of food harvested from these gardens and participants themselves are often quite vague about the food produced as it is not their intention to be in any way self-sufficient. In the same way that the cost of growing food is irrelevant to their activities, they are not engaged by the amounts harvested. In assessing the contribution of the food itself to the development of urban resilience, it would be necessary to ensure that all of the food is being consumed and there is some evidence here to show that that is not the case. Some food is unused and some of that goes from the vegetable bed straight to the compost heap because it has bolted or is surplus to requirements. In addition, the food from these gardens is generally viewed by participants as *little treats* (S03) rather than any serious replacement for shop bought produce.

The value of HFG to urban resilience comes indirectly from the food gardening activities of those involved. From an ecological perspective, food gardeners value their growing space and are unlikely to completely hard landscape their gardens, as confirmed by S05, when she moved to a house in a new development in outer Dublin:

> *Well I know when I moved to where we currently are I made a decision that I was keeping the garden. I liked the green and I made a conscious decision that I wasn't going to tarmac it. Like, my sister decided, you know, work-free, no maintenance and she was tarmacing all of it .....I saw an awful lot of decking down, an awful lot of tarmacing and I just felt birds, worms, earthiness, this is just a small patch they'll have on the estate and that was it really.*

This is of particular value in newer housing developments and more densely developed urban areas where there is a higher proportion of land under concrete. This preservation of green space in turn helps urban and suburban areas deal with storm water run off. There are benefits for local wildlife too in the presence of green areas, as gardens provide a network of habitats for insects, birds and small mammals (Davies et al., 2009). Research has suggested that gardeners are more likely to be aware of the needs of local wildlife than non-gardeners (Gaston et al., 2007). Participants in this study were certainly aware of the non-human beings in their gardens and their interdependent relationship with those other presences in the food growing process. One of the claims made about urban agriculture is that it reduces the dependence of finite energy resources by sourcing food locally and then returning nutrients to the soil by composting food waste, thus helping to close the nutrient loop that has been disrupted by intensive agricultural practices (McClintock, 2010). What has been missing from the literature on HFG is an assessment of the environmental impacts, positive and negative, taking account of all inputs and outputs, of HFG. That may be about to change as current assumptions that HFG is an environmentally sound practice are beginning to be challenged (Dewaelheyns et al., 2013). From the evidence of participants in this study, it would appear that, given the small and highly variable amounts of food grown and the lack of composting carried out in participants' gardens, HFG in Dublin gardens currently plays a questionable role in reducing the resource consumption of intensive agriculture. Neither does it go any way towards meeting the food needs of participants but then this is not an intended outcome. As previously stated, the benefits of HFG for participants is to be found in the intangible benefits and these include the mental well-being that comes from haptic engagement with the world, the strong sense of identity that is fostered by carrying on and passing on food growing practices and the social networks fostered around gardening practices.

## 4.6. Conclusion

The complexity of HFG as an urban phenomenon remains hidden in much of the current academic literature where it is conceptualised in terms of outcome, i.e. food harvested, rather than as an ongoing process of cultivation that involves the gardener and the garden. Seeing HFG solely in terms of outcome decontextualizes it as an

activity and means that it is understood as a response to food insecurity for low income households, i.e. as an adaptive strategy or necessary chore, or alternatively, as an environmental or political act for those who care about the unsustainability of the global food system, food provenance or the commodification of food.

Although HFG is generally considered a solitary endeavour, and it is true that participants generally work alone in the garden, there is a network of social relations built around the practice of food gardening that supports the development of social capital. For some, the social life of HFG is organised partly through GIY but non-GIY members also find opportunities to socialise by sharing surplus garden produce or by encouraging novice gardeners with help and advice. However, social and work commitments constrain as well as enhance food production as they can seriously limit the amount of time participants spend in their gardens. What has been ignored by researchers to date is the impact of family history on the decision to grow food and the important role it plays in the gardener's sense of identity. The significance of childhood exposure to food growing or, at least to some form of gardening, raises questions about the potential power of the currently popular school garden projects in increasing the numbers of food gardeners in the future. Although HFG is routinely considered an environmentally friendly activity and part of the local food movement, in practice, the participants here are inconsistently applying organic or wildlife practices. The greatest motivation for engaging in food gardening emerging from the participants in this study is the sense of being at ease in the world that is facilitated by the haptic engagement of the gardener with the natural world. This engagement with the natural world provides the gardeners with the opportunity to understand nature as an active participant that, together with the gardener, is engaged in the perpetual making of the world. Perhaps because it is a difficult concept to verbalise, this haptic engagement has been overlooked in HFG literature to date. This situation is further compounded by the survey type research that is the preferred approach to tackling urban food production by academics.

# CHAPTER 5: CONCLUDING REMARKS

## 5.1 Introduction

The broad aim of this thesis was to consider HFG and its role in contributing to urban resilience and this was to be done by developing an understanding of what growing food meant to those involved, what encouraged them to grow food and what might prevent them from doing so. In keeping with the chosen methodology, GTM, the study started without either specific questions or a hypothesis to be tested. Instead, domains of enquiry were used to focus the initial data collection. These included an exploration of: firstly, personal issues relating to the food produced and its impact on the household budget, shopping, and diet; and secondly, broader motivations such as concerns over the quality of food produced by current industrialised food systems or worries about wider environmental concerns such as sustainability and climate change.

Chapter 1 presented the research context in a discussion that highlighted concerns about the sustainability of the current global food system and its ability to provide for an increasingly urbanised global population. It then presented the aims of the study and provided a brief introduction to grounded theory, the chosen methodology. The first section of Chapter 2 reflected the multi-dimensional character of HFG by addressing the questions of urban food supply, security and production and then the topic of gardening. It offered a review of relevant literature on urban food systems, food security and urban food production before considering the topic of gardens and gardening. The second section then introduced two concepts, firstly, SES which provided the framework to understand HFG and its role in urban resilience and, secondly, Ingold's (2000) concept of Dwelling which was used to frame an exploration of the meanings that food growers attach to their gardening practices. Chapter 3 presented a comprehensive account of GTM, its evolution and underlying epistemologies, including the epistemological implications associated with the use of Constructivist grounded theory. It then outlined the core tenets of theoretical sampling, constant comparative analysis and theoretical saturation and their specific meanings when used in GTM before proceeding to present an account of the research process as a whole, including data collection and analysis, before offering

an evaluation of the methodology. Chapter 4 presented an account of what, according to the participants in this study, are the most important aspects of growing food, namely, the relationships that are developed and sustained through the sharing of knowledge, plants and food and, secondly, the haptic engagement with the non-human beings and agentic materials in the garden.

The next section outlines the key findings of this study and notes the contribution to the improved understanding of HFG, thus providing a clearer appreciation of its potential role in the development of urban resilience. The chapter then continues by setting out the contribution made by this research to the reconceptualisation of HFG and suggests some policy recommendations based on this new understanding of HFG. The limitations of the study are outlined and, finally, areas that would benefit from further exploration as a result of this research are identified.

## 5.2 Findings

In order to understand the role of HFG in the development of urban resilience, three aspects of the topic were explored: firstly, the beliefs, attitudes and behaviours of the participants; secondly, the question of why they continue to grow food; and finally, the supporting and constraining factors in HFG.

A person's values are most influenced by the micro-system of their immediate social net, i.e. family, neighbours and peers (Kurczewska, 2006). This social interaction starts within the family and all of these participants grew up in families where parents and/or grandparents either gardened or grew food. Although most of the participants did not begin to garden and/or grow food until they had left home, they cherish the connection to childhood and parents that growing food provides, and their childhood experiences on occasion directly influences both their choice of crops and their gardening practices. In addition, the awareness that by growing food they are creating another link in their family story helps foster the strong sense of identity that is essential to the development of psychological well-being.

Gardening is generally perceived to be a solo pursuit but, based on the evidence of these participants, the practice of growing food also supports the development of social capital through the web of relationships within which the gardener operates. Further, that same web of relationships supports, and is supported by, an exchange

of knowledge and skills within the HFG community, thus ensuring the survival of knowledge that may become vital in maintaining urban food security into the future.

### 5.2.1 Development of Social Capital

Common to all definitions of social capital, e.g. Bourdieu (1986), Coleman (1988) and Putnam (2001), is an understanding of social capital as a resource that flows from those relationships that are based on trust and reciprocity. That same resource then facilitates co-operation and collective actions within or between groups (Yoji, 2013) and, according to Putnam (2001), the horizontal linking of people through voluntary associations produces the inter-personal relationships of trust and reciprocity necessary for its development. In the case of participants in this study who are GIY members, the level of transfer and exchange of knowledge, produce, seeds and plants is such that it creates the norms and networks of trust that develop social capital. Given the variation in levels of social interaction between non-GIY participants and other food gardeners, it is more difficult to ascertain how effective such interactions are in promoting the development of social capital. Nevertheless, the widespread sharing of produce by both GIY members and non-GIY participants with their immediate social net of friends, family, neighbours and colleagues does strengthen the bonds that create social capital. The social resilience of any community depends in part on the social capital that flows from the norms of trust and reciprocity built up through networks of relationships (Adger, 2000). Although the returns to the gardener from sharing are less obvious than when produce is bartered or sold, the intangible benefits are significant to both the gardener and the community because of the social and cultural bonds that are created, strengthened and maintained through such activity (Baker, 2004).

By providing a place where individuals come together to support and inspire each other to grow food, GIY group meetings facilitate the creation of an interest-based community. It is clear from this research, that involvement with a GIY group also facilitates and encourages participants to engage in work within their communities. Two of the three groups from which participants were drawn were helping to establish and support school and hospital food gardens. However, being supportive of community gardening projects is not exclusive to GIY members and there is a high level of variation in the amount of time that both GIY and non-GIY participants spend engaged in community work outside their own gardens. While GIY groups support

the development of interest-based communities by facilitating the easy exchange of knowledge and skills and by the promotion of a particular ethos, e.g. the use of organic practices, all research participants engage in the exchange of knowledge, plants and seeds to some degree. Such exchanges are frequently accompanied by information on local growing conditions and on the best varieties of plants for local conditions. Facilitating inter-generational transfer of local ecological knowledge may also encourage more awareness of the importance of careful stewardship of the local environment (Barthel et al., 2010).

In addition to supporting the development of social capital, the face-to-face exchange of knowledge and gardening skills between experienced gardeners and novices helps retain food-growing skills within an urban community. Aside from unanticipated cataclysmic ruptures in our urban systems, cities today are faced with having to adapt food production models because of both global climate change and the unsustainability of current extractive agricultural practices. Elsewhere, in times of crisis the presence of enough individuals with the knowledge and skills to engage in HFG has been an essential part of the provision of suficient food for urban dwellers. For instance, in the case of Cuba during the period of acute economic distress following the collapse of its trade with the Soviet Bloc and in the UK and elsewhere during both World Wars, the rapid scaling up of urban food production depended, in part, on both the availability of land and on the necessary knowledge and skills being retained in the community (Buchmann, 2009, Ginn, 2012).

### 5.2.2 Haptic Engagement

Why do the participants in this research project invest so much time, effort, emotion and cash in producing food that is so readily available in local food outlets and where the social welfare net ensures food security for low-income households? All of the participants spoke of their need, and even compulsion, to work in the garden and growing food is integral to their enjoyment of the garden. Each of them spoke about the peace and tranquillity to be found in the garden and they also spoke about how they experience a sense of being at peace with both themselves and the world only while they are working in, or thinking about, the garden. It is widely recognised that people benefit psychologically from their interactions with the natural world (Kaplan, 1973, Ryan et al., 2010) and therapeutic gardening has been shown to be effective in improving the lives of those who are physically and/or psychologically vulnerable

(Sempik et al., 2004, McVeigh, 2014). This research argues that haptic engagement best explains this elusive and ephemeral phenomenon that drives the need to spend time in the garden. Haptic engagement, in this instance, is the total engagement of the mindful body with the soil, plants, the non-humans, wind and sun and other elements that are absorbed by all the senses while working in the garden. That total absorption in the task at hand stills the mind and blocks out the stresses and worries of everyday life. Apart from improving and nurturing psychological well-being by providing an antidote to stresses and worries, the close observation that is integral to haptic engagement also affords the gardener an understanding of how inter-related and interdependent are human and non-human beings and inert and active materials in making up the "domain of entanglements" that is the world (Ingold, 2000 p.71). Although this understanding of how enmeshed the social and ecological worlds are is in danger of being lost in cities because it is invisible to so many urban dwellers (Hitchings, 2010), their awareness places gardeners in a position where they may potentially become stewards of urban ecological systems. Most participants aim to garden in as environmentally-friendly manner as possible but their actual gardening practices are often inconsistent with their stated aims. This inconsistency is particularly evident in their various approaches to both composting and the use of pesticides. It has been noted elsewhere (Dewaelheyns et al., 2013, 2014), that there is a common tendency among domestic gardeners to overuse farmyard manure and commercial fertilisers and this can cause nutrient loading in storm-water run-off. On the other hand, it has also been noted that cultivating garden soils improves their porosity over lawned areas and therefore their ability to absorb rainfall (Taylor and Lovell, 2015). It follows, then, that although the contribution of HFG to urban ecology is not always positive, the situation could be improved by educating and supporting gardeners to compost and by encouraging them to follow best practice in their gardening activities. Policymakers concerned about urban ecological systems might consider how NGOs such as GIY and other gardening groups are already ideally positioned in this regard but might benefit from assistance in spreading their message further. In addition, practical workshops on composting might be held in Local Authority parks as a useful way to address the anxiety and confusion highlighted by a number of participants in this research.

To summarise, this research has found that HFG can support the development of social capital by developing and strengthening networks of trust and reciprocity. In sharing the skills and knowledge needed to grow food, participants are helping to improve the adaptive capacity of their communities as cities are faced with having to deal with changes to the global food system. In addition, HFG improves the psychological well-being of food gardeners by affording them a connection to the natural world that is often absent in the lives of urban dwellers. This connection also alerts them to the necessity of ensuring the health of the urban ecological system.

### 5.2.3 Supports and Constraints

The factors, both positive and negative, that influence the choice and amount of food produced are complex and multi-dimensional and, apart from food preferences, can be divided into social, cultural and spatial contexts, shown in Table 5.1 below. Each of the factors outlined in Table 5.1 has some influence on the choice of which food crops to grow and on how much of any particular variety to grow. The strongest constraint on participants in this research is lack of time, which was repeatedly cited as a significant problem. Many of the constraints, e.g. soil type, space, aspect, listed in Table 5.1 affect the type of plants grown but there are always sufficient suitable alternatives to afford participants the enjoyment of growing some food. A lack of time, on the other hand, reduces the amount of time spent in the garden and the benefits that flow from that experience as well as the type and amount of food produced. In general, despite already prioritising their gardening activities over other spare time commitments, participants say they would further expand their food growing activities if they had more time, either by taking on an allotment or, more commonly, by expanding the growing space in their own gardens. They were clear that they would spend any additional time in the garden growing more food rather than ornamental plants.

Some factors may act to support and constrain gardening activities at different times as the impact of any one of these variables will change according to the level of gardening experience and the life stage of each food gardener. For instance, having children might encourage a family to grow more fresh produce but may also limit the available growing space.

| Factors Affecting Harvest Type and Size | |
|---|---|
| **Supports** | **Constraints** |
| **Social:** | **Social:** |
| Sharing Knowledge | Commitments To Work |
| Sharing Seeds & Plants | Family Obligations |
| Sharing Produce | Social and Leisure Commitments |
| Sharing Garden Work | Availability of Seeds and Plants |
| **Cultural:** | **Cultural:** |
| Childhood Socialisation | Aesthetic Considerations |
| Emotional Appeal of Particular Plants | Acceptable Norms of Gardening Behaviour - e.g. Organic Gardening |
| **Spatial:** | **Spatial:** |
| Available Outside Space | Crop Rotation/Plant Maintenance |
| Soil Type/Condition | Soil Type/Condition |
| Site Aspect | Site Aspect |
| Absence of Pests | Presence of Slugs |
| Available Infrastructure e.g. greenhouse, cold frame, etc. | Competition for Space e.g. Children, Pets |
| **Food Preferences:** | **Food Preferences:** |
| Wish for Organic Food | Household Food Preferences |
| Cooking/Preserving Skills/Interest | Household Size |

**Table 5.1: Factors that Influence Amount and Type of Food Grown in Household Gardens**

Something else that must be taken into account when assessing the actual and potential amount of food produced by food gardeners is the difficulty faced by policymakers who may prefer to encourage a year-round supply of locally produced food. For instance, when the British Government introduced a Dig for Victory policy in 1939 to improve food security during the war years by encouraging householders to cultivate food crops, they produced a cropping plan which, when followed by the householder, would ensure a steady supply of vegetables throughout the year. In fact, even in the face of wartime shortages, only about ten percent of household

growers followed this advice, the remainder choosing to follow their own preferences even if it meant there were shortages and gluts to deal with (Ginn, 2012). In the case of this research, there is a clear lack of planning in many participants' crop choices, with impulsive purchases of seeds being common as well as a reliance on chance finds at seed and plant swops or the less informal passing on of surplus seedlings by neighbours, colleagues or family. Surplus produce is not stored but is either composted or, more commonly, distributed among the participant's social net of family, friends, colleagues and neighbours.

## 5.3 Research Contributions

When compared with the evidence presented in this study, a review of the literature that considers HFG would suggest that there is a divergence in the understandings of HFG between academic discourses and the experience of urban food growers. In general, HFG is understood as being either a coping strategy for low-income households or a lifestyle choice for wealthier households who worry about environmental sustainability or the safety of the food produced by industrialised agriculture. Therefore, its value is measured by volume or weight of food produced and its contribution to urban resilience is assessed in terms of its contribution to food security for the urban poor. However, imprecise conceptualisation causes difficulties because it may overlook the relevant but not exclude the irrelevant (Blumer, 1969).

This study has argued that current conceptualisations of HFG are imprecise and it extends the understanding of HFG by:

a) conceptualising it beyond the food produced (Gray et al, 2013; Smith et al 2013). This thesis illustrates the wider significance of not just the harvest but of the *process* of growing food;
b) identifying the benefits obtained from the process of growing to the development of urban resilience through the development of social capital and the retention of essential knowledge and skills; and
c) unpicking the nuances of the decision to grow food and the potential challenges in scaling up at the city level.

By shifting the emphasis from the food output, potential and actual, to the food gardeners, this research has extended the understanding of the significance of HFG

in urban social-ecological systems. Using a grounded theory approach, this research has allowed the voices of the participants to be heard with the result that the importance of the *process*, rather than the outcome, of growing food is highlighted as being of most benefit to participants. In addition, the socio-cultural and spatial factors that impact positively and negatively on their food growing activities have been identified. Most importantly, the relationships with others, both within and beyond their immediate social net, that food gardeners cultivate and reinforce, together with the connections and new understandings they form with the non-human world, show that HFG is a highly relational activity. Participants are developing community cohesion and social capital by way of the networks of trust and reciprocity within which they operate. Furthermore, through the regular exchange of information, advice and cultures of best practice, participants are retaining within an urban population a core set of skills and the knowledge of how to grow food. Their haptic perceptions of the natural world allows them a more complete understanding of how interdependent and entangled are human and non-human beings with the active and inert materials in the garden. Consequently, it is theorised that, being a process which fosters and supports a range of relationships, the benefits of HFG can be understood as being far greater than simply a harvest of food.

Although HFG is promoted as a way to improve food security and nutrition for households (Kortright and Wakefield, 2011, Gray et al., 2013, Taylor and Lovell, 2012), much of the value to participants and to policymakers, given the relatively small quantities of food harvested, is in the network of relationships that are fostered through the sharing of food, knowledge, skills and plants. Decontextualising harvests from the spatial and relational contexts within which they are produced results in the continued undervaluing of HFG because, firstly, harvests are often so small as to be insignificant in terms of meeting household food needs and, secondly, many of the benefits that accrue to individuals and communities are obtained from the *process* rather than the outcome of HFG. Because these benefits, which are mainly intangible, are obtained from the process rather than the outcome of growing food, they are equally available to individuals who grow a very small amount of food and those who grow enough to meet their household needs. Further value for policymakers looking to develop urban resilience also lies in the retention of the necessary knowledge and skills within the community. The findings of this research

suggest that policymakers might well recognise the social as well as the ecological value of HFG in the way that they have already done in the case of community gardens. Community gardens have been used to deliver policy goals across health, education, community development and environmental fields. In areas where homes with gardens form a significant portion of current housing stock, policymakers might consider using existing social and land resources to achieve some of those same goals but without facing difficulties that are often barriers to the development of community gardens such as obtaining a site, sourcing financial support and ensuring that there is an effective management system in place. Given the positive experiences of those participants who have shifted the focus of their gardening from ornamental plants to food gardening, it could be argued that one relatively simple way to expand HFG would be by encouraging those who are already cultivating ornamental gardens to include some food crops within their gardens. It is possible, as some participants have demonstrated in their gardens, to integrate fruit, herbs and vegetables within an overall aesthetically pleasing design. Participants in this research grew up with the knowledge that it was possible to grow food and began their gardening with the confidence that they would succeed. On the other hand, lack of confidence, absence of advice and support and lack of access to a garden of future food gardeners are all potential barriers to be overcome if HFG is to be significantly scaled-up. To this end, it might be useful for policy-makers to consider supporting gardening groups such as GIY as well as community and school garden projects to ensure that that the necessary knowledge and skills are spread more widely in the community. Such community activities should also help any individuals who are considering whether or not to grow food to access the necessary support and encouragement. Garden share schemes pair gardeners looking for garden space with householders who cannot, for a variety of reasons, make use of their own gardens but are happy to have someone use that space to grow food (Sage, 2011). In return, the harvest is shared between grower and garden owner. Scaling up HFG might involve developing a garden-share scheme in addition to supporting gardeners to sell on the produce they grow in their own gardens. Nevertheless, there are not insignificant challenges for policymakers who wish to promote HFG as a way to increase urban food production and improve the adaptive capacity of urban areas. Further study will be needed to uncover the most effective ways to reach both

gardening and non-gardening populations to sell the multiple benefits of growing food at home.

## 5.4 Limitations

The research is clearly limited by the small number of participants, none of whom were drawn from low-income households or marginalised communities. Given that twelve of the twenty participants were drawn from three Dublin GIY groups and none of the non-GIY participants were aware of the organisation, it is safe to assume that the results of this study are likely to have overstated the influence of the GIY organisation on HFG in Dublin. Grounded theory does not accommodate socio-economic or demographic profiling of participants so that the impact of gender, income, age and so on have not been taken into account. Also absent from this research is an accurate account of HFG, what crops are grown, how much food is produced or the proportion of available space in each garden given over to growing food. Constructivist grounded theory produces a statement of likely probabilities that offer a tentative explanation of a social process. It is an interpretative rather than a deductive process, and as such, it should be accepted that another researcher, starting from a different perspective, might well interpret the data differently.

Despite the relative homogeneity of the group of participants, there was a wide variation in the amount of food cultivated and in the gardening practices followed. A larger quantitative study would be necessary to establish the extent of HFG both in individual gardens and in aggregate across the Greater Dublin Area. That study might also identify the gardening practices that most urgently need to be addressed to improve the ecological impact of food gardening. A larger sample of gardeners of all types, one that would also include non-food gardeners, would be necessary to establish how many gardeners currently grow no food, thus identifying the potential to scale up the amount of food grown. Such a study could also establish the level of unused or underused gardens and persuade policymakers to support a garden-share scheme.

## 5.5 Conclusion

For the participants in this study, external concerns about environmental sustainability, financial savings, or even the quality of the food they purchase are

very much secondary issues in their decision to grow, and to continue to grow, food at home. All of them know that their food needs will be met without the produce from their gardens and none of them is aiming for self-sufficiency. What motivates them to grow is the sense of connectedness that comes from the relationships that they cultivate through their food growing activities with both the social and natural worlds. The food that they have grown is significant to them not in terms of quantity but because it is inseparable from the place where it was produced, from the invested time, labour and emotion, and the meshwork of relations that provide the context of its production. Rather than being a solitary endeavour, the practice of growing food is enmeshed in a web of relationships that support, or sometimes conflict with, the ambition to grow food. The trust and reciprocity fostered by formal or informal sharing of knowledge, plants and produce build the social capital that is essential for the development of community and urban resilience. The secure sense of identity that comes from carrying on, and passing on, the family history embodied in growing food, is essential for psychological well-being. Through the intimate relationship that gardeners enjoy with the non-humans and agentic materials in the garden, they develop a personal ontology that offers psychological security in the context of a complex and uncertain urban world of human alienation. Arising from their awareness of the interdependence of the social and natural worlds, most participants intend as far as possible to behave in an environmentally aware and wildlife-friendly manner although they are inconsistent in the application of current best practice. Nevertheless, their interest in growing food contributes to urban resilience because it ensures that their gardens remain green space which, in an urban area, is important in providing support for biodiversity and managing storm water run-off.

In conclusion, HFG is socially and spatially relational, taking place within a “domain of entanglements” (Ingold, 2011 p.71). By uncovering the overlapping, sometimes supportive and sometimes conflictual relationships, in both the social and natural spheres, within which the process of HFG occurs, this study provides a more complete conceptualisation of HFG than has been available to date. When the spatial and relational contexts within which HFG is practiced are ignored, there are negative implications for the assessment of its contribution to urban resilience in two ways. Firstly, the reliance on purely quantitative measures of available space and expected yields per hectare to assess the contribution of HFG to urban food security

underplays the influence of contingent factors and risks an over-optimistic assessment. Secondly, the social capital and psychological well-being that are important but intangible benefits of household food gardening remain unrecognised and therefore unvalued. Consequently, the contribution of HFG to urban resilience should be reassessed as being more valuable than previously understood despite producing potentially less food than expected. Using a GTM, this research has provided participants with the opportunity to explain the role that HFG plays in their lives, thus bridging the gap in understanding between their lived experience and current academic discourses.

## BIBLIOGRAPHY


ADEVI, A. A. & LIEBERG, M. 2012. Stress rehabilitation through garden therapy: A caregiver perspective on factors considered most essential to the recovery process. *Urban Forestry & Urban Greening,* 11**,** 51-58.

ADGER, W. N. 2000. Social and ecological resilience: are they related? *Progress in Human Geography,* 24**,** 347-364.

ADGER, W. N. 2003. Social Capital, Collective Action, and Adaptation to Climate Change. *Economic Geography,* 79**,** 387-404.

ADGER, W. N. 2006. Vulnerability. *Global Environmental Change,* 16**,** 268-281.

AGUILAR-STØEN, M., MOE, S. R. & CAMARGO-RICALDE, S. L. 2009. Home gardens sustain crop diversity and improve farm resilience in Candelaria Loxicha, Oaxaca, Mexico. *Human ecology,* 37**,** 55-77.

ALAIMO, K., PACKNETT, E., MILES, R. A. & KRUGER, D. J. 2008. Fruit and vegetable intake among urban community gardeners. *Journal of Nutrition Education and Behavior,* 40**,** 94-101.

ALBER, J. & KOHLER, U. 2008. Informal food production in the enlarged European Union. *Social Indicators Research,* 89**,** 113-127.

ALLEN, P. 2010. Realizing justice in local food systems. *Cambridge Journal of Regions, Economy and Society,* 3**,** 295-308.

AMARACH-RESEARCH. 2011. Bord Bia Amenity Attitudes Evaluation. Dublin: Bord Bia.

ANDERSON, J. 2004. Talking whilst walking: a geographical archaeology of knowledge. *Area,* 36**,** 254-261.

BAKER, L. E. 2004. Tending Cultural Landscapes and Food Citizenship in Toronto's Community Gardens. *The Geographical Review,* 94**,** 305-325.

BARTHEL, S., FOLKE, C. & COLDING, J. 2010. Social–ecological memory in urban gardens—Retaining the capacity for management of ecosystem services. *Global Environmental Change,* 20**,** 255-265.

BARTHEL, S. & ISENDAHL, C. 2013. Urban gardens, agriculture, and water management: Sources of resilience for long-term food security in cities. *Ecological Economics,* 86**,** 224-234.

BAZELEY, P. & JACKSON, K. 2013. *Qualitative Data Analysis with NVivo*, SAGE Publications.

BECK, T. B. 2002. Gardeners Perceptions of the Aesthetics, Manageability, and Sustainability of Residential Landscapes. *Applied Environmental Education & Communication,* 1**,** 163-172.

BEDDINGTON, J. 2009. Food, Energy, Water and the Climate: A Perfect Storm of Global Events? London: Government Office for Science.

BEILIN, R. & HUNTER, A. 2011. Co-constructing the sustainable city: how indicators help us 'grow' more than just food in community gardens. *Local Environment,* 16**,** 523-538.

BENNETT, J. 2010. *Vibrant matter : a political ecology of things,* Durham, N.C. ; London, Duke University Press.

BERKES, F., COLDING, J. & FOLKE, C. 2003. Introduction. *In:* BERKES, F., COLDING, J. & FOLKE, C. (eds.) *Navigating Social-Ecological Systems: Building Resilience for Complexity and Change.* Cambridge: Cambridge University Press.

BERNARD, H. R. 2011. *Research methods in anthropology : qualitative and quantitative approaches,* Lanham, Md. ; Plymouth, AltaMira.

BETTENCOURT, B. A. & SHELDON, K. 2001. Social roles as mechanism for psychological need satisfaction within social groups. *Journal of Personality and Social Psychology,* 81**,** 1131-1143.
BHATTI, M. 1999. Chapter 14: THE MEANING OF GARDENS IN AN AGE OF RISK. Taylor & Francis Ltd / Books.
BHATTI, M. 2006. 'When I'm in the garden I can create my own paradise': Homes and gardens in later life. *Sociological Review,* 54**,** 318-341.
BHATTI, M. 2014. Garden Stories: Auto/biography, Gender and Gardening. *Sociological Research Online,* 19.
BHATTI, M., CHURCH, A. & CLAREMONT, A. 2014. Peaceful, Pleasant and Private: The British Domestic Garden as an Ordinary Landscape. *Landscape Research,* 39**,** 40-52.
BHATTI, M., CHURCH, A., CLAREMONT, A. & STENNER, P. 2009. 'I love being in the garden': Enchanting encounters in everyday life. *Social and Cultural Geography,* 10**,** 61-76.
BIRD, C. M. 2005. How I Stopped Dreading and Learned to Love Transcription. *Qualitative Inquiry,* 11**,** 226-248.
BLAIR, D. 2009. The Child in the Garden: An Evaluative Review of the Benefits of School Gardening. *Journal of Environmental Education,* 40**,** 15-38.
BLATCHLEY, W. S. 2013. *The Indiana Weed Book - Primary Source Edition*, BiblioBazaar.
BLUMER, H. 1969. *Symbolic interactionism: perspective and method*, Prentice-Hall.
BODIN, M. & HARTIG, T. 2003. Does the outdoor environment matter for psychological restoration gained through running? *Psychology of Sport and Exercise,* 4**,** 141-153.
BOIVIN, N. 2011. *Material cultures, material minds : the impact of things on human thought, society, and evolution,* Cambridge, Cambridge University Press.
BORN, B. & PURCELL, M. 2006. Avoiding the Local Trap. *Journal of Planning Education and Research,* 26**,** 195-207.
BOURDIEU, P. 1986. The Forms of Capital. *In:* RICHARDSON, J. G. (ed.) *Handbook of Theory and Research for the Sociology of Education.* Greenwood Publishing Group, Incorporated.
BRAMALL, R. 2013. The austerity larder: Mapping food systems in a new age of austerity. *Journal of Consumer Culture***,** 1469540513493208.
BRINGER, J. D., JOHNSTON, L. H. & BRACKENRIDGE, C. H. 2006. Using computer-assisted qualitative data analysis software to develop a grounded theory project. *Field methods,* 18**,** 245-266.
BRYANT, A. & CHARMAZ, K. 2007. Grounded theory in historical perspective: An epistemological account. *In:* BRYANT, A. & CHARMAZ, K. (eds.) *SAGE Handbook of grounded theory.* London: SAGE.
BUCHMANN, C. 2009. Cuban Home Gardens and Their Role in Social–Ecological Resilience. *Human Ecology,* 37**,** 705-721.
BUCHOLTZ, M. 2000. The politics of transcription. *Journal of Pragmatics,* 32**,** 1439-1465.
BURLINGAME, B. 2010. *Preface* [Online]. Rome: FAO. Available: http://www.fao.org/docrep/016/i3004e/i3004e.pdf.
BUTTEL, F. H. 1997. Some observations on agro-food change and the future of agricultural sustainability movements. *In:* GOODMAN, D. & WATTS, M. (eds.) *Globalising Food: Agrarian Questions and Global Restructuring.* London: Routledge.

BUTTERFIELD, B. 2009. The impact of home and community gardening in America. *National Gardening Association, South Burlington*.

BYRNE, L. B. & GREWAL, P. 2008. Introduction to ecological landscaping: a holistic description and framework to guide the study and management of urban landscape parcels.

CAELLI, K., RAY, L. & MILL, J. 2003. 'Clear as Mud': Toward Greater Clarity in Generic Qualitative Research. *International Journal of Qualitative Methods,* 2.

CAMERON, R. W. F., BLANUŠA, T., TAYLOR, J. E., SALISBURY, A., HALSTEAD, A. J., HENRICOT, B. & THOMPSON, K. 2012. The domestic garden - Its contribution to urban green infrastructure. *Urban Forestry and Urban Greening,* 11**,** 129-137.

CAMMACK, P. J., CONVERY, I. & PRINCE, H. 2011. Gardens and birdwatching: Recreation, environmental management and human-nature interaction in an everyday location. *Area,* 43**,** 314-319.

CARNEY, P. A., HAMADA, J. L., RDESINSKI, R., SPRAGER, L., NICHOLS, K. R., LIU, B. Y., PELAYO, J., SANCHEZ, M. A. & SHANNON, J. 2012. Impact of a community gardening project on vegetable intake, food security and family relationships: A community-based participatory research study. *Journal of Community Health,* 37**,** 874-881.

CAROLAN, M. S. 2009. 'I do therefore there is': enlivening socio-environmental theory. *Environmental Politics,* 18**,** 1-17.

CARTER, B. & CHARLES, N. 2011. *Human and Other Animals: Critical Perspectives*, Palgrave Macmillan.

CASTREE, N. 2005. *Nature*, Routledge.

CHARMAZ, K. 2008. Grounded Theory as an Emergent Method. *In:* HESSE-BIBER, S. N. & LEAVY, P. (eds.) *Handbook of Emergent Theories.* London: Guildford Press.

CHARMAZ, K. 2011. Grounded Theory Methods in Social Justice Research. *In:* DENZIN, N. K. & LINCOLN, Y. S. (eds.) *The SAGE handbook of qualitative research.* 4th ed. Los Angeles ; London: SAGE.

CHARMAZ, K. 2014. *Constructing Grounded Theory,* London, SAGE Publications.

CHARMAZ, K. & LISKA BELGRAVE, L. 2012. Qualitative Interviewing and Grounded Theory Analysis. *In:* GUBRIUM, J. F. (ed.) *The SAGE Handbook of Interview Research: The Complexity of the Craft.* London: SAGE Publications.

CHARMAZ, K. & MITCHELL, R. G. 1996. The myth of silent authorship: Self, substance, and style in ethnographic writing. *Symbolic Interaction,* 19**,** 285-302.

CHAWLA, L. 1998. Significant life experiences revisited: A review of research on sources of environmental sensitivity. *The Journal of Environmental Education,* 29**,** 11-21.

CHURCH, A., MITCHELL, R., RAVENSCROFT, N. & STAPLETON, L. 2015. 'Growing your own': A multi-level modelling approach to understanding personal food growing trends and motivations in Europe. *Ecological Economics,* 110**,** 71-80.

CITY FARMER. 2002. *City dwellers are growing food in surprising numbers!* [Online]. Available: http://www.cityfarmer.org/40percent.html 16th February 2014].

CLARK, N. 2010. *Inhuman Nature: Sociable Life on a Dynamic Planet*, SAGE Publications.

COFFEY, A. & ATKINSON, P. 1996. *Making sense of qualitative data : complementary research strategies,* Thousand Oaks ; London, SAGE.

COLASANTI, K. J. A., HAMM, M. W. & LITJENS, C. M. 2012. THE CITY AS AN "AGRICULTURAL POWERHOUSE"? PERSPECTIVES ON EXPANDING URBAN AGRICULTURE FROM DETROIT, MICHIGAN. *Urban Geography,* 33**,** 348-369.

COLDING, J. & BARTHEL, S. 2013. The potential of 'Urban Green Commons' in the resilience building of cities. *Ecological Economics,* 86**,** 156-166.

COLEMAN, J. S. 1988. Social capital in the creation of human capital. *American journal of sociology***,** S95-S120.

COMPANIONI, N., OJEDA HERNÁNDEZ, Y., PÁEZ, E., MURPHY, C., FUNES, F., GARCIA, L., BOURQUE, M., PÉREZ, N. & ROSSET, P. 2002. The growth of urban agriculture. *Sustainable agriculture and resistance: Transforming food production in Cuba***,** 220-236.

COOK, E., HALL, S. & LARSON, K. 2012. Residential landscapes as social-ecological systems: a synthesis of multi-scalar interactions between people and their home environment. *Urban Ecosystems,* 15**,** 19-52.

COOPER, D. E. 2006. *A philosophy of gardens,* Oxford, Clarendon.

CORBIN, J. M. 1998. Alternative Interpretations Valid or not? *Theory & Psychology,* 8**,** 121-128.

COSGROVE, D. 1985. Prospect, perspective and the evolution of the landscape idea. *Transactions of the Institute of British Geographers***,** 45-62.

COSGROVE, D. & DANIELS, S. 1988. *The Iconography of Landscape: Essays on the Symbolic Representation, Design and Use of Past Environments*, Cambridge University Press.

CRESWELL, J. W. 2009. *Research design : qualitative, quantitative, and mixed methods approaches,* Los Angeles ; London, SAGE.

CROUCH, D. 2000. Places around us: embodied lay geographies in leisure and tourism. *Leisure studies,* 19**,** 63-76.

CROUCH, D. 2003a. Performances and constitutions of natures: a consideration of the performance of lay geographies. *The Sociological Review,* 51**,** 17-30.

CROUCH, D. 2003b. Spacing, performing, and becoming: tangles in the mundane. *Environment and Planning A,* 35**,** 1945-1960.

CROW, T., BROWN, T. & DE YOUNG, R. 2006. The Riverside and Berwyn experience: Contrasts in landscape structure, perceptions of the urban landscape, and their effects on people. *Landscape and Urban Planning,* 75**,** 282-299.

DANIELS, G. D. & KIRKPATRICK, J. B. 2006. Comparing the characteristics of front and back domestic gardens in Hobart, Tasmania, Australia. *Landscape and Urban Planning,* 78**,** 344-352.

DAVIDSON, C. R. 2009. Transcription: Imperatives for qualitative research. *International Journal of Qualitative Methods,* 8**,** 35–52.

DAVIES, Z. G., FULLER, R. A., DALLIMER, M., LORAM, A. & GASTON, K. J. 2012. Household Factors Influencing Participation in Bird Feeding Activity: A National Scale Analysis. *Plos One,* 7.

DAVIES, Z. G., FULLER, R. A., LORAM, A., IRVINE, K. N., SIMS, V. & GASTON, K. J. 2009. A national scale inventory of resource provision for biodiversity within domestic gardens. *Biological Conservation,* 142**,** 761-771.

DAVOUDI, S. 2012. Resilience: A Bridging Concept or a Dead End? *Planning Theory & Practice,* 13**,** 299-307.

DAWNEY, L. 2013. The interruption: investigating subjectivation and affect. *Environment and Planning D: Society and Space,* 31**,** 628-644.

DECKER, E. H., ELLIOTT, S., SMITH, F. A., BLAKE, D. R. & ROWLAND, F. S. 2000. Energy and material flow through the urban ecosystem. *Annual review of energy and the environment,* 25**,** 685-740.

DEFRA 2009. UK Food Security Assessment: Our Approach. August 2009 ed. London: Department of Environment, Food and Rural Affairs.

DEGNEN, C. 2009. On vegetable love: gardening, plants, and people in the north of England. *Journal of the Royal Anthropological Institute,* 15**,** 151-167.

DELIND, L. B. 2006. Of bodies, place, and culture: Re-situating local food. *Journal of Agricultural and Environmental Ethics,* 19**,** 121-146.

DENZIN, N. K. 2007. Grounded Theory and the Politics of Interpretation. *In:* BRYANT, A. & CHARMAZ, K. (eds.) *The SAGE Handbook of Grounded Theory.* London: SAGE Publications.

DENZIN, N. K. & LINCOLN, Y. S. 2008. Introduction. *In:* DENZIN, N. K. & LINCOLN, Y. S. (eds.) *Collecting and Interpreting Qualitative Materials.* 3rd ed. London: Sage.

DEPARTMENT OF AGRICULTURE FISHERIES AND FOOD 2010. Food Harvest 2020: A vision for Irish agri-food and fisheries. Dublin: Department of Agriculture, Fisheries and Food.

DEWAELHEYNS, V., ELSEN, A., VANDENDRIESSCHE, H. & GULINCK, H. 2013. Garden management and soil fertility in Flemish domestic gardens. *Landscape and Urban Planning,* 116**,** 25-35.

DEWAELHEYNS, V., LEROUGE, F., ROGGE, E. & VRANKEN, L. 2014. Garden space: Mapping trade-offs and the adaptive capacity of home food production.

DEY, I. 1999. *Grounding Grounded Theory: Guidelines for Qualitative Inquiry*, Academic Press.

DEY, I. 2007. Grounded Theory. *In:* SEALE, C., GOBO, G., GUBRIUM, J., F. & SILVERMAN, D. (eds.) *Qualitative Research Practice.* Paperback ed. London: SAGE.

DIACONO, M., HYND, L. & ROBERTSON, D. 2011. *The Food Lover's Garden: Amazing Edibles You Will Love to Grow and Eat*, Timber Press.

DICKENS, P. 1992. *Society and Nature: Towards a Green Social Theory*, Temple University Press.

DONALD, B. & BLAY-PALMER, A. 2006. The urban creative-food economy: producing food for the urban elite or social inclusion opportunity? *Environment and planning A,* 38**,** 1901.

DREWNOWSKI, A. & SPECTER, S. 2004. Poverty and obesity: the role of energy density and energy costs. *The American Journal of Clinical Nutrition,* 79**,** 6-16.

DRISCOLL, T. R., MITCHELL, R. J., HENDRIE, A. L., HEALEY, S. H., MANDRYK, J. A. & HULL, B. P. 2003. Unintentional fatal injuries arising from unpaid work at home. *Injury Prevention,* 9**,** 15-19.

DUCHSCHER, J. E. B. & MORGAN, D. 2004. Grounded theory: reflections on the emergence vs. forcing debate. *Journal of Advanced Nursing,* 48**,** 605-612.

DURANTI, A. 2006. Transcripts, like shadows on a wall. *Mind, Culture, and Activity,* 13**,** 301-310.

EDEN, S. & BEAR, C. 2011. Reading the river through 'watercraft': environmental engagement through knowledge and practice in freshwater angling. *Cultural Geographies,* 18**,** 297-314.

EDEN, S., BEAR, C. & WALKER, G. 2008. Mucky carrots and other proxies: Problematising the knowledge-fix for sustainable and ethical consumption. *Geoforum,* 39**,** 1044-1057.

ELLEN, R. & HARRIS, H. 2003. Introduction. *In:* BICKER, A., ELLEN, R. & PARKES, P. (eds.) *Indigenous Enviromental Knowledge and Its Transformations: Critical Anthropological Perspectives.* London: Routledge.

ELLEN, R. O. Y. & PLATTEN, S. 2011. The social life of seeds: the role of networks of relationships in the dispersal and cultural selection of plant germplasm. *Journal of the Royal Anthropological Institute,* 17**,** 563-584.

ELWOOD, S. A. & MARTIN, D. G. 2000. 'Placing' Interviews: Location and Scales of Power in Qualitative Research. *Professional Geographer,* 52**,** 649.

ERNSTSON, H., VAN DER LEEUW, S., REDMAN, C., MEFFERT, D., DAVIS, G., ALFSEN, C. & ELMQVIST, T. 2010. Urban Transitions: On Urban Resilience and Human-Dominated Ecosystems. *AMBIO: A Journal of the Human Environment,* 39**,** 531-545.

EVANS-PRITCHARD, E. E. 1940. *The nuer*, Oxford Clarendon.

FAIRCLOUGH, N. 2010. *Critical discourse analysis : the critical study of language,* Harlow, Longman.

FEBLES-GONZÁLEZ, J. M., TOLÓN-BECERRA, A., LASTRA-BRAVO, X. & ACOSTA-VALDÉS, X. 2011. Cuban agricultural policy in the last 25 years. From conventional to organic agriculture. *Land Use Policy,* 28**,** 723-735.

FINGAL COUNTY COUNCIL., DÚN LAOGHAIRE-RATHDOWN COUNTY COUNCIL. & DUBLIN., U. C. 2008. *Green city guidelines : advice for the protection and enhancement of biodiversity in medium to high-density urban developments,* Dublin, UCD Urban Institute Ireland.

FINLAY, L. 2002. “Outing” the researcher: The provenance, process, and practice of reflexivity. *Qualitative health research,* 12**,** 531-545.

FINLAY, L. & GOUGH, B. 2003. *Reflexivity: A Practical Guide for Researchers in Health and Social Sciences,* Oxford, Blackwell.

FOLKE, C. 2006. Resilience: The emergence of a perspective for social–ecological systems analyses. *Global Environmental Change,* 16**,** 253-267.

FONTANA, A. & FREY, J. H. 2000. The interview: From structured questions to negotiated text. *In:* DENZIN, N. K. & LINCOLN, Y. S. (eds.) *The SAGE handbook of qualitative research.* 2nd ed. London: SAGE.

FOOD AND AGRICULTURE ORGANISATION OF THE UNITED NATIONS. 2012. *The State of Food Insecurity in the World 2012: Economic growth is necessary but not sufficient to acclerate reduction of hunger and malnutrition.* [Online]. Rome: FAO. Available: http://www.fao.org/docrep/016/i3027e/i3027e.pdf [Accessed 23rd November 2012 2012].

FORD, S. 2012. *50 Ways to Kill a Slug*, Octopus.

FORESIGHT. 2011. *The Future of Food and Farming: Final Project Report* [Online]. London: Government Office for Science. Available: http://www.bis.gov.uk/assets/foresight/docs/food-and-farming/11-546-future-of-food-and-farming-report.pdf [Accessed 29th October 2012 2012].

FRANCIS, M. & HESTER JR., R. T. 1990. The Garden as Idea, Place, and Action.

FRANKLIN, A. 2002. *Nature and social theory,* London ; Thousand Oaks, Calif., SAGE.

GALLOPÍN, G. C. 2006. Linkages between vulnerability, resilience, and adaptive capacity. *Global Environmental Change,* 16**,** 293-303.

GALLUZZI, G., EYZAGUIRRE, P. & NEGRI, V. 2010. Home gardens: neglected hotspots of agro-biodiversity and cultural diversity. *Biodiversity and Conservation,* 19**,** 3635-3654.

GARNETT, T. 2003. *Wise Moves: Exploring the relationship between food, transport and $CO_2$* [Online]. London: Transport 2000. Available: http://www.thepep.org/ClearingHouse/docfiles/wise_moves.pdf

[Accessed 23rd November 2012.

GASKELL, S. M. 1980. Gardens for the working class: Victorian practical pleasure. *Victorian Studies*, 479-501.

GASTON, K. J., FULLER, R. A., LORAM, A., MACDONALD, C., POWER, S. & DEMPSEY, N. 2007. Urban domestic gardens (XI): Variation in urban wildlife gardening in the United Kingdom. *Biodiversity and Conservation,* 16, 3227-3238.

GASTON, K. J., WARREN, P. H., THOMPSON, K. & SMITH, R. M. 2005. Urban domestic gardens (IV): the extent of the resource and its associated features. *Biodiversity & Conservation,* 14, 3327-3349.

GIARD, L., DE CERTEAU, M. & MAYOL, P. 1998. *The Practice of Everyday Life: Living and cooking. Volume 2*, University of Minnesota Press.

GIBBS, G. 2008. *Analysing qualitative data,* London, SAGE Publications Ltd.

GIBSON-GRAHAM, J. K. 2006. *A Postcapitalist Politics*, University of Minnesota Press.

GINN, F. 2012. Dig for Victory! New histories of wartime gardening in Britain. *Journal of Historical Geography,* 38, 294-305.

GINN, F. 2013. Sticky lives: slugs, detachment and more-than-human ethics in the garden. *Transactions of the Institute of British Geographers*.

GIY. 2013. *About GIY* [Online]. Waterford: GIY. Available: http://www.giyireland.com/pages/about_giy [Accessed 21st April 2013 2013].

GIY. 2014. *Get Ireland Growing Fund* [Online]. Waterford: GIY. Available: http://www.giyinternational.org/pages/getirelandgrowingfund [Accessed 13th January 2015.

GLASER, B. G. 1978. *Theoretical sensitivity: advances in the methodology of grounded theory*, Sociology Press.

GLASER, B. G. 1992. *Emergence Vs Forcing: Basics of Grounded Theory Analysis*, Sociology Press.

GLASER, B. G. 1998. *Doing Grounded Theory: Issues and Discussions,* Mill Valley, Sociology Press.

GLASER, B. G. 2001. *The Grounded Theory Perspective: Conceptualization Contrasted with Description*, Sociology Press.

GLASER, B. G. 2002. Constructivist grounded theory? *Forum Qualitative Sozialforschung/Forum: Qualitative Social Research,* 3.

GLASER, B. G. 2003. *The Grounded Theory Perspective II: Description's Remodeling of Grounded Theory Methodology,* Mill Valley, Sociology Press.

GLASER, B. G. 2005. *The Grounded Theory Perspective III: Theoretical Coding*, Sociology Press.

GLASER, B. G. 2008. Conceptualization: On theory and theorizing using grounded theory. *International Journal of Qualitative Methods,* 1, 23-38.

GLASER, B. G. 2014. *Memoing: A Vital Grounded Theory Procedure,* Mill Valley, Sociology Press.

GLASER, B. G. & STRAUSS, A. L. 1967. *The discovery of grounded theory : strategies for qualitative research,* New York, Aldine de Gruyter.

GLEESON, B. 2008. Critical Commentary. Waking from the Dream: An Australian Perspective on Urban Resilience. *Urban Studies,* 45, 2653-2668.

GODDARD, M. A., DOUGILL, A. J. & BENTON, T. G. 2010. Scaling up from gardens: biodiversity conservation in urban environments. *Trends in Ecology & Evolution,* 25**,** 90-98.
GODFRAY, H. C. J., BEDDINGTON, J. R., CRUTE, I. R., HADDAD, L., LAWRENCE, D., MUIR, J. F., PRETTY, J., ROBINSON, S., THOMAS, S. M. & TOULMIN, C. 2010. Food security: the challenge of feeding 9 billion people. *science,* 327**,** 812-818.
GRAY, L., GUZMAN, P., GLOWA, K. M. & DREVNO, A. G. 2013. Can home gardens scale up into movements for social change? The role of home gardens in providing food security and community change in San Jose, California. *Local Environment***,** 1-17.
GREWAL, S. S. & GREWAL, P. S. 2012. Can cities become self-reliant in food? *Cities,* 29**,** 1-11.
GROSS, H. & LANE, N. 2007. Landscapes of the lifespan: Exploring accounts of own gardens and gardening. *Journal of Environmental Psychology,* 27**,** 225-241.
HALWEIL, B. & NIERENBERG, D. 2007. Farming the cities. *State of the World***,** 48-63.
HAMILTON, L. 2011. *Injured troops take up gardening therapy* [Online]. London: Ministry of Defence. Available: https://www.gov.uk/government/news/injured-troops-take-up-gardening-therapy [Accessed 29th December 2014.
HAMMERSLEY, M. 2010. Reproducing or constructing? Some questions about transcription in social research. *Qualitative Research,* 10**,** 553-569.
HAMMERSLEY, M. & ATKINSON, P. 1983. *Ethnography: Principles in Practice*, Tavistock.
HAMO, M. 2004. From observation to transcription and back: Theory, practice, and interpretation in the analysis of children's naturally occurring discourse. *Research on Language and Social Interaction,* 37**,** 71-92.
HARRIS, M. 2007. *Ways of Knowing: Anthropological Approaches to Crafting Experience and Knowledge*, Berghahn Books.
HATFIELD, M. 2012. *City Food Policy and Programs: Lessons Harvested From an Emerging Field* [Online]. Portland, Oregon: City of Portland Oregon Bureau of Planning and Sustainability. Available: http://www.portlandoregon.gov/bps/article/416389.
HAWKES, C. 2008. Dietary Implications of Supermarket Development: A Global Perspective. *Development Policy Review,* 26**,** 657-692.
HAWKES, F. M. & ACOTT, T. G. 2013. People, environment and place: the function and significance of human hybrid relationships at an allotment in South East England. *Local Environment,* 18**,** 1117-1133.
HEAD, L., MUIR, P. & HAMPEL, E. 2004. AUSTRALIAN BACKYARD GARDENS AND THE JOURNEY OF MIGRATION. *Geographical Review,* 94**,** 326-347.
HEAD, L. M. & MUIR, P. A. 2007. Backyard: nature and culture in suburban Australia.
HEIDEGGER, M. 1977. *Basic Writings from Being and Time (1927) to The Task of Thinking (1964)*, Harper & Row.
HERVIEU-LÉGER, D. 2000. *Religion as a chain of memory,* Cambridge, Polity Press.
HERZOG, H. 2012. Interview Location and its Social Meaning. *In:* GUBRIUM, J. F. (ed.) *The SAGE Handbook of Interview Research: The Complexity of the Craft.* London: SAGE Publications.
HEYNEN, N., KAIKA, M. & SWYNGEDOUW, E. 2006a. Urban Political Ecology: Politicising the production of urban natures. *In:* HEYNEN, N., KAIKA, M. &

SWYNGEDOUW, E. (eds.) *In the Nature of Cities: Urban political ecology and the politics of urban metabolism.* Abingdon: Routledge.
HEYNEN, N. C., KAIKA, M. & SWYNGEDOUW, E. 2006b. *In the nature of cities : urban political ecology and the politics of urban metabolism,* London, Routledge.
HINCHLIFFE, S. 2007. *Geographies of nature: societies, environments, ecologies,* London, SAGE.
HINTON, E. & REDCLIFT, M. 2009. Austerity and sufficiency: the changing politics of sustainable consumption. *Environment, Politics and Development Working Paper Series, Paper 17, Department of Geography, Kings College, London*.
HITCHINGS, R. 2003. People, plants and performance: on actor network theory and the material pleasures of the private garden. *Social & Cultural Geography,* 4**,** 99.
HITCHINGS, R. 2006. Expertise and Inability: Cultured Materials and the Reason for Some Retreating Lawns in London. *Journal of Material Culture,* 11**,** 364-381.
HITCHINGS, R. 2010. Seasonal climate change and the indoor city worker. *Transactions of the Institute of British Geographers,* 35**,** 282-298.
HITCHINGS, R. & JONES, V. 2004. Living with plants and the exploration of botanical encounter within human geographic research practice. *Ethics, Place & Environment,* 7**,** 3-18.
HOLMES, K., MARTIN, S. K. & MIRMOHAMADI, K. 2008. *Reading the garden : the settlement of Australia,* Carlton, Vic., Melbourne University Press.
HOLTON, J. A. 2007. The Coding Process and Its Challenges. *In:* BRYANT, A. & CHARMAZ, K. (eds.) *SAGE Handbook of grounded theory.* London: SAGE.
HONDAGNEU-SOTELO, P. 2010. Cultivating Questions for a Sociology of Gardens. *Journal of Contemporary Ethnography,* 39**,** 498-516.
HOOD, J. C. 2007. Orthodoxy vs Power: The Defining Traits of Grounded Theory. *In:* BRYANT, A. & CHARMAZ, K. (eds.) *The SAGE Handbook of Grounded Theory.* London: SAGE Publications.
HOPE, D., GRIES, C., ZHU, W., FAGAN, W. F., REDMAN, C. L., GRIMM, N. B., NELSON, A. L., MARTIN, C. & KINZIG, A. 2003. Socioeconomics drive urban plant diversity. *Proceedings of the National Academy of Sciences,* 100**,** 8788-8792.
HOUSE OF COMMONS ENVIRONMENT FOOD AND RURAL AFFAIRS COMMITTEE 2014. Food security: Second Report of Session 2014–15. London: House of Commons.
HOWLEY, P., SCOTT, M. & REDMOND, D. 2009. An examination of residential preferences for less sustainable housing: Exploring future mobility among Dublin central city residents. *Cities,* 26**,** 1-8.
HUTCHISON, A. J., JOHNSTON, L. & BRECKON, J. 2011. Grounded Theory-Based Research within Exercise Psychology: A Critical Review. *Qualitative Research in Psychology,* 8**,** 247-272.
HUTCHISON, A. J., JOHNSTON, L. H. & BRECKON, J. D. 2010. Using QSR-NVivo to facilitate the development of a grounded theory project: an account of a worked example. *International Journal of Social Research Methodology,* 13**,** 283-302.
IANNETTA, M., COLUCCI, F., PRESENTI, O. & VITALI, F. 2010. *Food and Energy: A Sustainable Approach* [Online]. Rome: FAO. Available: http://www.fao.org/docrep/016/i3004e/i3004e.pdf.

INGOLD, T. 2000. *The perception of the environment : essays on livelihood, dwelling and skill,* London, Routledge.
INGOLD, T. 2011. *Being alive: Essays on movement, knowledge and description*, Taylor & Francis.
INGOLD, T. 2014. In conversation with Tim Ingold. *Journal of Landscape Architecture,* 9**,** 50-53.
JEHLIČKA, P., KOSTELECKÝ, T. & SMITH, J. 2013. Food Self-Provisioning in Czechia: Beyond Coping Strategy of the Poor: A Response to Alber and Kohler's 'Informal Food Production in the Enlarged European Union'(2008). *Social indicators research,* 111**,** 219-234.
JEHLICKA, P. & SMITH, J. 2011. An unsustainable state: Contrasting food practices and state policies in the Czech Republic. *Geoforum,* 42**,** 362-372.
JEPSON, A. 2014. Gardening and wellbeing: A view from the ground. *Making and Growing: Anthropological Studies of Organisms and Artefacts.*
JONES, O. 2005. An Ecology of Emotion, Memory Self and Landscape. *In:* DAVIDSON, J., BONDI, L. & SMITH, M. (eds.) *Emotional Geographies.* Altershot: Ashgate.
JONES, R. & NOBLE, G. 2007. Grounded theory and management research: a lack of integrity? *Qualitative Research in Organizations and Management: An International Journal,* 2**,** 84-103.
JORDAN, J. A. 2007. The heirloom tomato as cultural object: Investigating taste and space. *Sociologia Ruralis,* 47**,** 20-41.
KAPLAN, R. 1973. Some Psychological Benefits of Gardening. *Environment and Behavior,* 5**,** 145-162.
KAPLAN, R., KAPLAN, S. & RYAN, R. L. 1998. *With people in mind : design and management of everyday nature,* Washington, D.C., Island.
KARP, D. A. 2009. Learning to speak of sadness. *In:* PUDDEPHATT, A. J., SHAFFIR, W. & KLEINKNECHT, S. W. (eds.) *Ethnographies Revisited: Constructing Theory in the Field.* Abingdon: Routledge.
KAYE, J. P., GROFFMAN, P. M., GRIMM, N. B., BAKER, L. A. & POUYAT, R. V. 2006. A distinct urban biogeochemistry? *Trends in Ecology & Evolution,* 21**,** 192-199.
KELLETT, J. 2011. The Australian quarter acre block: the death of a dream? *Town Planning Review,* 82**,** 263-284.
KELLY, M. 2013. *Urban Farmers Are Growing Our "Food Empathy"* [Online]. Huffington Post. Available: http://www.huffingtonpost.com/mick-kelly/urban-farmers-are-growing-our-food-empathy_b_4467257.html 2014].
KELLY, M. 2014. *Therapy garden a valuable addition to NRH's services* [Online]. Dublin: Irish Independent. Available: http://www.independent.ie/lifestyle/therapy-garden-a-valuable-addition-to-nrhs-services-30137417.html.
KERR, J. H., FUJIYAMA, H., SUGANO, A., OKAMURA, T., CHANG, M. & ONOUHA, F. 2006. Psychological responses to exercising in laboratory and natural environments. *Psychology of sport and Exercise,* 7**,** 345-359.
KIESLING, F. M. & MANNING, C. M. 2010. How green is your thumb? Environmental gardening identity and ecological gardening practices. *Journal of Environmental Psychology,* 30**,** 315-327.
KINGSLEY, J. Y., TOWNSEND, M. & HENDERSON-WILSON, C. 2009. Cultivating health and wellbeing: members' perceptions of the health benefits of a Port Melbourne community garden. *Leisure Studies,* 28**,** 207-219.

KIRKPATRICK, J., DANIELS, G. & DAVISON, A. 2009. An antipodean test of spatial contagion in front garden character. *Landscape and Urban Planning,* 93**,** 103-110.
KORTRIGHT, R. & WAKEFIELD, S. 2011. Edible Backyards: A Qualitative Study of Household Food Growing and Its Contributions to Food Security. *Agriculture and Human Values,* 28**,** 39-53.
KRASNY, M. E. & TIDBALL, K. G. 2012. Civic ecology: a pathway for Earth Stewardship in cities. *Frontiers in Ecology and the Environment,* 10**,** 267-273.
KUECKER, G. D. & HALL, T. D. 2011. Resilience and Community in the Age of World-System Collapse. *Nature and Culture,* 6**,** 18-40.
KURCZEWSKA, J. 2006. The Role of Family Memory in Times of System Transformation. *International Journal of Sociology,* 36**,** 67-79.
KURZ, T. & BAUDAINS, C. 2012. Biodiversity in the front yard: An investigation of landscape preference in a domestic urban context. *Environment and Behavior,* 44**,** 166-196.
KVALE, S. 1996. The 1,000-page question. *Qualitative inquiry,* 2**,** 275-284.
KVALE, S. & FLICK, U. 2007. *Doing interviews,* London, Sage.
LAKE, B. & MILFONT, T. L. 2012. The relative influence of psycho-social factors on urban edible gardening. *New Zealand Journal of Psychology,* 41**,** 49-58.
LANG, T. & HEASMAN, M. 2004. *Food wars: the global battle for mouths, minds and markets*, Earthscan.
LAPADAT, J. C. & LINDSAY, A. C. 1999. Transcription in Research and Practice: From Standardization of Technique to Interpretive Positionings. *Qualitative Inquiry,* 5**,** 64-86.
LARSEN, L. & HARLAN, S. L. 2006. Desert dreamscapes: residential landscape preference and behavior. *Landscape and Urban Planning,* 78**,** 85-100.
LARSON, F., PETCH, A. & ZEITLYN, D. 2007. Social networks and the creation of the Pitt Rivers Museum. *Journal of material culture,* 12**,** 211-239.
LARSON, K. L., CASAGRANDE, D., HARLAN, S. L. & YABIKU, S. T. 2009. Residents' yard choices and rationales in a desert city: social priorities, ecological impacts, and decision tradeoffs. *Environmental management,* 44**,** 921-937.
LARSON, K. L., COOK, E., STRAWHACKER, C. & HALL, S. J. 2010. The influence of diverse values, ecological structure, and geographic context on residents' multifaceted landscaping decisions. *Human Ecology,* 38**,** 747-761.
LATOUR, B. 2009. *Politics of Nature,* Harvard, Harvard University Press.
LAUTENSCHLAGER, L. & SMITH, C. 2007. Beliefs, knowledge, and values held by inner-city youth about gardening, nutrition, and cooking. *Agriculture and Human Values,* 24**,** 245-258.
LAWSON, L. J. 2005. *City bountiful: a century of community gardening in America*, University of California Press.
LEICHENKO, R. 2011. Climate change and urban resilience. *Current Opinion in Environmental Sustainability,* 3**,** 164-168.
LEMPERT, L. B. 2007. Asking Questions of the Data: Memo Writing in the Grounded Theory Tradition. *In:* BRYANT, A. & CHARMAZ, K. (eds.) *SAGE Handbook of grounded theory.* London: SAGE.
LINCOLN, Y. S., LYNHAM, S. A. & GUBA, E. G. 2011. Paradigmatic Controversies, Contradictions, and Emerging Confluences, Revisited. *In:* DENZIN, N. K. & LINCOLN, Y. S. (eds.) *The SAGE Handbook of Qualitative Research.* 4th ed. London: SAGE Publications.

LITT, J. S., SOOBADER, M.-J., TURBIN, M. S., HALE, J. W., BUCHENAU, M. & MARSHALL, J. A. 2011. The Influence of Social Involvement, Neighborhood Aesthetics, and Community Garden Participation on Fruit and Vegetable Consumption. *American Journal of Public Health,* 101**,** 1466-1473.

LOCKE, K. 1996. Rewriting the discovery of grounded theory after 25 years? *Journal of Management Inquiry,* 5**,** 239-245.

LORAM, A., WARREN, P., THOMPSON, K. & GASTON, K. 2011. Urban domestic gardens: The effects of human interventions on garden composition. *Environmental Management,* 48**,** 808-824.

LORAM, A., WARREN, P. H. & GASTON, K. J. 2008. Urban domestic gardens (XIV): the characteristics of gardens in five cities. *Environmental Management,* 42**,** 361-376.

LOW, N. 2005. *The green city : sustainable homes, sustainable suburbs,* Abingdon, Routledge.

LUDWIG, D., WALKER, B. H. & HOLLING, C. S. 2002. Models and Metaphors of Sustainability, Stability and Resilience. *In:* GUNDERSON, L. H. & PRITCHARD JR., L. (eds.) *Resilience and the Behaviour of Large-Scale Systems.* London: Island Press.

LYONS, W. E. 1980. *Gilbert Ryle: an introduction to his philosophy*, Harvester Wheatsheaf.

MACNAGHTEN, P. & URRY, J. 1995. Towards a sociology of nature. *Sociology,* 29**,** 203-220.

MALLER, C. J. 2009. Promoting children's mental, emotional and social health through contact with nature: a model. *Health Education,* 109**,** 522-543.

MALLETT, S. 2004. Understanding home: A critical review of the literature. *Sociological Review,* 52**,** 62-89+136.

MARSDEN, T. & FRANKLIN, A. 2013. Replacing neoliberalism: Theoretical implications of the rise of local food movements. *Local Environment,* 18**,** 636-641.

MASSEY, D. 2005. *For Space,* London, SAGE Publications.

MATHIEU, R., FREEMAN, C. & ARYAL, J. 2007. Mapping private gardens in urban areas using object-oriented techniques and very high-resolution satellite imagery. *Landscape and Urban Planning,* 81**,** 179-192.

MCCLINTOCK, N. 2010. Why farm the city? Theorizing urban agriculture through a lens of metabolic rift. *Cambridge Journal of Regions, Economy and Society,* 3**,** 191-207.

MCCLINTOCK, N., COOPER, J. & KHANDESHI, S. 2013. Assessing the potential contribution of vacant land to urban vegetable production and consumption in Oakland, California. *Landscape and Urban Planning,* 111**,** 46-58.

MCDONALD, B. L. 2010. *Food Security,* Cambridge, Polity Press.

MCDOWELL, L. 1998. Elites in the City of London: some methodological considerations. *Environment and Planning A,* 30**,** 2133-2146.

MCVEIGH, T. 2014. The garden of peace: helping veterans heal the mental scars of war. *The Observer*, 30th November 2014.

MERLEAU-PONTY, M. 1964. Eye and Mind. *In:* MERLEAU-PONTY, M. (ed.) *The Primacy of Perception: And Other Essays on Phenomenological Psychology, the Philosophy of Art, History, and Politics.* Evanston, Illinois: Northwestern University Press.

MERLEAU-PONTY, M. 2013. *Phenomenology of Perception,* Abingdon, Routledge.

METCALF, S. S. & WIDENER, M. J. 2011. Growing Buffalo's capacity for local food: A systems framework for sustainable agriculture. *Applied Geography,* 31**,** 1242-1251.
MIDDLETON, D. & BROWN, S. D. 2005. *The social psychology of experience: Studies in remembering and forgetting,* London, SAGE.
MILLER, G. & DINGWALL, R. 1997. *Context and Method in Qualitative Research,* London, SAGE Publications.
MONDADA, L. 2007. Commentary: transcript variations and the indexicality of transcribing practices. *Discourse Studies,* 9**,** 809-821.
MORGAN, K. & SONNINO, R. 2010. The urban foodscape: world cities and the new food equation. *Cambridge Journal of Regions, Economy and Society,* 3**,** 209-224.
MORSE, J. M., STERN, P. N., CORBIN, J., BOWERS, B., CHARMAZ, K. & CLARKE, A. E. 2009. *Developing grounded theory: The second generation*, Left Coast Press Walnut Creek, CA.
MORTON, L. W., BITTO, E. A., OAKLAND, M. J. & SAND, M. 2008. Accessing Food Resources: Rural and Urban Patterns of Giving and Getting Food. *Agriculture and Human Values,* 25**,** 107-119.
MOUGEOT, LUC & J.A. 2006. *Growing Better Cities: Urban Agriculture for Sustainable Development,* Ottawa, *International Development Research Centre*.
MOUGEOT, L. J. A. 2005a. Introduction. *In:* MOUGEOT, L. J. A. (ed.) *Agropolis: The Social, Political and Environmental Dimensions of Urban Agriculture.* London: Earthscan.
MOUGEOT, L. J. A. 2005b. Neglected Issues on Form and Substance of Research on Urban Agriculture. *In:* MOUGEOT, L. J. A. (ed.) *Agropolis: The Social, Political and Environmental Dimensions of Urban Agriculture.* London: Earthscan.
MURDOCH, J. 2001. Ecologising sociology: Actor-network theory, co-construction and the problem of human exemptionalism. *Sociology,* 35**,** 111-133.
MURDOCH, J., MARSDEN, T. & BANKS, J. 2000. Quality, nature, and embeddedness: some theoretical considerations in the context of the food sector*. *Economic geography,* 76**,** 107-125.
NATHANIEL, A. K. 2006. Moral reckoning in nursing. *Western Journal of Nursing Research,* 28**,** 419-438.
NATIONAL TASKFORCE ON OBESITY 2005. Obesity - the policy challenges. Dublin: Department of Health and Children.
NEWSOM, G. 2009. Healthy and Sustainable Food for San Fransciso. *In:* OFFICE OF THE MAYOR, C. A. C. O. S. F. (ed.). San Francisco: Office of the Mayor, City and County of San Francisco.
OBER ALLEN, J., ALAIMO, K., ELAM, D. & PERRY, E. 2008. Growing vegetables and values: Benefits of neighborhood-based community gardens for youth development and nutrition. *Journal of Hunger & Environmental Nutrition,* 3**,** 418-439.
OLESEN, V. L. 2007. Feminist Qualitative Research and Grounded Theory: Complexities, Criticisms and Opportunities. *In:* BRYANT, A. & CHARMAZ, K. (eds.) *SAGE Handbook of grounded theory.* London: SAGE.
OSTROM, E. 2004. Panarchy: understanding transformations in human and natural systems: Lance H. Gunderson and C.S. Holling (Eds.), Island Press,

Washington, DC, 2002, ISBN: 1559638575, 450 pp. *Ecological Economics,* 49**,** 488-491.
PADGETT, D. K. 2003. *The Qualitative Research Experience*, Wadsworth/Thomson Learning.
PALMER, G. 2004. Class and transformation in lifestyle television. *Understanding reality television***,** 173.
PALYS, T. & ATCHISON, C. 2012. Qualitative Research in the Digital Era: Obstacles and Opportunities. *International Journal of Qualitative Methods,* 11**,** 352-367.
PEARSON, L. J., PEARSON, L. & PEARSON, C. J. 2010. Sustainable urban agriculture: Stocktake and opportunities. *International Journal of Agricultural Sustainability,* 8**,** 7-19.
PENDALL, R., FOSTER, K. A. & COWELL, M. 2010. Resilience and regions: building understanding of the metaphor. *Cambridge Journal of Regions, Economy and Society,* 3**,** 71-84.
PETTS, J. 2005. The Economics of Urban and Peri-Urban Agriculture. *In:* VILJOEN, A., BOHN, K. & HOWE, J. (eds.) *Continuous Productive Urban Landscapes: Designing Urban Agriculture for Sustainable Cities.* Oxford: Architectural Press.
PICKETT, S. T. A., CADENASSO, M. L., GROVE, J. M., GROFFMAN, P. M., BAND, L. E., BOONE, C. G., BURCH JR, W. R., GRIMMOND, C. S. B., HOM, J., JENKINS, J. C., LAW, N. L., NILON, C. H., POUYAT, R. V., SZLAVECZ, K., WARREN, P. S. & WILSON, M. A. 2008. Beyond Urban Legends: An Emerging Framework of Urban Ecology, as Illustrated by the Baltimore Ecosystem Study. *BioScience,* 58**,** 139-150.
PIDGEON, N. 1996. Grounded Theory: theoretical background. *In:* RICHARDSON, J. (ed.) *Handbook of Qualitative Research Methods for Psychology and the Social Sciences.* Leicester: The British Psychological Society.
PINCETL, S. 2012. Nature, urban development and sustainability – What new elements are needed for a more comprehensive understanding? *Cities,* 29, Supplement 2**,** S32-S37.
POMERLEAU, J., LOCK, K., KNAI, C. & MCKEE, M. 2005. Interventions designed to increase adult fruit and vegetable intake can be effective: a systematic review of the literature. *The Journal of nutrition,* 135**,** 2486-2495.
POTHUKUCHI, K. 2009. Community and Regional Food Planning: Building Institutional Support in the United States. *International Planning Studies,* 14**,** 349-367.
POTHUKUCHI, K. & KAUFMAN, J. L. 1999. Placing the food system on the urban agenda: The role of municipal institutions in food systems planning. *Agriculture and Human Values,* 16**,** 213-224.
POWER, E. R. 2005. Human-nature relations in suburban gardens. *Australian Geographer,* 36**,** 39-53.
PRESTON, C. J. 1999. Environment and Belief: The Importance of Place in the Construction of Knowledge. *Ethics & the Environment,* 4**,** 211.
PRETTY, J. N., BALL, A. S., LANG, T. & MORISON, J. I. L. 2005. Farm costs and food miles: An assessment of the full cost of the UK weekly food basket. *Food Policy,* 30**,** 1-19.
PRETTY, P. J., PEACOCK, J., HINE, R., SELLENS, M., SOUTH, N. & GRIFFIN, M. 2007. Green exercise in the UK countryside: Effects on health and psychological well-being, and implications for policy and planning. *Journal of Environmental Planning and Management,* 50**,** 211-231.

PUTNAM, R. D. 2001. *Bowling alone*, Simon & Schuster.
QUANDT, S. A., ARCURY, T. A., BELL, R. A., MCDONALD, J. & VITOLINS, M. Z. 2001. The social and nutritional meaning of food sharing among older rural adults. *Journal of Aging Studies,* 15**,** 145-162.
RAMÍREZ, H. & HONDAGNEU-SOTELO, P. 2009. Mexican immigrant gardeners: entrepreneurs or exploited workers? *Social Problems,* 56**,** 70-88.
RAYNOLDS, L. T. 2000. Re-embedding global agriculture: The international organic and fair trade movements. *Agriculture and human values,* 17**,** 297-309.
REDWOOD, M. 2009. Conclusion. *Agriculture in Urban Planning: Generating Livelihoods and Food Security.* London: Earthscan.
REYES-GARCÍA, V., ACEITUNO, L., VILA, S., CALVET-MIR, L., GARNATJE, T., JESCH, A., LASTRA, J. J., PARADA, M., RIGAT, M., VALLÈS, J. & PARDO-DE-SANTAYANA, M. 2012. Home Gardens in Three Mountain Regions of the Iberian Peninsula: Description, Motivation for Gardening, and Gross Financial Benefits. *Journal of Sustainable Agriculture,* 36**,** 249-270.
ROBERTS, T. 2012. From 'new materialism'to 'machinic assemblage': agency and affect in IKEA. *Environment and Planning-Part A,* 44**,** 2512.
RYAN, R. M., WEINSTEIN, N., BERNSTEIN, J., BROWN, K. W., MISTRETTA, L. & GAGNE, M. 2010. Vitalizing effects of being outdoors and in nature. *Journal of Environmental Psychology,* 30**,** 159-168.
SAGE, C. 2011. *Environment and Food*, Taylor & Francis.
SALDANA, J. M. 2012. *The Coding Manual for Qualitative Researchers,* London, SAGE Publications.
SALISBURY, R. B. 2012. Engaging with soil, past and present. *Journal of Material Culture,* 17**,** 23-41.
SANDER-REGIER, R. 2009. Bare roots: exploring botanical agency in the personal garden. *TOPIA: Canadian Journal of Cultural Studies***,** 63.
SARLIO-LÄHTEENKORVA, S. & LAHELMA, E. 2001. Food insecurity is associated with past and present economic disadvantage and body mass index. *The Journal of nutrition,* 131**,** 2880-2884.
SCHAFFT, K. A., JENSEN, E. B. & HINRICHS, C. C. 2009. Food Deserts and Overweight Schoolchildren: Evidence from Pennsylvania*. *Rural Sociology,* 74**,** 153-177.
SCHMELZKOPF, K. 2002. Incommensurability, Land Use, and the Right to Space: Community Gardens in New York City. *Urban Geography,* 23**,** 323-343.
SCHUPP, J. L. & SHARP, J. S. 2012. Exploring the Social Bases of Home Gardening. *Agriculture and Human Values,* 29**,** 93-105.
SEALE, C. 2012. *Researching society and culture,* Los Angeles ; London, SAGE.
SEMPIK, J., ALDRIDGE, J. & FINNIS, L. 2004. *Social and therapeutic horticulture: the state of practice in the UK* [Online]. Loughborough University. Available: http://www.openspace.eca.ac.uk/conference/proceedings/PDF/Sempik.pdf.
SHAW, H. J. 2006. Food deserts: towards the development of a classification. *Geografiska Annaler: Series B, Human Geography,* 88**,** 231-247.
SHAW, R. 2010. Embedding reflexivity within experiential qualitative psychology. *Qualitative research in psychology,* 7**,** 233-243.
SILVER, C. & FIELDING, N. 2007. Using Computer Packages in Qualitative Research. *In:* WILLIG, C. & STAINTON-ROGERS, W. (eds.) *The SAGE Handbook of Qualitative Research in Psychology.* London: SAGE Publications.

SIME, J. 1993. What makes a house a home: The garden? *In:* BULOS, M. & TYEYMUR, N. (eds.) *Housing: Design, Research, Education.* Aldershot: Avebury.
SMIT, J. & NASR, J. 1999. Agriculture: Urban Agriculture for Sustainable Cities: Using Wastes and Idle Land and Water Bodies as Resources. *In:* SATTERTHWAITE, D. (ed.) *Sustainable Cities.* London: Earthscan.
SMIT, J., NASR, J. & RATTA, A. 2001a. Cities that Feed Themselves. *In:* SMIT, J., NASR, J. & RATTA, A. (eds.) *Urban Agriculture: Food, Jobs and Sustainable Cities.* 2nd ed. Washington, D.C.: Urban Agriculture Network; United Nations Development Fund.
SMIT, J., NASR, J. & RATTA, A. 2001b. Urban Agriculture Yesterday and Today. *In:* SMIT, J., NASR, J. & RATTA, A. (eds.) *Urban Agriculture: Food, Jobs and Sustainable Cities.* 2nd ed. Washington, D.C.: Urban Agriculture Network; United Nations Development Fund.
SMITH, C. M. & KURTZ, H. E. 2003. Community Gardens and Politics of Scale in New York City. *Geographical Review,* 93**,** 193-212.
SMITH, N. 2006. Foreword. *In:* HEYNEN, N., KAIKA, M. & SWYNGEDOUW, E. (eds.) *In the Nature of Cities: Urban Political Ecology and the Politics of Urban Metabolism.* Abingdon: Routledge.
SMITH, R. M., GASTON, K. J., WARREN, P. H. & THOMPSON, K. 2005. Urban domestic gardens (V): relationships between landcover composition, housing and landscape. *Landscape Ecology,* 20**,** 235-253.
SMITH, V. M., GREENE, R. B. & SILBERNAGEL, J. 2013. The social and spatial dynamics of community food production: A landscape approach to policy and program development. *Landscape Ecology,* 28**,** 1415-1426.
SONNINO, R. & MARSDEN, T. 2006. Beyond the divide: rethinking relationships between alternative and conventional food networks in Europe. *Journal of economic geography,* 6**,** 181-199.
SOUTH DUBLIN COUNTY COUNCIL. 2014. *Community Gardens* [Online]. Dublin. Available: http://www.sdcc.ie/services/community/social-inclusion/community-gardens [Accessed 9th December 2014 2014].
STRAUSS, A. & CORBIN, J. M. 1998. *Basics of Qualitative Research: Techniques and Procedures for Developing Grounded Theory,* London, SAGE Publications.
STRAUSS, A. L. & CORBIN, J. M. 1990a. *Basics of qualitative research : grounded theory procedures and techniques,* Newbury Park, Calif. ; London, Sage.
STRAUSS, A. L. & CORBIN, J. M. 1990b. *Basics of qualitative research: grounded theory procedures and techniques,* London, SAGE.
STROINK, M. L. & NELSON, C. H. 2013. Complexity and food hubs: five case studies from Northern Ontario. *Local Environment,* 18**,** 620-635.
SUDDABY, R. 2006. From the editors: What grounded theory is not. *Academy of management journal,* 49**,** 633-642.
SUNDKVIST, Å., MILESTAD, R. & JANSSON, A. 2005. On the importance of tightening feedback loops for sustainable development of food systems. *Food Policy,* 30**,** 224-239.
SZERSZYNSKI, B., HEIM, W. & WATERTON, C. 2003. *Nature performed: Environment, Culture and Performance*, Blackwell.
TAGTOW, A. & RICHEY, E. 2012. *Growing Solutions: Cultivating Health and Food Security Through Food Gardening in Iowa*, Iowa Food Systems Council, Food Access & Health Work Group.

TAYLOR, J. & LOVELL, S. 2014. Urban home food gardens in the Global North: research traditions and future directions. *Agriculture and Human Values,* 31**,** 285-305.
TAYLOR, J. R. & LOVELL, S. T. 2012. Mapping public and private spaces of urban agriculture in Chicago through the analysis of high-resolution aerial images in Google Earth. *Landscape and Urban Planning,* 108**,** 57-70.
TAYLOR, J. R. & LOVELL, S. T. 2015. Urban home gardens in the Global North: A mixed methods study of ethnic and migrant home gardens in Chicago, IL. *Renewable Agriculture and Food Systems,* 30**,** 22-32.
TAYLOR, L. 2012. *A Taste for Gardening: Classed and Gendered Practices*, Ashgate Publishing, Limited.
TESSIER, S. 2012. From Field Notes, to Transcripts, to Tape Recordings: Evolution or Combination? *International Journal of Qualitative Methods,* 11**,** 446-460.
TOMKINS, M. 2014. *Making space for food: everyday community food gardening and its contribution to urban agriculture.* University of Brighton.
TURNER, B. 2011. Embodied connections: sustainability, food systems and community gardens. *Local Environment,* 16**,** 509-522.
TURNER, B., HENRYKS, J. & PEARSON, D. 2011. Community gardens: Sustainability, health and inclusion in the city. *Local Environment,* 16**,** 489-492.
UNITED NATIONS, D. O. E. A. S. A., POPULATION DIVISION. 2012. World Urbanization Prospects, the 2011 Revision. Final Report ed. New York: United Nations.
URQUHART, C. 2002. Regrounding grounded theory-or reinforcing old prejudices? A brief reply to Bryant. *Journal of Information Technology Theory and Application (JITTA),* 4**,** 5.
URQUHART, C. 2007. The evolving nature of grounded theory method: The case of the information systems discipline. *The Sage handbook of grounded theory***,** 339-359.
URQUHART, C. 2013. *Grounded theory for qualitative research: A practical guide*, Sage.
URQUHART, C. & FERNÁNDEZ, W. 2013. Using grounded theory method in information systems: the researcher as blank slate and other myths. *Journal of Information Technology,* 28**,** 224-236.
VAN VEENHUIZEN, R. 2006. Introduction: Cities Farming for the Future. *In:* VAN VEENHUIZEN, R. (ed.) *Cities Farming for the Future: Urban Agriculture for Green and Productive Cities.* Ottawa: RUAF Foundation, International Development Research Centre, International Institute of Rural Reconstruction.
WALKER, B. H. 2002. Ecological Resilience in Grazed Rangelands: A Generic Case Study. *In:* GUNDERSON, L. H. & PRITCHARD JR, L. (eds.) *Resilience and the Behaviour of Large-Scale Systems.* London: Island Press.
WALKER, R. E., KEANE, C. R. & BURKE, J. G. 2010. Disparities and access to healthy food in the United States: A review of food deserts literature. *Health & Place,* 16**,** 876-884.
WALL, P. 2014. One Health and the food chain: maintaining safety in a globalised industry. *Veterinary Record,* 174**,** 189-192.
WARNER, S. B. & DURLACH, H. 1987. *To dwell is to garden: a history of Boston's community gardens*, Northeastern University Press.

WARREN, C. 2012. Interviewing as Social Interaction. *In:* GUBRIUM, J. F. (ed.) *The SAGE Handbook of Interview Research: The Complexity of the Craft.* London: SAGE Publications.
WATTS, D. C., ILBERY, B. & MAYE, D. 2005. Making reconnections in agro-food geography: alternative systems of food provision. *Progress in human geography,* 29**,** 22-40.
WELLS, E. C. 2006. Cultural soilscapes. *Geological Society, London, Special Publications,* 266**,** 125-132.
WEN LI, W., HODGETTS, D. & HO, E. 2010. Gardens, transitions and identity reconstruction among older Chinese immigrants to New Zealand. *Journal of Health Psychology,* 15**,** 786-796.
WHATMORE, S. 2006. Materialist returns: practising cultural geography in and for a more-than-human world. *Cultural geographies,* 13**,** 600-609.
WILDE, J. 2012. Food Security on the Island of Ireland: Are we sleepwalking into a crisis? Dublin: Institute of Public Health in Ireland.
WILKINSON, C. 2012. Social-ecological resilience: Insights and issues for planning theory. *Planning Theory,* 11**,** 148-169.
WINKLERPRINS, A. M. 2002. House-lot gardens in Santarém, Pará, Brazil: Linking rural with urban. *Urban Ecosystems,* 6**,** 43-65.
WINKLERPRINS, A. M. G. A. & DE SOUZA, P. S. 2005. Surviving the City: Urban Home Gardens and the Economy of Affection in the Brazilian Amazon. *Journal of Latin American Geography,* 4**,** 107-126.
WISE, P. 2014. Grow your own: The potential value and impacts of residential and community food gardening. Policy Brief No.59. Canberra: The Australia Institute.
WORLD HEALTH ORGANISATION 2012. Controlling the global obesity epidemic. *Nutrition.* World Health Organisation.
WYLIE, J. 2007. *Landscape,* London, Routledge.
YAMAZAKI, H., SLINGSBY, B. T., TAKAHASHI, M., HAYASHI, Y., SUGIMORI, H. & NAKAYAMA, T. 2009. Characteristics of qualitative studies in influential journals of general medicine: a critical review. *Bioscience trends,* 3**,** 202-209.
YATES, J. S. & GUTBERLET, J. 2011. Reclaiming and recirculating urban natures: integrated organic waste management in Diadema, Brazil. *Environment and Planning A,* 43**,** 2109-2124.
YOJI, I. 2013. What's Wrong with Social Capital? Critiques from Social Science. *In:* KAWACHI, I., TAKAO, S. & SUBRAMANIAN, S. V. (eds.) *Global Perspectives on Social Capital and Health.* New York: Springer.
YOUGOV. 2014. *People who enjoy growing fruit and vegetables* [Online]. UK: Yougov. Available: https://yougov.co.uk/profiler#/Growing_fruit_and_vegetables/lifestyled.
ZAINUDDIN, Z. & MERCER, D. 2014. Domestic Residential Garden Food Production in Melbourne, Australia: a fine-grained analysis and pilot study. *Australian Geographer,* 45**,** 465-484.
ZAVISCA, J. 2003. Contesting capitalism at the post-Soviet dacha: The meaning of food cultivation for urban Russians. *Slavic Review***,** 786-810.

## Appendix 1: Ethics Requirements

An application was made to the Human Research Ethics Committee (HREC) for exemption from full ethical review on the basis that this study does not involve vulnerable groups or sensitive issues. This exemption was granted.

All participants were given both oral and written information on the research project, its aims, scope and relevance. They were given copies of both the information sheet and the consent form that they signed. This consent form asked for permission to record the interview, photograph the garden and also for data arising from the interview to be used in future publications. The consent form made it clear that the participant could withdraw permission at any time without disadvantage to him or her. Participants were informed that all data collected would be anonymised in the interests of confidentiality and that UCD data protection policies would be fully observed. Contact details of each participant, together with their code names and signed consent forms, were stored securely and separately from the research data. Access to digital recordings was protected by use of a password and transcripts contained no information that could identify participants.

Alphanumeric codes rather than pseudonyms were used because both first and surnames hold social and cultural significance. In addition, particular first names have the potential to reveal the age of an individual. Code names were applied to the participants, interview recordings, field notes, memos and photographs from the first contact. This use of anonymising procedures from the earliest stage meant that each participant was known and thought of only by his or her code name. This was deemed an important move since some participants knew each other either as members of the same GIY group or because they were referred on by snowball sampling. In addition, where quotations were used, care was taken to ensure there were no contextual references that would potentially identify a participant.

# Appendix 2: Information Sheet

UCD School of Geography, Planning and Environmental Policy
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Institution: School of Geography, Planning and Environmental Policy
University College Dublin

Research Topic: Why do people grow food in their own gardens?

Over a quarter of all land in the Dublin area consists of domestic gardens. These gardens form an important part of the city's green space and they offer vital support for birds, animals and insects. Gardens also help prevent flooding by absorbing stormwater run-off. Food that is produced in urban gardens helps to reduce the environmental impact of processing, packaging and transporting food over long distances. Growing food locally also improves the secure supply of fresh food for households and for the city. Unlike allotments or community gardens, gardens are private spaces and there is very little known about what goes on in them. In relation to this specific research, very little is known about what motivates a gardener to grow food in his or her own garden, what methods are used, what crops are grown or what yields are obtained.

The reason for doing this research is to investigate whether the current popularity of growing food in gardens is a temporary response to the current economic situation or a sign of changing attitudes to factors such as diet or the environment. By understanding why gardeners choose to grow food and by identifying the benefits and drawbacks of such activities, this research should help inform policymakers in areas such as health, education and the environment. The information gathered during the interviews will be analysed as part of my Master's Thesis.

This research will be done by interviewing approximately fifteen gardeners who grow food in their own gardens. These gardeners will be recruited mainly from GIY groups based in the Dublin area. The plan is to conduct an interview lasting 1-2 hours in the participant's home, with most of the interview taking place either sitting or walking in the garden. If the participant is agreeable, the interview will be recorded. Otherwise, notes will be taken during the interview. All notes and recordings will be stored securely and I am the only person who will know the names of participants. Participants will be identified by letter only in the Thesis as no real names will be used in writing up the research.

Anyone who agrees to be interviewed may change his or her mind and withdraw from the process at any time.

## Appendix 3: Consent Form

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# Consent Form

I have read this information sheet and have had time to consider whether to take part in this study.

I understand that my participation is voluntary (it is my choice) and that I am free to withdraw from the research at any time without disadvantage.

I understand that, as part of this research project, I will be interviewed in my home and garden.

I understand that, with my permission, the interview will be recorded and photographs may be taken of my garden.

I understand that all interview data will be handled so as to protect my confidentiality. Therefore, no names will be mentioned and the information will be coded.

I agree that the data can be used in the publication of higher degrees and scientific publications.

If you have any questions about the research, please telephone me, Maria Walsh, at 0863436059 or contact me by email: maria.walsh.2@ucdconnect.ie.

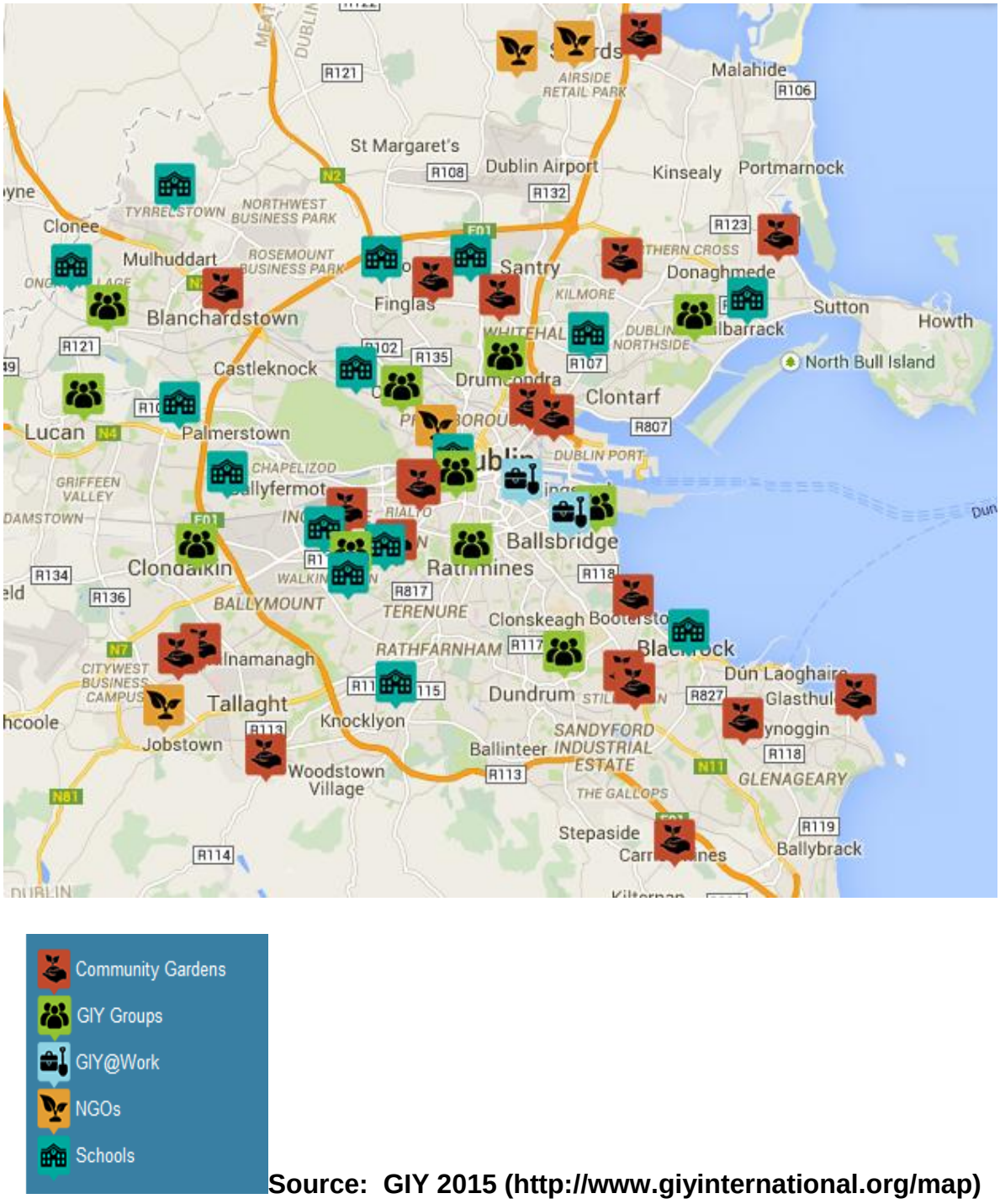
If you agree to take part in the research, please sign the form below and keep one copy of this agreement for your future reference.

Name of Participant (in block letters): .....

Signature: .....

Date: / /

## Appendix 4: GIY Organisation in Dublin




**Source: GIY 2015 (http://www.giyinternational.org/map)**