GROWING URBAN AGRICULTURE:
USING SOCIAL PRACTICE THEORY TO ASSESS HOW TRANSITION NORWICH CAN UPSCALE HOUSEHOLD FOOD GARDENING IN THE CITY OF NORWICH

by

Dionysios Touliatos

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School of Environmental Sciences
University of East Anglia
University Plain
Norwich
NR4 7TJ

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Abstract

Climate change has been characterized as humanity's greatest challenge and it is expected to bring major changes in ecosystems, including human settlements. Climate change takes place due to increases in carbon dioxide concentration in the Earth's atmosphere caused by the use of non renewable fossil fuels. Therefore, it is a priority to address climate change by reducing carbon dioxide emissions before crises occur.

The globalised food system alone accounts for 14% of global carbon dioxide emissions as it is highly energy demanding. Local food systems have been proposed as part of the solution which can mitigate the adverse effects caused by the globalised food system. They can shorten the distance between food producers and consumers and therefore lead to a reduction in carbon dioxide emissions caused by transportation, in addition to promoting a more sustainable and socially equitable future for the food system. Household garden food production represents one aspect of local food production which holds all of the above attributes and provides a potential for a significant and rapid expansion of local food production in modern societies.

The purpose of this study was to propose to Transition Norwich, a community-led sustainability initiative, a number of interventions that can be applied in order to upscale household garden food production in the city of Norwich (UK). In order to synthesize the interventions qualitative data were collected using semi-structured interviews, a survey and life-cycle diagrams and they were analysed through a social practice theory lens. In contrast to conventional accounts for behaviour change, focused on individualistic and cognitive based barriers for pro-environmental behaviour, social practice theorists recognize that the barriers are not purely behavioural neither purely structural. Consequently, through a social practice theory lens it was feasible to capture the full range of factors involved in pro-environmental behaviour change interventions.

Contents

"The ultimate goal of farming is not the growing of crops,
but the cultivation and perfection of human beings."
Masanobu Fukuoka *(1914-2008)*

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1. Introduction

1.1 Urbanization and the globalized food system.

Urbanization

By 2050, three quarters of the human population are expected to live in cities (Girardet, 2004). The unprecedented levels of urbanization currently occurring in many localities are causing numerous social, economic and environmental problems on a global scale (Mougeot, 2005). These include, but are not limited to the "de-agriculturalization" of rural areas (Jiquan, 2005), a growing increase in food prices (Jesper *et al.*, 2009), enhanced air pollution and emotional stress in urban dwellers (Emmanuel, 2010). Furthermore, The metabolism of modern cities is essentially linear and highly unsustainable (Girardet, 2006), consuming energy and materials originated from rural areas and leaving waste back to the countryside (Kennedy *et al.,* 2007). The loading and pressure from expanding urban areas on the ecological environment is increasing at a high rate making it imperative to improve modern cities' metabolic efficiency (Zhang *et al.*, 2010).

Globalized food system

As cities grew, driven by the industrial revolution and population aggregated in urban centres; the world witnessed the emergence of a globalized food system (McMichael, 1994: 175). Allowing a few firms to dominate in certain agriculture and food sectors (Hendrickson, 2008) the conventional globalized food system, has provided, through technological improvements, access to cheap food for millions of people (McNeely & Scherr, 2003) but today inhibits sustainable development (SAFE Alliance, 1994). Based on the affluence of inexpensive fossil fuel; conventional agriculture and food systems are great emitters of greenhouse gases and, by extension a significant driver of climate change (Donald *et al.,* 2010). Over 100 billion barrels of oil per year were used by the US agricultural industry in the mid-1990s in order to produce food (Morgan, 2008: 6). It has been estimated that 14% of global greenhouse gases emissions are a result of crop irrigation, production and use of inorganic fertilisers and pesticides in conventional farming across the world (IPCC 2007).

Drawbacks of Urbanization and the global food system

The globalization of food systems and the increasing urbanization have resulted to fewer and larger farms producing food for distant markets (Pirog, 2004) widening the gap between production and consumption. According to O'Leary (2008) agricultural products travel, on average, 1.500 miles from production and may change hands up to six times before they reach the consumer, accounting for 28% of goods transported on roads in the UK (Pretty *et al*., 2005). More specifically, food transportation is done either by sea, air or road and is highly energy inefficient (Jones, 2001). Furthermore, unnecessary food transportation or "food swaps" are taking place within or between countries resulting in the paradox of countries exporting but also importing approximately equal amounts of similar products (Pretty, 2001). The above practices appear to be economically rational because the social and environmental costs that they generate have not been internalized although can be estimated as over £3.5 billion per year in the UK (Pretty *et al.,* 2005). These hidden costs include biodiversity loss, environmental degradation, health bills and food safety scares (Morgan *et al.*, 2002).

The conventional global agriculture and food system is an integral part of the dominant economic system (Georgescu-Roegen, 1993) which advocates the paradox of infinite economic growth on a finite planet (Daly, 1991). This study is based on the assumption that global agro-food systems cause diverse social, economic and environmental problems and that more localised food systems have an important role to play in a more sustainable and resilient society (Feagan, 2007; Pearson & Bailey, 2009).

1.2 Local food

Driven by raised levels of awareness towards the impacts of the globalized food system (Weber & Matthews, 2008) local food systems are increasingly gaining the attention of policy makers in the UK (Pretty *et al.*, 2005). Food 2030, the UK Governments' food strategy which was published in January 2010, states, that local food production initiatives can contribute to community building and strengthen the local economy (Defra, 2010). Non-governmental organizations such as Sustain and the Soil Association have a long history of promoting local food. Together with CPRE (Campaign to Protect Rural England) and a number of environmental non-governmental organizations they have implemented a five year programme called Making Local Food Work, to promote local food production and consumption in the UK (Plunkett, 2008).

Local food definitions

Local food is a popular term used to describe food which is consumed as close as possible to the place of production (Seyfang, 2006). However defining "as close as possible" and by extension what is local is not a straight forward procedure but rather a complex one (Feagan, 2007). For some, local food is that which is consumed in the same county as which it is produced in (Seyfang, 2004). According to the U.S. Congress (2008) a product can be defined as "local" as long as it has been transported within less that 400 miles from the origin of production but for the National Association of Farmers' Markets (NAFM) in the UK, local food should be that which is consumed within 30 miles from production (NAFM, 2002). Nummedal and Hall (2006) argue that the term "local food" should include food that is processed locally, regardless of the fact that there might be raw material from outside the area used in the process. To conclude, there is no single universally agreed definition of local food in terms of the distance between production and consumption. On the other hand, it has been argued that describing local food based on direct-to-consumer marketing arrangements such as regional farmers markets is a well recognized use of the term (Martinesz, 2010).

Local food definition used in this study

In urban areas one way for consumers to have access to local food is through cultivation, processing and distribution within the overall boundaries of towns and cities. The practice of growing food within the urban environment is generally defined as urban agriculture (Mougeot, 2000). Interestingly this is not a new practice, but dates back to the earliest human settlements. However its importance has been neglected in modern societies (Rakodi, 1988) and it is discussed in more detail in section 2.1. For the purpose of this study and in order to position local food within an urban agriculture context, a more radical definition of local food has been employed. Newman (2008) uses the term "extreme local food" to describe food which is grown within the city limits in order to meet some of the city's residents food needs. Using the aforementioned definition it makes it possible to overcome the uncertainty surrounding the question "What is local?" and to specify local food within the study area.

Local food benefits

Local food systems can promote a more sustainable and socially equitable future for the food system and mitigate harmful health and environmental effects caused by the globalized food system (Henderson, 2000; Nabhan 2002; Pollan, 2006; Smith & Mackinnon 2007). Furthermore, according to Feenstra (1997), one way to revitalize a community is by the development of a local food economy. Hird and Petts (2002) argue that local food systems can promote sustainable economic development because they create employment through environmentally friendly activities and support for local small scale farmers. Environmental benefits are derived from the reduced use of fossil fuels for long distance transportation and reduction in waste through composting and less packaging. The increased availability of fresh (and less processed) foods such as fruit and vegetables from local food networks, offer health benefits to the community. Additionally, local food projects can provide educational opportunities for the members of the community especially concerning gardening, farming and healthy lifestyles (Stagl, 2002; DeLind, 2006). Furthermore, local food serves as an easily accessible site of citizen involvement with environmental issues (Newman, 2008).

1.3 Local food movements

Feenstra (2002) defines local food movements as: "A collaborative effort to build more locally based, self-reliant food economies. One in which sustainable food production, processing, distribution and consumption is integrated to enhance the economic, environmental, and social health of a particular place". Local food movements have been emerging around the globe; creating alternatives to the dominant agri-food system (Feagan, 2007). An important factor for this achievement has been the concept of food miles. This represents the distance food is transported from the location of production until it reaches the consumer (Paxton, 1994). Regardless of the concept being simplistic, it has nonetheless contributed to increased awareness and demand for locally grown food (Smith *et al.,* 2005; Weber & Matthews, 2008; Coley *et al.,* 2009). Jarosz (2008) states that the shortening of the distance between food producers and consumers is the first necessary characteristic of local food movements.

Introducing Transition Towns Movement as a local food movement

Local food movements have been proposed as part of the solution to peak oil and climate change (North, 2010). Thus it comes as no surprise that the Transition Towns Movement, a community-led sustainability initiative aiming to address the threat of climate change and peak oil (Haxeltine & Seyfang, 2009), has incorporated the promotion of local food at the core of its philosophy. Rob Hopkins, the founder of the Transition movement, states that "the role of local food is no longer an optional extra, but a key necessity in a resource-constrained future" (Hopkins *et al.*, 2009). Activities performed within the Transition Towns Movement framework include promoting local food through farmer's markets, food festivals, the development of community-supported agriculture schemes and encouraging citizens to grow their own food (Seyfang, 2009b). Inspired by these initiatives, by success stories as well as failures, this study provides insight into how Transition Norwich might further promote local food growing in Norwich.

2. Literature Review

2.1 Urban agriculture: The broad scope

Urban historian Arnold Toynbee presented in 1970 a definition of modern cities highly correlated to their inability to produce food for urban dwellers. According to Toynbee "A city is a human settlement whose inhabitants cannot produce, within the city limits, all of the food that they need for keeping them alive" (Toynbee, 1970). In defiance to the above definition, urban agriculture movements worldwide are working towards integrating food production into modern cities (UNDP 1996). An extensive literature review revealed many definitions of what is urban agriculture, showing that there is not a unique, universally agreed definition. What is common between these definitions is that they all state that urban agriculture is an industry located within the urban environment involved in the production, process and distribution of food and other products through plant cultivation and animal husbandry in response to the daily demand of consumers within a town, city or metropolis (Smit *et al.,* 1996; Mougeot, 2000; Baumgartner & Belevi, 2001; Brown, 2003; Bhatt, 2005; van Veenhuizen 2006). Howe and Wheeler (1999) argue that the aim of urban agriculture in not only to produce food but also to engage with the many interconnected social, environmental and economic aspects of food production.

The latter statement indicates the multifunctional character of urban agriculture which encompasses the three pillars of sustainability (environmental, social and economic) (Rigdy & Caceres, 2001) while simultaneously presents the dynamic of urban agriculture in promoting sustainable urban development (Mougeot, 2006: 254). Many have mentioned the benefits of urban agriculture including food security, decreased environmental impact due to packaging, storing and transportation of foods, combating discrimination, benefits in terms of mental health, diet and exercise as well as crime reduction. In addition, urban agriculture creates jobs, generates income that is circulated throughout the local economy and promotes recycling and reducing waste (Smit & Nasr, 1992; Mougeot, 1993; Garnett, 1996; Rees, 1997; Taylor *et al.,* 1998; Howe & Wheeler, 1999; Irvine *et al.,* 1999; Quon, 1999; Kuo & Sullivan, 2001; Tzoulas *et al.*, 2007). McClintock (2010) argues that urban agriculture arises as a protective counter-movement at a local level which attempts to mitigate the rift that capitalism has created between humans and nature.

Urban agriculture returns the means of production to urban populations, decommodifies land, labour, and food and reconnects individuals with their own perception of the natural world giving them the choice to transform it into a product which they can consume (McClintock, 2010).

2.2 The household garden

Urban agriculture can include different types of infrastructure, depending on the innovation and creativity of the participants as well as the topographical features, climate and traditions of the area (Nugent, 2000). These may include allotments, community and private household gardens, vertical gardens and rooftop gardens (Mazereeuw, 2005). For this study, located in Norwich (UK), the aspect of urban agriculture under investigation is the household garden. The justification for this particular choice is presented in the next paragraphs.

The choice of household gardens

According to Jeffcote (1993) urban household gardens in the UK represent a significant percentage of the total surface of a city, occupying more than ten times the area of protected nature reserves (Loram *et al.,* 2005). The UK is the country with the highest number in private gardens per capita of any nation in Europe (Alfrey *et al*., 2004: 9) but only 20% of garden owners grew food in 1996 compared to 35% ten years earlier, with lawn and flowers being the dominant theme (MINTEL, 1999). Thus, it can be argued that a significant potential of food production in terms of quantity lies in household gardens. Considering that the area occupied by gardens could be utilised for growing food instead of lawn and flowers. Household garden food production has the potential to shift both perceptions and practices about food, home and the urban environment (Kortright & Wakefield, 2010) as it provides direct access to fresh and nutritious food, within the household environment, that can be harvested, prepared and fed to family members, often on a daily basis (Marsh, 1998).

The distinct infrastructural advantages of household gardens

Household gardens as the medium for upscaling self provisioned local food production in Norwich present various advantages in comparison to the aforementioned urban agriculture infrastructure types. For example, 100,000 people in the UK are estimated to be on waiting lists for allotments (Hope & Ellis, 2009). In Norwich the waiting list for a plot at the allotments numbers around 700 people (Evening news 24, 2011) indicating the increasing demand for growing food as well as the inability of current allotment arrangements to satisfy it. Additionally, the allotments face the risk of being sold for development purposes (Independent, 2011). While challenges associated with the ownership of the land appear as a barrier for scaling-up urban agriculture through allotments and community gardens (Borrelli, 2008) with private household gardens this is not an issue. Being the ultimate controller of their land; private landowners (Lepczyk, 2004) view their garden as a personal space where they can alter the environment according to their will (Cammack *et al.,* 2011). Garden share schemes offer the potential to overcome barriers arising around rented property (Public engagement, 2010), land scarcity (Blake & Cloutier-Fisher, 2009) and underutilized gardens (Peters et al., 2010: 201).

The distinct socio-psychological advantages of household gardens

Moreover and with regards to the widely researched positive relation between green spaces and psychological benefits (Heliker *et al.,* 2000; Gatrell, 2002; Kaplan, 2001; Thoms, 2003; Bird, 2006; Maller *et al.,* 2006), household gardens present a fundamental difference in comparison to other natural settings. Gunter (2000) highlights the importance of home for basic human needs as well as higher needs such as social relationships and personal identity. Francis and Hestor (1990) describe the household garden as an integral part of home; sharing similar features with it. Thus, the household garden is not only a place where the individual comes in contact with nature and receives the psychological benefits associated with her, but furthermore the garden serves as a site for expression of personal needs (Anthony, 1997), having its role in the construction of a domestic "sense of place" (Tuan, 1990). According to Gross and Lane (2007) household gardens "contribute to fulfilment through multiple social meanings". They serve as a retreat from the public world and at the same time they are a site where creativity, status and personal identity can be expressed (Bhatti & Church, 2001). In consensus with the above, Kaplan (1973) argues that when individuals work on their own garden they receive greater levels of satisfaction than when working on public gardens. Consequently, household gardens can be perceived as a locality for deeper understanding

of human-nature relations (Bhatti & Church, 2001) and by extension of pro-environmental behaviour (Mueller & Bentley, 2009).

Conclusion: The potential of household gardens

In conclusion, it can be argued that household-level food gardens provide a potential for a significant and rapid expansion of local food growing, where the barriers, in contrast to other forms of urban agriculture, are not infrastructural but rather cultural and behavioural. Pinkerton and Hopkins (2009: 47) argue that "the obvious place to start an investigation into local food production is home garden growing". This is where this study starts explore the issue. Through in depth investigation of current gardening practices, habits, inconspicuous and conscious perceptions of the household garden the study aims to contribute to a better understanding of local food growing. In addition, the study aims to generate interest for further research into local food initiatives currently sprouting in the city of Norwich.

2.3 A brief history of the household garden in the UK :

The Historical significance and functionality of domestic gardens in the UK.

18th century and the Industrial revolution

During the 18th century in the UK, household gardens served a practical role rather than decorative, particularly for the urban poor. According to Olsen (1999: 92) "Most large estates had a part of their gardens devoted to vegetables and fruits for the table, but for the poor this was the whole purpose of the garden". Moving deeper into the industrial revolution and within a climate of increasing urbanization, self-provisioning of food became a necessity for the displaced rural poor and the new urban workers (Petts, 2001). The need and demand for cultivating one's own food led to the introduction of the Allotment Acts of 1887 and 1890 in an attempt to provide additional food growing land for the urban population (Moselle, 1995). The acts compelled local authorities to provide low-rent allotments to the urban poor to subsidise their diet and income (Desilvey, 2003). Such was the dynamic in food production of the allotments that they were provided in accordance to strict rules; out of concern that these gardens could offer the self-sufficiency to the labour class not to work at all (Durlach *et al.,* 1987). According to Ninez (1984) the success of household-level food production was attributed to the coincidence of two factors: the increasing pauperization of urban populations and the "discovery" of the potato which had the ability to replace grain as the dietary base for UK's urban poor. The new "proletarian" crop, still unaccepted by upper social classes, gave the household garden the potential of feeding large urban populations (Figure 1).

Fig. 1: The Potato Eaters, 1885
(Source: van Gogh museum, 2011)

Later on, however, food production in household gardens began to decline on an inversely proportional rate to the increase in prosperity provided by the industrial revolution and consequently growing plants in the urban environment became a recreational activity (Von Baeyer, 1995). Furthermore, urban food production was discouraged by the introduction of new hygiene principles and a municipal desire for “clean” cities (Cheema *et al.,* 1996).

World war I and II

It was not until the 1914-1918 and 1939-1945 wars where household food production in gardens became important again, probably vital for the survival of the nation (Kemp, 1977). The UK government launched a "Dig for Victory" campaign encouraging citizens to use any land available for growing food, including household gardens. Using posters, like the one for example featuring pictures of young children behind the boot of an unseen man digging and using the words "For their sake, grow your own vegetables", citizens were urged to grow more food (Figure 3) (Home Sweet Home Front, 2005). The campaign was a success resulting in more than half of manual workers in the UK producing food in allotments and household gardens meeting around half of the nations demand in fruit and vegetables (Viljoen, 2005: 101) (Figure 2).

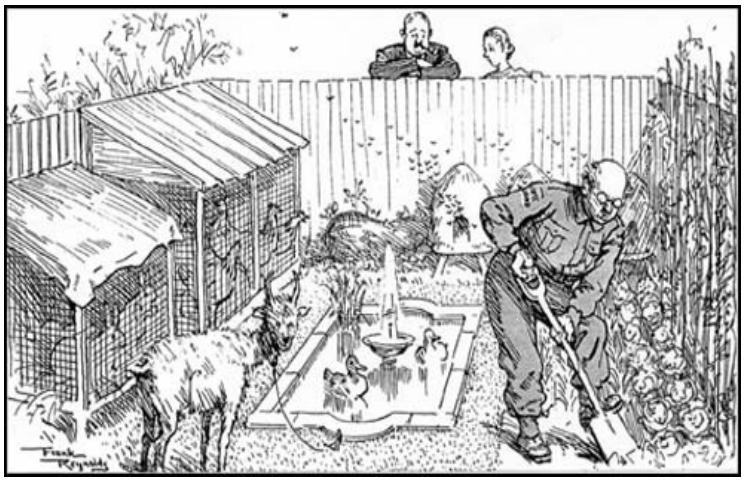


Fig.2: Cartoon of a food productive house garden. Dig for Victory campaign (June, 1943). (Source: Spartacus, 2011)

Fig. 3: Dig for victory poster. Launched in September 1940 by The Ministry of Agriculture and Fisheries. (Source: SIRC, 2011)

Fig.4: A typical garden at the rear of a 1970's house in Hertfordshire, UK. (Source: locationpartnership.com, 2011)

Post war era

From the 1950s to the 1970s there was a steady decline in household food production. A survey of flats in Birmingham revealed that the reasons for the decline were the increased affluence at this time, more leisure time, the car and need for a parking space at home and the globalization of the food system which was offering year-round availability of out-of-season and foreign produce (Kemp, 1977). A renewed interest in household food growing was noticed around 1975 which according to Kemp (1977) was due to the high cost of generally poor quality of retail vegetables. In general though, from the 1970s up to today the lawn dominated the British house garden (Figure 4).

Fig. 5: Example of modern garden design (Source: The Boma, 2011)

Here and now

According to Trudgill *et al.* (2010) the household garden is perceived as a visual declaration of status which states that "the owner is not so poor as to need to cultivate the land for vegetables". The economic recession in 2008-2009 though, reversed this idea followed by an extensive coverage from the media, in the UK, of household gardens transformations into edible landscape (Trudgill *et al.,* 2010). Furthermore, according to Williams (1995) changing patterns of work and household structures are reasons for the decline in food growing in household gardens. The rise of households where both parents are employed and the intensification of work; led to the wide perception that the garden serves as an "outdoor room" where the children can play, the family can sit, relax and hung out the washing to dry (Williams, 1995). Moreover, the modernization of the garden industry, as Bhatti and Church (2001) argue has had a role to play in changing the look and functionality of household gardens. The shift from the food growing garden to the lawned and part "patioed" garden has been over encouraged by the garden industry which promotes exclusively a "minimum time and effort" attitude towards household gardening which excludes any food growing practice (Figure 5).

Understanding household gardens in the UK; through time and social context

When observing the changes in the history of the household garden one can note that food growing in gardens was increasing during periods of resource scarcity usually accompanied by genuine fear in society (Krznaric, 2007); such as wars, urbanization and economic recession. As Bhatti and Church (2001) argue, household gardens are localities of cultural consumption which have been shaped over the years by changing patterns of consumerism. Considering the current imperative need for a transition to a more sustainable society (Shove & Walker, 2007) it is expected that household food production should upscale as a strategy for reduction in resource use (Murphy, 2008). Giddens (2001: 98) argues that in order to cope with climate change "we will need to mobilize on a level comparable to fighting a war, but in this case there are no enemies to identify and confront". Giddens (2001: 98) continues arguing that the dangers humanity is currently dealing with are abstract and elusive and according to Jackson (2006: 11) citizens are currently 'locked-in' to unsustainable practices "over which they have very little individual control". Taking the above into account and drawing upon research findings into pro-environmental behaviour (Shove, 2003; Collins *et al.,* 2003; Owens & Driffill, 2008), it seems highly unlikely that an individualistic and cognitive-based approach, like the current UK mainstream policy in promoting pro-environmental behaviour (Seyfang, 2005; Hobson, 2006) will have the desirable effects in upscaling household food production. Although through the design of cookbooks, gardening manuals and posters (Jones & Wingfield, 2009) the "Dig for Victory" campaign (in times of war) was successful, within the current social context individuals need more than just information to act (Seyfang, 2009a: 37). Presented in more detail in chapter 4, this study employs Social Practice Theory (SPT) and proposes an action plan on how civil society groups, using Transition Norwich as a model, can first contradict and then challenge the existing dominant food and garden design regime (Seyfang, 2009a: 18) aiming to effectively promote household food self-provisioning in modern societies. The advantage of a social practice approach is that it allows to take a holistic and realistic approach on how society is being constituted by social practices; which are simultaneously influenced by individuals' behaviour and social structures (Røpke, 2008). In contrast to conventional accounts for behaviour change, focused on individualistic and cognitive based barriers for pro-environmental behaviour, social practice theorists recognize that the barriers are not purely behavioural neither purely structural. Consequently, through a social practice theory lens it becomes feasible to capture the full range of factors involved in pro-environmental behaviour change interventions (Hargreaves, 2011).

2.4 Introducing the Transition Towns Movement

Civil society movements have been beyond doubt successful players in environmental policy making (Breitmeier & Rittberger, 2000: 130); presenting an active role in "the arena of social engagement which exists above the individual but yet below the state" (Goodwin & Jasper, 2002: 227). According to Bratton (1994) civil societies are bridging the gap between the individual and the state through community cooperation, structures of voluntary association and networks of public communication. The Transition Towns Movement is an emerging global network of civil society initiatives aiming to "to act as catalyst for a community to explore and come up with its own answers" (Hopkins, 2008: 134) to the twin challenges of peak oil and climate change.

The Transition Towns Movement

The Transition Towns Movement has been evolving rapidly in the UK and internationally (Seyfang & Haxeltine, 2010) and currently includes over 800 Transition initiatives around the world (Transition Initiatives Directory, 2011). The emergence of the Transition Network followed a number of publications such as *The Transition Handbook*, *The Transition Primer*, *The Transition Timeline* and further books regarding more specialised areas like local food and local money which were presenting practical steps on how communities can prepare for a transition to a low-carbon economy (About Transition Network, 2011). Drawing its philosophy from the principles of Permaculture, a design system for the creation of sustainable human settlements (Hopkins, 2008 : 136), the movement fulfils the need for a sense of belonging, purpose and identity that people feel when confront the current environmental and socio-economic problems (Seyfang *et al.*, 2010). The optimistic view of a future world; where resources are used wisely is certainly filling a gap created by other environmental movements (Seyfang & Haxeltine, 2010) and it is employed as a fundamental concept by the Transition Movement to catalyse practical action (Hopkins & Lipman, 2009). At the core of the practical action of the Transition movement exists the notion of localisation.

Localisation and the Transition Towns Movement

According to Curtis (2003) ”the road to environmental sustainability lies in the creation of local, self-reliant, community economies”. The concepts of localism and localisation, inspired by the writings of Kropotkin (1899) and later on by Kohr (1957), were introduced in the environmental movement in the 1970's mainly by Schumacher (1973) and Daly (1977). Schumacher (1973) argued that “production from local resources for local needs is the most rational way of economic life, while dependence on imports from afar and the consequent need to produce for export to unknown and distant peoples is highly uneconomic and justifiable only in exceptional cases and on a small scale” (Schumacher, 1973: 49). Daly (1977) reinforced this argument examining the same issue from a material point of view introducing a ‘steady-state economy’ with low or no growth. The aim of a “steady-state economy” is direct reduction of “material throughputs”.

O'Riordan and Church (2001: 3) argue that globalisation and localisation are processes of change that impact on economies, cultures and environment in both global and local scale and at any level of social organization. Globalism and localism on the other hand are “socially and politically framed interpretations of the above changes that are mediated and defined by various institutional organizations and swirling patterns of social expectations” (O'Riordan and Church, 2001: 3). Or to put it more simply; localism may be interpreted as the administrative aspect of localisation (Frankova & Johanisova, 2011). In accordance with the above, Rob Hopkins (2010) states that localism is a principle for political organisation rather than a social movement and for that reason the Transition Movement uses explicit the term localisation instead of localism.

Localisation advocates a prioritization of the local, calling for attention to the environmental and socio-economic benefits of import-replacing strategies (Hess, 2008) while focussing on locally symbiotic capital and negative externalities of globalised trade (Curtis, 2003). According to Giddens (1990: 64), globalisation is “the intensification of worldwide social relations which link distant localities in such way that local happenings are shaped by events occurring many miles away and vice versa”. Nonetheless, as North (2010) argues, localisation should not be mistakenly interpreted as an attempt for the development of a “nationalist autarkic project”. Where communities exist in isolation from the global system and potentially unable to meet their own needs (Barber, 1996). Voisey and O’Riordan (2001: 41) argue that globalisation and localisation are not contradicting processes and according to Ianos *et al.* (2009) the objective of sustainable development strategies should be that of harmonizing globalisation and localisation processes.

As North (2010) continues, localisation is an argument against a global system which lacks the appropriate regulation of labour and environmental standards. A similar approach towards localisation has been adopted by the Transition Movement; stating that, with regards to the local food movement, “A transition to greater local food relocalisation does not mean imposing trade barriers and building walls of parochialism. Rather, it is about strengthening local food networks and shifting our focus back to home turf” (Pinkerton & Hopkins, 2009: 22). Another concept widely used by the Transition Towns Movement is that of resilience; “ the capacity of a system to absorb disturbance and reorganise while undergoing change, so as to still retain essentially the same function, structure, identity and feedbacks” (Walker *et al.*, 2004). Some observers have noticed that within the Transition Movement literature, resilience is usually mistakenly equated with localization (Haxeltine & Seyfang, 2009). The above is a topic which requires further research and within the wider context of research on urban agriculture, an analysis on how household-level food gardening could increase or decrease resilience in the city of Norwich would be an interesting topic but it is outside the scope of this study.

2.5 Norwich: a city in transition.

Norwich is a city in transition. Located centrally within the county of Norfolk in East Anglia, UK. It is the largest city in the county and has a population of approximately 160.000 (Sauerzapf *et al.,* 2009). On 1st of October 2008, around 400 citizens of Norwich were gathered in St. Andrew's Hall in Norwich to launch the "Great Unleashing". That was the name of the official start of the community-led initiative Transition Norwich, the first city to take part in the Transition Towns Movement, aiming "to facilitate local design and construction of a resilient low carbon future" (Transitionnorwichnews.blogspot, 2011)

One of the key aspects of the Transition Movement is to foster and support local food production. Transition Norwich has launched a Community Supported Agriculture scheme and a School Market Garden, planning to offer local organic food as well as educational opportunities to the community of Norwich. This study contributes to the vision and values of Transition Norwich, providing an insight into how Transition Norwich can up-scale urban agricultural production, utilizing the food growing potential of private residential gardens.

Transition Town networks due to the ideas and values that they represent they attract a wide variety of people from different groups in society. The apparently depoliticized character of the Transition Towns movement, even though it has been criticized as non-confrontational and thus not able to make a change (Chatterton & Cutler, 2008), it offers the advantage of bringing together people from different ideological backgrounds under the common threat of climate change and peak oil. Therefore this inclusive character of the movement, welcoming everyone to be engaged in a participative process, and by extension Transition Norwich offers the potential of including a significant number of citizens in urban food growing. In addition, research has showed that members of Transition Norwich are attracted to join the movement due to the local solution and practical, constructive action that it proposes (Seyfang, 2009b) and this perspective is deeply in common with the ideals and values underlying the urban agriculture movement.

Furthermore, the character and lifestyle choices of the citizens of Norwich define the city as appropriate for the conduct of the study. According to an online survey by Locallife.co.uk, a local information website, Norwich was voted, at 2006 as "the most eco-friendly place to live in the UK" (Independent, 2006). This characterization was awarded to Norwich due to the large number of

bussiness with positive impact on the environment that operate in the area, in comparison to other cities in the UK. These include business associated with recycling, organic food, charity shops, asbestos removal services and double-glazing firms. Analysing this phenomenon from a demand and supply perspective, one can conclude that since there is adequate supply in pro-environmental services and eco-friendly products there is a corresponding demand. Regardless the fact that the above is not the always the case for every supply and demand relationship it certainly can generate a hypothesis regarding the positive attitude of the citizens of Norwich towards environmental friendly activities and products. Further reinforcement of the above hypothesis can provide the fact that the Green party in Norwich is currently the second largest party on Norwich City Council promoting policies, amongst other, which target at the protection and increase of allotments and community gardens (greenparty.org.uk, 2011). Summarizing the above one can conclude that a significant portion of the citizens of Norwich hold a positive attitude towards pro-environmental behaviour.

It would also be interesting to implement a similar study in a city where pro-environmental behaviour is regarded as low and compare the results between the two cities. However, due to time limitations this was beyond the scope of the present study.

The above factors have led to the choice of Transition Norwich as the grassroots movement which has perhaps the greatest potential to play a significant role in a distributed, bottom-up coordination of the development of urban food growing in domestic gardens in Norwich. In addition, researchers at the University of East Anglia have developed good relationships with Transition Norwich through both previous research (Seyfang, 2009b) and personal involvement in the movement as citizens of Norwich. The above was an important factor for the smooth conduct of the study in terms of organizing interviews with key players of urban agriculture in Norwich.

3. Theoretical framework

3.1 Social Practice Theory

The underpinning theoretical framework of this study is social practice theory. Deriving its philosophical foundations from Marxism, existentialism, pragmatism and analytical philosophy (Miettinen *et al.,* 2009); social practice theory has entered the field of environmental sociology, as a consumer oriented approach (Spaargaren & van Vliet, 2000), challenging the dominant approaches to pro-environmental behaviour change in the UK. Relying heavily on a cognitive and individualistic approach; the mainstream policy paradigm for promoting sustainable behaviour has been criticised as faulted and unable to deliver its goals (Seyfang, 2009a: 22). This according to Shove (2003) is attributed to the fact that it fails to address the wider social context in which individuals behave, exist, and interact with each other as well as the interplay between action and structure or between micro and macro levels (Spaargaren & van Vliet, 2000: 52). More specifically, as derived from the analysis of behaviour change campaigns employed by the UK Government, such as "Act on CO_2" (Directgov, 2008) and 'Are You Doing Your Bit?' (DEMOS, 2003), policy initiatives are focussed solely on providing the individual with information. Assuming that information deficit amongst individuals is the cause of unsustainable behaviours and consequently by addressing this gap, rational thinking consumers will be able to change their behaviour (Burgess *et al.,* 2003). Research has proven that this is not the case (Collins *et al.,* 2003; Owens & Driffill, 2006) and that fundamental transformations in the socio-technical structure, paired with changes in individuals lifestyle and routine consumption practices, are required in order to overcome the current environmental crises (Shove & Walker, 2007).

Social practice theory is in fact a group of theories which focus on social practices as the point of departure for social change, rather than the individual and their patterns of consumption (Reckwitz, 2002). Social practice theory provides an insight on the the inter-relation between actors and social structures. For Social Practice theorists, actors create social structures through the social practices which they sustain and reproduce while simultaneously these practices are embedded into social structures. Actors are not entirely free to act but at the same time their actions are not completely determined by social structures (Buchs *et al.,* 2011). The above is critical in understanding how pro-

environmental behaviour can be effectively promoted. Seyfang (2009a: 18) argues that consumers are trapped within unsustainable lifestyles partly determined by social structures of market, working patterns and urban planning but at the same time their predetermined, limited scope of choices is ensuring the continuation of the social structures from which it sprang. Thus, it is imperative for interventions promoting pro-enviromental behaviour to take under consideration actors and social structures simultaneously, the inter-relation between them and how it is expressed through social practices (Hargreaves *et al.,* 2007).

3.2 Conceptualising household gardening within a social practice theoretical perspective

Gardening is a practice and according to Warde (2005) practices generate consumption activities and not the other way around and these activities can take place without being noticed as consumption. For example when a household does not use the food growing potential of the house garden but on the contrary maintains a lawn it lacks the opportunity to take part in pro-environmental activities associated with gardening such as growing organic food and household waste composting. As a consequence, the household contributes to environmental damage caused from the lack of reduction in consumption and reliance on the globalized food system (for the purpose of the study the above argument has been generated from focusing on household food production, nevertheless the author recognizes that there exist additional ways of reducing consumption and decentralizing food production but they are outside the scope this study). The above can be regarded as an inconspicuous side-effect of the practice of household gardening (Hargreaves *et al.,* 2007).

Practice can be defined as a shared understanding of what it means to carry out a particular activity and it is a routinised type of behaviour (Shove and Pantzar, 2005). According to Giddens' (1984) theory of structuration, practices (gardening, food purchasing) are the meso-level structures between a framework of social structures (household food provisioning, garden design industry) and individual actions of agents (garden owner, gardener, food purchaser) which framework of social structures shapes the individual actions of agents but simultaneously it is modified and created by them. This happens through a process of mediation which starts with the agent and continues through the social practices as a mediating concept (Kaspersen, 2000: 34). According to Røpke (2009) the actions of the gardener/food purchaser/garden owner (actor), who is the "carrier" of the practice, are constituted by gardening/food purchasing practices (practices) which in turn bring into being the household food provision/garden design industry (social structures). The

aforementioned perspective reveals the dynamic of social practices in shaping social structures. Therefore from a social practice theory perspective "Society is seen as constituted by social practices that are produced and reproduced across time and space" (Røpke , 2009).

Southerton *et al.* (2004) argue that in order to promote pro-environmental behaviours it is not efficient to educate or persuade individuals to make different choices but rather to transform practices into making them more sustainable. In order to achieve this shift in transforming practices first we need to understand how are practices composed and transformed in everyday life (Strengers, 2010). According to Giddens (1984) and Schatzki (2001) practices are relatively enduring entities amalgamated together by sets of norms, doings, know-how and materials. Pantzar and Shove (2006) present practices as the combination of three basic elements: stuff (materials, technologies and tangible, physical entities), images (domain of symbols and meanings), and skills (competence, know-how and techniques). Practices are created and used in everyday life when the links between these three elements are made and sustained and they are fossilized when these links are disintegrated. A transition in practice can be achieved, in the case of household gardening from lawn to edible plants or from decorative gardening to food productive gardening through the active negotiation of novel combinations of skills, stuff and images (Hargreaves *et al.,* 2011) which constitute the practices of household gardening and food purchasing.

Information about the three elements which consist each of the two different approaches of the practice of gardening emerged out of the analysis of the qualitative data. From the study of these results the differences and similarities between these two practices were recognized and which components need to change in order to upscale food production in household gardens were determined. The ultimate goal of this approach was to propose to Transition Norwich recommendations and solutions that "make sense" to the citizens of Norwich (Butler, 2010: 189-190) recognising that individuals' thoughts and actions simultaneously shape and are shaped by the social context in which they live in (Hards, 2011).

3.3 A representation on how images, skills and stuff form social practices

In order to present in a clear way how practices are formed, sustained and finally how they fade away or become "fossilized" (Shove & Pantzar, 2006) a practice which completed the full circle has been employed. As mentioned in Chapter 2, during the last century's two world wars household garden food production in the UK has been employed as a strategy for the survival of the Nation during times of resource scarcity. It is not implied that the future should be similar to the above, the "Dig for Victory" campaign is used as a key example of rapid and large scale expansion of urban agriculture. The skills, stuff and images which constituted the practice of household gardening during the "Dig for Victory" campaign according to information derived from the literature review were as follows (Table 1.) :

Table 1.: An illustration on how skills, stuff and images form practices using the practice of household-level food production during the "Dig for Victory" campaign.

Images Meanings, symbols, common understandings, social norms.	Self-sufficiency; rationing; survival; garden is for growing food; growing food to support the Nation; sense of duty; limited choices to purchase food; sense of belonging
Skills competence, knowledge and techniques.	Knowing how to grow food; general gardening skills; traditional ways of preserving food; knowledge in cooking food from the garden; knowing when to harvest; knowing how to grow plants from seed;
Stuff Materials, physical entities, technologies and tangible.	Garden with enough space for growing plants; edible plants; manual tools; gardening manuals and cooking books printed by the Government; seedlings; manure; seeds;

The following figure 6 is an illustration on how the practice of household garden food production came into existence, as links between the above elements were formed, during the Second World War. The practice received wide acceptance and was reproduced thus, the links were sustained. After the War due to the emergence of industrial conventional agriculture and the re-establishment of global trade; household garden food production declined, the links disintegrated and fossilisation set in (Shove & Pantzar, 2006). As the social-ecological landscape constantly changes, stable practices need constant reproduction from their carriers in order to persist. If this is not the case, Shove and Pantzar (2006) use the metaphor of "fossilisation"; drawn from the natural sciences to describe the process in which the soft parts of practice (skills and images) fade away leaving the material (stuff) remains behind. Thus, the fundamental elements of the practice have meaning and effect only when integrated into practice and only by "doing" they are animated, sustained and reproduced. The separated and stranded elements though, can return in new combinations and lead to the resurrection of the practice (Shove & Pantzar, 2006). The latter has been a key concept for this study. As mentioned in the literature review household-level food production has been neglected since its peak during the "Dig for Victory" years and from a social practice theory perspective this is attributed to the disintegration of the links between the fundamental elements of the practice. Through proposing new combinations of skills, stuff and images which have been modernized in order to fit in the current socio-cultural context, thus having the potential to form links between them,the study aims to facilitate the resurrection of the practice of household-level food production in the UK.

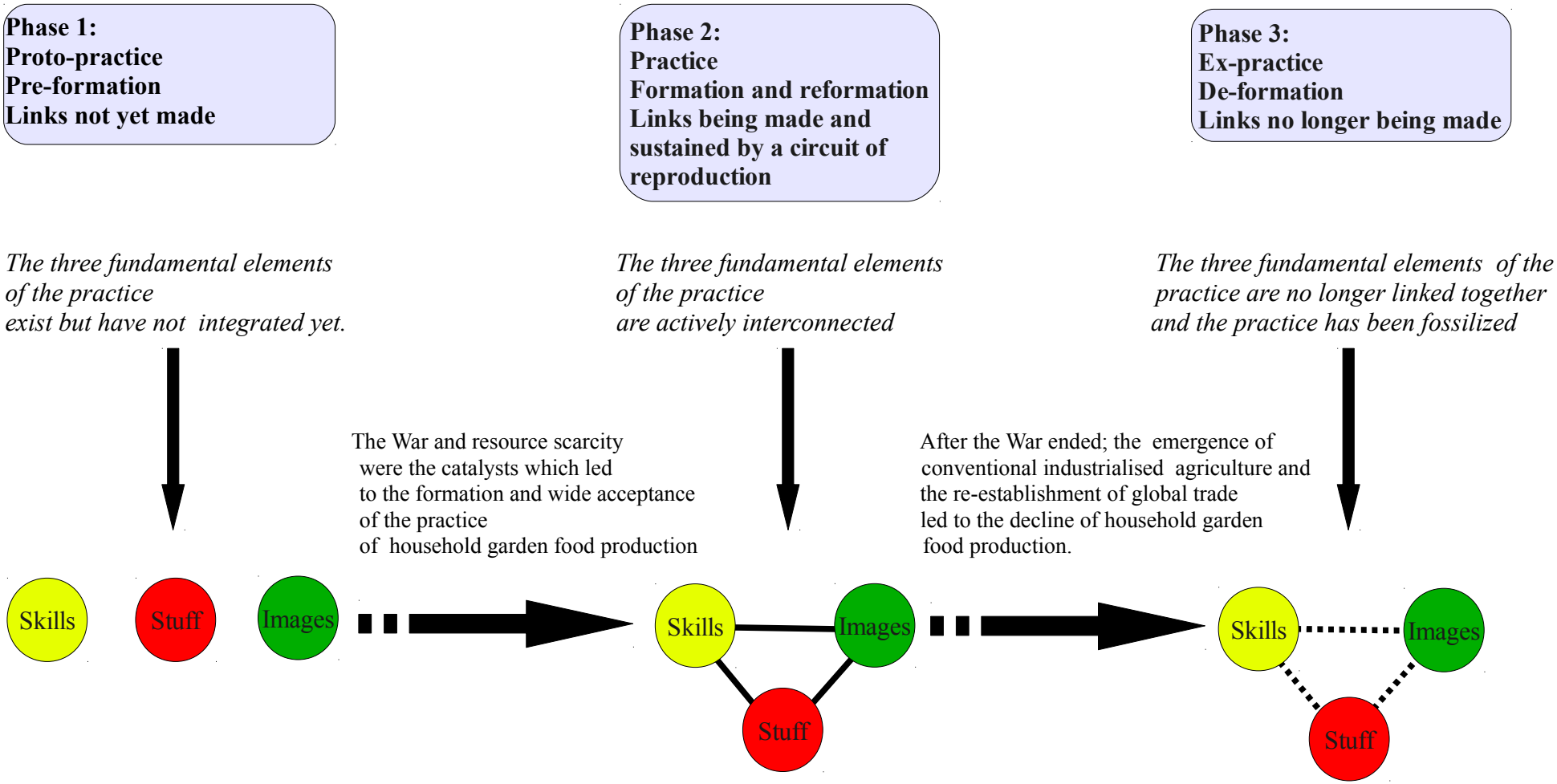


Fig. 6: The cycle of household garden food production during"Dig for Victory"
(Adapted from Pantzar and Shove, 2010)

4.Research objective

In light of the literature review and theoretical framework, the objective of the research was to achieve a better understanding of the interventions needed to successfully promote household-level food production in Norwich (UK). In order to synthesize these interventions through a social practice theory lens, information was gathered using qualitative research methods. Therefore, the research aims can be summarized as follows:

1. To conduct in-depth investigations and analyses of the individuals perceptions as well as habits, lifestyles and desires which shape the practice of household gardening in Norwich.

2. To acquire an in depth understanding of the influence social context has upon the practice of household gardening today and how it constrains or encourages household-level food production in Norwich.

3. To synthesize a number of interventions and adjust them within the Transition Norwich framework in order to upscale household-level food production in Norwich.

The above answer the following research questions:

1. What are the current household gardening practices in terms of their skills, stuff and images?

2. What new elements or links between elements caused individuals to increase or decrease food production in their household gardens?

3. What Transition Norwich can do to upscale household-level food production in Norwich?

It is anticipated that the results of the study will provide an insight into how Transition Norwich can make a greater contribution to urban agriculture in Norwich. Furthermore the study will generate more general insights about household-level food growing in the UK.

5.Methodology

5.1 Introduction

The ultimate goal of this study was to recommend a number of interventions that could be useful to Transition Norwich to facilitate the transformation of the practice of household gardening towards food production in Norwich. As Shove and Pantzar (2010) argue, every practice constitutes of three interconnected elements; skills, stuff and images. Hargreaves *et al.* (2011) argue that the transformation of a practice can be achieved through the active negotiation of novel combinations of these elements. In order to propose interventions that have the potential to accomplish the above objective it is imperative, as a starting point, to acquire an in-depth understanding on how the citizens of Norwich understand and imagine the practice of gardening today. The above information can be more successfully obtained by qualitative techniques. The research methods used in this study were in-depth, face-to-face semi-structured interviews, a survey in the form of structured interview and life-cycle diagrams. The research took place between May 2011 and July 2011 in Norwich (UK). The information derived from the above methods were used to draw insight into two different approaches to the practice of gardening. These are; decorative gardening, mainly composed of non edible plants such as lawn and flowers and food growing gardening, composed of edible plants such as vegetables and fruit trees. In the next paragraphs follows a detailed presentation of the research methods employed in this study and why they are considered appropriate within a social practice theory framework.

5.2 Semi-structured interviews

Qualitative research interviews are conversations with a purpose; which is usually defined by the researcher. Their objective according to Kvale (1996: 1) is "to understand the world from the subjects' point of view, to unfold the meaning of peoples' experiences, to uncover their lived world prior to scientific explanations". The interviews performed for the purpose of this research project attempted to fulfil the above objective. With an explicit reference to household gardening, through the interviews; the author attempted to understand the interviewees relationship with their garden. More specifically ten citizens of Norwich who grow food in their house gardens were interviewed. The first contacts were suggested by members of Transition Norwich. Then through snowball sampling procedure (Goodman, 1961) the first interviewees suggested other people in Norwich that grow food in their garden. When the same themes began to continually reappeared within the interviews it was decided by the researcher that it was time to stop conducting interviews and start analysing the information.

The conversations were recorded and later transcribed and their duration varied from 1 hour to 3 hours. The subjects discussed were gardening practices and what kind of skills are employed, challenges faced when growing food in the garden and what kind of seeds, tools and other equipment is used. In addition, what kind of storing facilities and techniques are employed for the harvest. Furthermore, the author was interested to know what is the first thing that comes in the mind of the interviewee when they hear the word "garden". What is their previous gardening experience, when did they start gardening and what motivated them to do so. The objective of the latter set of questions was to fill the slot of the "images" element of the practice and respectively the first set of questions were focussed on "stuff" and "skills".

Most of the interviews took place at the house of the interviewee so the researcher had the chance to walk in the garden, take photographs and acquire a better understanding of how a food productive garden looks like within the urban environment of Norwich. In addition, the walkabout and conversation around the house garden, in most cases led the interview a step further into more detailed gardening practices, challenges and life story details. This resulted in the extraction of valuable information for the research that probably would not have been revealed otherwise, as the sight of the garden was the incentive which prompted the conversation at this level.

5.3 Survey

The objective of the survey was to provide information about people who choose not to grow food in their garden and additionally to further enrich the data about people who grow food in their garden. The original plan was to conduct two sets of surveys. The first took place at the city centre of Norwich. After the pilot survey this plan was aborted due to inefficient sample. The majority of the people who were at the city centre at the time of the survey don't live in Norwich and of those who live in Norwich only a small number agreed to take part in the study.

The second set of surveys was conducted door-to door across neighbourhoods in Norwich and was successful. The author surveyed fifty-two houses across different neighbourhoods in Norwich asking a set of questions which were targeting in filling the slot of the “images” element of the practice as well as the “skills” and “stuff”. The questions were planned in such a way to make the survey as condensed as possible for the convenience of the surveyees. The surveyees were asked what is the first thing that comes in their mind when they hear the word “garden”. If they have a garden and if they grow food in their garden. What has motivated them or what is stopping them to grow food. In addition, the surveyees were asked what kind of tools do they use in their garden and what sort of skills do they employ while gardening. In some cases due to the positive attitude of the surveyee towards the study there was a chance to expand more on these questions, resulting in a mini semi-structured interview.

5.4 Life cycle diagrams

The adoption of life cycle diagrams for the study was inspired from the application of life cycle diagrams for the practice of showering during the MSc module on Sustainable Consumption at the University of East Anglia, on which the author has participated. The life cycle diagram is a two axis column chart which provides information on how the practice of growing food has changed throughout the life of the participant. The x-axis represents the age of the interviewee starting from birth and the y-axis the percentage of their involvement in growing food activities. The participants were asked to construct their gardening life cycle and annotate where possible the facts in their life which caused changes in the percentage of their involvement. The information derived from this research tool present the various influences that act upon the individual during a lifetime and which facilitate the creation, maintenance and disintegration of the links between the elements of the practice.

5.5 Rationale for the choice of the methods

Performing the interview within the environment where the practice actually takes place manages to fulfil the requirement of a social practice theory approach which demands "paying attention to the doings of particular practices in particular settings" (Hargreaves, 2008). According to Hitchings (2011) and as it was confirmed during this study, interviews have an important role to play within a social practice theory research framework, because people are able to discuss in interviews about their routine practices. In the case of gardening and keen gardeners, describing their everyday practices with regards to food growing was accompanied by feelings of accomplishment and self-fulfilment which facilitated the ease with which people talked about the routines and habits which surround the practice of gardening. Hitchings (2011) argues that a serial approach in interviewing, where the researcher meets again with the interviewee having the change to reflect on what had previously been said as well as observe changes in habits and routines through time, have an important role to play in a social practice theory approach. Due to the limited time available to complete the study a serial approach in interviewing was not possible. The life cycle diagrams were an attempt to partly fill this gap in the data as they present the changes in the practice of gardening through time for each individual.

6.Results and discussion

6.1 Data analysis

The aim of the data analysis was to provide the informational foundation on which to base a number of interventions that Transition Norwich can implement in order to upscale household-level garden food production in Norwich.

Büchs *et al.* (2011) argue that a good starting point in order to synthesize interventions which target to change a practice is to consider how these interventions relate to each component of the practice. In order to reach that point first it is imperative to analyse the two different approaches of the practice of gardening; decorative gardening and food growing gardening into their components. The information derived from the analysis of the interviews and survey were employed for the above purpose. Thus, the first stage of the data analysis was to have a clear picture of the components which synthesize the two practices (skills, stuff, images).

Then the life cycle diagrams were analysed in order to acquire an understanding of the reasons that facilitate and motivate people to start growing food in the gardens during their lifetime as well as the reasons that make them give up the practice.

6.2 Analysing the practice of food growing gardening to its components

Images component

The images component represents the meaning the practice of household-level garden food growing has for the partitioner. What does it mean for them to grow food in their garden? Why do they do it? What benefits do they receive from it and what place household-level food growing holds for them within the wider social context.

Bundles of interconnected meanings surround the practice of household-level food growing for the responders. Ranging from growing food to save money and knowing where food comes from to pro-environmental reasons such as reducing food miles and respecting the land.

As H., age 64 said:

> "I enjoy doing it and I like to have something fresh and organic, it also saves money but it is not the main reason. It is mostly because I enjoy doing it, for self sufficiency reasons. And for environmental reasons like reducing food miles and because I grow organic it is a way to respect the land."

For most of the responders there is a common point of departure of self-fulfilment in growing their own food. They do it because they enjoy doing it. The environmental and self-sufficiency benefits are interpreted as a result from this satisfaction rather than being the end in itself.

As T., age 67 said:

> "I enjoy to grow food. I really enjoy everything about it. I enjoy to get my hands dirty, to see them grow. To go out in my garden."

And according to J., age 46

> "...Because I love growing things, I love plants."

On the other hand, for B., 24, who was inspired to grow food after seeing his neighboors food productive garden, growing food is primarly a way to save money and having access to healthier food.

As B. said:

> "I grow food so we know what we are eating, not junk food and GM food. It saves us a lot of money, It saves money from petrol to go to the shop."

Furthermore, the above statement reveals how household food self-provisioning promotes a different relationship with the dominant food supply system. Providing an alternative to conventional ways of food provisioning, in some cases a significant alternative as well. As in the case of T., age 67 where 80% of the vegetables they consume in her household comes from the garden.

In addition, as J., age 46 said

> "We still use supermarkets a bit, we have a trip to the shop maybe once in two months to buy things like household cleaning things and a few items we cant get anywhere else... but when you grow your own food you can realise how good it tastes and the salad is fresh and things like that and when you grow French beans you can grow them easily here rather than get them airfreighted from Kenya. "

When the responders were asked what is the first thing that comes in their mind when they hear the word garden they answered that it is a place to grow vegetables.

Furthermore for T., age 67 growing food in her garden is a way to get her grandchildren involved so they can learn how to grow their own food.

According to M., age 52, who is the founder of Sustainable Living Initiative, an environmental NGO involved in local food growing in Norwich, the increased media attention the local food movement has received the last years is an important factor for the upscaling in food growing initiatives in the UK. In his own words:

> "Growing your own food is becoming popular. The media have played an important role in that. The last three years it is going up. I think it is a trend. Now everybody talks about growing food."

Skills component

The skills component represents the knowledge that is required in order to grow food in a garden. How do people do it and what challenges do they face. In addition, what kind of skills are employed for the whole process of household food self-provisioning, from garden to table.

All the responders practice organic farming, a choice highly correlated to the image of healthy eating as previously presented. Essential in household garden food growing is the skill of making compost using kitchen waste, a practice which in addition promotes the reduction of household waste. Furthermore, home made pesticides and fertilisers and seed saving techniques are employed by the responders.

As T., age 26 said:

> "I make my own compost from kitchen waste. I don't use any herbicides and fertilizers and I learned how to make my own organic pesticides and I use legumes and nitrogen fixing plants. I am trying to build the soil up using layers of mulching."

Basic gardening skills are fundamental for growing food in the garden. Recognizing weeds, knowing how to dig and prepare the soil, and how to obtain plants from seeds. Knowledge of pests and plant diseases as well as to recognize edible plants. More advanced skills including permaculture design and bio-intensive gardening are further employed as people who are involved in urban agriculture share these skills.

As N., age 33 said:

> "A lot of my friends do permaculture so they advice me and I learn some of that. At the moment we plant using bio-intensive methods, planting everything very close together and experimenting with how much we can get from that."

At the end of the skills set which compiles household-level food provisioning are the harvest storing techniques as well as knowing how to prepare and cook the garden produce. These include making jams, pickling, drying herbs as well as knowing how to store crops such as potatoes and carrots.

Stuff component

The stuff component represents the materials, technologies, tools and infrastructures which are employed during the food growing process in the garden. Furthermore, it includes natural settings as well as living, non-human creatures.

The garden as well the tools used were the first materials to be mentioned. The responders use mostly manual tools and the garden usually has enough space for growing food. Raised beds where the vegetables are grown, greenhouses for the seedlings, composting facilities as well as wild flowers to encourage wild life complete the picture of a food productive garden. For the edible plants of the garden a variety of different seed types is used.

As T., age 67 said:

> "I buy organic organic seeds, I use hybrids and I have some heritage seeds. If I have something good I save the seeds."

Water harvesting facilities are an important part of the food productive garden which makes the choice of growing food even more cost effective.

As T., age 26 said:

> " I have a water tank connected to the garage roof and I have an outdoor swimming pool which I use as a water storage tank. The first time I used mains water was last Tuesday so I haven't used mains water since last summer."

Space to store persevered produce is an important part of the house infrastructure for growers.

As J., age 46 said:

> "We got a shed at the top of the garden. Insulated. We store potatoes and apples there. In a good year we will grow enough potatoes that will go for 11 months."

6.3 Analysing the practice of decorative gardening to its components

Images component

The images component represents the way people who don't grow food in their household view their garden. What purpose serves the garden for them and what is the first thing that comes in their mind when they hear the word “garden”.

For the responders of the survey who don't grow food the garden represents a place to relax, to sunbathe and where the children can play.The plants in the garden are flowers and grass, for most responders growing edible plants would be a waste of time and the garden already requires a lot of work.

Skills component

The skills component represents the knowledge required to maintain a decorative garden. Gardens which require advanced horticultural skills are outside the scope this study. At this study “low maintenance” gardens of paving and lawn are described.

The skills required to maintain a decorative garden are limited in scope justifying the “low maintenance” objective of the design. These include using the lawn mower, pruning and applying herbicides and fertilizers. In addittion, many responders ask for the help of a professional gardener therefore the garden owner has no involvement at all in the maintenance of the garden.

Stuff component

The stuff component represents the materials, technologies, artefacts and infrastructures as well as natural settings and living, non-human creatures which are included in a decorative garden. Due to the “low-maintenance” design approach which is employed in decorative gardens the stuff involved are limited.

These include the lawn mower and manual gardening tools. Non-edible plants and lawn dominate the decorative garden as well as part of it is paved. Artificial made fertilisers and pesticides and furniture complete the picture the decorative garden.

Table 2. The elements of household garden practices as derived from the interviews

Practices / Elements	Household garden food growing	Decorative gardening
Images	● Self-sufficiency; ● Pleausure in getting your hands dirty; ● Saving money; ● Growing food means buying less from the shop; ● Healthy, organic food; ● Grow your own; ● Garden is for growing food; ● Reducing food miles; ● Respecting the land and protecting the environment; ● Teaching the new generation how to grow food; ● Growing your own food has become popular.	● The garden is a place to relax and where the children can play; ● The plants in the garden are flowers and lawn; ● Growing plants for food in the garden would be a waste of time; ● The garden already requires a lot of work.
Skills	● Organic gardening skills; ● Knowing how to cook produce from the garden; ● Knowing how to obtain plants from seed; ● Knowing what to plant in each season; ● Knowing how to dig and prepare the soil; ● Knowledge of pests and plant diseases; ● Knowing how to store the harvest;	● Knowing how to use the lawn mower; ● Knowing how to prune; ● Knowing how to apply herbicides and fertilizers; ● No skills required from the garden owner, calling a professional gardener.

Skills	● Knowing how to recognize edible plants and food in plant form; ● Knowledge of seed saving techniques; ● Knowing how to make home made pesticides and fertilisers.	
Stuff	● Garden that has enough space to grow food; ● Manual tools; ● Saving money; ● Raised beds; ● Greenhouse for seedlings; ● Composting facilities; ● Wild flowers to encourage wild life; ● Edible plants; ● Water harvesting facilities for rain water harvesting and grey water recycling; ● Seeds and seedlings; ● House infrastructure - space to store the harvest.	● Lawn mower; ● Manual gardening tools; ● Non-edible plants and lawn; ● Artificially made fertilisers and pesticides; ● Garden furniture; ● Patio area.

6.4 Life-cycle diagrams analysis

Eight life-cycle diagrams were analysed and a number of common themes have emerged. The results of the analysis are summarized in tables 3, 4 and 5. Essential for the formation of a basic level practice of household garden food production are skills in food growing, images of growing food at home, a household garden and the links between them (Table 3). In some cases the event facilitated the creation of skills and images elements but it is not known if there was a household garden available during the same time (Table 4). In other cases there was no household garden available or the appropriate images and the practice stopped to exist (Table 5).

The themes represent events in the life course of the interviewees that motivated them to start growing their own food in the garden or give it up. From a social practice theory perspective, the themes represent events that act upon the carrier of the practice and result in the creation of elements of practice and the formation, sustain and disintegration of links between these elements. Each of the three diagrams presented below are representative of the above mentioned themes.

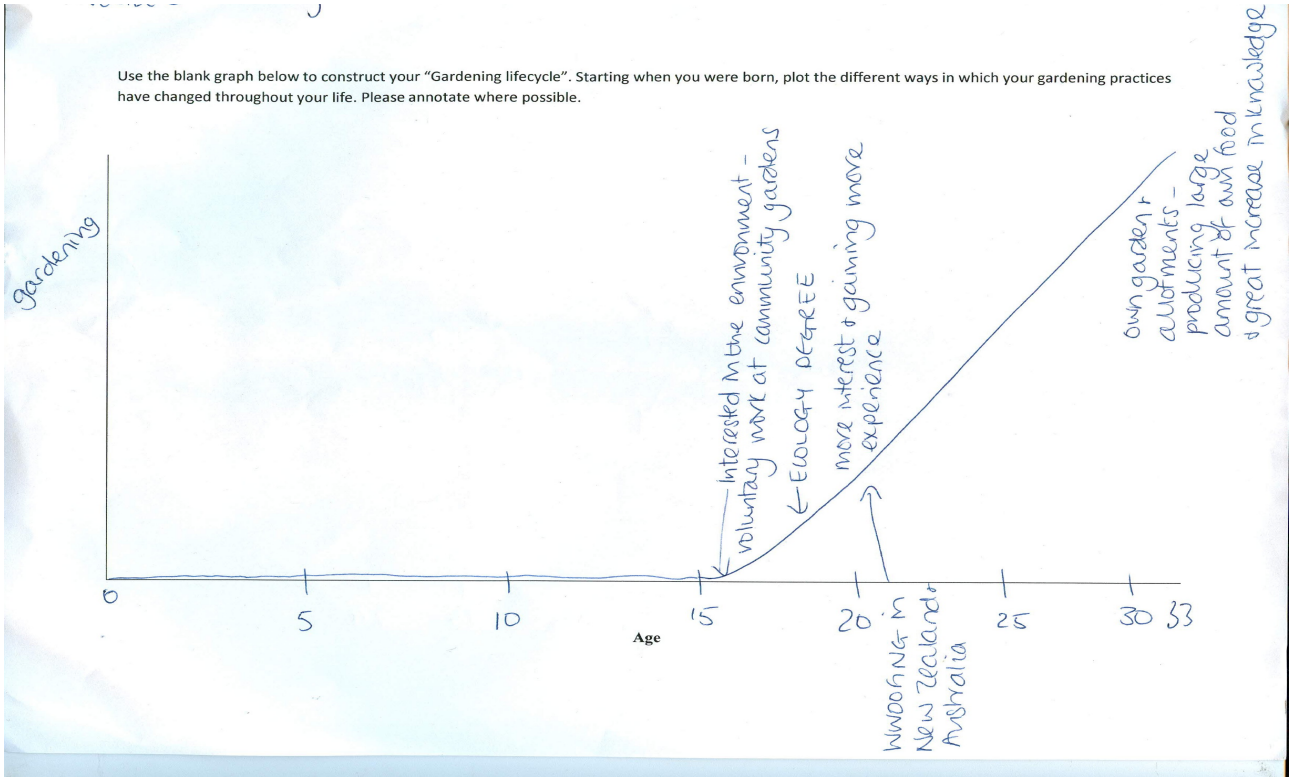


Diagram 1.

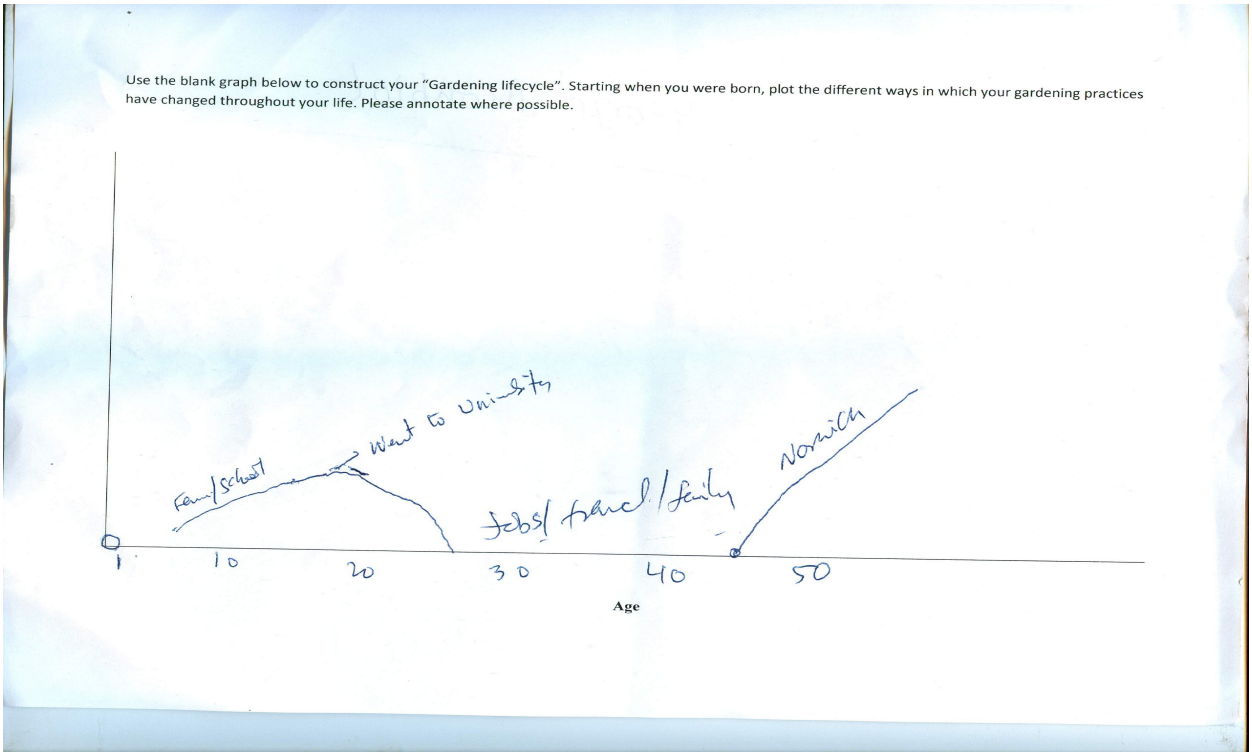


Diagram 2.

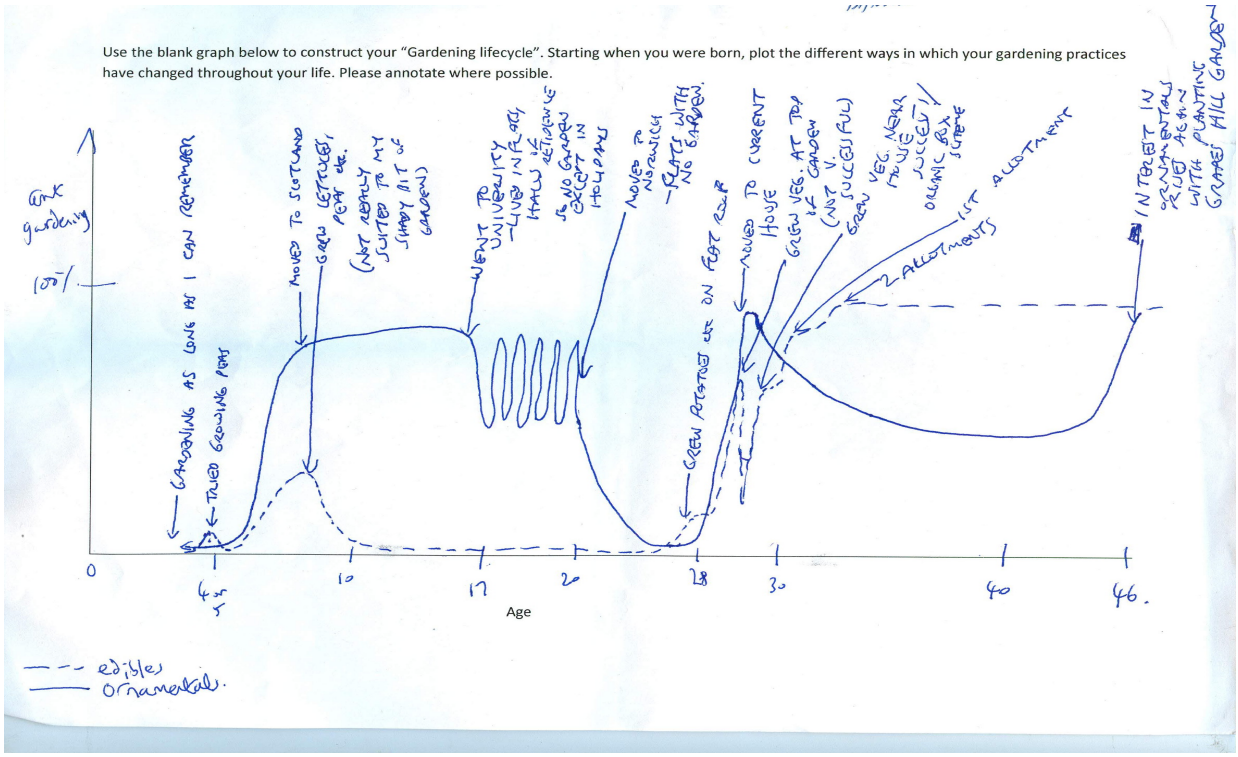


Diagram 3.

Table 3: Events which lead to creation of elements and the formation and sustain of links between the elements of practice.

Life course events	Description	Elements of household garden food growing practice
Garden ownership	Having access to a household garden in Norwich and producing food.	**Images:** growing organic food. Urban agriculture, self-sufficiency. **Skills:** developing knowledge in food growing. **Stuff:** Household garden, plants, compost, organic plant remedies, gardening tools.
Parents growing food in household garden	Growing up in within a family environment where growing food in the garden was normal. Acquiring skills in food growing through a process of legitimate peripheral participation (Lave & Wenger, 1991).	**Images:** growing food in household garden. Growing food is something to do with the parents. **Skills:** developing knowledge in food growing and the natural world through the eyes of a child. **Stuff:** Household garden, plants, compost, incests and wildlife, gardening tools.

n/a: Data are not available.

Table 4: Events which lead to the creation of elements of practice but not necessarily to the formation of links between the elements.

Life course events	Description	Elements of household garden food growing practice
Ecology degree	Environmental education	**Images:** Awareness and sensitivity about the environment and the fragility of natural systems **Skills:** Knowledge about plants, soil, pests, diseases and interaction between them. **Stuff:** n/a
Employment in garden centre	Involved in growing ornamental and edible plants at professional level.	**Images:** Growing plants for commercial reasons **Skills:** Knowledge about plants, soil, pests, diseases and interaction between them. **Stuff:** n/a
Voluntary work at community garden and/or community supported agriculture scheme	Nurturing, inclusive environment where everyone's work is valued; free exchange of knowledge and meanings around organic food growing;	**Images:** growing organic food, community building aspects of gardening. **Skills:** developing knowledge in food growing. **Stuff:** n/a
Farming at school	School with food productive garden in Nepal, where the interviewee grew up.	**Images:** growing food, community building aspects of gardening. **Skills:** developing knowledge in food growing at an early age. **Stuff:** n/a

WWOOF (Willing Workers Of Organic farming) Earth First! Summer gathering	Work exchange in organic farms for board and accommodation; living for a short period of time in an environment where organic agriculture and sustainable living are central concepts. Seminars and workshops on food growing and sustainable living.	**Images:** growing organic food, sustainable living. **Skills:** developing knowledge in food growing and sustainable living. **Stuff:** n/a

n/a: Data are not available.

Table 5: Events which lead to the disintegration of the links between the elements of practice.

Life course events	Description	Elements of household garden food growing practice
Went to University Moved to Norwich	Living in halls of residence, no household garden available; Flats with no garden	**Images:** n/a **Skills:** n/a **Stuff:** no household garden available
Employment Family with children	Increase in commitments and complexity of life	**Images:** No time available for growing food, garden is for the children to play **Skills:** n/a **Stuff:** Household garden available.

n/a: Data are not available.

6.5 Creating the informational foundation on which to base the interventions.

Comparing the two practice; Household garden food growing and decorative gardening.

An examination of the skills, stuff and images that compile the practices of household garden food growing and decorative gardening, as summarized in table 2 (Chapter 6), reveals fundamental differences on the way the two practices are perceived and implemented. Apparently, the only common point between them is the household garden as an infrastructural part of the house. Nevertheless, as it can be seen in the following pictures, fundamental differences surround the way the household garden is used and looks like between the two practices (Pictures 1 and 2).

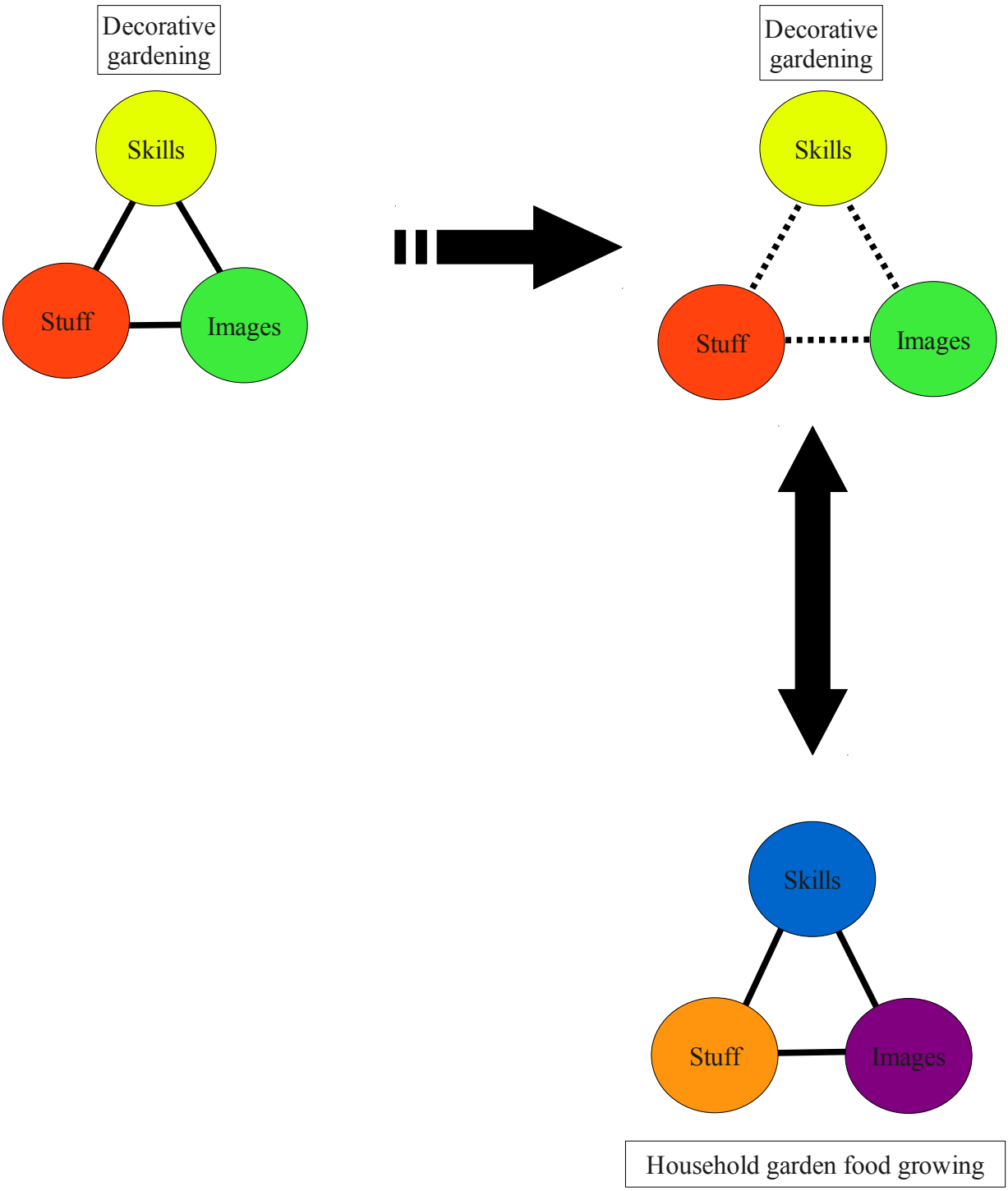
Picture 1: A typical decorative garden in Norwich and the essential lawn mower to cut the grass.

Picture 2: A food productive household garden in Norwich based on Permaculture principles.

Pictures 1 and 2 are visual presentations of the outcome the combination of images, skills and stuff of each of the two different practices have on the household garden. In order to facilitate the transition from picture 1 to picture 2 and by extension to upscale household garden food production in Norwich, radical changes in the elements of the practice of decorative garden are required. In addition to introducing novel elements that have the potential to enhance household garden food production in Norwich it is imperative for Transition Norwich to take actions that will promote the disintegration of the links between the elements of the practice of decorative gardening.

Figure 7 represents the steps that need to be followed in order to achieve the above objective. The links between the elements that sustain the practice of decorative gardening need to be disintegrated, leading to the fossilization of the practice of decorative gardening and, under the influence of the interventions implemented by Transition Norwich, be replaced by the practice of household garden food growing. The process does not follow strictly one direction, as it can be seen in Figure 7, but it is rather two directional. The practice of household garden food production is the ultimate goal of the process but at the same time facilitates the process, as the carriers of the practice introduce novel images, skills and stuff that have the potential to promote the disintegration of the links between the elements of decorative gardening.

Figure 7: The process of disintegration of the links between the elements of the practice of decorative gardening



Understanding the Images element between the two practices.

Household gardening is understood and perceived in fundamentally different ways by the carriers of the two practices. In order to facilitate the transition between the two practices a whole new paradigm needs to be introduced. A paradigm which advocates that the household garden is not only a place where the family can relax, sunbathe and the children can play, but also a place to grow food, interact on a different level with nature and the children can learn where food comes from.

There are various ways to achieve the above. It has been observed that people can be influenced to grow food from their neighbours. B., age 24, mentioned during the interview that he was inspired to create a food productive household garden after seeing his neighbour's garden. The neighbour's food productive garden, just by existing, introduces new images and meanings of household gardening. Individuals can see that not only it is feasible to grow food in the household garden but also it is not a great waste of time and not that hard work. Thus, the neighbour's garden acts as a demonstration of a household food productive garden, offering the potential to shift images and meaning towards urban agriculture, self-sufficiency and household-level food production. Furthermore, as seen in the life-cycle diagrams, supportive environments where food is grown; such as community gardens, community supported agriculture schemes and volunteer work in organic farms (WWOOF) have the potential to generate images and meanings of food growing that can be "carried" back home and applied on the household garden. In addition, raising levels of awareness and providing information through environmental education programs, newsletters, campaigns and other forms of communication offer the potential to facilitate the shift in images and meanings towards household-level food growing. From a social practice theory perspective all the above introduce novel images and meanings about household gardening. Therefore, lead to the disintegration of the links that connect the images element with the two other elements of decorative gardening as novel combinations of skills and stuff are required in order to connect with the images of a food productive garden. These combinations of skills and stuff are presented in the next paragraphs.

Understanding the Skills element between the two practices.

As it can be interpreted from pictures 1 and 2 and further reinforced by the research data, two fundamentally different "toolboxes" of skills are required in order to reproduce each of the two practices. In contrast to the limited variety of skills required to maintain a decorative garden, which are restricted to the use of the lawn mower, basic pruning skills, and knowledge in applying artificially made fertilizers and pesticides, growing food in the household garden requires knowledge and understanding of organic farming. Furthermore, at a more advanced level, growing food at home asks for an understanding of plant pests and diseases, making compost and knowing how to obtain plants from seed. In addition, knowledge of permaculture design is useful in order to use the available garden space in the best way possible as well as knowledge of storing and preserving the harvest such as drying herbs and making jams and pickled vegetables.

The interviewees learned how to grow food and are still learning, as it is lifelong learning process, through various ways. For some growing food was something they learned at early childhood either within the family environment or at school. Others have learned how to grow food while participating in community gardens schemes and volunteering in organic farms (WWOOF). A significant transfer of skills and knowledge is taking place at an unofficial level between friends who share a common interest of growing food and at a more official level through schemes such as the Master Gardener, a Garden Organic funded educational scheme which supports people who grow food at home by providing relevant advice and information.

The interviewees mentioned that as a starting point it is critical for someone to obtain the confidence to grow food and that the acquisition of skills will follow. Confidence can develop gradually as a novice gardener participates in food growing activities that take place in common places such as community gardens and allotments. Lave and Wenger (1991) describe this process as Legitimate Peripheral Participation where newcomers in a community of practice, such as a food growing group, participate initially in simple, but still important for the group and the individual, tasks and gradually develop skills and confidence. Thus, it is crucial in order to upscale household-level food growing in Norwich to establish hubs of learning where legitimate peripheral participation takes place and the citizens of Norwich can feel confident enough to start growing food in their household garden.

Understanding the Stuff element between the two practices.

Different combinations of tools, materials, infrastructure and living, non-human creatures compose a food productive and a decorative garden. The above combinations are closely related to the purpose each garden serves. Thus, it is expected that as the images and skills elements of the decorative gardening practice shift towards food production the stuff elements will follow. As the three elements of each practice are interconnected, though, changes in the stuff that compose a decorative garden have the potential to trigger a shift in the images and skills elements. As in the case of B. where the presence of gardening tools, seeds and seedlings at the neighbours garden combined with the neighbours willingness to share them facilitated his choice to start growing food in his garden.

As it derived from the life-cycle diagrams, household garden ownership or at least access to a household garden where food can be grown is fundamental for the continuation and reproduction of the practice of household garden food growing. The household garden is the locality where the practice takes place and its absence may terminate the reproduction of the practice. Therefore, it is imperative in order to upscale household garden food production to provide access to household gardens for everyone who is keen to grow food in a household garden.

The interviewees mentioned that they would welcome support in terms of finding gardening tools, seeds and seedlings as in many cases the above can add to the costs of growing food at home. The "grow our own" scheme, promoted by the Sustainable Living initiative; an NGO based at bluebell north allotments in Norwich, is providing tools, seeds and seedlings as well as advice and information to people who want to grow food at the household gardens. The scheme has been granted with success and from a social practice theory perspective it represents a concept that its replication has the potential to significantly contribute to upscalling food growing in household gardens as it combines aspects that facilitate the formation of links between the elements of the practice of household garden food growing and in addition promotes the reproduction of the practice.

6.6 Conclusions

The data analysis provided valuable information regarding the images, skills and stuff that currently compile the two practices of decorative gardening and household garden food production. Furthermore, it revealed how links are formed and broken between these elements and how change in practice happens as the carrier of the practice goes through various stages during a life-course. Taking the above information under consideration it is feasible to synthesize interventions have the potential to imitate the changes in practice in favour to household garden food production and therefore achieve the upscaling of household-level food production in Norwich.

7. Interventions

The interventions listed below have been categorized in relation to which particular element of the practice of household gardening (images, stuff, skills) they intend to influence. It is expected that several interventions have the capacity to influence more than one elements of the practice as a side-effect of their application. However, such an analysis was beyond the scope of this study and for reasons of simplification the interventions are listed in relation to one element. As mentioned in chapter 3 each practice constitutes of three elements therefore in order to achieve a transition in the practice of household gardening at least three interventions related to three different elements need to be implemented simultaneously.

Interventions in relation to the Images element

The interventions should provide the citizens of Norwich with the opportunity to reflect on the meaning their garden has for them and why have they chosen to use it the way the currently do. Furthermore, the interventions should introduce to the citizens of Norwich their fellow citizens who grow food in their garden, how this practice fits in their lifestyles, in which way it benefits them and let them know that there exists a supportive network around food growing in Norwich. In addition, novel notions about garden ownership should be introduced which have the potential to shift the current perceptions of exclusivity towards the idea that the garden is a place to share with the rest of the community.

Interventions

Annual household garden food growing festival: An annual festival in Norwich where the basic theme is household-level food growing has the potential to introduce to the citizens of Norwich the whole aspect of what is involved in the practice. It has the potential to introduce images and meanings of the people involved, the produce, the gardens and has the potential to enhance a sense of belonging within the community. In addition, it makes visible a vibrant network within the city involved in themes such as local food, the household garden and it may challenge the way people choose to interact with the natural world.

Garden share scheme certificate: The introduction of a certificate that will ensure the continuation of the garden share scheme which is mentioned as an intervention in relation to stuff elements. The certificate will be stating that the household garden is part of the garden share scheme regardless the changes in the house's residents. With the concern of the current resident the garden will continue to produce food. This intervention is not an attempt to force the citizens of Norwich to take part in the garden share scheme but rather to facilitate the smooth continuation and spreading of the scheme in addition to shifting perceptions of property ownership and exclusivity towards community building.

Visits in schools: Introducing household gardening to young students at school has not only the potential to instill the values of household-level food production to the future citizens Norwich but also as they return home they can transfer this knowledge to their parents and potentially motivate them to start growing food in the household garden.

Documentary on household garden food growing: Produce a documentary film which presents food productive gardens in Norwich, the stories of people who grow food and the various activities that surround the practice. The film can been viewed in Transition Norwich meetings as well as it can be uploaded in various websites in the World Wide Web. This intervention has the dynamic of introducing the household-level food growing network of Norwich to a wide variety of people.

Farmers market selling produce from household gardens: Create a farmers market which sells produce from household gardens. The gardeners can share an amount of their harvest with Transition Network and in return they can have a free subscribe to the newsletter mentioned later on. This way the citizens of Norwich can familiarize themselves with what their gardens could produce if they were using them for growing food as well it can strengthen and support the food growing network of Norwich through systems of mutual exchange.

Interventions in relation to the Skills element

The interventions should familiarize the citizens of Norwich with the skills and knowledge required to sustain a food productive garden. Furthermore, there should exist a supportive network that has the capacity to support newcomers in household gardening in terms of skills and help them obtain the required confidence in order to grow food in their garden.

Interventions

Master Gardener: The Master Gardener scheme which is run by Garden Organic represents a very good example of transfer of skills in terms of household-level food growing. It should be reinforced with more personnel, ideally having one Master Gardener in each neighbourhood.

WWOOF (Volunteering in organic farms): Strengthen the WWOOF movement by introducing it to a wider audience as a way of low cost alternative holidays which gives the chance to the citizens of Norwich to re-discover the British countryside. This way skills and practical knowledge of sustainable living and household-level food growing can be embedded in the lifestyles of the citizens of Norwich.

Newsletter: Create a newsletter about household garden food growing that will contain advice and information about household-level food growing. It should contain information on planting, making compost, home-made fertilizers and pesticides as well as harvest storing techniques and cooking recipes. Furthermore, the newsletter should introduce to the readers basic permaculture principles and must be kept updated with the events happening in the city around food growing.

Interventions in relation to the Stuff element

The interventions should provide access to the citizens of Norwich to the materials, infrastructure and technology involved in food growing such as household gardens and greenhouses for seedlings as well as the tools required to sustain a food productive garden.

Garden share scheme: Connecting people who want to grow food in gardens with people who have a garden to share. This intervention has the potential to make available underutilized gardens to people who currently don't have access to a garden to grow food and thus not only promote the upscalling of household-level food growing but also facilitate the continuation of the practice for people who stopped gardening due to the lack of a garden.

Weekly meetings to transform a household garden: With the consent of the garden owner Transition Norwich members can meet once a week and work collectively to transform the garden into a food productive garden. Ideally, as a absolute minimum one garden in each neighbourhood should be transformed. This intervention not only introduces new materials and infrastructures to the garden but also has the potential to influence residents of the neighbourhood to transform their gardens.

A community gardening tools and seeds inventory: The purpose of this intervention is to provide access to gardening tools and seeds for people who have access to a garden but can not afford to buy the tools as well as create a seed bank of traditional open-pollinated varieties in order to provide easy access to these varieties and the incentive to people to cultivate them.

8.Conclusions

The objective of this study was to propose a number of interventions that Transition Norwich can implement in order to upscale household-level food production in Norwich. As the creativity and innovation of civil society groups and individuals involved in sustainable living are limitless the interventions presented in this study are only a small example of what can be done in order to upscale household-level food production in Norwich. In light of the above, the author's intention was not only to propose a number of interventions but also to experiment and demonstrate how civil society groups can use social practice theory as a tool in order to design their action plans. During this process the central unit of analysis were social practices and the elements which constitute them and not the barriers, drivers and attitudes which shape individuals behaviour. Accordingly, emphasis was given in changing the elements of the practice rather than individuals behaviour. Beyond its potential for promoting sustainable lifestyles this approach underpins a fundamental truth which is usually neglected. Social practice theory shifts the responsibility of change from the individual to interconnected bundles of social practices, while simultaneously it reveals the imperative need for a radical change in social structures, systems of provision and dominant unsustainable regimes if humanity is to achieve sustainability.

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10.Appendix

GROWING URBAN AGRICULTURE:

AN ASSESSMENT ON HOW TRANSITION NORWICH CAN UPSCALE HOUSEHOLD FOOD GARDENING IN THE CITY OF NORWICH

Norwich
August 2011

The study

Between May 2011 and August 2011 I conducted a research study as part of my degree at the University of East Anglia in order to investigate how Transition Norwich could facilitate the upscale in household food gardening in Norwich. With the help of my supervisor we decided to propose a number of practical actions that Transition Norwich could implement and that could potentially have a positive result in motivating the citizens of Norwich to transform their lawn into edible gardens. In an attempt to avoid overused and apparently faulted approaches in promoting sustainable lifestyles we turned our focus into the emerging field of Social Practice Theories for promoting pro-environmental behaviours. Using this theory as a tool we managed to create a framework from which a number of interventions emerged and furthermore it can be used by anyone who wishes to be creative and come up with practical actions that have the potential to upscale household-level food growing in Norwich.

How it works

The central unit of analysis from a Social Practice Theory perspective are practices. These include everything people do during a day. Starting from waking up and having a shower and breakfast to cycling or driving to work and later on spending some free time doing a hobby like playing football or going for a run. According to Shove and Pantzar (2005) all practices are made from three fundamental elements: images, skills and stuff. In the case of household food gardening the images can be; enjoying growing food, self-sufficiency and anything else that growing food at the garden means for people. The skills represent the knowledge needed to grow food such as planting, digging and making compost and finally the stuff are anything material used in gardening such as the garden itself, the gardening tools etc.

Different practices are made up from different elements and the same stands for different types of gardening. In this study we analysed and compared the elements that constitute the practice of decorative gardening which is applied on gardens that have lawn and patios and don't produce food and the practice of household garden food production which is applied on food productive gardens. Furthermore, in order for the practice to exist links need to be made between these elements. In order to collect the information to synthesize the elements I interviewed people in Norwich that grow and don't grow food in the household gardens. The results of the interviews are presented in the following tables:

Table 1. The elements of household garden practices as derived from the interviews

Practices / Elements	Household garden food growing	Decorative gardening
Images	● Self-sufficiency; ● Pleausure in getting your hands dirty; ● Saving money; ● Growing food means buying less from the shop; ● Healthy, organic food; ● Grow your own; ● Garden is for growing food; ● Reducing food miles; ● Respecting the land and protecting the environment; ● Teaching the new generation how to grow food; ● Growing your own food has become popular.	● The garden is a place to relax and where the children can play; ● The plants in the garden are flowers and lawn; ● Growing plants for food in the garden would be a waste of time; ● The garden already requires a lot of work.
Skills	● Organic gardening skills; ● Knowing how to cook produce from the garden; ● Knowing how to obtain plants from seed; ● Knowing what to plant in each season; ● Knowing how to dig and prepare the soil; ● Knowledge of pests and plant diseases; ● Knowing how to store the harvest;	● Knowing how to use the lawn mower; ● Knowing how to prune; ● Knowing how to apply herbicides and fertilizers; ● No skills required from the garden owner, calling a professional gardener.

Skills	● Knowing how to recognize edible plants and food in plant form; ● Knowledge of seed saving techniques; ● Knowing how to make home made pesticides and fertilisers.	
Stuff	● Garden that has enough space to grow food; ● Manual tools; ● Saving money; ● Raised beds; ● Greenhouse for seedlings; ● Composting facilities; ● Wild flowers to encourage wild life; ● Edible plants; ● Water harvesting facilities for rain water harvesting and grey water recycling; ● Seeds and seedlings; ● House infrastructure - space to store the harvest.	● Lawn mower; ● Manual gardening tools; ● Non-edible plants and lawn; ● Artificially made fertilisers and pesticides; ● Garden furniture; ● Patio area.

Table 2: Events which lead to creation of elements and the formation and sustain of links between the elements of practice.

Life course events	Description	Elements of household garden food growing practice
Garden ownership	Having access to a household garden in Norwich and producing food.	**Images:** growing organic food. Urban agriculture, self-sufficiency. **Skills:** developing knowledge in food growing. **Stuff:** Household garden, plants, compost, organic plant remedies, gardening tools.
Parents growing food in household garden	Growing up in within a family environment where growing food in the garden was normal. Acquiring skills in food growing through a process of legitimate peripheral participation (Lave & Wenger, 1991).	**Images:** growing food in household garden. Growing food is something to do with the parents. **Skills:** developing knowledge in food growing and the natural world through the eyes of a child. **Stuff:** Household garden, plants, compost, incests and wildlife, gardening tools.

n/a: Data are not available.

Table 3: Events which lead to the creation of elements of practice but not necessarily to the formation of links between the elements.

Life course events	Description	Elements of household garden food growing practice
Ecology degree	Environmental education	**Images:** Awareness and sensitivity about the environment and the fragility of natural systems **Skills:** Knowledge about plants, soil, pests, diseases and interaction between them. **Stuff:** n/a
Employment in garden centre	Involved in growing ornamental and edible plants at professional level.	**Images:** Growing plants for commercial reasons **Skills:** Knowledge about plants, soil, pests, diseases and interaction between them. **Stuff:** n/a
Voluntary work at community garden and/or community supported agriculture scheme	Nurturing, inclusive environment where everyone's work is valued; free exchange of knowledge and meanings around organic food growing;	**Images:** growing organic food, community building aspects of gardening. **Skills:** developing knowledge in food growing. **Stuff:** n/a
Farming at school	School with food productive garden in Nepal, where the interviewee grew up.	**Images:** growing food, community building aspects of gardening. **Skills:** developing knowledge in food growing at an early age. **Stuff:** n/a

WWOOF (Willing Workers Of Organic farming) Earth First! Summer gathering	Work exchange in organic farms for board and accommodation; living for a short period of time in an environment where organic agriculture and sustainable living are central concepts. Seminars and workshops on food growing and sustainable living.	**Images:** growing organic food, sustainable living. **Skills:** developing knowledge in food growing and sustainable living. **Stuff:** n/a

Table 4: Events which lead to the disintegration of the links between the elements of practice.

Life course events	Description	Elements of household garden food growing practice
Went to University Moved to Norwich	Living in halls of residence, no household garden available; Flats with no garden	**Images:** n/a **Skills:** n/a **Stuff:** no household garden available
Employment Family with children	Increase in commitments and complexity of life	**Images:** No time available for growing food, garden is for the children to play **Skills:** n/a **Stuff:** Household garden available.

n/a: Data are not available.

Creating the interventions

The purpose of the interventions is to facilitate a transition in the images, skills and stuff and by extension in the practice from decorative to food productive gardening. The interventions listed below have been categorized in relation to which particular element of the practice of household gardening (images, stuff, skills) they intend to influence. Each practice constitutes of three elements therefore in order to achieve a transition in the practice of household gardening at least three interventions related to three different elements need to be implemented simultaneously.

Interventions in relation to the Images element

The interventions should provide the citizens of Norwich with the opportunity to reflect on the meaning their garden has for them and why have they chosen to use it the way the currently do. Furthermore, the interventions should introduce to the citizens of Norwich their fellow citizens who grow food in their garden, how this practice fits in their lifestyles, in which way it benefits them and let them know that there exists a supportive network around food growing in Norwich. In addition, novel notions about garden ownership should be introduced which have the potential to shift the current perceptions of exclusivity towards the idea that the garden is a place to share with the rest of the community.

Interventions

Annual household garden food growing festival: An annual festival in Norwich where the basic theme is household-level food growing has the potential to introduce to the citizens of Norwich the whole aspect of what is involved in the practice. It has the potential to introduce images and meanings of the people involved, the produce, the gardens and has the potential to enhance a sense of belonging within the community. In addition, it makes visible a vibrant network within the city involved in themes such as local food, the household garden and it may challenge the way people choose to interact with the natural world.

Garden share scheme certificate: The introduction of a certificate that will ensure the continuation of the garden share scheme which is mentioned as an intervention in relation to stuff elements. The certificate will be stating that the household garden is part of the garden share scheme regardless the

changes in the house's residents. With the concern of the current resident the garden will continue to produce food. This intervention is not an attempt to force the citizens of Norwich to take part in the garden share scheme but rather to facilitate the smooth continuation and spreading of the scheme in addition to shifting perceptions of property ownership and exclusivity towards community building.

Visits in schools: Introducing household gardening to young students at school has not only the potential to instill the values of household-level food production to the future citizens Norwich but also as they return home they can transfer this knowledge to their parents and potentially motivate them to start growing food in the household garden.

Documentary on household garden food growing: Produce a documentary film which presents food productive gardens in Norwich, the stories of people who grow food and the various activities that surround the practice. The film can been viewed in Transition Norwich meetings as well as it can be uploaded in various websites in the World Wide Web. This intervention has the dynamic of introducing the household-level food growing network of Norwich to a wide variety of people.

Farmers market selling produce from household gardens: Create a farmers market which sells produce from household gardens. The gardeners can share an amount of their harvest with Transition Network and in return they can have a free subscribe to the newsletter mentioned later on. This way the citizens of Norwich can familiarize themselves with what their gardens could produce if they were using them for growing food as well it can strengthen and support the food growing network of Norwich through systems of mutual exchange.

Interventions in relation to the Skills element

The interventions should familiarize the citizens of Norwich with the skills and knowledge required to sustain a food productive garden. Furthermore, there should exist a supportive network that has the capacity to support newcomers in household gardening in terms of skills and help them obtain the required confidence in order to grow food in their garden.

Interventions

Master Gardener: The Master Gardener scheme which is run by Garden Organic represents a very good example of transfer of skills in terms of household-level food growing. It should be reinforced with more personnel, ideally having one Master Gardener in each neighbourhood.

WWOOF (Volunteering in organic farms): Strengthen the WWOOF movement by introducing it to a wider audience as a way of low cost alternative holidays which gives the chance to the citizens of Norwich to re-discover the British countryside. This way skills and practical knowledge of sustainable living and household-level food growing can be embedded in the lifestyles of the citizens of Norwich.

Newsletter: Create a newsletter about household garden food growing that will contain advice and information about household-level food growing. It should contain information on planting, making compost, home-made fertilizers and pesticides as well as harvest storing techniques and cooking recipes. Furthermore, the newsletter should introduce to the readers basic permaculture principles and must be kept updated with the events happening in the city around food growing.

Interventions in relation to the Stuff element

The interventions should provide access to the citizens of Norwich to the materials, infrastructure and technology involved in food growing such as household gardens and greenhouses for seedlings as well as the tools required to sustain a food productive garden.

Garden share scheme: Connecting people who want to grow food in gardens with people who have a garden to share. This intervention has the potential to make available underutilized gardens to people who currently don't have access to a garden to grow food and thus not only promote the upscalling of household-level food growing but also facilitate the continuation of the practice for people who stopped gardening due to the lack of a garden.

Weekly meetings to transform a household garden: With the consent of the garden owner Transition Norwich members can meet once a week and work collectively to transform the garden into a food productive garden. Ideally, as a absolute minimum one garden in each neighbourhood should be transformed. This intervention not only introduces new materials and infrastructures to the garden but also has the potential to influence residents of the neighbourhood to transform their

gardens.

A community gardening tools and seeds inventory: The purpose of this intervention is to provide access to gardening tools and seeds for people who have access to a garden but can not afford to buy the tools as well as create a seed bank of traditional open-pollinated varieties in order to provide easy access to these varieties and the incentive to people to cultivate them.

What is next?

Using the above interventions as example and consulting the tables you are more than welcome to come up with your own interventions in relation to any element you prefer. The objective of this project is to give the opportunity to everybody to come up with solutions that can be practically and realistically implemented and can make a change to their neighbourhood and the wider community for the better.

References

Shove, E. and Pantzar, M. (2005) 'Consumers, Producers and Practices: Understanding the invention and reinvention of Nordic walking'. Journal of Consumer Culture 5(1): 43–64.