

UNIVERSITY OF EXETER

Health and Wellbeing Impacts Associated With Active Participation In Community Gardens, In The Context Of Sustainable Development.

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Abstract

Interest in the concept of 'wellbeing' is gaining prominence among academic researchers, policy makers and planning bodies within the UK and internationally. This emerging agenda is often in the context of efforts to promote sustainable communities through environmental initiatives, such as community gardening, which aim to link communal activities with individualised lifestyle preferences and behaviours.

This thesis explores the ways in which health, wellbeing and social development are intricately implicated in sustainable living initiatives, and how such initiatives can be applied to enhance health, wellbeing and social development at both individual and community levels through exposure to greenspace in the form of community gardens.

This thesis takes an ethnographic approach into the study of community gardens in areas of social disadvantage in Plymouth. Findings provide empirical evidence showing that active participation in the community gardens result in health, wellbeing and social development impacts for individual participants directly involved within the garden. Findings at the community level were more mixed, providing insights into barriers to exclusion and inequalities in and across communities within the study area.

The results of this thesis provide a greater appreciation of how sustainable living initiatives can provide social and economic opportunities which can promote health and wellbeing for individuals and communities and contribute towards sustainable design of urban areas with the use of green infrastructure. Stemming from these results is the call for increased collaboration between public health officials and spatial planners to incorporate and utilise green space community initiatives in urban areas to enable health and wellbeing impacts to become realised and sustained at an individual and community level.

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Abbreviations

- CBI Confederation of British Industry
- CDT Community Development Team
- CRB Criminal Records Bureau
- CSJ Centre for Social Justice
- DALY's Daily Adjusted Life Years
- GHG Greenhouse Gases
- GDP Gross Domestic Product
- GP General Practitioner
- HPI Happy Planet Index
- IPCC Intergovernmental Panel on Climate Change
- LS Life Satisfaction
- NAEF National Association for Environmental Education
- NEF New Economics Foundation
- NGO Non-Government Organisations
- NRC National Research Council
- ONS Office for National Statistics
- OWB Objective Wellbeing
- QOL Quality of Life
- SRES Special Report on Emissions Scenarios
- SWB Subjective Wellbeing
- TCPA Town and Country Planning Association
- UN United Nations
- UNCED United Nations Conference on Environment and Development
- UNESCO United Nations Environmental Scientific and Cultural Organisation
- WHO World Health Organisation

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Chapter 1 Introduction

The purpose of this chapter is to provide the reader with a comprehensive introduction to, and overview of, the origins and structure of this thesis. This chapter will first describe the concept of sustainable development and current challenges faced in regards to a changing climate and resource shortages, focussing upon the ways in which these issues have been tackled. I will then introduce the concept of wellbeing and the role in which green space may play in the fostering of positive health and wellbeing outcomes through community led initiatives. This Chapter will then move onto cover the aims and objectives before finally concluding with an overview of the thesis structure.

1.1 Sustainable Development

Born out of the growing awareness of global environmental and socio-economic concern is the widely recognised need that sustainable development is imperative (Rau and Fahy, 2013; Hopwood et al., 2005). Sustainable development is defined as:

“Development that meets the needs of the present, without compromising the ability of future generations to meet their own requirements.”(WCED,¹ 1987, p43)

As a concept sustainable development recognises the reliance of humans on the environment to enable individuals and communities to meet their needs, linking ecology and economy, both globally and nationally (WECD, 1987). This draws into consideration the environmental and social impacts that development activities encounter and allows for nature, rather than dominating over it (Giddings et al., 2002). This form of expansion identifies the occurrence of planet wide interconnections where problems are global rather than local (Patz et al., 2005). By developing in a sustainable manner it will reduce the accumulation of problems attributed to unsustainable development (Hopwood et al., 2005). Environmental and social problems which arise as a result of

¹ WCED World Commission on Environment and Development

unsustainable activities are severe; they impact people's health and livelihoods as well as being a cause of war and threaten the security and existence of future generations (Hopwood et al., 2005).

To evolve in a sustainable manner requires a careful balance of competing needs and resource availability with consideration to environmental, economic and social limitations that development may bring (WCED, 1987). This has resulted in the emergence of sustainable living strategies. These strategies are organised, designed and implemented globally, nationally and locally with the aim of reducing carbon emissions and result in a lighter carbon footprint being produced (Dolan and Metcalf, 2010). Sustainability initiatives focus on reducing pressure on existing resources with the aim of creating increasingly sustainable (less resource hungry) lifestyles (Brangwyn and Hopkins, 2008). The need to live more sustainably has received considerable attention in recent decades as the awareness of global climate change and the depletion of natural resources has become increasingly publicised (Fein and Tilbury, 2002). This awareness reflects an important development in the understanding of the relationship between humanity and nature (Schultz et al., 2005). This is in contrast to previously dominant behaviours exhibited by humans in regards to the environment (Hopwood et al., 2005) and the awareness of the role in which communities can play in climate change reduction (Van Aalst et al., 2008). Impacts arising from prolonged unsustainable development are evident worldwide (Reid, 2013; Hilton and Manning, 1995). These include social and ecological impacts (Schneider et al., 2010). Two major impacts of unsustainable development, climate change and peak oil, are considered in increased detail below.

1.1.1 Climate Change

There is a general consensus amongst the scientific community that climate change is occurring, resulting in a significant and lasting variation in climate and weather patterns (Van Aalst, 2006; Houghton et al., 2001). These variations in climate can be perceived in observed increases in extreme weather events, increasing global temperatures, sea temperature oscillations, and variations in species distribution (Pearson and Dawson, 2003; Houghton et al., 2001;

Houghton and Woodwell, 1989). The global average surface temperature has increased by $0.6 \pm 0.2^{\circ}\text{C}$ since the late 19th century (Houghton et al., 2001). 2014 was recorded as the warmest and fourth wettest year in the United Kingdom since 1910, with 8 of the 10 warmest years on record occurring since 2002 (Met Office, 2015).

Anthropogenic factors, in particular the combustion of fossil fuels, are thought to be a large contributor to climate change (National Research Council, 2010) resulting in the increase in the three main greenhouse gases (GHG) (CO_2 , CH_4 and NO_2). The Intergovernmental Panel on Climate Change (IPCC) produced the Special Report on Emissions Scenarios (SRES) to estimate the impact that likely GHG scenarios will have on the world's climate. The models showed that the global average temperature can be expected to increase between 1.4°C to 5.8°C by the year 2100 in accordance with predicted GHG emission scenarios, highlighting the importance of GHG emissions on the globe's climate (IPCC, 2000).

There is debate surrounding causes of global warming which bring into dispute whether both natural and anthropogenic climate change is actually occurring. It has been suggested that modelled predictions for climate change have over exaggerated the problem and the future impacts of GHGs (Fyfe et al., 2013). The Climate Change in America Mind Report 2012 found that 14% of Americans did not believe global warming was occurring and 46% of people questioned believed that global warming could not be attributed to human activities (Leiserowitz et al., 2012).

The evidence supporting climate change is however compelling: changing weather patterns (for example, more intense and frequent extreme events) and higher temperatures leading to flooding and droughts (Van Aalst, 2006). These impacts mean that it can be expected that climate change will affect the fundamental requirements for life such as clean air, safe drinking water, sufficient food and secure shelter (WHO², 2014a). The effects of climate change

² WHO World Health Organisation

are estimated to progressively increase worldwide (Thomas et al., 2014; Houghton et al., 2001). This has led to the awareness of the importance of reducing GHG's evident within the adoption of increasingly sustainable policies and lifestyles on global and local levels with the aim of reducing carbon emissions and therefore tackling climate change (Smit and Pilifosova, 2003). This will be compounded by the expanding and aging population, with estimations by the United Nations (UN) that the world population is expected to increase from the current level of 7.2 billion to 9.6 billion by 2050 (United Nations, 2014a). Therefore if it is possible to live an increasingly carbon friendly lifestyle and reduce emissions through the creation of sustainable living practices, it is likely that future generations will be healthier and experience enhanced wellbeing than if climate change is allowed to continue (Haines et al., 2010).

1.1.2 Peak Oil

Another global challenge is the issue of peak oil. Peak oil is expected to occur when it is as costly in time and money to extract oil as the amount it can be sold for (Brangwyn and Hopkins, 2008). It has been widely publicised that peak oil is expected to occur in the near future and it has been estimated that as early as 2015 the shortfall in the output of oil could reach 10 million barrels per day (JOE³, 2010). Peak oil will lead to the end of cheap and plentiful oil, with fuel prices expected to increase dramatically in the not to distant future (Hirsch, 2005). It is hypothesised that the chance of finding a significant quantity of cheap oil is unlikely, and that oil prices will continue to rise (Wheatcroft, 2010). This can be expected to have colossal ramifications on the economy and society, both in developed and developing countries, as demand continues to rise and populations continue to grow (Brangwyn and Hopkins, 2008).

The theory of Peak oil attracts considerable debate within academic and business circles. Steward et al., (2005), dispute this hypothesis and disagree that peak oil will be a problem. Sceptics such as Steward et al., (2005) and Caveny, (2006), argue that resource scarcity is 'relative', and one scarce

³ JOE Joint Operating Environment

resource can simply be replaced by another indefinitely. This is because as prices rise there will be investment in new technology, this will result in the constant updating and improvement of efficiency. Rather, limitations and problems concerning oil availability are considered as being above ground, a matter of manpower, expertise and technology, not in the actual existence of oil, rather it is the methods of extraction that are required to be developed. New technologies, such as fracking, are constantly being developed and it may be that new methods of extracting oil will be developed in a cost effective and timely manner. Some consider the Hubbert Curve as too simplistic in predicting the occurrence of peak oil (Mills, 2008). Companies are observed switching from conventional to non-conventional oil production to overcome the occurrence of peak oil.

On a local level, even if peak oil worldwide is not a problem, in the UK, North Sea oil is running out and the reliance on foreign sources of oil that are not controlled by the UK remains an issue which will result in lifestyle impacts (Elliot, 2012). These impacts are likely to be observed initially within the most deprived and vulnerable individuals, leading to the widening of health inequalities (Hanlon and McCartney, 2008). As a result of oil shortages and increasing costs individuals will have to adjust their lifestyles accordingly in order to survive and prosper (Bentham, 2014). This can be expected to result in health and wellbeing impacts arising as a result to lifestyle changes which need to be made and the ability of individuals to cope with these changes, this is seen in resilience. Resilience is a contested concept; for example, it may be used to refer to the biological capacity to adapt and thrive in adverse environmental conditions or could be used to describe, in economic terms, the return to a fixed equilibrium (Christopherson et al., 2010). More generally within the field of social sciences it is used to describe the ability of individuals and groups to adapt to reduce vulnerability in the face of adversity (Luthar et al., 2000). It may be present at an individual and community level (Masten, 2001). Resilience is heavily dependent on situated knowledges and will fluctuate in its meaning between and within communities and individuals (Canavan, 2008). Within this thesis when referring to resilience it will be defined as the ability to cope with changes which are out of the control of individuals, how well they are able to adapt (Egeland et al., 1993). This will be in the context of the skills and

knowledge accrued from the result of involvement in sustainable living initiatives, enabling individuals to become increasingly empowered and resourceful. This will be considered on both an individual and community level.

Whether or not peak oil is an issue on a global scale, this theory, combined with climate change, has acted to shape living practices and lifestyles amongst governments and communities globally leading to emission reduction strategies (Stern, 2008). This is also exemplified in sustainable living initiatives which have emerged and continue to do so at the local level (Brangwyn and Hopkins, 2008). The results of these initiatives at the local level has been shown to lead to the development of increasingly robust and resilient individuals and communities who are less vulnerable to the impacts of changes beyond their control as they become more able to adapt to their circumstances (Collier et al., 2013).

1.1.3 Climate Change, Health and Wellbeing

Impacts of anthropogenic climate change since the 1970s are reported to have claimed in excess of 150,000 lives and 5.5 million Daily Adjusted Life Years (DALY's) per year (Thomas et al., 2014). Future projections of climate change make it likely that these health impacts will increase (IPPC, 2000).

Environmental impacts arising from climate change are expected to result in health inequalities becoming increasingly apparent through the challenges faced by the elderly, children and socioeconomically disadvantaged, groups who are particularly vulnerable to these impacts (Thomas et al., 2014). Impacts on human physical and mental health and wellbeing, will be through changes in biodiversity, pollution levels, climate, sea level and disease spread (Thomas et al., 2014; Cardinale et al., 2012; Younger et al., 2008 Pearson and Dawson, 2003). Impacts arising as a result of resource shortages, anticipated to occur with the issue of peak oil, will also bring with them health and wellbeing issues. As individuals are forced to change consumption habits as a result, it is likely that inequalities will become more pronounced (Department of Health, 2010). As well as this, individuals may feel disempowered as they are forced to make changes to allow for shortages which are beyond their control (Brangwyn and

Hopkins, 2008). These impacts can be considered to become magnified as populations grow resulting in increased urbanisation, which if left to continue in an unsustainable manner will increase local carbon footprints and pressures on existing resources (Bart, 2010).

Cities are home to the majority of the global population and climate change adds extra pressures on urban areas and their inhabitants from multiple aspects. These pressures include added stress through heat waves, pollution, and climate extremes such as more frequent and intense droughts and flooding. Sea level rise threatens infrastructure, ecosystems, property and inhabitants (UCCRN, 2011⁴), This is estimated to cost \$52 billion a year in losses by 2050 (World Bank, 2013) and 75% of the worlds major cities are located on the coast, with 50% of the global population residing within 60km of a coastline (UNEP⁵, 2015).

These urban impacts are and will continue be felt most acutely in developing nations which do not have the resources to manage these impacts, thus acting to exacerbate inequalities as it is often the urban poor who are forced to live in areas that have been negatively impacted by climate change (UCCRN, 2011).

Therefore, if health and wellbeing is to be promoted and preserved it is imperative that we adapt to and mitigate these impacts through various pathways. This is possible if steps are taken that consider these health and wellbeing issues and are incorporated into spatial design through planning for public health care (Anderson et al., 2014). These impacts can be undertaken at global, national and local levels and are further discussed in Section 1.3.

1.2 Tackling These Challenges

As stated previously, responses to peak oil and climate change involve the need to live increasingly less resource hungry lifestyles. For a city, town or community to be considered sustainable, their carbon emissions must be significantly lower than what is considered to be the norm within that community

⁴ UCCRN (Urban Climate Change Research Network).

⁵ UNEP (United Nations Environment Programme).

today (Middlemiss and Parrish, 2010). These initiatives are carried out on multiple levels, globally, nationally and locally. Low carbon transitions are concerned with changes in social practices and behaviours that result in the development of lifestyles that are less carbon intensive (Whitmarsh et al., 2011). As the relationship between increasing consumption, waste generation and environmental impacts has become increasingly obvious, it has been concluded from this the role of living a less resource hungry lifestyle may preserve the environment (Middlemiss and Parrish, 2010).

1.2.1 Adaption and Mitigation

Within the context of this thesis it is important to define and distinguish between adaption and mitigation. Adaption is defined by IPCC, (2007) p869 as:

“The adjustment in natural or human systems to a new or changing environment. Adaptation to climate change refers to adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities.”

Adaption may include changes in social and environmental processes resulting in positive environmental impacts: it addresses the many factors and stresses which impact climate change. These are carried out on a local level in contrast to larger scale mitigation responses to climate change (Smit and Wandel, 2006).

IPCC, (2007) p878 defines mitigation as:

“Technological change and substitution that reduce resource inputs and emissions per unit of output with respect to climate change. Mitigation means implementing policies to reduce GHG emissions and enhance sinks.”

There has been interest in exploring the relationship between these concepts, considering existing literature (Smit and Wandel, 2006; Adger et al., 2005; Klein

et al., 2005) it is clear that both mitigation and adaptation are important in the reduction of the risks associated with climate change.

Adaptive benefits are often immediately visible unlike mitigation efforts where the effects may not be visible for many years to come (Smit and Wandel, 2006). If appropriate and successful, adaptation measures that are introduced will act to reduce the vulnerability of both ecosystems and humans by improving the adaptive capacity (increasing resilience) of each (Adger et al., 2003). IPCC (2007) mathematically denotes vulnerability as the sum of exposure, sensitivity and adaptive capacity. Therefore any efforts to adapt will reduce vulnerability to climate change. Within the context of this thesis and in relation to both community led and green space interventions it can be expected (as discussed within Chapter 4) that inclusion into a community garden as a form of adaptation to climate change will result in increasingly resilient and less vulnerable individuals and communities (Colding and Barthel, 2013). The ecological impacts of community gardening, while out of the remit of this investigation, has also been proven to be beneficial with case studies showing increased biodiversity as a result of community gardens within urban settings (Goddard et al., 2010).

For both peak oil and climate change, it has been argued that it is possible to adapt to and mitigate the effects, but immediate action is imperative. The transition to a low carbon economy was the political mantra of the 21st century (Brangwyn and Hopkins, 2008) and is reflected within sustainability movements on a global, national and local level. These are introduced below.

1.2.2 Reducing Emissions

Through a mix of policy approaches and engagements in both developed and developing countries, governments are seeking to lower carbon emissions significantly across sectors (H.M Government, 2009). This concept of a low carbon economy has resulted in the trend of generating greater levels of economic output at lower rates of natural resource consumption and environmental pollution, reducing anthropogenic GHG emissions and enhancing the world's natural sinks by responding successfully to climate vulnerability and

change (Kane and Klein, 2002). These strategies are carried out on multiple levels in the form of policies and actions. Significant efforts are required on many fronts to implement the necessary changes required to address climate change and energy security on both a large and a small scale (Seyfang, 2010).

Globally there is a recognised effort to reduce carbon emissions. An example of which can be seen within the Kyoto Protocol, an international agreement attached to the United Nations Framework Convention on Climate Change which sets an internationally binding carbon emission reduction targets between members. Initially the target was to reduce carbon emissions against the 1990 baseline by 5%. Since this target was set the Kyoto Protocol has entered a second commitment period whereby members are committed to reduce emissions by 18% (from the 1990 baseline) by 2020 (United Nations, 2014b). Within the UK the 2008 Climate Change Act was created to ensure that the net UK carbon account for the year 2050 is at least 80% lower than the 1990 baseline (H.M Government, 2008). If these targets are to be achieved attitudes towards consumption habits need to be addressed at multiple levels.

At a local level, city authorities are now planning growth that will induce a reduced use of carbon (Price et al., 2011). Chinese cities are a good example of this: China is the largest contributor of GHG emissions and is a rapidly expanding nation that is already on a high carbon emissions path with an estimated 350million people migrating to urban areas in the next 20 years (current rate of 13 million per year) (Baumler, 2012) a 4% increase in urbanisation. However this country has made ambitious plans to reduce the levels of emissions by 40-45% by 2020, relative to 2005 levels. Chinese cities are able to contribute to high level changes that are required to reduce emissions, such as reducing urban sprawl due to the high level of autonomy given to city authorities that allows them to act quickly and efficiently within their national policy goals (Baumler, 2012). China's rapidly expanding towns and cities therefore have the opportunity to be proactive in their growth paths in order to ensure that they do not take a high carbon route when creating the networks that will form the urban area through smart spatial planning. This is an example of a carbon reduction initiative in force at a local government level. For areas that are already urbanised it is difficult to implement changes that are

necessary in order to reduce emissions (Wilbanks and Fernandez, 2012). Often needing to be tackled on a smaller scale due to the specialisation required in order to generate successful changes. This has led to the emergence and recognition of the importance of community based initiatives in their contribution to sustainability.

1.2.2 Community Initiatives

While the effects of climate change are global, the causes of climate change are local (Seyfang, 2010), therefore it has been recognised that effective reductions in emissions must be made at a “local” level. These are often carried out in the form of “grass root initiatives”. Grass root refers to local actions that display a bottom up approach (Whitmarsh et al., 2011). The UK government has recognised the important role that local communities can potentially play in achieving a low carbon future, which are reflected in these examples: Low Carbon Transition Plan (H.M Government, 2009) and the 2012 Act Giving People More Power Over What Happens In Their Local Area (H.M Government, 2012b). Community interventions are thought to be increasingly successful if they are bought about by individuals that are impacted by the result of these joint actions, as it allows targeted, experienced impacts to be catered for, and lifestyles within the affected community to be considered (Lopez-Gunn, 2012). At the micro level, for individuals and the communities in which they find themselves, situations will differ considerably and the experiences that they have will vary accordingly. What may happen in one area will be different in another both in impact and experience (Mansuri and Rao, 2004). Community led interventions allow for individual circumstances at the local level to be considered and catered for in a specialised local approach (Fenton, 2014; Dolan and Peasgood, 2008). Although these interventions and approaches may result in a small impact at a local level, collectively the impacts may deliver significant change at the population level (Crombie, 2014).

Community joint actions are normally aimed at improving the quality of the physical environment and daily life of the community in a way the local community see as beneficial (Perkins et al., 1990). Through these actions it will not only benefit the direct aims of the community projects but will also have

indirect social capital benefits within the community through the development and strengthening of new and existing networks (Florin and Wandersman, 1990). These social capital benefits can be seen in a number of ways, such as the sharing of knowledge, expertise and the development of new skill sets within the community, leading to an empowered community that is increasingly resilient, robust, self-sufficient and sustainable (Dredge, 2014; Seyfang, 2010). This is referred to as capacity building, where individuals and communities are developing skills, resources and knowledge that enables them to make decisions for policies and organisation within their local groups (Chaskin, 2001). As a result of these impacts, policies are found to be increasingly successful in their implementation if they involve and engage with the local communities (Dolan and Peasgood, 2008). Therefore, grass root initiatives can also provide community building opportunities to become realised and sustained as a result of increased cultural capacity (Middlemiss and Parrish, 2010). Cultural capacity is based on the view that a strong community is capable of enabling change, and it is thought to lay the foundations for emerging pro-environmental infrastructure within communities (Smit and Wandel, 2006). Communities that implement low carbon initiatives have been found to display increased cultural capacity over communities that do not (Middlemiss and Parrish, 2010). This is particularly evident in communities where there is already evidence of community cohesion, heritage, voluntary organisations and associations (Whitmarsh et al., 2011; Seyfang, 2010). These findings have also been found to exist in disempowered communities (Middlemiss and Parrish, 2010), though perhaps easier to implement in communities that already have the foundations of a community network. Community gardens (as relevant to this thesis) have been found to result in increased cultural capacity within communities (Kingsley and Townsend, 2006). This increased cultural capacity, in addition to enabling the transition to a low carbon community, may be expected to result in communities which are increasingly resilient, robust and connected (Hopkins, 2011). These factors can be considered to have positive impacts upon an individual's wellbeing as well as increasing social capital evident within the community. Social capital is considered to be the social organisation and values present within a community (Putnam, 1995). These sustainable initiatives may be displayed in numerous ways on a variety of scales within communities.

The case study gardens within this research are not a true grass root initiative. Rather the community garden case studies are managed by an external organisation. Diggin' It is a community project which relies on volunteers to run and be successful, it is considered a community project and the impacts which can be expected from grass root initiatives are likely to be in effect in the community garden case studies so are included within the reviewed literature.

1.3 The Role of Creating Wellbeing

Traditional measures of quality of life such as Gross Domestic Product (GDP) are considered no longer appropriate as a sole mean of assessing societies progression as rises in GDP are often mirrored by rises in GHG emissions, which is not conducive with sustainable development and carbon reduction efforts (Moran et al., 2008). Stemming from this development is the emergence of other indices as a measure to assess societies progress (Dolan et al., 2011). Wellbeing has become increasingly considered within policy design and used as a measurement of policy success and progress both in health and spatial planning over the past 10 years (Anderson et al., 2014). There has been an observable shift in the measurement of progress to incorporate communities, wellbeing and social capital impacts away from traditional measures of GDP and considers other aspects of sustainability in terms of health, social and ecological considerations (HPI⁶, 2014).

This trend is an emerging concern throughout the world, good examples of the interest placed on wellbeing as a measure is exemplified in Bhutan, Canada and New Zealand who have implemented widely publicised measures of Wellbeing in their assessment of societal progress. The Gross National Happiness Index, for example, launched by the Bhutan Government in 2005 was implemented so that the government would have a better idea of how the population responds to policies, and therefore increasingly sustainable changes within society could be engendered (Gross National Happiness Commission, 2012). Other examples include the 1999 Canadian Index of Wellbeing (Canadian Index of Wellbeing,

⁶ HPI Happy Planet Index

2014). The Commission on the Measurement of Economic Performance and Social Progress, created in 2008, explored alternative strategies to measure economic and social progress within France (Stiglitz et al., 2009). The Quality of Life Project launched in New Zealand in 1999 was a response to growing pressures on health and wellbeing experienced by communities as a result of urbanisation (Quality of Life Project, New Zealand, 2014). Within the UK the Office of National Statistics (ONS) undertook a 'What Matters To You?' survey to establish an informed wellbeing index (ONS, 2011).

Successfully fostering health and wellbeing within policy and planning is likely to result in the creation of initiatives that are increasingly long lived and effective (Dannenburg et al., 2011; Dolan and Peasgood, 2008). If infrastructures such as community gardens can be inserted into neighbourhoods it is likely that it will not only enhance health and wellbeing (Dunn, 2010), but allow for communities to become established through a common attachment to place through space utilisation (Manzo and Devine–Wright, 2014). As a result of the formation of community it is likely that there may be further health, wellbeing and social development impacts possible at an individual and community level (Fawcett et al., 2001). Individuals who are part of a social network are likely to display increased wellbeing over those who are isolated (Glover et al., 2006). Communities which exhibit higher levels of social capital are likely to display increased resilience, social safety and be increasingly proactive in community action and conservation (Kingsley and Townsend, 2006; Pretty, 2003; Pretty and Ward, 2001). This will again have positive reinforcement on individual wellbeing (Kingsley, 2009).

Within the UK efforts to promote and integrate health promoting infrastructures is being undertaken (NHS⁷, 2013). A number of current public health priorities, that include, to name a few, cardiovascular diseases, stroke, respiratory diseases and mental health, have a significant spatial dimension to them (Penny, 2014). Factors such as air pollution, a lack of good-quality green spaces, isolation issues and unsafe environments are recognised as factors that have an impact on individual and (collectively) community health (Ross and

⁷ NHS National Health Service

Petrokofsky, 2014). Accompanying this recognition is a call to improve the evidence base surrounding health and wellbeing promoting infrastructures within planning to enable these potential health and wellbeing benefits to become realised (Allen, 2014; Anderson et al., 2014, Townsend, 2014), with stronger working links between planning and public health (Ross and Petrokofsky, 2014). This interest in planning for public health is reflected by Public Health England, in the recognition that the environments in which individuals live will act to shape health profiles (Public Health England, 2014). This thesis therefore anticipates to contribute towards the evidence base advocating the use of green space as a health promoting infrastructure, building on the existing theory that healthy places equal healthy people (Askew, 2014).

The following section (1.4) introduces current literature surrounding green space and community gardening projects and how these can act to foster positive health and wellbeing, discussing social, physical and economic impacts that have been observed as occurring on individuals and communities. Community gardens have been identified as playing a significant role in enabling cities and towns to be able to develop sustainable practices (Bendt et al., 2013). This enables sustainable community development with resulting wellbeing impacts, increased social capital and longer lived policies, and increasingly targeted and effective design of urban space (Penny, 2014).

1.4 Fostering Wellbeing and Community through Green Space

This thesis utilises community gardens as a platform in which to explore individual and community health and wellbeing impacts arising as a result of active participation with sustainable living initiatives (Alcock et al., 2014; Zhang et al., 2014; Dinnie et al., 2013; Seaman et al., 2010;). There is increasing interest among academic researchers, policy makers and planners in the role green space can play on human health in regards to physical and mental wellbeing as well as social capital impacts (Alcock et al., 2014; Lovell et al., 2014; Zhang et al., 2014; Dinnie et al., 2013; Seaman et al., 2010;), which is reflected in policy making and planning. The role of place is recognised to impact social networks within communities (Manzo and Devine-Wright, 2014; Mahon et al., 2012).

Green infrastructure is built or conserved green and blue spaces; if access to these are ensured and green infrastructure is utilised the benefits which are gained from these resources are vast (Pitt, 2014; Bendt et al., 2013; Kingsley and Townsend, 2006; Ferris et al., 2001). Research has shown that access to and utilisation of green space may lead to enhanced health and wellbeing for individuals and collectively across communities (Tzoulas et al., 2007). Green infrastructure, along with community gardens will encompass grasslands, moors, woodlands, wetlands, parks, rivers, coasts and private gardens (Burls, 2007). Community gardens can be considered a form of green infrastructure which incorporates civic participation (Barbosa et al., 2007). Health and wellbeing can be improved through planning which involves communities allowing local people meaningfully in the design of their own areas (Ross and Petrokofsky, 2014). Community gardens are one form of green infrastructure which enables this to occur (Dredge, 2014; Penny, 2014). If green infrastructures can be incorporated into urban environments, which promote health and wellbeing within individuals and collectively within communities, they may create longer lasting and sustainably designed spaces, creating positive health and wellbeing both now and for future generations (Penny, 2014). This could take the form of multiple societal and individual benefits from social, environmental, health and economic perspectives, which in its own right is a valuable commodity as we face escalating health costs due to an increasing and aging population (Centre for Disease and Ill Health Prevention, 2003). Through the effective use of health promoting infrastructures, urban areas can be designed to promote healthy lifestyles. This can be brought about through designing livable spaces which encourage healthy lifestyles, reducing risk behaviours associated with ill health (Barton, 2014).

Historically there has been a recognition of the restorative capacity of green space (Kaplan, 1992). Appreciation of the community benefits green space can provide gained momentum in the 1980's and 1990's, reflected in the conversion of many brownfield sites into accessible green spaces. In 5 years, between 1988 and 1993, 19% of derelict brown fields were converted into green space (De Sousa, 2003). The transition from brown to green provided the opportunity to insert community structures into urban areas, through the creation of parks, gardens and natural heritage areas, greatly increasing exposure and access to

green space. The benefits arising from brown field developments have been identified to include ecological, social, economic and wellbeing impacts becoming realised (Sichley, 2013). Therefore the role green space as a community resource can play in fostering sustainable design and providing health promotion opportunities becomes clear (Anderson et al., 2014; Maller et al., 2006).

Research on the therapeutic benefits of nature is also gaining prominence (Chawla et al., 2014; Burls, 2007; Peacock et al., 2007; Groenewegen et al., 2006). Exposure to the natural environment is documented to reduce feelings of stress and promote health and wellbeing in the short and long term (Davies et al., 2014; Barton and Pretty, 2010; Van den Berg et al., 2010). Academic literature suggests that humans are intrinsically “hardwired” to respond positively to nature as a response of evolutionary processes (Tidball and Kransy, 2011). These findings are concerning if we consider that the majority of the world’s (expanding and aging) population resides within urban areas (WHO, 2014b). With current estimations of urban expansion this is only expected to increase urgency to manage and design increasingly sustainable and health promoting use of space.

Literature on the impacts associated with active involvement in green space suggests that individuals may form emotional bonds to a place (known as ‘place attachment through participation (Hawkins et al., 2013). People are considered a key resource in shaping healthy places through participation and empowerment (Dredge, 2014), effective utilisation and planning for community enhancing structures that promote active participation are vital to promote sustainable health and wellbeing impacts to become realised. If the activity is shared with others social networks can be created which will act to strengthen social capital within a community (Manzo and Devine-Wright, 2014). Place attachment and social networks have positive impacts on health and wellbeing and also on social capital – the ability to use social bonds to progress (Putnam, 2000). These emotional bonds to place and across individuals within the social network may result in the formation of community (Talen, 1999). It is likely that as a result of these emotional connections and personal attachments to place that community norms and values will arise (Manzo and Devine-Wright, 2014).

Such processes have been seen to take place in community gardens (Ohmer et al., 2012; Ferris et al., 2001; Armstrong, 2000).

Community gardens, if effective in drawing in members according to a common interest, may yield potential as a community building, as well as health promoting, infrastructure. The role of place in the establishment of sustainable communities is recognised to impact social networks within communities (Mahon et al., 2012). These forms of infrastructure enable integration of cultures and individuals into a stronger, safer and resilient community (Groenewegen et al., 2006) as well as providing individual health and wellbeing impacts (Bjork et al., 2008).

Results of formal education and social learning within the boundaries of community gardens has been shown to produce increasingly knowledgeable and aware individuals (Kransy and Tidball, 2009b). Results have also been shown to occur collectively within communities with increases in environmental actions and care of the local neighbourhood, with communities becoming increasingly motivated to inspire change at the local level (Ohmer et al., 2012). These impacts are likely to have mutually reinforcing effects on individual and community resilience (Collier et al., 2013; Okvat and Zautra, 2011). The long term implications of these impacts are that communities may be more likely to promote and support sustainable designs in the future and generational attitudes to climate change and sustainable living may be challenged to increase attention directed towards sustainability (Hopwood et al., 2005). The incorporation of health promoting infrastructures such as community gardens may also act to encourage healthy behaviours as they become increasingly accessible across all of society, reducing inequalities (Penny, 2014). However, it is noted that the knowledge base is still developing with increased research needed in order to establish a more robust evidence base in which to influence health promotion and spatial planning to create increasingly healthy and sustainable landscapes (Anderson et al., 2014). This thesis therefore endeavours to make a practical contribution towards building the empirical evidence base surrounding health promoting landscapes and planning for public health. Section 1.5 goes on to describe the aims and objectives of this thesis.

1.5 Aims and Objectives

This thesis aims to integrate health, wellbeing and the role of green space and community. It will do so by establishing links between health and wellbeing impacts (on both an individual and community scale) and grass root initiatives in the form of community gardens. I aim to contribute to the evidence base of health promoting and sustainable landscapes through the contribution of empirical evidence to test existing theories.

Community gardens are therefore utilised within this thesis as an investigative platform in which to base the aims and objectives of this thesis.

Research Aim:

The overarching research aim of this thesis is to explore the health, wellbeing and social development impacts which arise from involvement within community gardening activities.

Specific Objectives:

1. *To explore the extent to which individuals involved in community initiatives, arising from sustainable living objectives display enhanced levels of wellbeing from the following perspectives:*
 - a. *Subjective Wellbeing (SWB).*
 - b. *Direct Health.*

In addressing this first objective, this thesis will explore individual level impacts on health and wellbeing arising from participation within the community garden case study sites. Direct health in this thesis is considered individuals physical health such as body weight, fitness and being in good health.

From these results it will be possible to determine the impacts that the natural environment and the community garden as a social network provide in regards to fostering positive health outcomes. If positive health outcomes occur as a result of active participation within community gardens, this highlights the role

that both green space and social networks play in maintaining and enhancing health and wellbeing within individuals.

2. To identify how and in what ways social learning occurs as a result of participation within the community garden among different users.

This objective will identify social learning occurring as a result of participation within community gardens. Social learning is the occurrence of learning through the observation of and interaction with others (Kransy and Tidball, 2009b). This objective will help to provide understanding as to the occurrence of social learning impacts, as well as individual and community wide impacts which result from social learning. Here it may also be possible to identify inequalities within those who do not participate within the community gardens, and efforts to identify barriers to inclusion will be made within the research drawing insights on social justice issues faced within disadvantaged communities.

3. To explore the social capital impacts of community gardens on the surrounding community

This objective will explore the social capital impacts of the community garden on those participating in activities within the community garden and also the surrounding disadvantaged neighborhood. Social capital is defined as:

'Features of social organisation such as networks, norms, and social trust that facilitate coordination and cooperation for mutual benefit.' (Putnam, 1995 p67).

Additionally identification of the formation of community within the boundaries of the garden will be assessed within the data collection to provide insight into the potential of community gardens as a community enhancing infrastructure.

Community enhancing infrastructures through the transformation of a space into a place then it is possible that these results may contribute to debates on the

definition of a community and provide insight into sustainable infrastructures which could in turn act to inform policy and planning within urban areas.

4. To outline the opportunities and obstacles for this approach to community engagement.

Community gardens are largely dependent on volunteer engagement in order to prosper. If successful they have the potential to generate significant benefits to individuals and communities. The case study gardens however are not a grass root initiative built by local people, rather it is a charitable intervention targeting community involvement. As a result of this organisational structure it is expected that there may be impacts occurring on the day to day running of the garden.

This objective will identify both opportunities and obstacles encountered in order to help overcome limitations and increase the potential for opportunities from this community initiative to become realised. Through successful identification of these factors, recommendations can be made and steps taken to eliminate obstacles and promote opportunities. In doing so it will lead to the generation of maximised opportunities which in turn will result in the increased likelihood of introducing sustainable health promoting interventions within spatial planning and policy making.

These four objectives form the basis for the development of my research methodology and the discussion within the proceeding empirical chapters. I will now outline the thesis structure (Section 1.6).

1.6 Thesis Structure

This thesis will commence with literature reviews of the thesis topics, providing the reader with the context in which to situate the method and results chapters. This is delivered firstly within Chapter 2 which discusses the concept of wellbeing, its evolution and use as it relates to the aims and objectives of this

thesis. Chapter 3 reviews literature surrounding understandings of community, showing the contested notion of community and how it is defined across different disciplines. Here I reflect as to the role definitions of community may have on my research and results. Chapter 4 then provides the final literature review chapter which ties together the concepts of interest within this thesis, to provide an overview as to how both wellbeing and community link into green space, with particular emphasis on community garden literature.

Chapter 5 will then introduce the case study sites within this research, providing the reader greater clarity in the understanding of my methodology and reasoning for choosing such methods, which is described within the second part of Chapter 5.

This is then followed by the empirical evidence collected within the research, which has been separated into two chapters to ease the interpretation of results. In the first results chapter (Chapter 6), I identify individual impacts arising as a result of active participation within the community garden as specified within the aims and objectives 1 and 2. Chapter 7 then follows with results of community level impacts as specified within the research objective 3 and opportunities and obstacles faced by the community garden case study sites as in objective 4.

Chapter 8 then embarks on a discussion of the results with reference to existing intellectual debate as to the impacts of these findings. The thesis concludes in Chapter 9 in which I provide a succinct overview of the research findings, outlining my key intellectual findings and discussing the implications of these for policy and practice. Chapter 9 then goes on to outline the limitations of my research before finally identifying future research possibilities arising from this thesis.

Chapter 2 Wellbeing

This chapter introduces the reader to the concept of wellbeing in the context of this thesis. As outlined in Chapter 1 within the research aims and objectives, this thesis is concerned with investigating health and wellbeing impacts arising from participation within the community case study gardens. Reviewing existing literature, I use this chapter to provide a comprehensive analysis of the notion of wellbeing as a measure of progress and the ways in which wellbeing can be measured. During this review I consider limitations and benefits to the different methodologies with consideration to my research. Finally, I use this chapter to demonstrate how wellbeing measures will be utilised within my research process. A comprehensive outline of the chosen data collection methods will then be described in Chapter 5.

2.1 ‘The Good Life’

To provide some historical context to the topic of wellbeing this chapter will first review the concept of ‘the good life’ and how it relates to the aims and objectives of this thesis and the multiple perspectives of this subjective ideology (Pollard and Lee, 2003). Throughout history questions regarding the components of the good life have entertained scholars (Deiner and Suh, 1997), these are introduced below.

2.1.1 Philosophical Approaches to The Good Life

The Good Life, as defined by Bertrand Russell, is described as a life inspired by love and knowledge (Copson et al., 2014). The good life refers to the way in which individuals choose to live their life, what is important to them and the choices that they make. The quest for the good life includes questions such as: What is the best way to live? How should one treat others? What makes lives meaningful? These are subjective points, which have fluctuated over time causing debate.

Early Athenian philosophers such as Plato, Socrates and Aristotle provide some of the earliest literature surrounding the good life, which display stark contrast to

the affluent nature of Classical Ancient Greece. Aristotle is considered to be the first to introduce the idea of happiness as a science (Dodge et al., 2012). Happiness here is described as the central purpose of human life and a goal within itself. It is not considered to be gained or lost in a small period of time, but rather it is considered to be the cumulated value of happiness at the end of one's life. Happiness is considered to be made possible by the rational capacity of humans and the ability to reason and make choices that are good and virtuous, happiness is the activity of the soul which arises as a result of virtue (Reeve, 2014).

Happiness consists of achieving throughout the course of one's lifetime health, wealth, knowledge and friendship to result in an enriched life (Reeve, 2014). This is the result of living a certain way and making the choices that enable these outcomes. As times and values change in particular in the context of this thesis, the ways in which society values resources will change with time (Inglehart, 1997). This is consistent with these early philosophers, this will be explained in more detail in Chapters 3 and 4. Aristotle also draws on the importance of social networks in the creation of happiness, highlighting the value of friendships which are seen to occur as a result of the relationship between individuals whom display similar interests and values (Hyypä, 2010). This, as Chapter 3 will display, provides opportunities for the creation of communities of interest if the correct resources are in place, where these individuals can meet and connect (Kingsley and Townsend, 2006).

Happiness according to Aristotle, is achievable through establishment of "The Golden Mean", this is the balance between extremes of excess and deficiency to create a balanced life (Reeve, 2014). From this balancing act will arise an individual which is both good in character, happy and able to fulfil their potential and achieve happiness, which is considered to be the ultimate end goal of life. Happiness is said to arise from personal attributes that include physical and mental health and wellbeing (Deci, 2008).

Aristotle also recognises the role in which education plays in contributing towards the nurturing of happiness through the production of happy and

productive individuals (Reeve, 2014). Money, however according to these early Athenian philosophers, as with modern day philosophers such as Bertrand Russell and Gandhi, is not highly valued as a contributor to happiness. A wealthy state is not a healthy state, this refers to Plato's idea of economic minimisation that describes a healthy state as one that is a minimal state (Thompson, 2007). This is also referred to in spiritual hypothesis of the good life which is described below.

2.1.2 Spiritual Approaches to The Good Life

Elements of Aristotle's philosophies also occur within religious teachings, for example within Hinduism, happiness is achieved through two paths. The first is through living, achieving and the pleasure which arises from these processes. The second is the happiness that arises through God. To obtain both forms of happiness individuals must practise 'dharma', the practise of virtue. This in turn cleanses the mind, calms the senses and brings with it the opportunity to reflect and hypothesise (Nishpapananda 2010). In Buddhism the Middle Way is a teaching to describe a path of living that embraces moderation in order to live a good life and to avoid indulgent extremes. This teaching is consistent with Aristotle who draws on the importance of self-reflection and education to enable insight and enlightenment to achieve balance within one's life (Reeve, 2014), consistent with the idea of The Golden Mean as well as the Swedish notion of "lagom" meaning just enough (Robins, 2014).

Within Buddhism, as with the teachings of philosophers, money is low on the list of priorities in the creation of what we term the "good life". This is far removed from a society which assesses its progress according to GDP, and relates to the famous phrase of "Money does not buy you happiness", rather it can be considered a false refuge (Sandoval, 2008).

It would seem both spiritual and philosophical teachings support a good life as one that is not resource hungry and reliant on extensive wealth. Rather it is one which is created as a result of living a good and virtuous life with respect of others, while balancing the extremes, renounces excess and allows for learning and contemplation; if these goals are met over a lifetime then happiness will

prevail. With this in consideration, arising from environmental and resource pressures described within Chapter 1 and the mobilisation of communities, this has led to environmental movements which consider the good life. These are described below.

2.1.3 Environmental Approaches to The Good Life

If we consider the good life from an environmental perspective it leads us to question the role in which humans play within the natural environment. If individuals aspire to live the good life then surely engagement and respect with nature plays a role within securing the good life? This is perhaps best evidenced within the emergence of grass root sustainable initiatives in response to the adversities society finds itself in today (Adger et al, 2003) (See Chapter 1). This has led to a growing body of literature surrounding the field of environmental philosophy.

Environmental philosophy concerns itself with the value humans place on environmental resources and experiences, and how this varies across cultures. Reemerging as a major movement in the 1970s, environmental philosophy aimed to reconnect individuals, who had become alienated as a result of urbanisation and consumerism, with nature (Miller, 2005). This is also exemplified in distributism which aims to find a balance between capitalism and socialism. Within this is an emphasis on a back to the land approach whereby individuals produce their own produce. An example of this is the Deep Ecology Movement which recognises the value of wellbeing both within humans and other species which are impacted by biodiversity (Brennan and Lo, 2008). Within this it is identified that humans have no right to reduce the richness and diversity found within nature except to satisfy vital needs. It is recognised however that these impacts are occurring and it is the duty of individuals to prevent further degradation of the environment and the species within it emphasising the importance of ecological sustainability and its link with social sustainability (Berkes and Folke, 1998). Environmental citizenship is an example of these changes in values becoming engrained within individuals and communities. This occurs through the distancing of self as a result of lifestyle choices, seen in the move away from the instant gratification of the consumer

society which tends to predominate in modern day society, back to a less resource hungry philosophy removed from consumerism (Dobson, 2010) (further, discussed in Chapter 4).

This concept of the good life draws on minimal impact on the surrounding environment and calls for the preservation and promotion of the natural environment. This leads onto the following sub-section that describes the emergence of sustainable development (which includes ecologically sustainable development) and the relation of this to the good life.

2.1.4 Sustainable Development as Relates to The Good Life

Sustainable development as defined by WCED, (1987) is development that meets the needs of the present, without compromising the ability of future generations to meet their own needs. Agenda 21 (United Nations, 1992) is a widely exemplified milestone in the field of sustainable development. It is a voluntary action plan constructed by the UN that entails action agenda for sustainable design which can be executed at multiple levels by individual member governments. In 2012 the conference on sustainable development commitment to agenda 21 was reinforced in 'The Future We Want' with 180 countries signing the agreement. In 1990 Local Governments for Sustainability were founded (ICLEI⁸, 2015). Today membership consists of in excess of 1200 cities, towns and counties in 84 countries, within which members are provided within support and training in achieving and implementing sustainable design through knowledge sharing and capacity building. This is just one example of the recognition in which local communities and individuals can play in the formation and therefore success of sustainable design in attaining sustainability initiatives on local, national and global levels in an effective and cost effective manner (Middlemiss and Parrish, 2010).

If we consider sustainable development from the perspective of the good life it is conducive with the multiple hypotheses surrounding the good life as one that is virtuous, thoughtful, arises through education and contemplation and is a

⁸ ICLEI - Local Governments for Sustainability

result of balancing excess and deprivation. It is one that leaves minimal impact on the environment and social aspects of life, such as to prevent the widening of inequalities. It is a life that does not require excessive monetary worth, which supports the interest shown in moving away from GDP as a measure, using social indicators in the assessment of societies progress (Moran et al., 2008), (Section 2.4).

2.1.5 Politics and The Good Life

If we consider notions of the good life from a political stance then support for an egalitarian society surely prevails in its pursuit. If increased skill distribution, capacity and provision of equality is engendered with decentralisation of government power, with increased emphasis on personal responsibilities and encouragement of the third sector, increased power will be provided to individuals and communities resulting in greater personal and social resources. This, while contested across literature, provides support for the emergence of community led initiatives as exemplified within this thesis, and also lends support to recent Government policies (See Chapter 3) that recognise the role in which communities can play in sustainable development with greater responsibility being disseminated to the community level (H.M Government, 2005). These policies include, The Big Society (H.M Government, 2010b), Giving People More Power Over What Happens in Their Local Neighbourhood (H.M Government, 2012a), and The UK's Sustainable Development Strategy (DEFRA, 2005).

2.1.6 Summarising The Good Life

While different in their approaches to describing the good life, these disciplines have commonalities surrounding the descriptions of this concept and how the good life is obtained. These objectives are considered to tie in with sustainable living objectives. Therefore I propose that if individuals endeavour to implement some form of sustainable living into their lifestyles, or if incorporated into design the results will be evident in the form of enhanced wellbeing. The next section (2.2) introduces the reader to the concept of wellbeing in relation to the context of this thesis. Aspects of wellbeing identified within literature below include characteristics discussed above with consideration to the good life.

2.2 Defining Wellbeing

In recent years research into wellbeing has grown dramatically. Within reviewed literature it has become apparent that multiple definitions of wellbeing exist with no singularly recognised designation (Dodge et al., 2012). This is due to the complex, multi-faceted nature of wellbeing (Pollard and Lee, 2003) and the many research perspectives to which 'wellbeing' has relevance (Kahneman and Krueger, 2006). To set the context of defining wellbeing I provide a brief review of its emergence.

Within the early stages of wellbeing research two main approaches to defining wellbeing emerged, these are the hedonic and the eudemonic approaches. Hedonistic theorists draw on aspects such as happiness and life satisfaction, whereas the eudemonic concentrates on psychological functioning and human development (Dodge et al., 2012).

Happiness, the hedonistic approach, defines happiness as good versus bad, and pleasure versus pain within individual's daily lives (Deci and Ryan, 2008). The approach draws on an individual's life satisfaction, the experiences that they have when engaged in activities, and the emotions that arise from these (Diener, 2000). A state of positive wellbeing would be the result of high levels of positive emotions and low or infrequent occurrences of negative emotions; this can also be explained in terms of pleasure pain experiences (Ryan and Deci, 2001). Eudemonic happiness incorporates aspects such as virtue and positive action into the assessment. It can be considered to be a more thorough and in depth approach to assessing happiness (Dodge et al., 2012). This notion of happiness as providing wellbeing gives support to Aristotle's idea of happiness which he thought to be found by leading a virtuous life and realising your own potential.

2.2.1 'Acquiring' Wellbeing

Wellbeing is considered to be the result of a complex balancing act between pleasant and unpleasant affect (Diener and Suh, 1997), which relates to Aristotle's concept of The Golden Mean in the acquisition of the good life. The Government White Paper, (H.M Government, 2006) provides a lengthy

definition of wellbeing in which they attribute the attainment of positive wellbeing as a positive physical, mental and social state, which is influenced by individual's connections with others, where basic needs are met and individuals display a sense of purpose, fulfilment and are able to achieve important personal goals. Within this definition it is identified that wellbeing can be enhanced through positive health, strong social networks, employment as well as a healthy and attractive environment. Wellbeing is also determined by the personal resources in place within individuals which is a result of the personal capacity of individuals (Dodge et al., 2012). If these are in place then a positive level of wellbeing will prevail.

With consideration of these wellbeing definitions it can be deduced that wellbeing is a complex, multi-faceted concept which is likely to be variable both within and across individuals over time (Pollard and Lee, 2003). It is a dynamic and multidimensional process that results in evaluations and provides individuals with a feeling of how their life is progressing (Dodge et al., 2012). It encompasses many emotions which include happiness, self-worth, social standing, connectedness with others and anxiety (Pollard and Lee, 2003).

Wellbeing arises through positive physical and mental health, and the definitions of wellbeing reviewed within wider literature within this chapter consider both physical and mental aspects of health in contributing towards wellbeing (WHO, 2003). Physical health considers aspects of wellbeing that include components such as physical fitness, pain, discomfort, nutrition and absence from disease (U.S. Department of Health and Human Services, 2015). Considerations of mental health are included within the subjective components of wellbeing. These are reflected within emotions and actions of individuals such as confidence, pride, feelings of self-worth, playing a role within society, social connectedness (Dolan and Metcalfe, 2012) and relate with Maslow's Hierarchy of needs (Huitt, 2004).

To some extent wellbeing may be relative to context, culture and individual differences. For example, Shin and Johnson, (1978) describe wellbeing as a personal reflection of quality of life according to their own criteria. This is

reflected within the work of those who describe wellbeing as a personal assessment of how well life is going (Dolan et al., 2008). This therefore describes wellbeing as largely dependent upon personal goals and aspirations, and the ability as well as the personal importance of meeting these goals. If we consider this aspect of wellbeing then it is likely that community norms and societal expectations will also play a role in moulding perceptions of goals and values in regards to wellbeing (Dinnie et al., 2013) in terms of what individuals feel is required of them.

2.2.2 The Consequences of Differential Levels of Wellbeing

The social aspect of wellbeing is an important component to consider as it links the individual with the community. Mental and social aspects of wellbeing involve the capacity of individuals and their ability to cope with emotions and day to day stresses (Dodge et al., 2012). It includes feelings of self-worth, control of one's life events, as well as considering social connectedness both on a community and family level (Resnick et al., 1993). Those with enhanced wellbeing are thought to have increased personal resources and resilience (Jackson et al., 2007). Bradburn, (1969) provides one of the earliest academic papers into the concept of wellbeing within the context of individuals abilities to cope with everyday situations (positive verses negative emotions). Bradburn suggested that when positive affects dominate over negative (high levels of wellbeing) people are better equipped to cope with adversities or 'whole life stress'. This consists of work, home, children, migration and how these stresses and the above emotions and environments interact with each other and impact the happiness experienced on an individual level, between family members and within communities (ONS, 2011). This will provide them with a greater capability to respond to negative and difficult circumstances that may be experienced (Collier et al., 2013). These individuals will also have increased success in coping with negative events and display qualities that include better problem solving and communication skills (Kransy et al., 2009a; Clark, 2007). These positive wellbeing impacts will result in an increase in positive behaviours and outcomes in society (Schimmack, 2008). This positivity and resilience is argued to extend into the community and result in a stronger, more connected and increasingly social society (Peasgood, 2008). This links (as Chapter 4 will show) with community initiatives and enhanced health and wellbeing as a result of

active participation which acts to foster social capital and wellbeing impacts (Manzo and Devine-Wright, 2014).

2.2.3 Wellbeing Defined for this Thesis

Wellbeing comprises multiple entities (Kahneman and Krueger, 2006): the feeling of how well life is going, the ability to cope with adversity or change and physical and mental health (Ryff, 1989). These are likely to be a reflection of societal norms, personal resources and expectations. It is also something that is changeable over time, a fluctuating state rather than a static trait (Dodge et al., 2012).

For ease of understanding within this thesis I separate wellbeing into SWB and direct physical health impacts. These are described individually below in relation to the aims of my research:

- **SWB:** I will evaluate the presence of emotions connected to wellbeing in the form of happiness, pride, self-worth, confidence, skills, knowledge and a sense of belonging. Social connectedness to others will also be evaluated when assessing SWB impacts.
- **Direct Physical Health:** This is concerned with identifying physical health impacts as a result of active participation within the community gardens. These will take the form of observations and self-reports regarding health, fitness and body weight as well as nutritional impacts arising from involvement with the community gardens.

It is important to note that SWB and direct physical health are not independent and impact upon one will likely effect the other. For example the presence of stress within an individual's life history can contribute towards chronic illness (Vanitallie, 2002). Therefore if the components of wellbeing can effectively be identified it provides preventative health opportunities to become realised and incorporated into policy and planning for better health (Anderson et al., 2014). This is reflected within the Governments' 2010 health strategy; 'Healthy lives, Healthy People: Our Strategy for Public Health in England' (H.M Government, 2010a). In this document it recognises the need to change individual lifestyles in

order to promote health opportunities. This paper also recognises the way in which these wellbeing factors will vary both within and across communities. Impacts associated with positive health and wellbeing at a policy level are considered to include social and economic benefits to society becoming realised, which in turn is likely to result in increasingly sustainable policies becoming implemented if designed at the local level (Anderson et al., 2014).

The definition of health provided by WHO clearly shows the recognised importance of wellbeing in terms of the overall health of individuals.

"Health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity."(WHO, 2003, no page).

Therefore, research into the identification of health and wellbeing impacts will provide health opportunities becoming realised within individuals and across communities (Anderson et al., 2014). I will now discuss how wellbeing measures can be measured with reference to the aims and objectives of this thesis within Chapter 1.

2.3 Measuring Wellbeing

If wellbeing is to inform policy, assess progress and success, then the accurate measurement of wellbeing becomes paramount in ensuring true representation of impacts are obtained. Choosing what approach to implement when assessing wellbeing requires careful consideration (Dolan et al., 2011). Researchers should be aware of the different approaches available and make informed decisions as to the best approach to use. Statistics do not always paint an accurate description of impacts, this is relevant when considering the definition of how wellbeing relates to emotional experiences and social connections (Kahneman and Kruger, 2006). Qualitative lines of enquiry are often advocated as a method to draw insight into complex humanistic research (Pope and Mays, 1995), highlighting the value of qualitative approaches to measure wellbeing. This is discussed further in Chapter 5.

Life Satisfaction (LS), the degree to which individuals feel their life is going (Headey et al., 1993) is also utilised as a measure within wellbeing research, this is considered to be a rather simplistic approach (Diener and Shu, 1997). Diener et al., (1985) describes LS as a component contributing to wellbeing rather than being an alternative to wellbeing; moreover “wellbeing”, as a term for the overall field, has more positive valence than satisfaction (Hiscock, 2014). LS assess how satisfied individuals feel, either about how well their life overall or about specific aspects of their life (Diener et al., 2003). Thus LS is subjective (as it involves feelings) but can be confused with being objective if specific domains are asked about (e.g. their work). It could be said the LS is on the pathway between objective and subjective wellbeing (Hiscock, 2014). Wellbeing however is a more in depth analysis which will allow for insight and information on both objective and subjective factors surrounding LS. Thus LS, while providing an added window into what is going, either well or badly in individuals lives as experienced first-hand by individuals, is limited and other subjective and objective measures are needed to inform policy.

Quality of Life (QOL) is an alternative measure to wellbeing used within research (Galloway et al., 2005). QOL encompasses a broad range of objective and subjective components but leans towards the more objective assessment of wellbeing (Diener and Suh, 1997). However, with the current academic and political interest surrounding wellbeing as a measure, I anticipate that wellbeing will continue to grow and prevail as a more established method in impact assessments, planning and policy decision making, influencing my decision as what to utilise as a measure within this thesis. As well as this factor, QOL is a quantitative measure which in regards to measuring wellbeing is problematic (Kahneman and Krueger, 2006). With increasing interest in subjective wellbeing from policy makers and researchers, the Report of the Commission on the Measurement of Economic and Social Progress (Stiglitz et al., 2009) recommend the collection of subjective wellbeing data by national statistical agencies. As a result of this there has been a growing use of quantitative measures in obtaining wellbeing data, and a move away from traditional ideas

that quantitative measures are incompatible with wellbeing (OECD,⁹ 2013). The increase in the use of quantitative measurements of wellbeing has encountered difficulties, one of which is a result of inconsistency across quantitative frameworks for measuring subjective wellbeing (Bell, 2005). Currently there is no consistent set of guidelines for national statistical agencies drawing on this research. This raises a requirement for data to be collected in a consistent manner to enable comparison of statistics and a framework of best practice to be created to eliminate this issue (Dodge et al., 2012). Another criticism of utilising quantitative measurements for wellbeing assessment is that the methods are insufficient to fully appreciate the in depth and complex nature of wellbeing that qualitative measures are capable of (Pope and Mays, 1995). This will be explained in more detail in Chapter 5.

With consideration to these factors I have chosen wellbeing as a key measure to focus on within this research, and propose a mix of qualitative methods, which will be utilised to identify objective and subjective wellbeing impacts (more details in Chapter 5). The prolonged duration of some qualitative methodologies such as participant observation, consider the impact of current intellectual debate surrounding the concept of self-reflection concerning wellbeing impacts (Schacter et al., 2008). These are important considerations when designing and conducting wellbeing research as the process of investigation cannot be limited to one time reflective lines of enquiry. Rather, there is a need for an increasingly immersed and prolonged methodology that allows interactions, fluctuations, impartial observations as well as self-reflections and discussions to be included within the research process (Pink, 2009). Research into wellbeing carried out in real time allows for the advantage of reducing the filter which the human memory may place on memories (Kahneman and Krueger, 2006). Individuals are increasingly likely to remember major life events over everyday emotions (Diener et al., 2003), making the emotions remembered perhaps misleading rather than a true reflection of actual wellbeing over time. Therefore, the use of real time and prolonged observations within the study of wellbeing is valuable in allowing the full scope of impacts to become apparent. This will allow for wellbeing's multi-faceted, subjective and

⁹ OECD The Organisation for Economic Co-operation and Development

variable nature being catered for in research design, allowing accurate and true representations to be captured (Pollard and Lee, 2003).

2.4 Wellbeing and Public Policy

Wellbeing, over the past decade, has become more prominent within policy design and used as a measurement of policy success and progress both in health and spatial planning (Anderson et al., 2014). There has been an observable shift in the measurement of progress to incorporate communities, wellbeing and social capital impacts away from traditional measures of GDP and considers other aspects of sustainability in terms of health, social and ecological considerations (HPI, 2014).

As a result of consideration of climate change and the consequent need to reduce consumption of fossil fuels (Brangwyn and Hopkins, 2008) (see Chapter 4), there is a recognition of the need to live increasingly sustainable lifestyles. These lifestyles are less resource hungry, and as a result are not conducive with the use of GDP as a measure (Moran et al., 2008), as increases in GDP are often lead by increases in fossil fuels. As a result of this development there has been (both nationally and internationally) a growing awareness and development of wellbeing indices as a measure of progress that are removed from GDP. This trend is occurring on a global scale, and well known examples include Bhutan, Canada and New Zealand who have implemented widely publicised measures of Wellbeing in their assessment of societal progress (as outlined within Chapter 1). There has also been an emergence of collaborative platforms and multinational projects arising from research in this area, resulting in effective information sharing and collaborative research between countries. The Intergovernmental Organisation for Economic Development, created in 2007, is an example of an international effort to measure the progress of societies by focusing on wellbeing initiatives. The UK is carving a similar pathway to other countries in regards to recognising the importance of wellbeing. The Coalition Government's 2010 Budget Report recognises the role in which wellbeing can contribute towards health in their commitment to develop broader indicators of wellbeing and sustainability. The ONS reflects this thinking

within their recommendations for wellbeing measures taken with reference to the Stiglitz Commission, (2009), highlighting the emerging recognition of the importance of SWB measures within policy design and evaluation.

“Research has shown that it is possible to collect meaningful and reliable data on subjective as well as objective well-being. Subjective well-being encompasses different aspects (cognitive evaluations of one’s life, happiness, satisfaction, positive emotions such as joy and pride, and negative emotions such as pain and worry): each of them should be measured separately to derive a more comprehensive appreciation of people’s lives... [SWB] should be included in larger-scale surveys undertaken by official statistical offices.” (Dolan et al, 2011, p3).

The UK Government’s Sustainable Development Strategy ‘Securing the Future’ describes sustainable development as enabling all people throughout the world to satisfy their basic needs and to enjoy a better quality of life, and to do this without compromising the quality of life for future generations. Sustainable development is concerned with creating a just society that promotes sustainable communities, enhances personal wellbeing and creates a feeling of social inclusion (H.M Government, 2005). The government is committed to:

“Protecting the population from serious health threats; helping people live longer, healthier and more fulfilling lives; and improving the health of the poorest, fastest” (Dolan et al., 2011, p.3).

In response to Rio +20 (United Nations Conference of Sustainable Development) the government launched a consultation on sustainable indicators that will be used alongside national wellbeing measures in the aim of moving beyond GDP to assess progress towards a sustainable economy, society and environment (ONS, 2014a). Recently the government’s stance and use of wellbeing and sustainability indicators has become diluted with the recent publication by the ONS that reaffirms the importance of GDP as a measure of

societal progress (Kahn and Calver, 2014). This is also reflected within EU climate change posts becoming merged with energy posts, raising concerns as to the favour likely to be directed towards energy interests over climate which in turn will likely propel GDP as a major player in the assessment of societies progress (Herrero and Knaepen, 2014). However, with consideration to existing literature and policies that are created with the consideration of wellbeing, impacts on the population are shown to be more robust, long lived and therefore sustainable leading to increasingly effective, longer living policies (Woodcraft, 2012). Wellbeing measures could provide an efficient pathway to meet these aspirations through the use of increasingly targeted research and policies at a community level, which could then be incorporated into planning and design for better health (Anderson et al., 2014).

As described within Section 2.3 the ONS has compiled a range of measures from which to measure society's wellbeing. These are taken from the 2010-2011 debate "What Matters to You?" First published in 2012, these are updated every 6 months with the most recent one published in March 2014. In addition, UK researchers are involved in independent, non-government projects exploring and monitoring wellbeing. The New Economics Foundation (NEF), founded in 1986, is an independent think tank aimed at improving quality of life through the promotion of innovative solutions that are removed from mainstream ways of thinking about economic, environmental and social issues. They are unique in their approach and their solutions to issues are designed with assistance from the grass roots level. NEF are concerned with the importance of creating new ways of measuring progress towards increased wellbeing and environmental sustainability. One of these is the National Accounts of Wellbeing which aims to change what nations understand and regard as success, and to bring about change in the way societies shape the lives of their citizens through the inclusion of wellbeing measures in the development of international, national and local government' policies. This project currently has 22 nations participating in it (NEF, 2009). NEF's research, using their quantitative measure of wellbeing, indicates that high levels of resource consumption do not reliably produce high levels of wellbeing, and that it is possible to produce high wellbeing without excessive resource consumption (HPI, 2014). HPI has also shown that there are different routes to achieving wellbeing and that in a lot of cases there will be

costs and benefits arising from these that need to be considered in order to achieve sustainable wellbeing across a society, thus again emphasising its importance in policy considerations. Therefore, wellbeing measures have been found to be useful when assessing policy implications, helping to understand the local needs of a community in order to track policy progress and provide on-going measurements of the outcomes (Dolan and Metcalf, 2012).

This consideration of wellbeing in policy monitoring and evaluation allows for a wider impact analysis (Dolan et al., 2011). It provides the investigator with increased scope to consider what is beneficial to the individuals or communities impacted. It informs policymakers about how policies can be used to enhance lives both individually and on a community level if implemented in the correct manner (Dolan and Peasgood, 2008). This increased communication and engagement between national governments and the public provides opportunities for governments to reconnect with communities and individuals, which should in turn result in increased wellbeing of the population, as well as policies that are more sustainable in the long run (Constanza et al., 2009; Dolan and Peasgood 2008). The emerging interest is evidenced in the recognition of the role wellbeing can play in regards to spatial planning in fostering positive wellbeing and health for sustainable communities. This is reflected within the 2014 National Planning Practice Guidance and 2012 guidance “Reuniting Health with Planning”, which aims to better understand the link between health and development to ensure wellbeing impacts are considered within neighbourhood planning and decision making (Anderson et al., 2014; Tzoulas et al., 2007).

It is hoped that the results of this thesis will contribute to this knowledge base through the identification of health and wellbeing impacts arising from participation within the community garden case studies. In identifying benefits associated with place based infrastructure it will contribute towards the creation of increasingly sustainable policies through the recognition of the importance wellbeing in sustainable policy design.

2.5 Conclusion

This chapter has provided the reader with a comprehensive understanding of the concept of wellbeing, providing insight into its components. As shown within the reviewed literature, wellbeing is a complex multifaceted variable (Pollard and Lee, 2003). It is comprised of both subjective and objective components (WHO, 2003) and is likely to fluctuate between individuals and over time (Dolan et al., 2011). The social aspect of wellbeing is an important consideration and may result in the design of increasingly sustainable and long-lived policies (Anderson et al., 2014). This is gaining prominence within literature as the traditional measures of progress in the form of GDP is increasingly recognised as outdated in reference to the current economic and environmental concerns society faces today (Constanza et al., 2009). This chapter has also discussed recognised wellbeing measures and considered the different pathways to assessing wellbeing. From these measures it has been decided that a fully immersive qualitative approach to data collection will be required to gain the full insight into wellbeing impacts occurring in order to provide a rich description and reduce biases which are at risk of occurring (Pope and Mays, 1995).

The following chapter aims to develop the context of this thesis further through the consideration of the concept of community. Within chapter 3 it will become evident that wellbeing and community are inextricably linked, with mutually reinforcing impacts becoming evident throughout the review. Chapters 2 and 3 are subsequently tied together within the final literature review (Chapter 4) in which I introduce the concept of green space, grass root initiatives and sustainability in relation to health, wellbeing, social development on an individual and community level, and the implications of these impacts for planning and health.

Chapter 3 Geographical Understandings of Community

The aim of Chapter 3 is to provide a critical review of the idea of community as it relates to this thesis (as described within Chapter 1 Aims and Introduction). When seeking to explain the notion of community there is no single accepted definition in existence. Within this chapter I set out to critically explore the definition of community as it exists within literature and how it is anticipated to impact my research. This chapter will show that defining communities is a complex, much debated task, and will therefore review the perceived issues of applying definitions of community when undertaking research, considering the anticipated impacts associated with those definitions.

3.1 Defining Community

Put most simply, community can be defined as:

‘A group of people living in the same place or having a particular characteristic in common.’ (Oxford Dictionary, 2013, no page).

The following section will explore definitions further to provide the reader with a clear understanding of community as it relates to my thesis. In order to define community as it is understood within academic circles I will provide some history regarding the concept of community. It is imperative to determine what is meant when using this terminology because the way that community is defined impacts upon the data obtained, research perspective and research boundaries (Haynes et al., 2007).

Within the field of social sciences, the definition of community received little attention until about 1910; it was 1915 when Galpin coined the first definition of community in terms of trade and boundaries within rural areas (Harper and Dunham, 1959). Since then numerous definitions of community have been published, with initial definitions of community associated with spatial

boundaries. Within this, a defined area (community) exists which includes a spatial proximity that is not shared with those outside of the community, being unique to those within it (Poland and Mare, 2005). Since these early characterisations the definition of community has evolved to include social components such as personal interest, work, religion and so forth, which is referred to as a community of interest (Amin and Roberts, 2008; Clark, 2007). With the emergence of new technologies and transport links the concept of community has evolved further as spatial boundaries are eliminated (Wellman et al., 1996). This in its own right has impacted the definition of community as we know it today.

When identifying communities it is likely that there may be an element of each thread present, both spatial and interest, and it is recognised that they are often intertwined and difficult to separate (Manzo and Perkins, 2006). I will now explore these concepts in increased detail.

The WHO define community as:

“A group of people, often living in a defined geographical area, who may share a common culture, values and norms, and are arranged in a social structure according to relationships which the community has developed over a period of time. Members of a community gain their personal and social identity by sharing common beliefs, values and norms which have been developed by the community in the past and may be modified in the future. They exhibit some awareness of their identity as a group, and share common needs and a commitment to meeting them.” (WHO, 2004, p16).

This definition takes note of the spatial element of community but with the term “often” does not limit the definition of community as one that must exist within a geographic location. It is likely that there will be a location associated with community, for example a town, a housing estate, or a recreational centre. However, as mentioned previously, it may be that other communities exist,

which may be based virtually or physically (Wellman and Gulia, 1999). Within this definition there is a powerful emphasis on the role of social networks in establishing community. If this definition is accepted it can be understood that through the sharing of common interests, values and norms it is likely that a social structure will become characterised within the community (Putnam, 2000). It may be that individuals are present within the spatial area but not active or included in the social network, this will cause these individuals to form a different perception of community and perhaps even become excluded from it (Cortis et al., 2009). This is covered in more detail in Section 3.2.

MacQueen et al., (2001, p192) definition of community reflects these characteristics also. This paper defines community as:

“A group of people with diverse characteristics who are linked by social ties, share common perspectives, and engage in joint action in geographical locations or settings.”

As a result of the shared perspectives, values and joint actions it is likely that a community will establish a unique identity and participate in mutually beneficial activities within and for the community (Manzo and Perkins, 2006). Here I emphasise the use of “joint action” within this definition as instrumental to community. Being active and playing a role within a community (as Section 3.4 will show) is likely to result in strengthened communities through place attachment and social inclusion (Manzo and Devine-Wright, 2014). This highlights potential opportunities for community building infrastructures to be incorporated into planning in the form of place based initiatives such as community gardens (Tzoulas et al., 2007). These infrastructures are those which act to draw together individuals around a common interest enhancing social bonds between individuals through collective actions. Through this process of inclusion and adherence to social norms, there will be exclusion of those who do not conform and share these norms (Kuutma, 2007) which will bring with it wellbeing impacts (Crow and Mah, 2012) (further discussed in Section 3.2). These infrastructures are seen to be exemplified in community

gardening (Kingsley and Townsend, 2006) and can also be utilised to bring existing communities together (Kambites and Owen, 2006).

Communities may also be free from physical boundaries such as seen in an online forum (Wellman et al., 1996) or with a sporting activity that occurs in multiple and varying locations. Incorporating social factors into the definition of community allows for a less static approach, enabling geographic separation and the human nature of individuals as they move and think. This allows for mobile communities to exist. It is therefore effective in recognising the complex social and fluid spatial aspects that are characterised within communities (Amin and Roberts, 2008). This also considers the possibility for communities to span vast geographical areas (Clark, 2007).

The emergence and progression of virtual technologies has allowed for the expansion of community involvement; minimising boundaries and allowing for simultaneous participation from multiple geographic locations (Wellman et al., 1996). The use of online collaborative platforms allow for communities of interest to develop, the sharing of information to occur and social support for those who are unable to physically participate (Wellman and Gulia, 1999). This concept of community also enables individuals to participate not only remotely but anomalously (Wellman et al., 1996). While out of the anticipated remit of this thesis it provides an interesting debate as to the social impacts associated with virtual communities (Driskell and Lyon, 2002; Wellman et al., 1996; Wellman and Gulia, 1999). Virtual communities may also be utilised to provide support platforms for local communities by providing forums and information sharing targeted at a local level, thus enhancing physical communities. This provides the possibility to strengthen local communities and increase social capital impacts as a result of increased access to and sharing of information (Stern et al., 2011).

Community scale will therefore become altered as a result of new technologies as boundaries become minimised and information sharing becomes greater. This provides the opportunity for increased political participation and civic engagement in remote or isolated areas (Wellman and Gulia, 1999), as well as

providing increased opportunity for global networking to occur. This is reflective of the concept of “cosmopolisation” where the notion of community has evolved from a static definition to exclude proximity and distance issues (Delanty, 2003). The emergence of global community as relevant within this thesis creates support for a “think globally, act locally” mantra. This is relevant within the scope of the thesis as the process of sustainable living and environmental concerns of a changing climate are driving forward community led sustainable initiatives (Brangwyn and Hopkins, 2008). This may result in increased networking opportunities on a global scale (Hopwood et al., 2005). This provides opportunity to create links across individuals and communities who share a common interest globally may create a “small world”, which greatly engorges the traditional spatial scale of community. This is far removed from the traditional romanticised spatial idea of community (Delanty, 2003) and raises concerns over the impact this form of community may provide in relation to social capital impacts (Clark, 2007). This will be discussed in more detail later on in the chapter. Sub-communities may also be present within communities, identification of which may result in multiple communities within one location becoming apparent (Blondel et al., 2008). This is reflective of the notion of communities of interest. Individuals may therefore be part of more than one community as a result of different social and professional networks, highlighting the role of both place and interest in the formation of community. This leads me to conclude this section with a reflection on my interpretation of community.

Therefore, it can be summarised that communities will form as a result of the collation of multiple individuals who have “something in common”. Communities will exist around a common entity, be this space or interest or both. It involves interaction between members, the degree to which will be reflected within the strength of community displayed within the social capital evident (See section 3.4). Communities will resultantly display characteristics associated with social interactions, interests and activities which will result in shared norms or values arising within these communities and provide opportunities for inclusion and exclusion to occur.

3.2 Contested Notions of Community

The notion of community has been studied from numerous disciplines and more recently within interdisciplinary research, a result of which has led to no singularly recognised definition of community, rather community has become a contested concept (Jewkes and Murcott, 1996). A review of conceptualisations of community carried out by Crow and Mah (2012) draws reference to the occurrence that many researchers shy away from the word community, preferring to use other concepts such as neighbourhood, networks, locality, friendship, belonging or town for example. This multi-disciplinary approach has resulted in a rich information base and is reflected in the wide range of quantitative, qualitative and mixed method approaches. Therefore, while providing debate, the sum of knowledge surrounding this concept is vast and rich, which brings with it an opportunity to combine these disciplinary approaches to further enhance research prospects.

The process of defining community simultaneously brings with it the process of inclusion and exclusion. Community refers to social cohesion, shared values, proximity and affiliation; however by default it also implies the notion of exclusion and contestation (Kuutma, 2007). Social exclusion is the process whereby individuals or groups are partially or fully excluded from participating within the society in which they reside (Rawal, 2008). How communities are defined results in associated problems which are recognised as the “darker” side of community, as places of exclusion, disadvantage, oppression and inequalities (Crow and Mah, 2012). As a result of this the term, community is often used cautiously within research, in contrast to this it is often loaded within policy as seen within health, crime, welfare, community resilience and social exclusion (Crow and Mah, 2012). The choice as to how community is defined, and the use of which, can have substantial repercussions politically, socially and economically (Wenger, 2000). For example, identification of a community based upon its social constituents can result in a clear group identity arising, which can produce both positive and negative impacts. If we consider religious conflict, i.e. those who share different beliefs may be automatically excluded from the community, this in turn will result in socially constructed exclusion (Hardin Williams, 2005). The group identity arising from a segregated

community with strong beliefs and values may result in conflict with other neighbouring communities with differing values and socially acceptable behaviours. Conflict may arise as a result of misunderstanding, misinterpretation and fear of the unknown. If we consider the conflict between the Shias and Sunnies, whereby different branches of Muslim have evolved and bring with it conflict based upon different values and social constraints which are reinforced by strongly held beliefs and norms (Sökefeld, 1999). While this is a broad scale example it is mirrored within other social disparities of different social groups and cultures.

Communities may result in successful collective action for the common good of the community, however this may be harmful to others outside of the community (Hardin Williams, 2005). Simply because individuals reside within a spatial boundary does not automatically include them within the community. Considering grass root sustainable living initiatives as an example, the collective action of a group of individuals in pursuit of the good life is often formed from middle class individuals. Those who are excluded from this community constructed around living objectives and socially accepted norms and values may experience reduced wellbeing as a result of exclusion. Often these are the increasingly disadvantaged members of a community, reinforcing inequalities (Rahman, 2004). Social exclusion as a result of community can therefore act to reinforce social deprivation and widen the inequality gap.

Defining the boundaries of community has reached new dimensions as a result of innovative technologies, resulting in engorged opportunities for social networking and mobility (Crow and Mah, 2012). Debates surrounding these emerging communities are vast (Driskell and Lyon, 2002; Wellman and Gulia, 1999; Wellman et al., 1996).

3.3 Community within the Context of this Research

Within this research I explored community from multiple perspectives. It is hypothesised, with consideration to the reviewed literature, that the community

garden case study sites will act as a spatial loci in which individuals will become involved through a shared interest. This therefore draws on both the spatial and social elements of community reviewed above. I define community within this thesis as one which will incorporate both interest and a shared geographical location within which this place based activity of gardening is located.

The emphasis on communities and the role in which they play is reflected within Government agenda's which draws attention to the role of third sector organisations. The emphasis on the third sector approach in the widely publicised 'Big Society' (2010) lends support to the need to correctly identify and thus mobilise communities into action in an effective manner; this has since expanded into a wider drive to encourage social action. There is an emphasis to encourage and enable communities to have more input in what happens in their local area. Compact, a quango launched in 2010 was set up to enhance the working relationship between the government and the voluntary and community sector. The Giving White Paper, 2010 outlines government strategy to encourage social action, setting out a strategy to encourage people to volunteer (H.M. Government, 2010b). Through the Social Action Fund support is provided to organisations such as the Citizenship Foundation in order to help promote and encourage social action. The 2012 policy 'Giving People More Power Over What happens In Their Community' (H.M Government, 2012b) includes a number of approaches to enable this to become realised. The 'Community Right to Reclaim Land' is an example of empowering local communities. This policy enables communities to apply to reclaim unused land owned by public bodies for community purposes. The introduction of new neighbourhood planning measures allows communities to shape novel developments in their neighbourhood by contributing towards town planning by expressing what they need, where they want it and how it should be built, for example housing estates and shops. The 'Right to Challenge' allows community and voluntary groups more rights and the ability to bid to run local activities where they believe they can do better than the local authorities. The 'Our Place! Programme' sets out to provide communities with the opportunity to take control of local issues and decision making. 'Design Support for Communities' has also been set up to encourage developers and communities to work together so communities can influence local design. For these policies to be useful it is necessary to identify

communities that can benefit from them. Community gardens provide an example of a place based initiative which promotes community action on disused land that has been reclaimed and utilised collectively within a community. Therefore this study may provide insights into the benefits and pitfalls of social action and community empowerment encouraged at a government level.

Defining boundaries within communities is a concern as stated previously. Within literature various methods and applications exist ranging from simple processes to complex multifaceted analysis (Drackley et al., 2011). Within my research I focus upon case study gardens and therefore base my community within this area initially. If activities are undertaken outside of the garden, then it may be that the boundaries of my community will alter. I as the researcher will be aware of the fluid nature of community and allow for this within my data collection and research focus. Within the exploratory scope of this thesis I set to identify the impacts arising out of active participation within the community gardens as well as the community wide effects. The individual impacts will be imperative to providing insight into the community effects. Coles and Knowels, (2001), p11 state that:

'Clusters of individual lives make up communities, societies and cultures. To understand some of the complexities, complications and confusions within the life of just one member of a community is to gain insights into the collective'

It is likely that individual impacts will be variable across communities as with wellbeing impacts identified in Chapter 2. This is likely to be a result of place attachment impacts which define emotional connections to place (Manzo and Devine-Wright, 2014). The following Section (3.4) will review place attachment literature to develop the understanding of the varying effects individuals will experience according to the emotional bonds and the values they place within and towards their communities. This in turn will result in impacts upon the social structures in effect and in the formation of social capital which will then in turn be discussed (Section 3.5).

3.4 Place Attachment

Within the exploratory scope of this thesis I set out to determine the health, wellbeing and social development impacts associated with participation with the community garden case studies. Participation implies engagement and attachment to an area, this emotional connection to a place has been termed 'place attachment' (Manzo and Perkins, 2006). If we consider definitions of wellbeing as the balance of positive and negative emotions (Dodge et al., 2012), then it seems that place attachment is likely to impact wellbeing. The impact of place attachment on individuals within this research is therefore anticipated to play a role in sculpting the health and wellbeing impacts realised within my study participants. If as well we consider the definition of community as one which includes the social interactions, values, norms and shared experiences occurring within an area then it is likely place attachment will also impact formation of and individual perceptions of community:

"[Place attachment] involves positively experienced bonds, sometimes occurring without awareness, that are developed overtime from the behavioural, affective, and cognitive ties between individuals and/or groups and their sociophysical environment. These bonds provide a framework for both individual and community aspects of identity and have both stabilising and dynamic features." (Brown and Perkins, 1992, p284).

Place attachment draws on aspects and supports the definition of community as one of more than spatial proximity including social factors such as interests, familiarity and so on (WHO, 2004). Individuals will be increasingly attached to areas if there is an emotional bond between them and the place they are immersed within (Manzo and Devine-Wright, 2014). The relationship between people and place has developed, gaining momentum and importance within research since the 1970s when it was originally referred to as the concept of 'topophilia' (Devine-Wright, 2012). Repeated active participation and the adoption of the role of gardener is likely to form these emotional bonds within participants (Scannell and Gifford, 2010; Manzo and Perkins, 2006). A result of

these emotional bonds will also be evident in social capital impacts (see Section 3.5). This thesis will therefore identify occurrences of place attachment and the role it plays within the community gardening site and surrounding neighbourhood. It is hypothesised from the reviewed literature that it is likely there will be increased place attachment evident within the volunteers who regularly attend the garden through active participation and engagement within the garden space (Manzo and Devine-Wright, 2014). These impacts are likely to be evidenced within the social capital and wellbeing impacts displayed within individuals participating within the community garden (Davies et al., 2014; Hawkins et al., 2013; Macmillian 2012; Comstock et al., 2010; Wakefield et al., 2007) and likely to differ across individuals and temporally within individuals (Dolan and Metcalfe, 2012).

Individuals who display higher levels of place attachment have been shown to display a sense of community within their ethos and are increasingly likely to exhibit proactive behaviours (Manzo and Devine-Wright, 2014). This will collate into community action and increases community cohesion (Manzo, 2003). These psychological ties have therefore converted what was initially a “space” into “place”, to become a meaningful environment (Scannell and Gifford, 2010), bringing with it emotional ties that expand individuals personal resources and community capacity in the form of social capital. It is argued that voluntary actions on climate change may be fostered by increased attachment to place (Devine-Wright, 2012). This will also be impacted by place identity which is described as encompassing the personal and social aspects of self (Rubinstein and Parmelee, 1992), which are likely to increase through participation in a place based initiative and the resulting emotional bonds and social development (Manzo and Devine-Wright, 2014).

If we consider the collective place attachment as likely to form within a group activity such as community gardening (Wakefield et al., 2007) then we have community wide impacts in existence forming out of this collective place attachment. If collectively individuals are attached to place it is likely that social norms and values will become apparent within the network of individuals which form this community (Dumreicher and Kolb, 2008). Arising out of this attachment and shared norms will be the strengthened experience of

community, evident in enhanced social capital (Putnam, 2000). If a community displays these characteristics of collective place attachment then it is likely they will be increasingly cohesive, empowered, resilient and healthier (Brown et al., 2003). These communities will also be likely to be perceived as safer, further increasing positive bonds with place (Groenewegen et al., 2006). Through the sharing of interests, concerns and history as a result of place attachment it is likely that sense of community experienced within individuals will increase as a result (Manzo and Devine-Wright 2014; Manzo and Perkins, 2006). Place attachment research therefore is valuable in assessing how individuals and communities respond to environmental changes that directly affect them (Devine-Wright, 2012). Place attachment research is also likely to yield insights as how to best convey climate change messages (Scannell and Gifford, 2010).

The community wide and individual impacts arising out of attachment to place can be identified within the social capital impacts exhibited. These are discussed in further detail below (Section 3.5).

3.5 Social Capital

Social capital is a topic which has received increased attention with policy makers in recent years (Adler and Kwon, 2002) as related to wellbeing. As a concept it is gaining influence within the field of health science, urban and regional studies, social policy, business studies, and social and economic geography as well as history. Currently there are multiple definitions in circulation of which vary according to the discipline from which they are studied.

Social capital can be understood as:

“The good will that is engendered by the fabric of social relations and that can be mobilised to facilitate action.” (Adler and Kwoon, 2002, p17).

Social capital is different from physical capital which consists of individuals and physical objects to concentrate on connections between individuals, these being social networks and the norms and values which arise from them (Putnam, 2000). Box 3.1 below shows a collection of definitions within current literature reviewed within this thesis.

'An individual's personal network and elite institutional affiliations'	Belliveau et al., 1996, p1572
'Made up of social obligations ('connections'), which is convertible, in certain conditions, into economic capital and may be institutionalized in the form of a title of nobility'	Bourdieu 1985, p248.
'The sum of the resources, actual or virtual, that accrue to an individual or a group by virtue of possessing a durable network of more or less institutionalized relationships of mutual acquaintance and recognition'	Bourdieu and Wacquant, 1992, p119
'The web of cooperative relationships between citizens that facilitate resolution of collective action problems'	Brehm and Rahn, 1997, p999
'Social capital is defined by its function. It is not a single entity, but a variety of different entities having two characteristics in common: They all consist of some aspect of social structure, and they facilitate certain actions of individuals who are within the structure'	Coleman, 1990, p302
'A culture of trust and tolerance, in which extensive networks of voluntary associations emerge'	Inglehart, 1997, p188
'Features of social organization such as networks, norms, and social trust that facilitate coordination and cooperation for mutual benefit'	Putnam, 1995, p67
'The sum of the actual and potential resources embedded within, available through, and derived from the network of relationships possessed by an individual or social unit. Social capital thus comprises both the network and the assets that may be mobilized through that network'	Nahapiet and Ghoshal, 1998, p243
'The web of social relationships that influences individual behaviour and thereby affects economic growth'	Pennar, 1997, p154

Box 3.1 Definitions of Social Capital

Definitions draw on common elements such as relationships between individuals, rules, norms and perceptions, and how these impact the experiences and personal resources of those involved within the community. Within the definition of social capital I draw reference to Putnam's definition of social capital.

'Features of social organization such as networks, norms, and social trust that facilitate coordination and cooperation for mutual benefit.' (Putnam, 1995, p67).

Social capital can be seen to relate to the concept of civic virtue whereby through the cultivation of habits and norms successful communities are cultivated. Social capital draws on the idea that civic virtue is most powerful when embedded within a social network: a society may exist which incorporates many isolated virtuous individuals but they may not necessarily be rich in social capital. The interactions which occur between individuals can be seen as the building blocks of community (Kingsley and Townsend, 2006). Communities which display evidence of social capital will consist of empowered individuals within the community who are connected to each other whilst retaining individual independence and actively participating within the community. Social capital is the glue that bonds these individuals together through the strength or weakness of social networks (Manzo and Perkins, 2006). Therefore social capital can be seen as a community asset, which can, as with place attachment if accessed and nurtured through community planning, act to foster sustainable communities (Manzo and Devine-Wright, 2014). Communities that display enhanced levels of social capital will be empowered and likely to display motivation and be increasingly inspired to work towards improving their community (Kransy and Tidball, 2009a). Laws, customs and social norms are likely to be adhered to with respect to other individuals and their values within the community (Manzo and Perkins, 2006). There is likely to be an effective communication network in place and resources within the community will be shared therefore reflecting an accessible community which is inclusive without discrimination (Holland, 2004). As shown, social capital and place attachment are closely linked with place attachment creating the basis for cooperation and community action (Manzo and Perkins, 2006).

Social learning will also occur as a result of the interactions between members of the community who will bring with them different skill sets and interests. The result of which will be evident in a community which is increasingly proactive, resourceful and resilient (Tidball and Kransy, 2007). These social capital impacts are closely related to definitions of wellbeing which identify wellbeing as the ability to cope with adversity (Ryff, 1989). It also highlights the importance of the individual in shaping communities. Social capital impacts are seen to shape child development (Furstenberg and Hughes, 1997). As children develop, social interactions they experience and the values and daily norms they observe will influence their lifestyles and behaviours which will ultimately affect their wellbeing. This will likely have far reaching consequences into their future, shaping decisions and providing opportunities (Kransy and Tidball, 2010).

Social capital is also evidenced to impact public spaces. If areas have a high level of social capital they in turn are likely to be cleaner, friendlier, cared for and safer (Brown et al., 2004). Literature suggests that areas with high crime rates are increasingly likely to be those that display a lack of social interaction and connections across members of a neighbourhood (Brown et al., 2004). This emphasises the importance of perception on place and the impacts of this upon the sense of community which prevails as a consequence.

Social capital is correlated with economic prosperity through the eradication of characteristics of disadvantage (Brown et al., 2003). Social learning occurring through interactions, values and norms will act in the long term to improve the economy. This may be in the form of local economy, promotion of health and educational impacts arising out of a strengthened community where individuals are healthier, increasingly educated and proactive (Bendt et al., 2013; Hanna and Oh, 2000).

It can be concluded that social capital is a vital component in shaping not only communities but also wellbeing. As individuals become increasingly attached to place it is likely that social capital impacts will become increasingly realised. Therefore within the results of this thesis it is likely that individuals who volunteer within the garden will display increased place attachment through the

act of doing (active participation) (Manzo and Devine-Wright, 2014). Through this inclusion into the garden and subsequent interactions it is likely that social learning as well as norms and values will become established within the garden which will act to reinforce social capital impacts (Bendt et al., 2013; Wakefield et al., 2007; Kingsley and Townsend, 2006; Manzo and Perkins, 2006). This again, as in Section 3.4, raises awareness to the opportunities possible in planning for public health and the importance of place based initiatives in providing opportunities for these to occur (Anderson et al., 2014). This makes the identification of these impacts important in strengthening the evidence base upon which to create these planning decisions.

3.6 Using Social Capital as a Measure

Over time it can be expected that there will be fluctuations in social capital (Putnam, 2000). These fluctuations may be the result of altering technologies, values, beliefs, norms and economics. As a result of these fluctuations it is likely that there will be variations in expectations, social interactions and perceptions of events. These fluctuations have been attributed to contribute to the occurrence of worldwide and historical events as well as smaller social movements (Minkoff, 1997). As shared values and norms alter it is likely that there will be a shift in community structure, which is reflective of the evolving nature of communities and the social complexity that is characterised within them (Kingsley and Townsend, 2006).

Measuring social capital evident within communities creates the opportunity for policy makers and planners to create increasingly effective, long lived and targeted policies if the outcomes are known (Dolan and White, 2007). Therefore, assessing impacts of policies is advantageous at a local (community) level if benefits are to be engorged (Anderson et al., 2014). The effective use of opportunity structures in policy and planning would foster positive health and wellbeing and create increasingly robust and resilient communities who display high levels of social capital (Tzoulas et al., 2007).

With consideration to community it is likely that both place and interest will be determinants of communities encountered within this research process. I propose that communities arising from a common interest within this research (i.e. community garden) will show evidence of considerable impact on community characteristics in the form of social capital. Through the action of doing senses will become engaged and result in increased attachment with the natural environment (Manzo and Devine-Wright, 2014). Community gardens (a form of place based intervention) therefore can be expected to provide the opportunity for these embodied cognitions and thus increased attachment to place to occur. This attachment to place will likely lead to increases in emotions which will result in feelings of pride and responsibility (Brown et al., 2003; Brown and Perkins, 1992). If these emotions are evident within the garden then it is likely that there will also be evidence of social capital displayed.

As discussed above the individuals who are most likely to participate in voluntary organisations are individuals who are in employment and homeowners (Putnam, 2000). With consideration to this, the nature of the residential area surrounding my case study gardens are, as described in Chapter 5, disadvantaged in nature. This creates an opportunity to explore the effectiveness of voluntary community initiatives in successful engagement of disadvantaged neighbourhoods and the resulting health, wellbeing and social development impacts on these (often referred to as) “hard to reach” communities (Brackertz et al., 2005).

Ultimately it is hoped that this research will highlight not only the importance of community action, but also the utilisation of health promotion infrastructure in planning for healthier and increasingly sustainable futures. This will be discussed in further detail to tie together health, wellbeing and communities in the context of sustainable initiatives with consideration to community gardening initiatives.

3.7 Community and Policy

This thesis hopes to contribute practical knowledge towards policy and planning in regards to health promoting infrastructure through the use of community enhancing resources. The recognition of the role communities can play in creating a robust society is reflected in The 'Big Society', a political ideology which proposes the integration of the free market with the idea of social solidarity through volunteerism (Scott, 2011) with the intended results that a substantial amount of responsibility for the running of society will be devolved to local communities and volunteers.

“The government is supporting people who care about their communities and want to get involved in improving them. It believes that people understand the needs of their area best, which is why it is transferring power so people can make more decisions locally and solve their own problems to create strong, attractive and thriving neighbourhoods.” (HM Government, 2014, no page).

The 'Big Society' reflects government ambition to utilise social capital through the empowerment and utilisation of the third sector in order to reduce inequalities and enhance health and wellbeing. This places emphasis on the decentralisation of power to enable public services to be opened up to local charities, social enterprises and social capital. This approach is also implemented with the ambition of providing the opportunity for communities to play an increasingly active role within society through the fostering of social action.

“There are amazing people in our country, who are establishing great community organisations and social enterprises, but we the government, should also be catalysing and agitating and trying to build a big society.” (Speech by David Cameron, taken from HM Government, 2011a).

“We want to give citizens, communities and local government the power and information they need to come together, solve the problems they face and build the Britain they want. We want society – the families, networks, neighbourhoods and communities that form the fabric of so much of our everyday lives – to be bigger and stronger than ever before. Only when people and communities are given more power and take more responsibility can we achieve fairness and opportunity for all.”
(HM Government 2010a, p1).

Reports undertaken by the Centre for Social Justice (CSJ), an independent think tank established in 2004 to seek effective solutions to poverty within Britain, identified the voluntary sector as a key body in restoring marginalised communities (CSJ, 2013). This report identifies voluntary sector organisations and community groups as those best placed and organised to enable the elimination of social justice issues through the promotion of health and wellbeing within the UK. These voluntary organisations are able to do this through their unique character, reach and relationships with local community members. Third sector organisations are also considered more risky in their approaches as often red tape around actions is reduced and increasingly innovative approaches are adopted (Flanagan and Hancock, 2010).

However, since the implementation of The ‘Big Society’ reports by CSJ have identified that a large number of grassroots charities are both under-resourced and under-utilised (CSJ, 2013). It has also been noted that the full potential of third sector organisations has yet to be utilised. It has been widely debated as to the validity of and intentions surrounding The ‘Big Society’ (Macmillan, 2013) and if it is just a cost cutting exercise. It has been estimated that a fifth of community organisations are at risk of closure within 12 months if finances do not improve (CSJ, 2013). The distribution of wealth within this sector tends to be largely centralised upon the larger, more prominent organisations, with the smaller local community organisations receiving reduced levels of funding. In 2006 the proportion of the voluntary sectors total income allocated to charities with an annual income of less than £100,000 was 5.4%. In recent years, rather surprisingly with the launch of The ‘Big Society’, this allocation has decreased to

3.5% (CSJ, 2013). This is an important consideration in relation to my research aims in Chapter 1 in which I set out to identify both opportunities and obstacles to community led initiatives as evident within the case study gardens.

Whatever the intensions and or failures of The 'Big Society', it recognises and advocates the important role of community action in fostering positive health and wellbeing outcomes. This will also be reflected within social capital impacts and stronger, resilient communities forming through grass root approaches which are locally targeted and therefore relevant to the specific location making these approaches increasingly transformative (CSJ, 2013). This will result in an array of health, economic, environmental and social benefits becoming realised (Pretty, 2003; Pretty and Ward, 2001; Kawachi et al., 1997).

It should be noted that The 'Big Society' has been criticised in the role it plays in potentially widening inequalities as communities best placed to profit from this are those that have increased personal, social and economic resources in place (MacMillian, 2013). This leads to the next section in my thesis which considers social justice issues and the role community action and active participation may play in the reduction of inequalities evident across society, as well as the challenges this may face in engaging these "hard to reach" communities. This is particularly relevant when considering the disadvantaged nature of the locations of the community gardens within this research (as shown within Chapter 5).

3.8 Community Action

Community action is the collective momentum of a community working together (Seyfang, 2010). It is likely that this will be affected by individual personal resources and place attachment, and collectively through the social capital impacts and sense of community (Adler and Kwon, 2002; Inglehart, 1997). Place based initiatives such as community gardening are an example of a community joining forces and participating in a collective aim (in this case gardening), that benefits themselves as individuals and also builds a stronger, increasingly connected community. This will result in enhancing the sense of

community prevalent among the individuals involved within the gardening initiative (Teig et al., 2009). Members of community gardening initiatives have been found to exhibit social capital and individual health and wellbeing impacts as a result of active participation as well as reporting increases in social safety (Groenewegen et al., 2006). Evidence suggests place based initiatives will contribute towards increased place attachment and an enhanced sense of community (Manzo and Perkins, 2006).

These benefits however are realised as a result of active participation and inclusion into the community, for those who are not these benefits are likely to be absent and possibly detrimental to wellbeing (Stanley and Vella-Brodrick, 2009). This is important to consider as it will act to reduce social capital impacts and wellbeing within these individuals. If multiple individuals are disengaged within a community then it is possible that the overall social capital within that community is low (Putnam, 2000). This in turn acts to create inequalities within society through the widening of health, wellbeing, social and economic resources available (Public Health, 2010). It is important therefore that these factors are identified in order to reduce inequalities through the tailoring of policies which support local needs in the promotion of health and wellbeing, and the reduction of social justice issues (Allen, 2014; H.M Government 2010a; H.M Government, 2012b).

3.9 Community Health and Wellbeing

The role of community in the determination of public health outcomes has been recognised in the form of prevention and intervention (Fenton, 2014). The recognition of which has resulted in the call for, not only increased community collaboration and partnerships to become established, but also in the generation of an evidence base to support health planners and programmes (Askew, 2014). This can be done so in the formation of a baseline health and wellbeing profile of a population from which to identify changes as a result of health interventions (Anderson et al., 2014).

The identification of health and wellbeing impacts arising from community assets will also strengthen the evidence base in regards to planning for public health (Public Health England, 2014). Key Government documents supporting this drive include the 'National Planning Practice Guidance', which reiterates the importance of considering health infrastructures in local planning and decision making. In 2012 the Town and Country Planning Association (TCPA) published guidelines in their document, 'Reuniting Health with Planning', in which it recommends that public health specialists and planners develop an evidence base in which to support the use of health infrastructures in spatial planning. It is still considered to be a work in progress (Anderson et al., 2014). Literature suggests that effective design of space through the utilisation of community enhancing infrastructures can lead to the design of spaces which promote individual and communities health and wellbeing (Askew, 2014). People and place are linked and places, while shaped by individuals will also act to shape those within them through the actions and activities undertaken, therefore intelligent and considerate design of environments will result in not only health and wellbeing impacts but also act to foster economic, social, cultural and environmental sustainability, all of which are intrinsically linked (Dredge, 2014). It is anticipated that this research will contribute towards the growing evidence base and act to shape the placement and distribution of resources and infrastructure to enhance health and wellbeing within communities. This will be expanded upon in Chapter 4 with reference to community gardens.

3.10 Summary

This chapter has defined and explored community, its entities and implications. The chapter has provided links to Chapter 2, to provide an understanding of wellbeing and how wellbeing and community are linked. These chapters clearly demonstrate that formation of community will bring with it wellbeing impacts through the process of inclusion or exclusion (Crow and Mah, 2012). The consequences of enhanced wellbeing also have the potential to impact communities, providing community building possibilities in the form of social impacts and individual resilience (Okvat and Zautra, 2009). Chapter 4 will now go on to reinforce the relationship between wellbeing and community in regards

to green space and community initiatives, exploring the use of community enhancing infrastructure as a tool to foster health and wellbeing.

Chapter 4 Sustainable Development, Green Space and Impacts Associated with Community Gardening

The chapter links health, wellbeing and social development impacts occurring as a result of green space community initiatives. Space has been found to influence individual behaviors (Dredge, 2014), if a place is designed in an engaging manner, and access to green space possible, the potential to discover health and wellbeing impacts arises (Anderson et al., 2014). Other impacts arising from the use of health promoting infrastructure will be in the form of community level impacts (Brown et al., 2003). This chapter will draw on existing literature to describe these occurrences, commencing with a broad overview of community initiatives and the use of green space, before concentrating specifically on literature surrounding impacts arising out of active participation with community gardens, as relevant to the aims and objectives of this thesis. These impacts will focus upon health, wellbeing and social development with reference to individual level and community wide effects with consideration to the key role of place within these impacts.

4.1 The Emergence of Sustainable Initiatives

The emergence of sustainable initiatives has arisen as a result of the need to live a less resource intensive lifestyle. This occurs as a result of a growing population and finite resources, to ensure a good quality of life now and for future generations (Rau and Fahy, 2013; Hinton and Redclift, 2009). If it is accepted that climate change is occurring and peak oil is imminent both these require populations of developed nations to reduce their carbon consumption either through adaption or mitigation. For a city, town or community to be considered sustainable, their carbon emissions must be significantly lower than what is considered to be the current norm within that community (Middlemiss and Parrish, 2010). Therefore future developments should aim to reduce emissions if they are to expand in a sustainable manner. This is important within the context of this thesis as community gardens may provide an opportunity to contribute towards the lowering of emissions through the promotion of

environmental awareness and less resource intensive lifestyles becoming realised.

Sustainable living strategies are organised, designed and implemented globally, nationally and locally with the aim of reducing carbon emissions and result in a lighter carbon footprint being produced. These initiatives are reflected in those that reduce pressure on existing resources with the aim of creating increasingly sustainable (less resource hungry) lifestyles. Grass root initiatives can be utilised through the mobilisation of local communities in order to change behaviours and social norms displayed within the community (Middlemiss and Parrish, 2010), leading to increased environmental awareness. This mobilisation and pro-active behavior is reflective of the social capital evident within such community initiatives (Pretty, 2003). This is also reflected within existing definitions of wellbeing which include the ability to cope with adversity (Dodge et al., 2012). Therefore it is likely that communities which are functioning within grass root activities will be higher in social capital (Kingsley and Townsend, 2006) and display increased health and wellbeing among individuals as a result of increased personal resources (Tidball and Krasny, 2007). This is also likely to be attributed towards the emotional ties which are formed through place based activity, resulting in a greater awareness that local actions can produce global consequences, contributing to growing environmental awareness (Devine-Wright, 2012).

I will briefly provide an overview of the emergence of environmental sustainable living initiatives and its contribution towards the evidence base as it fits within this thesis. Sustainable initiatives can be considered to be a form of social movement, where a group of people who share a common ideology try to achieve specific goals, in this case the area of interest is environmentalism (Stern, 2000). Past environmental movements have been organised by authorities and NGO¹⁰s. An example is Agenda 21, which is a voluntary implemented action plan related to sustainable development designed at the United Nations Conference on Environment and Development (UNCED) in 1992. It comprised plans for global, national and local actions that should be

¹⁰ NGO Non-Government Organisation

taken in order to protect the environment. From this point social movements have evolved from top down organisation into local bottom up movements. This is reflected in the approach to 'think globally and act locally' (Seyfang, 2010). The concept of environmental citizenship has subsequently emerged, this is the occurrence of pro-environmental behaviour, both in public and in private. It is considered to be driven by a belief in equality in the distribution of environmental goods, participation, and in the co-creation of sustainability policy (Dobson, 2010). This refers to the growing recognition that individual and local actions will have global consequences, reflective of empowered individuals and communities taking action, rather than waiting for intervention (Middlemiss and Parrish, 2010). This is also recognised within political agendas as reviewed within Chapter 3, with reference to 'The Big Society' and the value of community action and participation in creating longer lasting initiatives in the move towards sustainability (Dobson, 2010). However, it is also recognised that greater efforts need to be made by policy makers to implement opportunities for individuals to take part in community planning, environmental decision-making, increase civic engagement and volunteering, and to support and action tools for promoting community connection (Dobson, 2010).

Communities are important for creating sustainable change, implementation of policies will be more successful if they include, and are targeted so they will be well received by local people (Comstock et al., 2010). Increased civic engagement (community participation) through grass roots initiatives will result in communities displaying high levels of attachment and increased social capital (Lopez-Gunn, 2012). These impacts will be realised in the form of community and individual benefits arising from these initiatives. These benefits, as discussed previously will include knowledge transfer, increased skill sets within the community, increased social interaction and communication, feelings of importance and belonging within the community which will lead to increased social capital, social entrepreneurship, community capacity, a safer living environment, new jobs and a healthier community with decreased costs and use of health resources, (Seyfang, 2010; Chance, 2009) (to name a few examples). The rapid rise in members of grass root initiatives (Chance, 2009) is an indication to the successful driving force behind them, and also to the increasing community capacity that is emerging as a result of them (Seyfang,

2010). These examples support the notion of community action and empowerment in carving a less resource hungry path which brings with it multiple health, wellbeing and social development impacts and opportunities.

4.1.2 Social Sustainability

Traditionally, social sustainability has received little attention by policy makers and academics in comparison with economic and environmental sustainability. However, this is changing with the term being used increasingly frequently among governments and public planners (Woodcraft, 2012). The term sustainable development was first coined in the 1980's with consideration to the ecological disturbance of urban expansion. Since then the concept of sustainability has expanded to incorporate social, economic and environmental factors. Focus has concentrated on community empowerment, local action and governance. This has been encouraged in the ongoing incorporation into policy most recently in regards to wellbeing. The 'New Deal for Communities' in the 1990's and The 'Big Society' are examples of such policies.

The concept of social sustainability draws on non-physical aspects such as social capital, social equity, social inclusion, safety, social interaction and cohesion, a sense of community and belonging. It includes physical factors such as neighbourhood, access to public spaces (including green space) and services (Dempsey et al., 2005). Within definitions there is an awareness of the importance communities play in enabling sustainable development to become realised. This is vocalised within the UK Government's Sustainable Development Strategy (DEFRA¹¹, 2005, p25):

“Behaviour changes will be needed to deliver sustainable development. However, attitude and behaviour change is a complex subject. Information alone does not lead to behaviour change or close the so-called ‘attitude-behaviour gap’ ... One of

¹¹ DEFRA Department of Food and Rural Affairs

the key elements of the new approach is the need to engage people close to home.”

Social sustainability can also be defined as empowerment for local dwellers by drawing on the social capacity of individual and collective within communities (Dumreicher and Kolb, 2008). If communities are sustainable they can be considered to be:

“Places where people want to live and work, now and in the future. They meet the diverse needs of existing and future residents, are sensitive to their environment, and contribute to a high quality of life. They are safe and inclusive, well planned built and run, and offer equality and opportunity for all.”
(ODPM¹² 2006, p5).

From these descriptions of community and social sustainability, it becomes clear that these concepts connect with broader economic and environmental indicators (Vallance et al., 2011). It is anticipated, with consideration to existing literature, that community gardens will result in lifestyle impacts and place attachment becoming apparent within those who actively participate within them to increase sustainability (Kingsley and Townsend, 2006; Manzo and Perkins, 2006; Pretty, 2003). These will be from a development, bridge and maintenance perspective in accordance with the pre-existing lifestyles already in effect prior to community garden involvement (Ferris et al., 2001).

From these sustainability impacts social benefits will arise as well as economic and environmental ones such as improved health and employment (Groenewegen et al., 2006). This raises the importance of the role in which the social aspect of sustainability plays in terms of the “bigger picture”. If development is undertaken with consideration to sustainability then it is likely that interventions will be increasingly long lived (Woodcroft, 2012). These points

¹² ODPM Office of the Deputy Prime Minister.

will be discussed in more detail with reference to community gardens later on in this chapter.

4.2 Introducing Green Space

There is an increasing interest within academics, policy makers and planners in the role green space can play in creating sustainable and health promoting landscapes (Anderson et al., 2014), which can impact physical health, mental wellbeing and social capital (Alcock et al., 2014; Lovell et al., 2014; Zhang et al., 2014; Dinnie et al., 2013; Seaman et al., 2010.). The design of urban space and access to health promoting infrastructures can result in increases in health promoting behaviours becoming established (Barton, 2014). Access to these infrastructures is considered to result in urban areas that are increasingly livable (Dredge, 2014).

Green Infrastructure is the network of green and blue spaces including grasslands, moors, woodlands, wetlands, parks, rivers, coasts and private gardens in addition to community gardens (Qin et al., 2013). The natural environment is not limited to the green environment, with immersive work into the blue (water) environment and animals also shown to promote health and wellbeing (Depledge and Bird, 2009). This has implications as discussed previously when planning and policy making and has helped to shape the healthy cities movement with smart spatial planning and the use of accessible green infrastructure (Tzoulas et al. 2007). Within academic literature there is avocation for the therapeutic benefits of the natural environment which in recent years has become increasingly explored as a potential resource to address existing threats to health and wellbeing (Lovell et al., 2014). Research into urban and natural landscape exposure shows results of increasingly positive health and wellbeing impacts associated with the natural environment over urban views (ECEHH¹³, 2012; Van den Berg et al., 2010; VanItallie 2002).

¹³ ECEHH European Centre for Environment and Human Health

The potential for gardens to contribute towards sustainable and sociable cities has been recognised. The Garden Cities Movement initiated by Ebenezer Howard in 1898 is a method of urban planning that uses green space to form greenbelts which surround residential, business and industrial areas. Gardens were described as providing an opportunity where:

'The advantages of the most energetic and active town life, with all the beauty and delight of the country, may be secured in perfect combination.' (TCPA, 2014, no page).

The ideology behind the garden cities movement is to design high quality beautiful, healthy and social communities utilising aspects of the natural environment. It was hypothesised that in doing so it would provide community assets and increase community engagement through environmental stewardship and place attachment to create an increasingly social community. After World War 2 the 'New Towns Act' resulted in the development of many new communities based upon Howard's ideology. These garden city principles are considered to influence the development of many cities during the Twentieth Century both nationally and globally (TCPA, 2014). This continues today in the regeneration of cities and in the development of new urban areas.

Cities are important centers in which business, human and financial capitals are based where innovation and growth occurs, and where the majority of the population is centered. As a result they are primary sources of GHG emissions. Cities around the world are continuing to expand with many developing nations also growing rapidly (United Nations 2014a). This creates challenges in maintenance of urban areas, for example in the management of urban sprawl (Anderson et al., 2014). This has been recognised within policymakers and planners resulting in the formation of collaborative platforms such as Global Green Cities of the 21st Century within which strategies for green and sustainable urban development can be shared internationally (Bay Area Council Economic Institute, 2014). The European Green Capital award implemented by the European Commission recognises and rewards local efforts to improve the environment, the economy and the quality of life in cities (European

Commission, 2014). This award is currently held by Copenhagen (2014) and is a reflection of the growing international awareness surrounding the importance of green space in urban environments and the need to ensure these are not lost in urban sprawl.

The role green space can play in the generation of sustainable communities has also been established (Ferris et al., 2001). This recognition gained momentum in the 80's and 90's and is reflected in the conversion of many brownfield sites into accessible green spaces. In just 5 years, between 1988 and 1993, 19% of derelict brown fields were converted into green space (De Sousa, 2003). This transition from brown to green provided the opportunity to insert community structures into urban areas through fostering attachment to place. This was done through the creation of parks, gardens and natural heritage areas. In doing so greatly increases not only exposure to, but also access and emotional ties to green space, making them meaningful landscapes (Devine-Wright, 2012). The benefits arising out of brown field developments have been identified to include ecological, social, economic and wellbeing impacts becoming realised (Casler et al., 2010). Therefore it becomes clear the role green space as a community resource can play in fostering sustainable design and providing health opportunities (Anderson et al., 2014; Lovell et al., 2014; Saldivar-Tanaka and Krasny, 2004). Historically within the UK, London's first parks were named the "Lungs of London" established in the 18th Century. After the first major Cholera epidemic in 1832 parks were promoted as healthy places (Ward Thompson, 2011). For example visiting Hyde Park in London was advertised to combat typhoid, and Birkenhead Park in Liverpool was advocated as improving living conditions of the industrialised workforce. The urban parks movement was mirrored in the USA with the creation of the well-known Central Park in New York in 1857 which was described as "the antithesis of confined space" (Ward Thompson, 2011).

Arising from the body of literature surrounding green space and health is reference to the importance surrounding the degree of immersion and engagement with the natural landscape in providing variation in health and wellbeing impacts (Lovell et al., 2014; Tenngart Ivarsson and Grahn, 2012). As engagement with the natural landscape increases, and social interactions within

these also increase, there are reports of differing health and wellbeing benefits. Research suggests that simply by being near and viewing natural landscape individuals will experience enhanced wellbeing (Zhang et al., 2014; Agnes et al., 2010). However, those who simply view green space in a picture will experience less positive health impacts than those residing in close proximity to green space. In turn those who exhibit occurrences of active engagement with green space will experience increased health benefits again (Pretty et al., 2005). Those undertaking exercise in the natural environment show increased health benefits over those undertaking exercise in an urban setting (Hug et al., 2009; Pretty et al., 2005). Community gardens can be considered a form of green infrastructure which incorporates civic participation, thus the benefits will be greater than simply viewing or sitting in a green space, and is likely to have wider reaching social, economic, health and wellbeing impacts as a result of the active participation taking place (Barbosa et al., 2007).

4.3 Community Gardens, Health, Wellbeing and Social Development

Following this introduction to the use and implementation of green space within urban environments, this review now goes on to identify health, wellbeing and social development impacts arising out of community gardens as place based community initiatives, specifically as relevant within the exploratory scope of this thesis.

The process of gardening is one that encourages active participation within the natural environment and offers the opportunities to undertake varying activities which will result in a range of impacts being experienced by users (Tenngart Ivarsson and Grahn, 2012). Different activities undertaken within the garden enable differing personalities to be catered for in relation to their needs. These diverse activities allow for an all-encompassing inclusivity to prevail. Individuals are able to utilise the garden in different ways in order to aid recovery according to illness, age and lifestyle (Austin et al., 2006). Activities may range from walking and pruning to digging and weeding. These different activities in turn will contribute towards different health outcomes. Research (Chawla et al., 2014; Hawkins et al., 2013; Grahn and Stigsdotter 2010; Van den Berg et al.,

2010; Grossman et al., 2004; VanItallie 2002) shows that the higher the levels of illness, stress or social isolation experienced then the greater benefits to health that will become realised as a result of immersion within these therapeutic landscapes. Therefore I propose that it is likely the community garden will provide a setting in which health and wellbeing benefits can become realised through the therapeutic and restorative opportunities it offers, the degree to which will differ among individuals. This will be explored in more detail below.

4.3.1 Restorative Environments

This section will now review literature surrounding the restorative nature of the natural environment before moving on to tackle community gardens in increased detail as relevant to the scope of this thesis.

Natural environments have been found to be more restorative than built environments (Tenngart Ivarsson and Hagerhall, 2008). This is reflected in the growing academic interest in the positive benefits associated with green and blue space (White et al., 2013; Pretty et al., 2005) leading to the notion of restorative environments. Restorative environments are considered to be natural environments or settings which aid in the recovery from chronic illness or stress (Kaplan, 1992). Kaplan's work on the natural environment as a restorative entity should be considered in explanation as to why this occurs. Kaplan and Kaplan, (1989) describe the natural environment as a resource which provides "soft fascination". By this it refers to the use of the natural environment as an aesthetic experience which invites individuals' attention, without being all encompassing or invasive. Rather, it is a gentle, soft immersion which leaves room for individuals to reflect within themselves. Kaplan's work on nature and the human experience draws on the following elements as important in establishing the restorative experience. These include being away, extent, fascination and compatibility. The process of community gardening will likely support this theory as the garden is most often away from individual's residential areas. This provides the sensation of escape from everyday activities, the ability to get away resulting in change even if for a short period of time. Immersion within green space away from the immediate home

environment is considered to be beneficial over green space close to the home environment (Van den Berg et al., 2010) as it provides an escape from routine, where individuals can reflect and de-stress (Eriksson et al., 2010). Community gardens therefore provide an opportunity in which to escape from the urban environment and the stresses associated with modern living (Tidball and Krasny 2011; Kaplan and Kaplan, 1989). They have been identified within literature as providing a space that acts as a restorative environment (Kingsley et al., 2009). Kaplan's "soft fascination" theory refers to individuals whom can recover within the natural environment through the provision of a landscape in which individuals can escape yet reflect.

Ulrich (1987), states that humans are intrinsically hardwired to respond positively to nature as a response of evolutionary processes (Tidball and Krasny, 2011). Wilsons' concept of Biophilia refers to humans as having a genetically programmed affinity to nature. This arose as an early survival evolutionary connection (Wilson, 1984). Therefore it stands to reason that the natural environment can promote health and wellbeing. Interestingly research into colours and mood (Kwallek et al., 1988) show that blues and greens are associated with low arousal rather than reds which reflect higher states of arousal. So it would seem that there is an innate connection to health and wellbeing and the natural environment embedded within humans. Research has shown that individuals experiencing high levels of stress are most able to cope in environments which are natural (De Jong et al., 2011) further emphasising the importance of green space in creating calming and restorative environments which promote health and wellbeing (Milligan et al., 2004).

I will now explore literature specific to impacts arising out of community gardening activities in greater detail in relation to health, wellbeing and social development impacts, both individually and on a community wide scale.

4.3.2 Therapeutic Horticulture

Research into community gardens have been found to describe the act of gardening as therapeutic, relaxing, good for wellbeing and places where individuals report to feel healthy (Pitt, 2014). This use of gardens as a form of

therapy is termed therapeutic horticulture. The term 'therapeutic horticulture' is applied to informal processes that result in the enhancement of individual wellbeing through the use of plants and horticulture. This is different from horticultural therapy which is the formal process of using horticulture as a way in which trained professionals can use them to meet predefined clinical goals within a programme of therapy (Davies et al., 2014). These terms identify the formal use of gardening as a health promotion tool. The use of which supports literature which advocates green space as a restorative tool (Kaplan and Kaplan 1989), enabling individuals to cope and aid with recovery from serious illness (Fitch et al., 2003). While community gardens will not cure ill health, for example cancer, it can act to provide a support network and coping strategy for individuals (MacMillan, 2012, Gardening Leave, 2014). Community gardening has been shown to help alleviate stress and aid in physical, emotional and social recovery (Eriksson et al., 2010; Hayashi et al., 2008). Research into individuals suffering from cancer found benefits from the process of gardening (MacMillan, 2012, Gardening Leave, 2014). Withdrawal from these gardening processes as a result of treatment was found to likely increase stress (Unruh, 2004; Fitch et al., 2003). UK Macmillan Cancer Support actively encourages cancer sufferers to undertake gardening as a form of therapy and to ease back into physical activity after treatment. As part of their "Move More" campaign they gave gardening packs to help promote gardening as a health promotion tool. Macmillan Cancer Support along with National Garden's Scheme have undertaken extensive research into gardening impacts on cancer sufferers. The majority of individuals questioned recognised gardening as enabling them to find a pathway to manage their emotions to help combat stress, depression and anxiety. Individuals within this study also praised the garden as providing them with more energy (Macmillan, 2012). Gardens provide a place within which there is opportunity for active participation and subsequent immersion with nature leading to reduced stress and improved physical health (Davies, 2014; Pitt, 2014; Detweiler et al., 2012).

Ecotherapy, a project developed by Mind (2007) helps improve mental health through exposure to the green environment. This study reported that mood and self-esteem improved in 70% of participants who reported decreased levels of depression following a green walk. Improved fitness among participants was

also reported as a result of exposure to and exercise within a green space, and 52% of participants felt less angry after a green walk.

Dementia studies support the notion of the natural environment in maintaining and enhancing mental health. Links between the Forestry Commission and health services have been established to provide a programme of woodland activities to help individuals cope in the early stages of dementia (Forestry Commission, 2014). This supports the notion of the natural environment and its use as a restorative and therapeutic resource and also draws into consideration the importance of active participation and social interaction (as experienced within community gardens) in promoting health (Tenngart Ivarsson and Grahn, 2012).

Therapeutic landscapes have been shown to increase individuals self-understanding in the expansion of personal resources, this has been shown to extend into the ability to understand others (Rose, 2012). This is thought to be the result of increased empathy evident within individuals who are connected to natural landscapes. This arises through increased emotional sensitivity and connections to landscape, nature and emotional states as a result of increased place attachment, place identity and awareness. This therefore will provide social capital impacts within community gardens in the formation of support networks, place attachment and emotional connections (Mobayed, 2009; Ohmer et al., 2009; Manzo and Devine-Wright, 2006).

The reviewed literature supports the hypothesis that immersion in the natural environment in the form of gardening will help improve positive feelings, reduce stress, create purpose for the individual leading to reduced vulnerability to depression, and enhanced health and wellbeing. The importance of the process of active participation in a place based initiative and the social interactions that arise out of it is one that should not be overlooked in the contribution to these positive health, wellbeing and social development outcomes.

4.3.3 Wellbeing and Chronic Illness

The link between wellbeing and chronic illness has been established to show that individuals who experience increased stress are progressively more prone to developing chronic illnesses within their lifetime (Van den Berg et al., 2010; Vanitallie, 2002). Therefore if we consider community gardens as an effective tool in nurturing wellbeing within individuals, it may be that there are long lasting benefits to health in the reduction of occurrences of chronic illness developing (Vanitallie, 2002). This is an important realisation with regards to health promotion and the implementation of health promoting infrastructure, (in this case, access to nature) (Maller et al., 2006). In an era that is experiencing an ageing and therefore expanding community the need to increase health promotion is imperative (Centre for Disease Control and Prevention, 2003). This therefore not only provides health opportunities, but the possibility of economic gains through reducing costs associated with curing ill health.

4.3.4 Physical Activity

In western societies many physical illnesses such as coronary heart disease are strongly correlated with sedentary, inactive lifestyles and stress (Hansmann et al., 2007). Negative aspects of the built environment have been attributed to the occurrence of ill health in the form of physical inactivity and obesity (Bjork et al., 2008). Community gardens provide an opportunity in which to improve the built environment through the provision of health and wellbeing infrastructures to be placed within urban areas (Burls, 2007; De Sousa, 2003). Gardening therefore provides an opportunity for multiple health and wellbeing opportunities (Davies et al., 2014; Tenngart Ivarsson and Grahn, 2012; Park et al., 2008).

Developed nations are experiencing a health crisis in the form of rising levels of obesity attributed to decreased levels of physical activity (Ward Thompson, 2011). Gardening involves physical exertion, i.e. the action of digging, twisting, lifting and walking (to name a few) (Hawkins et al., 2013). Current estimations report that activity estimates in adults are lower than the recommended levels with only 36% reporting they take part in physical activity more than once a

week (HSCI¹⁴, 2013). General gardening activities are calculated to expend 250-500 calories per hour (Davies et al., 2014). It is thought that the act of gardening is sufficient in older gardeners to meet the physical activity demands in order to stay in good health (Park et al., 2008).

Physical health impacts associated with the physical activity of gardening include improved overall fitness (Davies et al., 2014), which in turn will increase respiratory and cardiovascular health (Thompson et al., 2003), along with reduced obesity (Bouchard et al., 1993). This reduced obesity will in turn lead to decreased risk of chronic illness such as heart disease, diabetes and osteoporosis (Bjork et al., 2008; Bouchard et al., 1993). Endorphins released by the process of physical activities undertaken within the gardening process alleviate stress that should reduce chronic health problems (Salmon, 2001) and depression (Van den Berg et al., 2010; VanItallie, 2002).

Students participating in school community gardens were found to be increasingly likely to garden at home with a 20% rise in students doing so (Twiss et al., 2003). This shows that activities and interests are likely to extend into home environments with community gardens providing a gateway to interests in the natural landscape. This will promote and encourage further immersion and activities within the natural environment to occur, ultimately linking landscape and health and encouraging increased physical activities (Ward Thompson, 2011), which may lead to long lasting lifestyle and health impacts. This also draws attention to the use of community gardens as a tool in education in regards to fostering healthy lifestyles see Section 4.3.6.

4.3.5 Nutrition

Community gardens originated at the turn of the 20th century and have known revivals during and after the two world wars to increase supplies of fresh foods (Ward Thompson, 2011). This increased access to fruit and vegetables may also contribute towards decreased levels of obesity as a result in changes in diet arising as a result of community gardening (Lautenschlager and Smith,

¹⁴ HSCI Health and Social Care Information Centre

2007a). Research shows that as a result of involvement within community gardens, volunteers report increases in consumption of fruit and vegetables (Heim et al., 2009; Alaimo et al., 2008). This is likely to be a result of an increase in accessibility to healthy eating alternatives, which in itself will have far reaching health benefits (Van Duyn and Pivonka, 2000).

When we consider the notion of accessibility to fresh produce it is important to consider what “accessibility” means. It can be considered to mean the reduction of barriers preventing consumption. This is likely to be not only a product of produce being available within the boundaries of the community garden, but also perhaps in the affordability of fresh produce (Alaimo et al., 2008; Hendrickson et al., 2006). It is also likely to be a result of social learning occurring within the act of community gardening, which will result in changes in behaviours and attitudes leading to increased consumption of fresh produce (Robinson-O'Brien et al., 2009; Pomerleau et al., 2005). Individuals participating within community gardens have been shown to report increased nutritional awareness (Lautenschlager and Smith, 2007b). This occurs through the sharing of information between volunteers and educational events within gardens. This is also likely to be evidenced in the skill sets developed within the garden and the increased confidence (personal resources) across volunteers. This is displayed in the development of skills and knowledge enabling individuals to be able to cook the produce they grow, which, in turn will lead to enhanced wellbeing as a result of being increasingly resilient and resourceful (Dodge et al., 2012). Emotions of pride and self-worth are also found to increase through the process of producing one's own food (Davies et al 2014), leading to increased wellbeing.

Therefore community gardens could be an effective tool in helping individuals meet the recommended daily consumption of 5 portions of fruit and vegetables a day (HSCI, 2013) by reducing barriers to consumption. This may result in increased health and wellbeing and personal resources becoming collectively evident within the social capital present within a community. Today, as demonstrated here, food production is only one of the many functions of community gardens. These gardens are now assumed to contribute to a wide

array of public health and wellbeing impacts (Groenewegen et al., 2006) as described within this Chapter.

4.3.6 Healthier Lifestyles

Volunteering in community gardens may promote healthier lifestyles through the skills and knowledge passed between individuals involved within gardens (Krasny et al., 2009; Twiss et al., 2003), empowering (Dumreicher and Kolb, 2008) and motivating individuals (Dodge et al., 2012) ultimately increasing individual and community resilience (Okvat and Zautra, 2011; Krasny et al., 2009).

The identification of the occurrence of social learning within community gardens has sparked a host of literature surrounding the use of gardens as an educational tool (O'Toole 2014; Tidball and Krasny 2011; Krasny et al., 2009; UNESCO, 1999). The importance environmental education plays in changing attitudes and environmental behaviours to implement action among adults is becoming increasingly widespread (UNESCO, 1999). As well as this, awareness of the importance of environmental education is gaining prominence and is reflected to some degree within the UK educational institutions. The national curriculum has recently set up an audit into school curriculum to identify areas that may provide opportunities in which to implement environmental education (NAEE¹⁵, 2014). There is also the emergence of organisations such as Learning Outside The Classroom (Learning Outside the Classroom, 2015) and (more locally) Growing Devon's Schools (Growing Devons Schools, 2015) which aim to increase exposure to, and use of, the environment in learning. Thus, academic research like this may provide a supportive body of literature which could be used to promote environmental education, and to secure funding to improve and increase environmental education and resources within schools.

This also points towards changes in ecosystem thinking and conservation messages. Traditionally humans have been considered separate to ecosystems

¹⁵ NAEE National Association for Environmental Education

as an outside disturbance. The destructive nature of humans is widely publicised in conservation messages, particularly those that consider global warming. Theories surrounding this are changing whereby humans are considered to be integrated within biological and physical processes and can be promoted as a tool to preserve rather than one that is destroying the planet. Community gardens provide a pathway in which individuals can visualise the positive impact they can have on their environment which may result in individuals choosing to take less destructive paths (Kransy et al., 2009). This can be considered a form of re-educating individuals on the role they play and the proactive stance they can take. This relates to, and will have impacts on environmental citizenship, as individuals become aware that they are citizens not simply consumers. This will further foster pro environmental behaviours, resulting in a deeper dedication to environmental principles. In doing so individuals and the actions they take will be increasingly committed and less vulnerable to political and institutional direction, thought to be a hindrance resulting from economic incentives to environmental problem solving. This will be brought about as a result of social learning (Dobson, 2010).

This not only highlights the role in which gardening can play as an educational aid, but leads to the consideration of the use of active participation as a teaching method. Wenger (2003) advocates the utilisation of the natural environment as a tool within education. This is a departure from traditional modes of education which focus on information absorbance as the learner interacts with the larger social and biophysical elements of their environment. The concept of environmental education draws on the literature surrounding activity theory (Tidball and Krasny, 2011). This relies on 6 elements that enable learning: participant, object, community, tools, rules and division of labour. Community gardens meet these 6 elements, they involve participants, within a garden (object) in which other member's garden (community). Within this process they will utilise tools, adhere to rules and play a role (division of labour).

The use of community gardens as a tool in which to promote environmental education also supports attention restoration theory (Tidball and Krasny 2011; Kaplan and Kaplan, 1989) where human attention recovers in restorative environments. Community gardening as an educational tool incorporates the

use of nature in changing individual's patterns of behaviour and reinserting nature into individual's culture and forging emotional bonds with nature. This is increasingly topical in urban and in particular disadvantaged communities which may have become disengaged from nature within their culture (see examples in Chapter 7). From the emerging values there will be a clear identity within the community established (Eckert, 2006), in this case pro-environmental behaviours and values.

Community gardens provide the opportunity for children to develop and engage with others and the environment while developing sustainable actions and interests throughout this process, whilst enabling changes in societal norms to develop over time (O'Toole, 2014). This is a reinforcing impact whereby the learner will change their environment and these changes will in turn effect the learner (Tidball and Krasny, 2011). This is likely to result in an increasingly environmentally aware generation emerging which could reverse vicious cycles of urban decay into a virtuous cycle of urban rebirth (Tidball and Krasny, 2011). If green education is instilled at a young age, engagement with the natural environment is likely to occur. The consequences of which may result in long term changes to lifestyles and removal of barriers to engagement with the natural environment and the benefits it brings with it (Doyle and Krasny, 2003). If barriers to engagement are removed it is increasingly likely that sustainable development targets will be met as all sectors of society will participate within these green activities. This would result in the long-term reduction of health and economic inequalities within society arising through community development (Ohmer et al., 2009). These changing lifestyles will become apparent in the potential to change community norms and values as a result of collective actions. These are expanded upon in Section 4.3.7 below.

4.3.7 Community Level Impacts

Community joint actions are normally aimed at improving the quality of the physical environment and daily life of the community in a way the local community see as beneficial and needed (Perkins et al., 1990). Through these actions it will not only act to benefit the direct aims of the community projects but will also have indirect social capital benefits through the development and

strengthening of new and existing networks (Simpson, 2005). These social capital benefits can be seen in a number of ways such as the sharing of knowledge, skills and the development of new skill sets within the community leading to empowerment that is increasingly resilient, robust, self-sufficient and sustainable (Seyfang, 2010). This is referred to as capacity building, where individuals and communities are developing skills, resources and knowledge that enables communities to make decisions for policies and organisation within their communities, for example health policies (discussed in more detail below). These resulting traits are also characteristics that are discussed in Chapter 2 describing increased wellbeing, so it is likely these actions will also result in increased positive individual wellbeing as well as community impacts arising from social capital benefits (Ohmer et al., 2009).

Neighbourhood satisfaction has been found to increase as a result of urban greening in residential areas (Bjork et al., 2008). This is likely to increase community mobilisation through social capital impacts which will occur and reinforce positive behaviours and community norms in existence. It is therefore likely to result in communities that are perceived as safer through these shared values and familiarity arising through a shared attachment to place (Groenewegen et al., 2006). This is particularly evident in communities where there is already evidence of community cohesion, heritage, voluntary organisations and associations (Seyfang, 2010). These findings have also been found to exist in disempowered communities (Middlemiss and Parrish, 2010) though perhaps easier to implement in communities that already have the foundations of a community network. Increased cultural capacity, in addition to enabling the transition to a low carbon community, is expected to result in communities which are increasingly resilient, robust and connected (Moloney et al., 2010).

The importance of place attachment in the understanding of human responses to climate change have yet to be fully investigated (Devine-Wright, 2012). If done so it may realise strategies which could be implemented to enable increasingly effective opportunities for environmental change to occur on both local and global scales. Place based interventions such as seen within the context of this research focus provide opportunities for place attachment to

occur (Manzo, 2003). This place attachment will occur through the act of doing and the physical motions and social interactions resulting from the processes (Manzo and Devine-Wright, 2014). Emotional bonds will form from this attachment to place resulting in stronger connections to the space. These connections will be visible in the actions undertaken by the individuals within it and within their relationship with place (Hulme, 2008). Collectively these impacts will become realised within the community in the form of social capital impacts through increased social networks (Manzo and Perkins, 2006). Therefore the role of place in creating health, wellbeing and social capital impacts both individually and collectively should not be ignored and provide an opportunity for unique research to be undertaken.

4.3.8 Social Capital

Impacts occurring on the social structure as a result of community gardens has been documented as resulting in positive emotions associated with social capital impacts (Kingsley and Townsend, 2006). Place attachment has been shown to impact social capital, which ultimately collate to produce increasingly proactive communities (Manzo and Devine-Wright, 2014). Therefore the act of gardening in itself, as well as repeatedly immersing oneself within a place, is likely to result in a greater emotional connection to the space in which the garden is situated. If many individuals use this space and experience positive emotions, collectively it is likely that a community of interest will occur with strengthened bonds between members who share a common attachment to place (Manzo and Perkins, 2006; Brown et al., 2003; Manzo, 2003). The individuals within this community will most likely display place attachment in the form of emotions such as pride, control, responsibility and familiarity with others. This will increase not only the personal resources of individuals, but act to increase the social capital of the community (Kingsley and Townsend, 2006). This in turn is likely to lead to social impacts within the community which will include increased community resilience, empowerment, increased perceptions of social safety and social sustainability (Chawla, 2014; Okvat and Zautra et al., 2011; Groenewegen et al 2006; Dempsey, 2005).

4.3.9 Social Cohesion

It is expected that structures which facilitate social cohesion will become increasingly valuable as we as a nation experience increasing pressures socially and spatially as a result of a culturally diversifying Britain (ONS, 2014c). This social cohesion will act to eliminate fear of the unknown, increase perceptions of social safety, and through the sharing of skills and knowledge from different cultures, will be likely to increase the personal resources of individuals through social learning (Kingsley and Townsend, 2006; Armstrong, 2000). It may also encourage integration of different cultures into the community through the use of gardens as a tool in which cultures can be shared, new skills learnt and social networks built (Dinnie et al., 2013; Holland, 2004). These events will in turn impact wellbeing of individuals and communities as well as contribute towards increasing sustainability of areas and enhancing social capital (Kingsley and Townsend, 2006).

4.3.10 Fostering Resilience

Community gardens can play a role in creating increasingly resilient communities (as previously identified). Resilience refers to the extent to which individuals and communities are able to effectively adapt to changes which are beyond their control. Communities which lack resilience are increasingly at risk of shifting into an undesirable state when faced with change (Tidball and Krasny, 2007). Therefore it is desirable and in the long term beneficial, to develop tools and strategies which will build resilience. Additionally the need to increase personal resources in order to achieve these aims in line with a changing climate and resource availability is increasingly apparent (Brangwyn and Hopkins, 2008). Community gardens could, if encouraged, provide a pathway to achieving these aims through increased personal resources and thus the ability to cope (Okvat and Zautra, 2009). This will allow adaptation to change that will lead to increased resilience across individuals and collectively within communities from social, economic, environmental and health perspectives (Colding and Barthel, 2013).

Traditionally resilience research has focused upon individuals and social systems, however more recently work has focused upon socioecological models: the links between health and wellbeing, communities and the environment (Chawla et al., 2014). This line of investigation incorporates humans as part of the model rather than separate to the ecosystem, highlighting the importance the actions individuals play within socioecological models. This form of environmental stewardship is an increasingly positive, and perhaps in turn, motivational form of disseminating and fostering conservation and community cohesion. Traditionally humans have been viewed as destructive agents in regards to the natural environment. The use of civic ecology changes this approach to show the positive impacts individuals can play within ecosystems (Krasny and Tidball, 2009a), which will mentally equip individuals with the personal resources they require to adapt.

Gardens provide a number of pathways in which resilience building can occur. They provide a restorative setting in which health and wellbeing is maintained and stress is prevented (Van den Berg et al., 2010) and personal resources are increased (Davies et al., 2014). As well as the direct physical health outcomes, the impacts on social development and social capital observed and reported to occur through participation and place attachment and active participation within the garden leads to social learning, this will provide increased resilience as skills and knowledge is accrued between gardeners (Bendt et al., 2013). This is also evident within the resulting emotions of pride, self-worth and responsibility arising, which all act to increase the personal capacity of individuals and aggregately within communities (Chawla et al., 2014) leading to personal and societal benefits (Davies et al., 2014; Kingsley and Townsend, 2006; Ferris et al., 2001). From the consequent community of interest arising from the community garden it is likely that there will be fostered a collation of social norms, values and knowledge that will lend itself to creating characteristics of resilience as a result of increased community capacity (Callaghan and Colton, 2008).

Gardens also provide a potential pathway to increasingly sustainable food production (Hill, 2011), which may lead to avenues of opportunity for marked changes in economic resilience as well as physical health and social aspects

(Gottlieb and Fisher, 1996). This will not only increase economic capital within local businesses, but lead to enhanced social capital through increased personal interactions becoming evident. Transition Town literature (Brangwyn and Hopkins, 2008) examples this ideology. Currently this is a rather middle class activity at risk of widening inequalities, however the potential impacts realised as a result of environmental education may result in these opportunities becoming increasingly accessible for wider sections of society.

It is clear from the academic literature that community gardens can and do provide an effective tool for learning that addresses resilience goals, fostering outcomes that benefit social, environmental, economic and health outcomes. Therefore the need to promote civic ecology practices and engage hard to reach groups becomes increasingly obvious within research if these benefits are to be realised across the whole spectrum of society. If these practices are implemented successfully not only will it build resilience within communities, but it could be instrumental in reducing inequalities and social justice issues. This will be discussed in more detail below.

4.3.11 Reducing Inequalities

Social justice considers the ability of all individuals to realise and achieve their potential, to have equal access to resources and, as relevant within this thesis, harness equal health, wellbeing and social development (Putnam, 2000). Health inequalities still remain a significant challenge within the UK (Allen, 2014). To reduce these is considered a complex and challenging task, outside of the remit of the NHS. Social determinants of health, which include factors such as income, education the built environment and neighbourhood quality will act to impact health inequalities (Allen, 2014). Place based initiatives such as community gardening may act to reduce social justice issues by reducing inequalities within society (Allen, 2014; Twiss et al., 2003). This is likely to occur in the formation of health, wellbeing and social development impacts realised as a result of active participation (Krasny et al., 2009; Kingsley and Townsend, 2006). However, for these impacts to be realised in sectors of the community which experience inequalities, increased effort to engage individuals is required. Increasing engagement with these communities is often problematic as

individuals residing in the local neighbourhoods comprise those who historically are least likely to engage with voluntary activities (Putnam, 2000). These barriers may include lack of interest, reduced confidence, reduced knowledge and time constraints (Withall et al., 2011). Therefore place based interventions that cater for the unique nature and social structure of different communities, allows for a tailored approach that is likely to be increasingly effective over a broad, disengaged top down intervention (Fenton, 2014; Lopez-Gunn, 2012). The use of community gardens could, if implemented effectively, act to reduce inequalities and enhance community through building social networks and in the provision of health promoting infrastructure being available for all sectors of society (Askew, 20124; Penny, 2014; Bendt et al., 2013; Kingsley and Townsend, 2006; Voicu and Been, 2008; Holland, 2004).

The use of community gardens as a platform in which to realise these benefits reflects the 2012 Social Justice Strategy (H.M. Government, 2012b) that recognises the role the voluntary sector can play in delivering services to individuals facing multiple disadvantages, enabling them to realise long lasting benefits to their lifestyles. To enable this to be achieved there is a need for strong leadership at multiple levels, especially so in the community level. Those working at a community level are considered to be best placed to identify and implement the solutions to social issues, and are recognised that the government alone is unable to provide sufficient resources to do this:

“We need to unleash the capacity, capability and energy of the individuals and organisations living and working within the communities affected.” (H.M. Government, 2012b, p61).

By drawing on the strengths and knowledge achieved at a community level, it is likely to enable prevention and early intervention of social justice issues as they relate to specific localities. However, with the recognition that grass root charities are often under resourced and underutilised (CSJ, 2013), the full benefits that can be achieved through the community approach is not realised. This thesis therefore may also provide insight into the working processes of a charitable organisation which relies on volunteers and their ability to deliver

health promotion strategies, which in turn may lead to acknowledgment of the effective use of public spending if directed appropriately to support these organisations.

However, for these impacts to be realised in sectors of the community which experience inequalities increased effort to engage is required. This is often problematic due to terms such as “hard-to-reach” groups becoming readily bandied about within research and policy (Cortis et al., 2009). Increasing engagement within these communities is often problematic and who historically are least likely to engage with voluntary activities (Putnam, 2000). Only once these barriers are identified will it be possible to start to eliminate them. These barriers include lack of interest, reduced confidence, reduced knowledge and time constraints (Cortis et al., 2009). Overcoming these barriers to participation may require extensive efforts to moderate behaviours, values and social norms in effect within the community (Beresford and Hoban, 2005). This also points to the benefits of inserting green infrastructure in an accessible manner as well as promoting the importance of green education as a way to instill healthy lifestyles to engender long lasting lifestyle changes (Kransy et al., 2009). This research could therefore have the potential to contribute towards this evidence base in the identification of obstacles and successes in the engagement of individuals from disadvantaged backgrounds, through the evaluation of a third sector approach to engagement as relevant within the exploratory scope of this thesis.

4.3.12 Economic Benefits

While out of the remit of this thesis, economic benefits are an impact which require acknowledgement. Literature shows the potential for economic benefits to arise out of grass root initiatives (Brangwyn and Hopkins, 2008). Focusing on the possible economic benefits regarding community gardens, the possibility for economic gains locally and nationally become evident. On a community and individual scale it may be that social development impacts encourage innovation and entrepreneurialism and promote the local economy through job creation. As a result of possible impacts arising from gardening it is likely that individuals who participate in community gardening activities are less likely to develop chronic illness and be more able to cope with adversities in life as a

result of increased personal resources arising out of skills, knowledge, and confidence and wellbeing impacts (Davies et al., 2014). This in turn leads to a reduction of health costs and benefit expenditure on a national scale if we can foster a healthier population through the prevention of ill health. In 2013 131 million working days were lost to sickness absences in the UK (ONS, 2014), costing the UK economy over £14 billion in direct costs (CBI¹⁶, 2013). Return to work after long term unemployment has been attributed towards involvement in community gardens and is already being implemented as a therapy among health practitioners (Forestry Commission, 2014; Macmillian, 2012). If continued to do so the economic savings could be great and act to reduce public health expenditure (Buck, 2014).

4.3.13 Sustainability Impacts

Currently more people live in urban areas than the countryside (Pataki et al., 2011). However, there has been a reduction of spending on urban green spaces by almost 40% in the last 3 years due to budget cuts (Policy Exchange, 2013). This raises the importance of promoting green space findings within research to enable sustainable development and integration of green space into urban planning. For many individuals public green spaces can be considered to provide the “primary” point of contact with the natural environment (Barbosa et al., 2007). Community gardens can be seen to provide a meeting place for individuals comprising different social and ethnic backgrounds where people from different walks of life may come together around a common interest (Kingsley and Townsend, 2006). This will promote community cohesion and social capital within these communities as individuals become attached to the garden through the activities undertaken and social networks arising within it (as described within 4.3.9). This will in turn result in individuals being increasingly likely to remain in the area, therefore increasing longevity, which will act to reinforce social impacts (Colding and Barthel, 2013). Increases in perceptions of social safety are seen to occur as a result of urban greening (Groenewegen et al., 2006). These factors will contribute towards sustainable communities as individual personal resources are engaged, collating in collective community

¹⁶ CBI Confederation of British Industry

social capital impacts. This will lead to stronger, trusting, resilient and empowered communities which as a result are more likely to be sustainable (Dredge, 2014).

Community gardens represent spatial possibilities for dynamic and static use of space (Dumreicher and Kolb, 2008). The dynamic aspect is represented within the social interactions occurring within the space. While the static aspect is represented in relaxation and reflective activities undertaken within the garden. This represents the ability of community gardens as a resource to cater for multiple needs according to health and social needs of individuals (Tenngart Ivarsson and Grahn, 2012). This is particularly beneficial as space becomes an increasingly pressurised resource. Therefore if one space can contribute towards multiple needs this makes it an increasingly efficient use of space.

Community gardens will contribute towards sustainable design from multiple perspectives through enhanced health in the form of increased health and wellbeing (Allen, 2014; Penny, 2014). They will contribute towards social sustainability through increased social capital (Ferris et al., 2001). Ecological sustainability will be ensured through the increase in biodiversity brought about through the protection and enhancement of the natural environment (Goddard et al., 2010). Community gardens could also act to reduce escalating global temperatures, it is estimated that a 10% increase in green space in cities could result in stopping temperatures from rising from its present levels into the 2050's despite the occurrence of climate change (Askew, 2014). Economic impacts will contribute towards sustainable design through monetary gains evidenced to occur as the result of community gardening, both individually and collectively, through a number of pathways ranging from employment to consumption (Budle, 2014; Dredge 2014). Food has been identified as one of the key areas for consideration in regards to sustainable consumption challenges due to the impact of food consumption on the environment as well as local communities and social justice (Lavelle et al., 2012). Community gardens may result in increasingly sustainable consumption through increasing access to local food and changing consumption habits through raising awareness of food source (Alaimo et al., 2008). Influences on food choice were found in a study by Lavelle et al.,(2012) to be influenced by the following factors: price,

health, taste, how and where food is produced, brand and convenience. Community gardens therefore make it possible to obtain healthy, tasty foods at a reasonable price, the convenience of which is on individuals doorsteps. Therefore community gardens can be seen to contribute towards the reduction of inequalities as well as sustainable consumption through the provision of information which allows individuals to make informed decisions and lifestyle choices (Lavelle and Fahy, 2012).

These factors all contribute towards characteristics which will combine to create an increasingly sustainable (and as mentioned previously resilient) community that will display increased social capital enabling them to adapt, cope and maintain positive social, economic, mental and physical health. This use of green infrastructure can therefore be considered to provide a tool which contributes to the creation of sustainable design and healthier, increasingly robust communities (Penny, 2014; De Sousa, 2003).

4.4 Conclusion

In conclusion, the role in which the natural environment can play in fostering positive health, wellbeing and social development outcomes become clear (Hug et al., 2009; Burls 2007; Tzoulas et al., 2007). Through active participation and resulting place attachment (as found to be a result of community gardening), it is likely that the restorative impacts associated with the natural environment will become enhanced (Tenngart Ivarsson and Grahn, 2012). This may be a result of increased physical activities (Hansmann et al., 2007) and the increased mental immersion within the natural environment (Rose, 2012), which would create opportunity for recovery to occur (Kaplan, 1992) as well as enabling social development of individuals (Tidball and Kransy, 2007). The important role the social aspect of community gardening plays in the promotion of health and wellbeing (Kingsley and Townsend, 2006) should not be ignored and will provide individual and collective benefits in the form of social capital impacts which may provide long lasting and far reaching benefits (Putman, 2000).

With consideration to the potential of community gardens to increase individual and community health profiles it seems that increased attention should be paid to the utilisation of green space as a health promotion tool in planning. This would result in the creation of increasingly sustainable interventions (both socially, environmentally and economically) being implemented with the potential for greater and longer lasting (sustainable) benefits to become realised. Anderson et al. (2014) calls for the need for an increased evidence base in which to inform spatial planners so the benefits can be fully realised within planning. It is anticipated that this thesis will contribute towards this evidence base and therefore lead to the promotion of health, wellbeing and social development becoming realised through the effective use of green infrastructure in health promotion and spatial planning.

This chapter is now followed by an introduction to my case study gardens and methodological approach (Chapter 5) to provide a solid understanding of the research process and setting in which to situate the results in Chapters 6 and 7.

Chapter 5 Methods

The literature review within the introductory chapters of this thesis provides a contextual basis for the research questions, methodology and subsequent case study described within this chapter.

Firstly, this chapter will present the research questions, aims and objectives. The research approach will then be outlined within the second section of this chapter. Reasoning for and intellectual debates surrounding the use of the research approach will be considered within this section. This will provide the reader with the underlying rationale of the research methods.

I will then introduce the case study sites within this research. The case study site history, ethos and participants will be described, as well as the location of the sites to provide some context on which to base the detailed description of each qualitative method used, followed by the documentation of the data analysis approach and methods. This chapter concludes with a discussion of the ethical considerations arising as a result of this research.

5.1 Research Aims and Objectives

As presented in the Aims and Objectives (Chapter 1) the research questions of this thesis are:

1. *To explore the extent to which individuals involved in community initiatives arising from sustainable living objectives display enhanced levels of wellbeing from the following perspectives:*
 - a. *Subjective Wellbeing (SWB).*
 - b. *Direct Health.*
2. *To identify how and in what ways social learning occurs as a result of participation within the community garden among different users.*
3. *To explore the social capital impacts of community gardens on the surrounding community.*

4. *To outline the opportunities and obstacles for this approach to community engagement.*

These four objectives form the basis for the development of my research methodology and the discussion within the preceding empirical chapters. The following section starts by outlining and reviewing the methodologies implemented within this research. With consideration to the underlying rationale, and includes benefits and limitations of the methods used which should be considered within the research and how these may be overcome to increase confidence in the methods used. The following section then finishes by introducing the case study sites.

5.2 Research Approach

This section will now present and describe the research methodologies employed within this thesis. The use of a purely qualitative methodology was decided upon with consideration to the overarching research aims and objectives. Qualitative methodologies were chosen to enable a freedom within the research process to probe, enquire, question and reflect within the data collection, resulting in rich data being produced (Patton, 2005).

The use of qualitative methods has a long history within the field of social sciences (Pope and Mays, 1995). Qualitative methods are a valuable tool in the provision of rich, detailed descriptions of complex phenomena (Sofaer, 1999), enabling the researcher to investigate unique events and experiences which may otherwise go undetected in standard quantitative approaches (Savage, 2000); behind every quantity is an underlying quality that can be explored (Sofaer, 1999).

Qualitative approaches have the potential (this is gaining recognition) to contribute towards the understanding of complex and dynamic relationships where the quantification approach may fail to do so. This approach may reveal increased context as to the “why’s” and “how’s” of an impact by providing an increased scope of knowledge surrounding the phenomena (Sofaer, 1999)

through the enhanced peripheral vision of the research methods. This is important in the determination of health intervention policies and planning for better health through the meaningful explanations of health occurrences.

Furthermore, qualitative methodologies have previously been widely used as a tool for exploratory research (Pope and Mays, 1995). Qualitative research approaches allow for a truly investigative approach to unfold. Often when conducting innovative research the lines of enquiry one must follow are unclear, as are the questions in which to frame the research. As the qualitative process unfolds, and immersion within the research area increases, the researchers confidence within their lines of enquiry is expanded and justified (Sofaer, 1999). During this process researchers will see a pattern which may articulate a hypothesis and then be able to systematically search for evidence in which to support or reject this hypothesis. However, in doing so adequate steps to protect the research from bias must be ensured (Baxter and Eyles, 1997).

Qualitative methods therefore provide an excellent approach to exploring complex relationships, values and behaviors making it a useful approach in health research and in particular wellbeing as relevant to this thesis. It also allows individuals to have a voice, rather than being pigeon holed into categories (Sofaer, 1999). This is relevant within my research as I aim to unpick individual impacts arising from involvement with community gardens in relation to personal experience. This is the investigation of complex multifaceted entities which will vary not only across, but also within, individuals (Dodge et al., 2012). This qualitative approach will also allow multiple perspectives to shine through within the research, and the relationships affecting these to be identified in order to provide the bigger picture. This is an increasingly informative approach to statistical analysis as it allows the researcher to explore the human aspect.

Within the field of qualitative research there are a host of approaches and methods which can be utilised within the research process. This allows the design of the methodology to be tailored to meet the research aims and objectives and allow for research constraints such as funding and timescales to be considered.

This description vocalises the changing attitudes towards qualitative research with the recognition of the value of a more than quantitative approach:

“One of the greatest fallacies of the last half century in social research is the belief that science is a particular set of techniques; it is, rather, a state of mind, or attitude, and the organizational conditions which allow that attitude to be expressed.” (Dingwall, 1992, p61).

As stated above, within the field of health research there is an emerging interest in the use of qualitative methods as a means of investigation. However, the translation of these findings remains problematic in conveying the results to a traditionally quantitative results pool (Pope et al., 2000). This problem is considered to be decreasing as the increased use of qualitative research methods are accepted among health practitioners and health research (Bradely, 2007). With the development and awareness of the role both quantitative and qualitative methods play in providing rich data for use in health care (Savage, 2000) there has been a focus upon developing qualitative frameworks for healthcare research (Bradely, 2007). This emphasises the potential contribution this thesis could make towards health research and policy as it will contribute towards the growing body of academic knowledge that supports the use of qualitative methodologies as an effective research method.

To minimise controversy surrounding the use of qualitative methods in regards to criticisms that qualitative research is often poorly documented and difficult to replicate (Mays and Pope, 1995), the approach of this thesis is clearly and systematically documented. The following section introduces the case study sites before describing the mix of qualitative data methods utilised within this thesis.

5.3 Research Design

This section will aim to provide the reader with a comprehensive overview of the case study sites, location, demographics, historical context and organisational

objectives. The chapter will then go on to describe the pathway to establishing the research, before going on to introduce the case study participants.

Community gardens were chosen as a platform from which to investigate health, wellbeing and social development impacts arising from green space. The literature review in Chapter 4 identifies impacts which are likely to arise as a result of green space and community gardening (Wakefeild et al., 2010; Ohmer et al., 2009; Perk et al., 2008; Groenewegen et al., 2006). The case study gardens of Diggin' It in Penlee and Devonport were chosen for this study as a site in which to explore these impacts. These particular gardens were chosen as they are local to the researcher, allowed the researcher to cater for the financial resource constraints associated with the thesis, and readily accessible, with no restrictions placed on my research by the staff at the gardens.

As well as this, the gardens are located in disadvantaged areas in Plymouth; providing a setting in which to explore the impacts on disadvantaged communities. The fact that these gardens are not grass root initiatives, but introduced by an external body at the community level allowed avenues of exploration into organisational impacts and obstacles. The locations of the gardens also allowed for the assessment of the formation of community within the boundaries of the garden as it is removed from the surrounding neighbourhood. These factors resulted in the gardens providing a setting in which to conduct this research in order to meet the aims and objectives of this thesis as set out in Chapter 1.

5.3.1 Establishing the Sites

This section is used to allow the reader to understand the research process from the initial points of contact with the staff through to the working relationships forged with the research participants.

To enable this study to be conducted, preliminary emails were sent to the advertised point of contact for the Diggin' It organisation, this being the volunteer coordinator for Diggin' It Penlee. From this initial line of enquiry I was

connected with the project manager for Diggin' It in the Routeways office and invited for a formal meeting, followed by a tour of the gardens.

During this meeting I outlined the proposed thesis, the aims and objectives, and the anticipated impact for community garden initiatives and the case study gardens as a result of the data collection process. It was agreed that I would become a formal volunteer at Diggin' It, enabling me to experience the volunteer process and to freely interact with other volunteers within the garden environment on a day to day basis. From the offset all volunteers I came into contact with were made aware about the research I was undertaking and informed that at any time they could choose not to be observed within the research and opt out of inclusion within the thesis. A detailed description of the actions taken to account for the sensitive nature of the research was undertaken in the ethics application made prior to commencement, a sample consent form is included within Appendix 1.

During my initial introduction to the garden and the organisation I undertook the formal required volunteer training to make me aware of, and fully understand, the roles, expectations and values placed upon the garden and between volunteers. Additionally I completed Health and Safety training and undertook a Criminal Records Bureau (CRB) check.

Each time I met a new member of staff I outlined my thesis and its intentions. To help minimise impact on participants I would ask the staff if they had any concerns or information regarding the participants that I should be aware of. Through this process I became aware of existing issues within the garden and among the volunteers to ensure I was able to tread carefully and considerately when undertaking my research. This lessened researcher impacts upon individuals within the garden.

5.3.2 Study Participants

Within both case study gardens, through the resulting activities undertaken on and off site throughout the duration of the data collection, it is estimated that I came into contact with approximately 300 individuals. These interactions arose

as a result of all activities undertaken in the role of volunteer within the garden. While the participant observation focused intently on a core group of volunteers, data was collected from interactions with all of the individuals encountered throughout the research process. The frequency and duration of these interactions were variable and are described below.

During the research process there was an observed core of regularly participating volunteers who were included into my research. These volunteers were encountered most frequently - ranging from 1 to 3 times a week. They have been coded alphabetically to maintain participant confidentiality. Due to the low number of participants, and to continue to maintain confidentiality, there is no demographic data associated with each individually coded participant. An overview of the participants will be discussed as a whole to allow for anonymity. The volunteer profiles outlined in Table 5.1 consist of the participants within this research who were part of the participant observation and interviews conducted. All volunteers were approached and gave permission to be included within the data collection process which included participant observation, informal discussions and formal interviews. The constant and repeated contacts with these volunteers over a 6 month period enabled me as the researcher to build sustainable links with participants, carry out prolonged observations, partake in informal discussions, and to create a trust from which to conduct semi-structured interviews, these were carried out towards the end of the research process.

Profile Description	Code	Frequency of contact	Number of Individuals
Learning difficulties Late teens– mid 30's	Volunteer A, B,C	1-3 times per week	3
Retired	Volunteer D	1-3 times per week	1
Existing health problems Middle aged	Volunteer E,F,I	1 time per week	2
Parents with young children	G, H	1 time every 2 weeks	2

Table 5.1 – Volunteer Profiles

The volunteers within Table 5.1 comprise the core participants. The participants A to H were all included in the participant observation and informal discussions and all participants excluding two took part in formal interviews.

All volunteers above reside in different locations in and around Plymouth. There are no observed geographical clusters of volunteer's residence present within the data.

As well as regular contact with this core group of volunteers during the research process, many individuals were encountered once or twice throughout the duration of the research. The majority of this one time contact arose through four main pathways:

1. Educational activities undertaken within the garden; in general these interactions included young people aged 6-16. Although not a focus of the investigation within this thesis, valuable insights were gained through this interaction.
2. One time contact through the community outreach work in which I accompanied Diggin' It off site into the local neighbourhood on community event days, carrying out gardening activities within disadvantaged local areas and schools.
3. Staff training days for local businesses enabled me to interact with individuals attending the garden, participating as part of their away day activities.
4. One time contact within the garden arising from individuals purchasing produce from the garden shop.

While the above interactions were generally one time or very sporadic, I was able to converse with these individuals in order to draw insights into engagement issues and barriers to participation among interested service users. Therefore these individuals were incorporated into the participant observation carried out within this research over the entire duration of the data collection period.

Within the research process observations and informal discussions with staff were undertaken. For the purpose of analysis and discussion staff will be referred to using letters starting with A through to E. To ensure participant confidentiality an overview of the Diggin' It staff will be provided but no further identification of individuals within the results will be made.

In summary, the formal process of data collection described within the methodology (Section 5.4) was implemented with the regular volunteers and staff members and combined with data collected from the one time participants arising from these informal discussions. The majority of the in-depth data was obtained from the core group of volunteers and staff members, whom I was fortunate to be able to work closely with for the duration of this research.

5.3.3 Introducing the Sites

This section provides an introduction to the establishment of Diggin' It as a community garden and then provides a separate description of each case study site (garden) in regards to its' location and activities.

The case study sites are located in two non-contiguous areas of Plymouth, Devon: Penlee (Stoke) and Devonport (See figure 5.1).

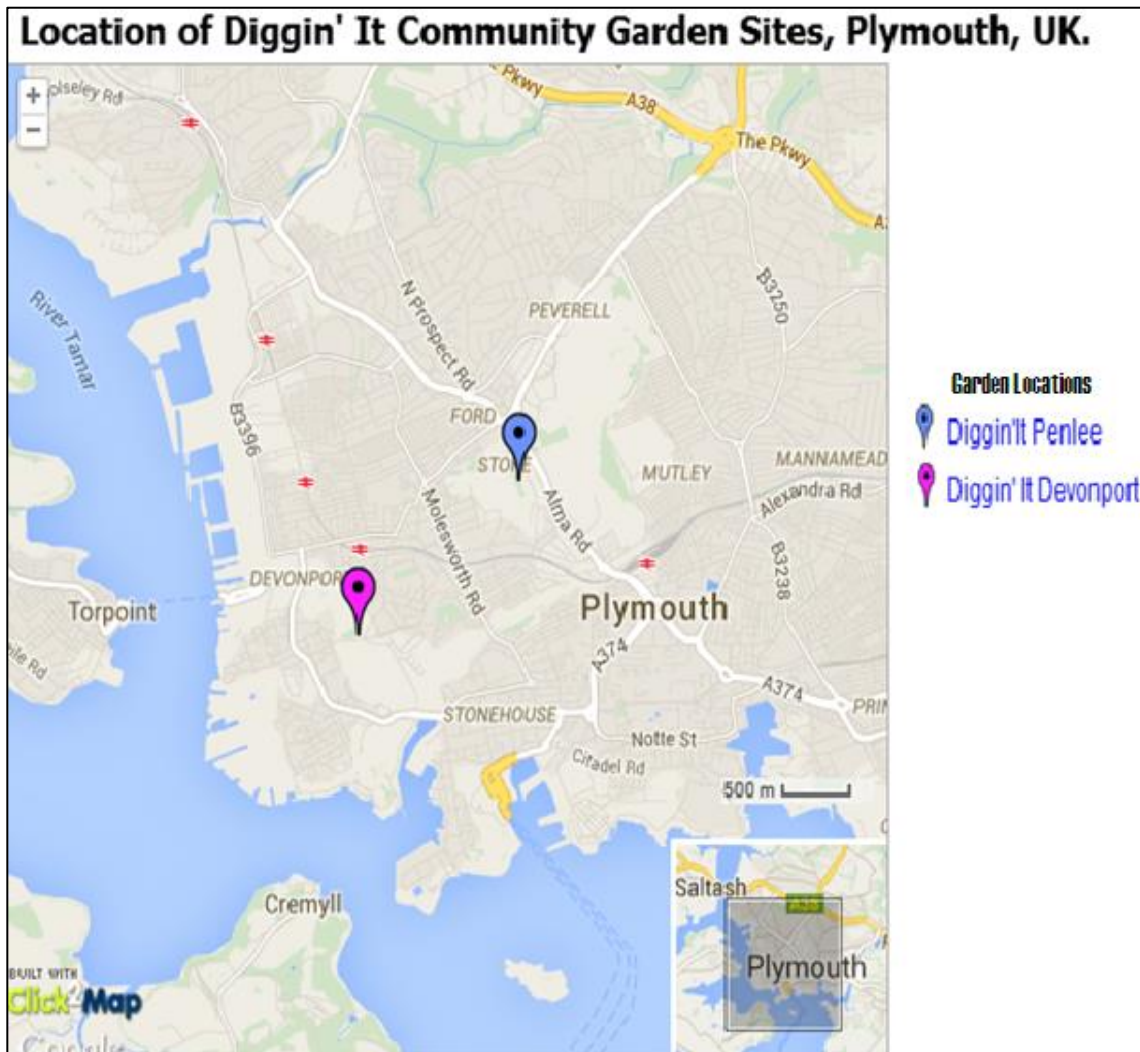


Figure 5.1 Locations of Diggin' It Penlee and Devonport. Plymouth.

Routeways, a local charity, is responsible for both these community garden sites as part of its remit to enhance social and economic wellbeing of communities within Plymouth. It does this through the provision of projects which aim to enhance choice and opportunity for individuals within the local community. These projects serve a diverse range of individuals, in terms of age, socio-economic and cultural backgrounds.

Diggin' It was initially established in Penlee during 2006 with funding from the National Lottery. When initiated, its provision of organic community gardening opportunities for local residents who were considered at risk through

disadvantage and social exclusion (Turnock, 2013) was considered to be unique locally.

The core values and principles of Diggin' It:

“Are, and will continue to be, based on comprehensive community engagement, effective partnership and social, economic and environmental sustainability. We recognise and promote the links between food, health, environmental integrity, economic development and social justice. There are three core elements to Diggin' It and these are to support schools, engage volunteers and to support the community.” (Routeways, 2011, no page).

This statement makes clear the commitment of Diggin' It to increasing community cohesion and reducing the social injustices evident across Plymouth. In order to realise these benefits within the local communities Diggin' It aims to utilise the community gardens effectively to disseminate skills, which could increase employability and knowledge, such as nutritional education and healthy lifestyles, through garden activities. In turn this looks to achieve lasting benefits to health and wellbeing, both socially and economically, within individuals and collectively within communities.

The garden can be considered to act as a platform from which individuals and communities can overcome barriers to change and eliminate isolation within the community through active participation particularly in the provision of an atmosphere that incorporates and supports many different users which range in vulnerability and dependence. Literature (Chapter 4) suggests these actions will produce health and wellbeing benefits to participants (Davies, et al., 2014; Gardening Leave, 2014; Lovell et al., 2014). Assessment as to if these impacts are realised within these community gardens will be carried out in Chapters 6 and 7 from the data collected within this study.

Since the creation of the primary site in 2006 this community based garden initiative has been emulated in other deprived areas of the city, one of which is Diggin' It Devonport, the other case study garden within this research project.

Since 2006, changes in funding and the resulting expectations placed upon the spending of obtained funds have resulted in the adaption of the Diggin' It vision evolving. The initial outreach in 2006 was targeted at those suffering social exclusion and mental ill health, but this has since evolved to encompass educational outreach in line with available funding and political focus on improving educational inequalities (2009-2012). The current overarching vision for Diggin' It from 2013 to 2015 focuses on “reaching communities” and improving connectedness. This strategy emphasises the use of horticulture and agriculture in order to increase social cohesion and promote health within communities within Plymouth. I will now in turn describe the individual sites in detail.

5.3.4 Case Study Sites

The following section details each community garden, its location, perceived general accessibility, demographic profile, outreach activities undertaken on and offsite, volunteer opportunities and roles, site staff and facilities within each of the individual gardens.

To provide some socio-economic background information Table 5.2 below reviews the 2011 census socio-economic data for Stoke (Penlee) site and Devonport. The relation to the city wide average can be seen within these statistics, giving an idea of relativity within the data.

	Penlee			Devonport			City Wide Average
Population	9,242	51.3% Male	48.7% Female	6,344	51.4% Male	48.6% Female	256,400
Deprivation Score	16 of 39			1 of 39			
% Residents Claiming Benefit	18.37			39.7			17.3
% Jobseekers Claimants	5.8			10.1			3.8
Life Expectancy (years)	76.8			72			80.3
% Homes Considered Non-Decent*	44			31			33.3

* Non decent homes are those that do not meet the government minimum standard of decent which considers factors which include adequate thermal comfort, a reasonable state of repair and includes modern facilities.

Table 5.2 – Overview of 2011 Census Records for Stoke (Penlee) and Devonport Sites

This overview will start with the primary case study site Penlee.

Site A: Diggin' It, Penlee, Stoke

Diggin' It, Penlee Stoke is located on the edge of what is considered to be a disadvantaged housing estate and also backs onto an existing allotment area. Figure 5.2 provides an aerial view outlining the position of the garden in relation to the surrounding community and pre-existing facilities. The red line denotes the adjoining public allotment, whilst the blue line encompasses the community garden boundary.



Figure 5.2 Aerial View of Diggin' It Penlee

Census data (Table 5.2) suggests that levels of the population receiving benefit and residing in non-decent homes are higher in Penlee than the city wide average. The rate of individuals in receipt of a care package in Stoke is also above the city wide average (506.6 per 10,000). Also, individuals suffering dementia are higher than the city wide average at 111 per 10,000, as compared with the citywide figure of 33. Individuals with learning difficulties are 74 per 10,000, which again is more than the city wide figure of 33.2 per 10,000. It is apparent within this data that both sites are located within areas displaying characteristics of disadvantage, with lower levels of health and wellbeing than the average for the city.

Activities carried out through the Penlee community garden are listed below, occurring on and off site according to the nature of the activity. As a volunteer I was able to take part in and experience all of them.

- Community outreach work.
- Gardening on site with volunteers.
- Growing Devon's Schools and school gardening groups.
- Extra curricula activities.

- Day trips.
- Nutritional education and cookery classes.
- Staff training days.
- Craft clubs.
- Links with Plymouth Job Centre.
- Oakwood Court College links.

Oakwood Court is a specialist school for ages 16-25 aimed at supporting young people with learning difficulties. Students from Oakwood court attend Diggin' It in Penlee to improve their social skills, independence and learning away from the college. These individuals are reported (and observed) to continue to volunteer after leaving the college. The garden helps the students to bond, gain practical life skills and ticks all the boxes for the aims of the college, these being: life skills, physical wellbeing, independence and living your life.

The Penlee garden, as seen in Figure 5.2, shows the garden extent and the poly tunnels, volunteer hut, store room, office, shop, kitchen and toilet. Within the site there are also a variety of composters, ponds, allotments and relaxation areas. Volunteers and members of the public are welcomed into all of these areas during volunteer hours. Access into the garden is restricted according to the opening hours for general volunteers, this being 10am to 4pm Monday, Tuesday, Thursday and Friday, and 10am to 12pm Wednesday. The site is closed at the weekend mainly due to staff shortages and insufficient funds to employ a weekend staff member. During volunteer hours the gates to the garden are unlocked and there is generally a staff member on site. If there is no staff member on site then an emergency number and telephone is provided to volunteers, however for health and safety reasons it is rare for volunteers to be onsite without a staff member. Outside these volunteer hours, in accordance with the bordering allotment, keys are provided to volunteers in order to access their own personal allotment through the community garden. While these allotment holders are expected to participate within the community garden as a condition of obtaining a private plot, there is no requirement to do so outside of official volunteer hours (in line with health and safety).

Site B: Diggin' It, Devonport

Diggin' It, Devonport, forms case study site B and is represented in Figure 5.3 (which shows the location of the community garden within Devonport, the surrounding facilities and residential areas. The red line denotes the community garden boundary).

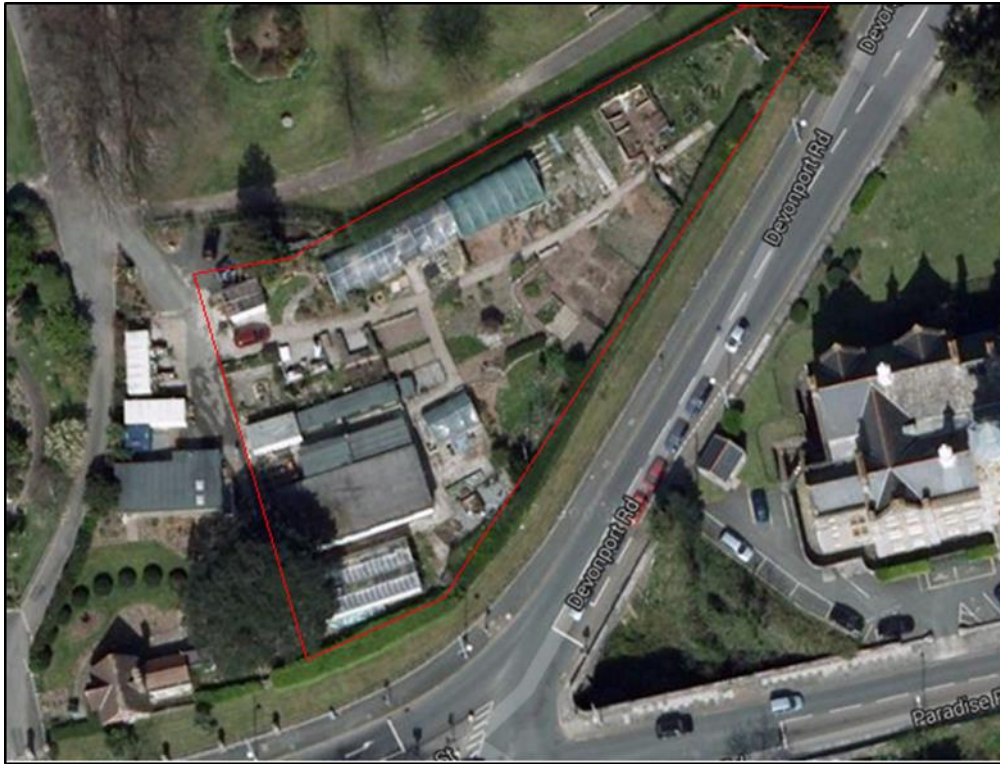


Figure 5.3 Aerial View of Diggin' It Devonport

Diggin' It Devonport is located within Devonport Park in an area that was already considered to be an actively visited green space within Plymouth. The Devonport site is considered to be more easily accessible than the Penlee site in terms of public transport, visual awareness, (the Penlee site is hidden behind a community housing estate), and is more professional and groomed in appearance.

Devonport is ranked number 1 out of 39 areas in Plymouth by the Index of Multiple Deprivation (IMD) 2011 scores making it the most deprived neighborhood in Plymouth. The following statistics illustrate Devonport's ranking:

- Average life expectancy within this area is 8 years below the average for the area of Plymouth.
- The rate of anti-social behavior (individuals affected by) within this area is 97.7 per 1000 people, which is almost twice that of the rest of Plymouth (49 per 1000).
- The amount of children in need is double the rest of the Plymouth area and 10% fewer children achieve 5 or more GCSEs the average for Plymouth.
- The rate of individuals receiving a care package within the Devonport area aged 18+ is 396.3 per 1000 which is above the Plymouth wide average of 233.9 per 1000.

These figures, together with those in Table 5.2, imply Devonport is an area of particular disadvantage within Plymouth. Traditionally Devonport has a long history of relative deprivation with consideration to both the city wide average and the rest of England. Devonport is home to the Devonport Dockyard which at one time employed around 30,000 individuals. Today that number has shrunk to around 3000, however this has been rising since 2009 which saw the introduction of funding attributed from the 'New Deal for Communities' in which a £48.7 million regeneration investment was made. Nevertheless Devonport is still ranked as the most deprived area in Plymouth.

Within the garden an eclectic mix of activities are undertaken, as listed and described below.

- Gardening and site maintenance by volunteers.
- Rooted Clubs: 8-10 year olds, 11-15 year olds and 16-25 year olds.

These clubs are aimed at helping children and young people make the transition from school (16-25) into work and provide an after school club for the younger participants (8-15). The Rooted Clubs aim to provide skills and knowledge in a safe learning environment. Individuals participating in these evening clubs tend to be regular participants and consist of vulnerable young people who need extra support to integrate with the local community. Clubs are free to attend and the activities involve gardening, healthy eating, crafts, trips

out and nature trails. Parents and carers can stay or go and there is a family activity once a month.

- Saturday morning gardening club.

Similar to the rooted club, however the cost is £2.00 per session. During these sessions various gardening, wild cooking and outdoor activities are undertaken

- Community events, i.e. seed swaps and plant sales.

Close links with Friends of Devonport Park

Access to the garden is again restricted to the opening times, however these are prolonged in comparison to the Penlee site, opening for the evening and Saturday morning children's clubs and family activities. The Devonport garden, as seen in Figure 5.3, shows the garden extents and the poly tunnel, pond area, classrooms, climbing wall, equipment store and an outside seating/picnic area with a clay oven.

5.4 Methods

I will now discuss the individual qualitative methods implemented within this research.

The research methods were:

- Participant Observation.
- Auto Ethnography.
- Semi-structured Interviews.

The first two methods are ethnographic methods. Ethnography is defined as the use of qualitative methodologies with the intent to provide a detailed and in-depth description of processes and practices which occur in everyday life (Hoey, 2013). Ethnography is rooted within anthropology, focusing on small scale communities with a research interest which focuses upon beliefs and practices (Savage, 2000). Originally ethnographic research was developed by anthropologists such as Gerhard Friedrich Müller which traditionally focused

their research on small remote communities (Hammersley, 2006). Since the initial use of this methodology it has become increasingly incorporated into the methods utilised within other disciplines when a rich description of processes is required (Hammersley and Atkinson, 2007). When considering the research focus of this thesis measuring the subjective entity of wellbeing is likely to be a valuable methodology for utilisation.

Considered within research circles, ethnography provides a method that is investigative, and if implemented systematically scientific and robust through adherence to best practices, frameworks and a sound understanding of the methodologies. This approach therefore is able to provide a tool for primary data collection which is both rigorous and accurate to produce results that are locally relevant and applicable elsewhere (LeCompte and Schensul, 2010). Ethnographic approaches allow for an increasingly immersed observation through on site research (Pink, 2009).

This longitudinal approach leads to the possibility of increased information concerning the changing dynamics that will occur over time when assessing health and wellbeing impacts within a community. This will provide a valuable approach due to the subjective and humanistic nature of the subject matter within the scope of this thesis (Hammersley and Atkinson, 2007). The enhanced understanding of practices and norms occurring may only be possible to identify over time, and original observations may become obsolete through participant immersion making prolonged observation beneficial and necessary to uncover the full story.

There are some criticisms of ethnographic research to which I have either countered or adopted methods that seek to limit these issues:

Firstly, ethnographic research has been described as fuzzy in its nature, due to its undefined boundaries, loose definition and framework surrounding the method (Hammersley, 2006). However, this fuzzy nature provides benefits allowing the research to become open to increased threads and lines of discovery, permitting the flow to evolve as it develops. This will complement the

multifaceted, subjective nature wellbeing research being undertaken, and allows for lines of enquiry that may develop unexpectedly along the process to fully realise the human experiences observed (Baxter and Eyles, 1997).

Secondly, social science investigations tend to be carried out over months (Goetz and LeCompte, 2009) rather than years often due to resource shortages. However, the advancement of data collection recording devices enables the researcher to collect and store vast amounts of data in a short space of time.

Lastly, ethnography has also been criticised for analysing only surface events that are easily observable, however I ameliorated this issue with the use of qualitative interviews to increase the depth of findings on an individual level (Carpiano, 2009).

5.4.1 Participant Observation

Participant observation as defined by DeWalt and DeWalt, (2010) p1 is:

“A method in which a researcher takes part in the daily activities, rituals, interactions and events of a group of people as one of the means of learning the explicit and tacit aspects of their life routines and culture.”

In the context of this research I observed individuals participating within community gardens and took part in garden activities.

Participant observation as a method is valuable for assessing a multi-faceted and subjective topic, such as in the case of wellbeing. It allowed me to fully immerse myself for a prolonged period in order to appreciate and understand multi-dimensional, complex human interactions, emotions and the consequences of which were seen to, and are expected to, fluctuate (Dolan and Metcalfe, 2012). This process also enabled me to create networks and relations with the individuals involved within the study area to gain a rich insight into what is occurring on a day to day basis, over a prolonged period, and to lay the

foundations of trust and mutual respect which is beneficial when undertaking semi-structured interviews. All of this serves to increase confidence in the results obtained.

There is avocation for, and examples of, the use of participant observation within health and wellbeing research to enable the social and cultural complexities of communities, institutions and other settings to become evidenced within research (Cattell et al., 2008; Tsey and Every, 2000).

This active form of research enabled me to collect rich and current first-hand data which tied together both the researcher, the research participants and the topic of research (Pink, 2009). This method, and when combined with the other qualitative approaches utilised within this thesis, acts to reduce the gap between researcher and participant. It also merges together lived experience and accounts creating increasingly likely and reliable results, and has been described in health research to reach areas where traditional methods fail (Pope and Mays, 1995).

The main focus of the research process consisted of prolonged participant observation undertaken over a 6 month period, providing the primary source of data for use within the thesis. Through the adoption of the role of volunteer within the garden, in order to carry out my research I was able to interact with volunteers on an equal level, enabling me to experience the volunteer process and build links with existing personnel, all enhanced by the prolonged research period (Christopher et al., 2008). The process of participant observation adopted a tentative start so as not to alienate existing volunteers, developing into a fully immersive effort becoming established over the study duration. I attended one of the gardens each day over the 6 month period when they were open to volunteers, this being Monday – Friday. The data collection commenced in April and finished in October, as a result of this the data was gathered in seasons of spring, summer and autumn, traditionally the busiest in the garden, enabling me to maximise the potential contact with volunteers and visitors to the gardens. I would arrive at the garden 30minutes to 1 hour after the volunteer hours had started. In doing this I was able to pick who I wanted to

work with that day by joining them in their activity, this ensured I was able to observe all individuals equally within the garden and follow up on lines of inquiry as they developed.

Data was collected from a multitude of sources during participant observation and the consequent immersion within the garden, i.e. observational diary, reflective diary (auto-ethnographic journal), leaflets, staff training, community events, online social networking and media, television programmes, informal discussions and photographs.

During the data collection period I conversed with many individuals who were not directly involved within the garden case studies so are not considered volunteers or regularly observed visitors to the garden. These were generally members of the surrounding communities or allotments as well as school children visiting the garden and residing within the surrounding neighbourhood. In depth notes or recordings were not taken at these times, they were written up reflectively after the encounter, with an average write up time of 10 minutes to 1 hour later. These notes have been included within the research as they provide considerable insights into the research questions considered within this thesis.

Volunteer presence within the garden was largely weather dependent, sometimes I would arrive at the garden and there were no volunteers on site. During these times I would garden, contributing towards my auto ethnographic data and have informal discussions with the staff which is included within the results.

5.4.2 Auto Ethnography

Auto ethnography as defined by Ellis et al., (2011) no page is:

“An approach to research and writing that seeks to describe and systematically analyse personal experience in order to understand cultural experience. This approach challenges canonical ways of doing research and representing others and treats research as a political, socially-just and socially-

conscious act. A researcher uses tenets of autobiography and ethnography to do and write auto ethnography. Thus, as a method, auto ethnography is both process and product.”

Through autoethnography I was able to explore my personal experiences in relation to the community wide experiences I was observing (Ellis et al., 2011), taking into account the wider social structures at force (Cook, 2012). During this auto ethnography my field diary came into its own. Through this process of self-reflexivity, my immersion was heightened and as a researcher I became increasingly absorbed within the field of research, sensitive to the lines of enquiry, emotions and actions I was observing (Spry, 2001). It has been noted that it is impossible to study the social world without becoming a part of it (Hammersley and Atkinson, 2007), while this is a rather sweeping statement it does emphasise the value of qualitative approaches within this research.

Auto ethnography as a method is considered by some to result in biased results undertaken by self-absorbed narcissists (Ellis et al., 2011). However, with careful documentation and true narration of results (ensuring researcher bias and positionality is eliminated) this method has resulted in many affirmations of impacts, observed and obtained with the other qualitative methods implemented in this research. This has led to increased investigator confidence concerning authenticity of the results obtained, as well as advocating the use of auto ethnography as a method within this thesis.

During this process I kept a research diary of my personal feelings and experiences of the garden, gardening process and interactions with others through involvement with the garden. This ensured my personal views and emotions were recorded separately to the participant observation and allowed me to document my journey within the garden as a volunteer to include within the results.

5.4.3 Semi-Structured Interviews

There is a host of existing literature advocating the use of interviews as an effective qualitative and quantitative research method, drawing attention to the depth of enquiry this method can reach, making it an incredibly valuable tool in

academia (Flyvbjerg, 2006). Interviews enable the investigator to appreciate the context of results, obtain multiple perspectives and open up lines of enquiry that may not have been anticipated (Gable, 1994).

This method is most widely used in sociology, human geography, psychology, political science and biographies, tending to come into its own in areas where strong statistical analysis are considered to be weak and a greater in depth approach into the bigger picture is needed (Foddy, 1994). This is relevant within the subjective nature of health, wellbeing and social development at the core of this research. This in turn agrees with the concept concerning the benefits of multiple methods drawing on the strengths of each to fully explore and answer the research questions to the best possible degree (Johnson and Onwuegbuzie, 2004). Verbal data collection methods have become widely used and recognised within social research, it is cost efficient, and often the only way to capture information about the past and subjective variables such as attitudes and beliefs (Foddy, 1994).

As widespread as the use of interviews is, there is a documented mistrust of this method in academia due to lack of clarity in its research design and use of framework (Robson, 2002). This criticism tends to arise from the positivist school of thought and the results may be considered by these researchers to be less credible, too contextualised, open to selection bias and inappropriate for generalisation (Robson, 2002). The interviews were loosely scripted and deviations within responses were encouraged widening the scope of findings. Having the scripted questions ensured I was able to return to my line of questioning, rather than becoming distracted into irrelevant small talk which may yield gaps in the collected data (a copy of the scripted questions can be seen in Appendix 2). This allowance to deviate minimises the artificial nature of interviews and the narrow view some academics propose they result in.

The use of interviews as a research method allowed for questions arising during participant observation, which may otherwise have remained unanswered, to be developed and the complexities and interactions observed to be discussed and confirmed, or disregarded. This ultimately allowed for increased perspective surrounding the observations (Kumar and Ormiston, 2012). These in-depth

interviews were therefore undertaken towards the end of the research process which commenced with participant observation in order to create increasingly detailed personal insight into the situations I had observed (Potter and Hepburn, 2005) and allow participants within the research to have a “voice” (Hammersley, 2006). By situating the interviews towards the end of the data collection process I was not only able to question my observations and emerging hypotheses, but also create a trusting relationship and familiarity with the volunteers within the garden.

Individuals were approached from the core group of volunteers outlined in Table 5.1 and permission was obtained to carry out a formal, recorded interview. A confidentiality agreement was signed prior to commencement of the interview. This can be seen in the appendices.

The creation of a selection criterion for participants was not applicable due to the small sample size of volunteers at the site. Therefore each individual was approached for interview, participant’s permission was gained and interviewees were individually briefed at the start and finish. During this stage I was fortunate as I did not face resistance among the majority of volunteers in response to seeking interviews, with most of the core participants taking part (all volunteers except two were interviewed). One of the participants left the garden as a volunteer before the interviews were conducted and another while happy to take part in the participant observation and in informal discussions did not wish to partake in a formal interview. The low refusal rate is likely to be related to the time I spent in the garden as a volunteer carrying out participant observation, building trust with the study participants, which in turn built on the authenticity of the research (LeCompte and Schensul, 2010). This reinforced the confidence placed in accurate and honest answers being obtained, and minimised the issues raised in existing literature that interviews will result in an artificial critique of their experiences in order to fit the perceived demands of the interviewers (Miller and Glassner, 1997).

The interviews were carried out in the garden environment, in the volunteer space or reflection area. These were conducted during quiet times, away from

other gardeners so the interview would not be overheard and the participant felt more secure and free to talk within the familiar environment of the garden, leading to increased likelihood of reliable and honest results. During the interview process there was a deliberate effort to ensure the questions asked were not leading in any manner, enabling the interviewee to provide honest responses and not be guided by myself as a researcher. The questions were designed to be clear, succinct and relevant, with double barrelled questions, negative and biased terms avoided (McColl et al., 2001).

5.5 Research Analysis

During and after data collection had occurred, it was my role to form and develop a reflexive process of analysis in order to appropriately convert these lived experiences into academic knowledge (Pink, 2009), whilst maintaining the integrity of collected data and minimising tensions between participant and analytical perspectives (Hammersley, 2006). It is recognised within qualitative research that there is no “right” way of implementing analysis. Therefore researchers are responsible for ensuring their analysis methodology best fits the research (Elo and Kyngas, 2008), which I have endeavoured to do. This section outlines the data analysis framework undertaken to enable me to sort and understand the data obtained within the research process, and to combine the different sources used to produce the rich narrative found within the results of Chapters 6 and 7.

Transcribed participant observations, semi-structured interviews and auto ethnography within the fieldwork journal were coded and analysed manually without the use of qualitative software. This allowed me to be increasingly immersed with the research and familiarise myself with the findings over a period of time with regards to data evolution. In addition, this approach enabled me to reduce the possibility of errors which could contribute to data anomalies or losses through inadequate transcription, i.e. preventing misleading data, thus increasing confidence in the validity of the results.

The decision to code manually and without the use of computer software packages, such as Nvivo, was to fully support and allow for the characteristics of the qualitative research, one that is rich and descriptive, to unfold without barriers. Using software packages can be seen as a reductionist approach to analysis, resulting in less scope for multi-perspective and innovative thinking, which may also lead the researcher to becoming less engaged and familiar with the data. In turn this can lead to diminished results through inadequate understanding (Seidel, 1991), resulting in an output that may fail to fully reflect the richness of the results obtained. Qualitative software can be seen as trying to squash the qualitative dynamics into the quantitative boxes, in which they sometimes just won't fit (Strauss, 2003).

In order to accurately and fully understand the occurrences within the data I collected I undertook repetitive, exhaustive and multiple readings of the transcripts. This process enabled me to identify key themes within the data and ascertain the true meaning of what has been observed or encountered over the full duration of the study period (Berg and Lune, 2004).

Code maps were created for data analysis that enabled primary themes to emerge within the data as well as allowing cross cutting themes to be identified. A copy of my code map can be seen within the Appendix (Appendix 3). Code maps were colour coded enabling me to visualise the occurrence of themes as they emerged. Themes were sorted into individual, community and organisational impacts emerging within the data as well as evidence of health, wellbeing and social development impacts. The primary and cross cutting themes that emerged enabled me to draw empirical observations from which my research questions could be debated and considered along with existing intellectual hypothesis presented in the introductory literature. Appendix 4 provides a list of literature and preexisting wellbeing indices incorporated into themes used to develop the coding used in the analysis of data collected within this thesis.

These unfolding themes covered individual and community perspectives of health and wellbeing, both objective and subjective, as discussed in Chapter 2

within the review of wellbeing measures. Taking the explanations of health, wellbeing and social capital discussed in Chapters 2 and 3, and the way in which these can be measured, enabled me to have a clear understanding of what I was observing within the data in relation to health and wellbeing impacts. While wellbeing indexes were not utilised within the data collection, the underlying characteristics and emotions implemented within these were used within the coding and identification of wellbeing impacts, which were evident within this thesis when undertaking content analysis.

5.6 Ethical Considerations

The research carried out within this thesis was concerned with assessing health and wellbeing impacts. A large proportion of the participants encountered within the research process are those that can be considered to be vulnerable adults. This is defined as a person who is in receipt or in need of community care services due to physical disability, mental ill health, age or illness. The individual may be unable to care for themselves or to protect their person against exploitation or harm within a care setting (Department of Health, 2011). This on its own raises important ethical considerations. Adults encountered within the research process displayed a history of ill mental health, social isolation, learning difficulties or illness. As well as these individuals, during the research process I also came into contact with children. Due to the sensitive and vulnerable nature of volunteers (study participants) within the garden, taking into account their associated needs and the protection the garden provides for individuals within it, I was able to create a study that was implemented in a sensitive manner. It was imperative to ensure that no impacts were projected onto volunteers within the garden as a result of my data collection and thesis interests. To ensure I allowed for these ethical considerations in my research design a Track B ethics application was made to the Geography Ethics Committee, this was accepted and I did not commence my research until I had completed this.

As a researcher I am in a position of power, by this I refer to the effect of my position as a researcher to participants within the garden that may impact interviews with participants. This may be further emphasised within vulnerable

individuals encountered who may be increasingly susceptible to these feelings of researcher power. My gradual approach in building relationships with volunteers was implemented to ensure this impact, if not abolished, was minimised. The prolonged participation as a volunteer also helped me to be viewed in one sense as a part of their community when collecting the data.

There is a delicate balance between maintaining a professional distance and playing the role of volunteer within the garden, one which was important not to forget due to the role I was playing and the reasons for participating. I was not aware at any time that volunteers considered me to be in a position of power or intimidating because there was no evidence of withdrawal from me as the researcher. This also allowed me to become viewed as an equal, which is a relationship status fostered within the garden. In the garden everyone is considered equal in the role they play. They are encompassed within a safe trusting environment in which confidentiality is an advocated value. The combination of the garden ethos and my gentle, gradual approach to data collection in the form of active equal participation allowed me to minimise the issues which may have become evident through investigator position.

Another aspect is the power I myself have within the analysis of the research and how it is interpreted and presented. In the role of the researcher it is understood that I am likely to be in control of the direction of the questions, the flow of the conversations and to interpret them as I wish. The role of the multiple self in the position as researcher runs the risk of turning researcher opinion into knowledge through influencing the interpretation of the data according to emotions evoked from within (Davies and Dwyer, 2007). In order to minimise this impact I wrote a reflective diary at the end of each day. This had three distinct entries:

1. Direct observations.
2. My researcher interpretation of these findings.
3. Final write up of my auto ethnographic account of events.

Using this approach I could then draw out observations and trends appearing within the data and to some extent separate from these my emotions and

opinions forming from the observations. This also enabled me to review my personal position within the data collection process on a daily basis. Having these separate and distinct reflective write ups ensured I was not leading the research or recording my own personal reflections as observations.

Advocacy for the participants within the study was an issue I needed to control within the analysis and subsequent write up of my thesis (Hammersley and Atkinson, 2007) to ensure I did not over exaggerate the impacts observed within the garden for the benefit of the garden and participants. This relates to social and political practises and implications which may arise from the research, especially relevant when considered alongside Chapter 7 (Opportunities and Obstacles). This advocacy issue was also faced when interacting with the staff. During the research process I was given access to sources of information not readily available to the public, through the Diggin' It staff and management, as well as this I was privy to opinions and observations of the staff collected through discussion, observation and interviews. Here the staff may have motivations to increase the reports of benefits arising as a result of involvement with the community garden, with little criticism of the projects. This would result in misleading data concerning impacts of community garden projects on health and wellbeing if they are biased accounts (Nunkoosing, 2005). While this is not something I as a researcher can prevent, it is something that I can consider within the content analysis, using triangulation of source data to identify anomalies and outliers within the data to assess validity of the data obtained from staff.

5.7 Summary

This chapter has provided detailed documentation of the data collection and analysis undertaken within this thesis, describing the use of qualitative methodologies. Implementing this qualitative approach will enable the researcher to collect a rich and descriptive in depth analysis of impacts (Pope and Mays, 1995) occurring as a result of active participation in the community garden case study sites. The following chapters, 6 and 7, display the empirical findings collected within the research, and apply these in the context of the

thesis, to enable the aims and objectives to be met and discussed in increased detail.

Chapter 6 Individual Impacts, Health, Wellbeing and Social Development

This chapter presents findings from the case study sites in relation to the specified research questions. Throughout the data collection period a variety of data was collated to include observed behaviors, quotes, photos, questioning and auto ethnography. These have been amalgamated to enable me to identify impacts and discuss these observations further with volunteers. In turn, this has resulted in the production of a rich descriptive analysis detailing impacts to health, wellbeing and social development identified as occurring as a result of active participation within the community garden case studies.

The evidence that will be presented within Chapters 6 and 7 is organised according to the research questions which broadly fall into the following categories: individual, community and organisational impacts on health, wellbeing and social development. Splitting the results into two chapters is hoped to ease the understanding of the impacts occurring as a result of participation within the gardens, making an increasingly coherent review of results. Due to the interlinking nature of the research topic, impacts are observed to overlap between the headings and chapters this is consistent with health, wellbeing and social capital literature reviewed in Chapters 2 and 3.

Auto ethnographic accounts within the results have been inserted into boxes to allow these personal experiences and reflections to remain easily identifiable and separate from the participant observations and interviews carried out within the research. These boxes are inserted into the results towards the end of each section to enable reflection and consideration of the impacts as they impacted me through the adoption of the role of volunteer within the research process and as they relate to the findings of impacts on volunteers within this study. Reflective volunteer accounts and observations of community events are also inserted into boxes throughout the results chapters to ease the dissemination of findings and to separate these accounts from direct statements made by the volunteers.

It should also be noted that within this chapter the assessment of direct health impacts is carried out by subjective observations rather than direct measurements, this therefore means the results in this section (6.1.2) are not objectively measuring health impacts directly, but are drawing on valuable observations.

Once the health, wellbeing and social development impacts have been identified within this research, it will then be possible to determine the potential of community gardens in fostering healthier and increasingly sustainable landscapes (Anderson et al., 2014; Penny, 2014), with consideration to the long term possibilities arising from these results. Recommendations for effective utilisation of green space and future research areas will then be discussed within Chapters 8 and 9. This chapter will therefore conclude with a summary of findings for further discussion within Chapters 8 and 9 in regards to health, wellbeing and social capital impacts attributed to participation within community gardening initiatives drawn from the case studies used within this thesis.

6.1 Individual Impacts: Health and Wellbeing

The presentation of empirical evidence collected within this research will first identify individual impacts on direct and subjective health of the research participants arising from involvement with the community garden case studies. The research objective 1 stated in Chapter 1 in relation to individual impacts is as follows.

1. To explore the extent to which individuals directly involved in community initiatives, arising from sustainable living objectives display enhanced levels of wellbeing from the following perspectives:

- *Direct Health.*
- *Subjective Wellbeing.*

The following results will show the degree to which impacts occur on individual health and wellbeing as attributed to community garden involvement.

Findings suggest that health and wellbeing impacts were predetermined to a degree by the characteristics of individuals' pre-existing lifestyle before attending the garden. Therefore it is important to provide an outline of individual volunteers and their pathway to participation within the garden. Figure 5.1 (Chapter 5) illustrates the characteristic overview of core volunteers encountered within the research process. It has become evident that there were three common pathways taken when becoming a volunteer within the garden, these are identified below:

1. Through educational institutions as part of participants' social education.
2. Medical referrals.
3. Own interest (prior love of gardening).

It will become apparent within the following analysis that individual pathways to involvement with the garden will result in different experiences of impacts being realised across volunteers. Volunteers within the garden resided in, and originated from, an eclectic range of social backgrounds and residential communities within Plymouth but those residing in the local neighborhood were not present as active volunteers within the boundaries of the garden. The majority of volunteers commuted to the site by foot or bicycle with the average journey into the gardens being over 2 miles long. The longest commute entailed an 11 mile journey by car. This indicates that within the local community (surrounding neighborhood) it is likely that there are barriers to engagement preventing participation other than direct physical access to the sites. These findings will be expanded within Chapter 7. I will now go on to identify individual impacts attributed to involvement within the community garden case studies on health and wellbeing.

6.1.2 Perceived Impacts on Self-Reported Direct Health

Impacts on direct health (as identified within the literature review in Chapter 2) include factors that contribute towards positive general health. These were found take the form of aspects such as body weight, cardiovascular health, absence of illness and general fitness. These impacts were observed throughout the data collection process in volunteer actions, reflective

experiences and interviews with volunteers and staff members taking part within the garden. It is important to highlight that the impacts associated and described by staff and volunteers concerning direct health are self-reported.

Subjective judgements concerning observations of the physical appearance and fitness of volunteers suggested there were two distinct groups: the younger volunteers (aged 17-25) who tended to be overweight, while the older volunteers 45+ (second group) were observed to be a healthy body weight. This was analogous in the assessment of fitness between the age groups within the garden. Observed contrasts in physical appearance and fitness between these distinct age groups is likely to be a product of individual lifestyle histories (and reflected within the pathway into involvement within the garden) before arriving at the community gardening initiative. Older volunteers tended to participate because they enjoyed gardening whereas younger volunteers were generally referred to the garden as an educational tool to encourage their personal and social development through active participation within the garden. The older volunteers reported a healthier lifestyle history perhaps partly as a result of this pre-existing interest. In contrast to this the younger volunteers did not self-report an awareness of these healthy lifestyle objectives before becoming involved within the garden. They did however credit the garden as providing direct health impacts since participating within Diggin' It:

“Now I am here a lot I am fitter, I do more stuff outside like digging and weeding which is hard work, I can lift heavy things, I am fit to garden.” (Volunteer B, June 2013).

“I watch less TV now because I am not at home all the time and when I am at home I help mum in the garden more and I like to cook.” (Volunteer B, July 2013).

Since joining the garden, younger volunteers reported increases in physical activity in comparison to their routines before involvement with Diggin' It. These active lifestyle impacts were found to extend out of the immediate garden environment into other communities in which volunteers are involved, as

exemplified above into their home lives. Volunteers and staff members self-reported increased health as a result of this increase in activity which is attributed towards the garden in healthier lifestyle options emerging as a product of active participation with the community gardens.

Older volunteers and staff members however recalled pre-existing healthy lifestyles in effect before attending the community garden:

“I like participating in the garden, as I no longer work it keeps you fit and active. I’ve always been active……I don’t know what I would do……” (Volunteer I, June 2013).

“I love to garden. I always have, it gets you out and about....A great way to stay active.”(Volunteer D, May 2013).

“I’ve always enjoyed gardening, being close to nature and doing something active so I stay fit.” (Volunteer F, July 2013).

“I’ve always gardened; it’s relaxing, and at the same time be productive and create something worthwhile.” (Staff member B, May 2013).

This is indicative of the impacts of a pre-existing healthy lifestyle as mentioned in the introduction. While still receiving benefits through involvement within the community gardens these statements lead to the emerging realisation that as a result of having a pre-existing interest with the process of gardening it is likely that these individuals have a rich lifestyle history of the occurrence of positive impacts associated with the community garden before attending Diggin' It, through healthy lifestyle choices already in effect. This raises the importance of instilling these healthy lifestyles at a young age to extend the opportunity for health benefits arising as a result of these throughout an individual's entire life, maximising potential benefits. My experiences of the garden on my direct health are described in Box 6.1 below within the following auto ethnographic account.

Box 6. 1 Percieved Subjective Personal Health Impacts

As an active individual, I did not feel that I experienced any direct health benefits from active participation within the community garden. Times when I was in the garden were not physically strenuous or cardiovascular compared to activities normally undertaken within my leisure time. However being outside more than usual on a daily basis did make me feel energised and happy. This is indicative that there were subtle impacts occurring on my health and wellbeing as a result of active participation in the community garden.

While I did receive benefits from attending the garden in the form of relaxation, fresh air and perhaps the utilisation of muscle groups which normally lay dormant in my chosen activities, the direct health impacts occurring through the actual physical process of gardening were not substantial due to my pre-existing interests. This auto-ethnographic account further reinforces the importance of pre-existing lifestyles and leads me to conclude that individuals arriving at the community garden from increasingly sedentary lifestyles do (as shown above) have the potential to receive substantial positive impacts to their direct health, while gardening contributes to maintained positive health in already active individuals.

Discussing this observation and the volunteer reflections regarding lifestyle changes with garden staff members, they confirmed that within the younger volunteers there has been a marked improvement in the observed physical appearance and observed lifestyle choices since participating within the garden. This is considered to be a result of the physical aspect of gardening in conjunction with the nutritional benefits arising from increased knowledge surrounding food and nutrition which goes hand in hand with gardening. Staff reported no marked changes in the physical appearance of the older volunteers who arrive at the site with a prior interest with gardening. This is thought to be attributed to the active and healthy lifestyle choices already in effect as identified within participant observations and volunteer statements.

It is therefore likely, that the individuals arriving at the garden from disadvantaged backgrounds are those that will experience the greatest lifestyle impacts and objective health benefits as a result of participation (Groenewegen et al., 2006; Lautenschlager and Smith, 2007a; Wakefield et al., 2007). This finding lends support to my argument that effective utilisation of community gardens can lead to the reduction of social justice issues. This leads to reduced inequalities within society (further discussed in 7.1) as well as acting to enhance the objective health of individuals involved with community gardens.

These direct health benefits arising from community garden participation will also contribute to, and include, indirect health impacts becoming realised by active participants within the garden, these are identified below:

The development of healthy lifestyles and associated benefits to direct health arising through nutritional education was apparent within the results as an impact of active participation within the garden. Nutritional education is a part of the garden experience. This is carried out formally in cookery lessons and informally through discussions, tweeting, recipe sharing and volunteer meals. Staff within the garden aim to provide information to volunteers and visitors with regards to food sources and sustainability. Staff also tackle topics such as food miles and food sources within their lessons and in interactions with volunteers and members of the public. Arising from this dissemination of nutritional information and ensuing encouragement to eat healthy and local produce, there is clear evidence to suggest social development occurred within individuals leading to increased personal capacity evident within the study participants, ultimately positively impacting direct health of individuals. These impacts were observed in nutritional shifts and reports of altered eating habits occurring as a result of participation within the garden, this was evident across volunteers who self-reported consumption of seasonal produce from the garden. Increased interest in cooking coupled with less ready meals and fast food was reported to occur as a result of participation with the garden, as evidenced within the quotes below:

“I used to go to KFC a lot and eat ready meals, but it’s nicer to eat fresh stuff and I like eating what I grow, it’s better for you.”
(Volunteer C, July 2013).

“If you eat healthy food, you feel better and have more energy, we learnt that in the garden and I eat apples every day now.”
(Volunteer A, September 2013).

This shows that through involvement with the community gardens individuals increased their consumption of healthier edibles. This result, however, was not limited to these volunteers, with reports by volunteers with pre-existing healthy lifestyles also recounting benefits as a result of involvement within the garden. These are evidenced below:

“I’ve always eaten healthily, but working at the garden provides you with the opportunity to eat fresh and seasonal produce.”
(Volunteer D, May 2013).

“Since coming here I eat better, I’d like to say I eat healthy....coming here has given me that enthusiasm to grow my own stuff.” (Volunteer I, June 2013).

This is thought to be attributed as a result of social development that has occurred through participation within the place based community of interest which provides a setting in which skills and information can be shared among members, brought about through the social bonding experienced through the common love of gardening. Older volunteers within the case study gardens were observed and reported buying produce from the garden, sharing recipes and cooking the garden produce:

“I like being able to teach the younger volunteers about cooking, each week I cook using produce from the garden, BBC has a great website where you can look up seasonal recipes. If

I find something that works really well I print it off to give to the younger volunteers.”(Volunteer F, August 2013).

Often the older volunteers were observed encouraging the younger volunteers to cook with the produce providing them with ideas and encouragement. This is evidence to support the utilisation of community gardens as a tool to support social learning, as well as providing other social benefits such as social cohesion and the reduction of inequalities (See Chapter 7). Box 6.2 below describes my personal experiences attributed towards involvement within the garden in regards to my diet and lifestyle.

Box 6. 2 Skills and Knowledge Accrued Through Volunteering At Diggin' It

Participating in the garden has resulted in an expansion of my skills and knowledge in regards to gardening and cooking. Already an enthusiastic cook with an awareness for eating locally sourced produce, becoming a member of the garden greatly increased my consumption of seasonal produce. However, due to my pre-existing lifestyle my consumption of fruit and vegetables did not increase as I already ate adequate amounts of fresh produce. To complement this use of seasonal produce I was involved in swapping recipes and discussing my eating habits with other volunteers and staff. As well as cooking with seasonal vegetables I incorporated the garden into my cooking in a more creative manner including flowers in my presentation (photo 6.1). As well as increasing creativity within the kitchen I was increasingly inspired to garden at home. My home comprises of a small courtyard garden where in the past I have grown sunflowers and strawberries. Since commencing my research I have succeeded in cultivating a herb garden and have a small poly tunnel in which I grow courgettes, tomatoes and salad vegetables. Therefore it can be said that in regards to my own personal experiences of dietary changes as a result of community garden participation there were no significant changes in nutritional aspects of my diet. However, there were impacts on my consumption leading to increasingly sustainable consumption through the use of local and seasonal produce. Since I have stopped attending the garden as a volunteer while still aware of local and seasonal produce the perceived access to these has

decreased. This makes buying local produce more time consuming and as a result of this I still try to purchase local produce, however the frequency of actually doing so once no longer regularly visiting the garden has decreased.



Photo 6.1 – Using the garden to get creative

The auto ethnographic account within Box 6.2 reinforces the findings regarding pre-existing lifestyles and the degree of impact resulting from the garden. As an educated and interested individual before commencing my study I had prior experience and interest in the activities and lifestyles encouraged through the garden. As a result of participation I was encouraged to develop these interests, the community garden provides a platform in which to do so in the provision of space that acts as a place in which interested individuals are able to attend, building a community of practise in which a social network develops, enabling learning to occur through interactions with others and access to resources. Through involvement in the community garden I was able to develop my skills and knowledge providing me with increased personal resources. These were particularly evident within the development of my abilities in gardening activities and in the awareness of and incorporation of local and seasonal produce in my cooking.

6.1.3 Summary

Volunteering in the community garden was found to impact two health behaviours: physical activity and diet. The impact was greatest for volunteers who did not previously engage in much physical activity or follow a healthy diet prior to involvement with the garden, nutritional improvements occurred through interactions between volunteers such as sharing recipes and educational activities within the garden.

6.2 Subjective Wellbeing

To provide some context as to the baseline wellbeing of volunteers before participating at the garden, broadly the volunteers with a prior love of gardening tended to have high subjective wellbeing before coming to the garden in comparison with volunteers referred to the garden by their school or medical professionals. These individuals were often referred because of low levels of wellbeing exhibiting poor mental health or isolation, and can be considered vulnerable individuals.

Evidence of enhanced subjective wellbeing as a result of community garden participation (in line with the existing literature reviewed in Chapter 4) identifies observations and reports concerning components of wellbeing that are considered to be a product of participation within the community garden. These include emotions and experiences leading to pride, happiness, self-worth, social inclusion and increased involvement and engagement within activities. These are reported below, commencing with evidence of social inclusion occurring through garden participation, which in turn leads to increased wellbeing becoming evident.

6.2.1 A Sense of Belonging

The initial focus of the garden was to support vulnerable adults with mental ill health or suffering from isolation issues. The resulting philosophy of the garden has resulted in a trusting and welcoming environment for individuals to come together and take part in a common activity within a shared space. Inclusion

into the garden is intended to be all encompassing, no matter what age or social background; the garden is open to anyone who wishes to volunteer. To enable this to be achieved Diggin' It include individuals from all walks of life and aspires to treat everyone in the same manner, this allows individuals to become part of the community garden without prejudice:

"We don't put labels on people, but if a person has something others should be aware of we let the others know, this way if an individual is not themselves we can look after each other." (Staff Member B, April 2013).

The garden is treated as a confidential safe environment, unless the volunteer is thought to be a danger to themselves or others; information disclosed to staff members initially and throughout the volunteers' time within the garden remains confidential:

"We see the community garden as providing a safe, confidential area away from the hustle and bustle of everyday life. Matters discussed within the garden maintain confidentiality within members of the discussion unless the individual is considered to be a danger to themselves or others." (Staff Member C, April 2013).

This approach and the subsequent values placed upon confidentiality coupled with expectations of conduct by volunteers within the garden arises from the beginnings of the community garden.

Staff and volunteers within the garden were observed to be aware and sensitive to the nature of volunteers' problems that were present within the case study gardens and allow for these unique personalities within the running of the garden and dissemination of jobs across volunteers:

*“***** loves weeding, we save up all the weeding jobs that he wants to do when he comes each week.” (Staff Member C, May 2013).*

“We have an agreement. To say I detest weeding is an understatement; only in the most extreme circumstances am I expected to do weeding.” (Volunteer B, July 2013).

This enables inclusion for individuals from a range of backgrounds to occur more easily and may ultimately contribute towards closing the gap of inequalities among different groups of society. An awareness of individual needs regarding privacy and boundaries was evident within and between volunteers and staff, with individuals being mindful of volunteer absences and how to manage these in relation to the management of garden activities. An example of this is described below:

One long term volunteer was ill for a week or so, instead of picking up their jobs within the garden, this volunteer was contacted and permission gained to undertake these activities while the volunteer was recovering. This highlighted to me the degree of mutual respect between volunteers and staff in relation to the needs and responsibilities of individuals within the garden. This further reinforces the nurturing environment which has been fostered within the community garden that has led to social capital impacts becoming evident as a result of the norms and values arising within the community garden. This also highlights the individual and specific benefits that can become realised from community based tailored approaches over broad top down interventions.

This demonstrates the awareness in place within the garden, leading to a strengthened support network that has developed through carefully nurturing values, raising the importance of a social network in the contribution to enhanced wellbeing. This results in a strong level of trust built up over time within the garden between volunteers and staff, and also of ‘playing a role’ within the community. This in turn reflects the increases in personal resilience and social capital which have become identified within the results of this study

(see Section 6.3). This conclusion is supported within the reflective accounts of volunteers concerning their experiences within the garden:

“The garden is like a family, it is safe and nurturing it’s almost like it protects you from the difficulties of life ...In the garden you feel protected and nurtured, you are part of the garden.”
(Volunteer E, August 2013).

Through the process of attending the site and actively participating within it, there is a constant re-immersion and growing familiarisation with the people, place and processes occurring within the garden, which acts to foster place attachment outcomes and contributes towards feelings of safety and trust becoming evident as described by Volunteer E above.

My auto ethnographic account reflects feelings of inclusion into a supportive and caring network as a result of participation within the garden. This is described in an incident that occurred within the garden in Box 6.3 below.

Box 6. 3 Reflections on Social Inclusion

While gardening at the site I was stung twice by a bee. After this event the following morning I received a telephone call to make sure I felt OK. While this call was likely to be part of existing health and safety protocol, I did not feel the call was made out of a requirement. I felt that the staff at Diggin' It care and would have called whether this was a health and safety issue or otherwise. This again as in Box 6.3 highlights the supportive and nurturing network within the community gardens which resulted in individuals feeling valued and playing a role within the gardens.

This, I argue, is evidence to suggest that feelings of inclusion and emotions arising from feeling valued as an individual are evident within the community garden, resulting through the interactions and familiarity arising as a result of active participation within the garden. Consequently these feelings have led to enhanced subjective wellbeing that has resulted in benefits extending into

multiple aspects of the individuals life such as social development (see Section 6.4).

There was a sense of place attachment evident among volunteers, an air of care and commitment towards the garden, the recognition of a community of interest formed within the garden boundaries, and the role that they play within it, which in turn leads to increased wellbeing becoming evident:

“I love coming to the garden, it is a place in which I feel I truly belong, it’s an extension of my home.” (Volunteer G, September 2013).

This volunteer has been with the garden since 2008, regularly gardening to the point that they play a substantial role in the running and plans for the Penlee site:

“I would be at a loss if there was no Diggin’, if Diggin’ it was to come to an end, I would basically be sitting at home, doing nothing, looking for jobs I wouldn’t be able to get.....Becoming something I wouldn’t like to be I suppose the term is couch potato.” (Volunteer B, June 2013).

Place attachment was evident within other shorter term volunteers:

“I feel responsible for making sure I keep my plot tidy and work on it. If it’s looking good then the garden looks good and more people will come and then we will have more stuff growing and then we won’t be worried that they will shut it, if they shut it it’d be really bad cos I love it here.” (Volunteer H, July 2013).

“The garden is like a family, you can feel it wrapping its arms around you, I feel like I belong here.” (Volunteer I, September 2013).

These accounts of place attachment show the occurrence of emotional bonds forming towards the garden as a place and with the other members who use the garden. This provides evidence to support the importance of place based initiatives in the formation of place attachment and the emotional ties to place which are found within this research. It also acts to enhance individual and collective wellbeing as well as aid the formation of social networks, providing community building possibilities as seen through the emergence of a community within the garden confines.

The garden was also found to provide a supportive environment for carers' and vulnerable individuals leading to increased wellbeing as a result of the opportunity to recharge individually whilst receiving support from others, which resulted in place attachment:

“The garden provides us with a place we can go together, [Volunteer I] can get on and do something by himself and I in turn can do my own activity, it is something we can do independently in the same place, you feel independent yet part of something...you feel valued.” (Volunteer I’s Carer, June 2013).

Place attachment was evident in the responses of volunteers towards issues within the garden. Box 6.4 below describes an incident occurring within the garden in August 2013.

Box 6. 4 Reflections on Place Attachment within the Garden

It became apparent that berries from the garden were being consumed and not picked for sale (which is contrary to the Diggin' It rules of expected conduct). It was likely that the culprit for this was a key holder, possessing a plot in the adjoining public allotment area. When the volunteers found out about this it was taken rather personally like the individual who was responsible for this had stolen directly from the volunteers. This highlights emotional connections to place that are likely to have been fostered as a result of active participation

within the garden in which volunteers have expended both time and effort resulting in a sense of ownership over the garden.

This clearly shows that there are emotional bonds forged as a result of participating within the garden exhibited in the actions and behaviours of the volunteers who show care and responsibility attributed towards the garden. These emotions and consequent actions will lead to increasingly sustainable resources and communities becoming established as longevity will be enhanced as the areas are cared for and developed accordingly.

As a result of place attachment through community garden involvement there were other subjective experiences that arise out of these, in the form of responsibility and perseverance, which provide experience in coping and sharing problems within a social network. These are further demonstrated in the accounts of volunteers D and C below:

“Sometimes I feel that there is so much to do and not many people doing it. I feel like other volunteers don’t put in many hours, and it is too much work for the staff to do. If I don’t come in I feel guilty like I am letting people down.” (Volunteer D, July 2013).

“Bad weather puts people off coming to the garden, less time and volunteers can have multiple negative knock on effect as the jobs keep coming but there are less people to help with them do you can’t miss coming, especially if the weather is bad.” (Volunteer C, May 2013).

This is indicative of two perspectives on (place) attachment which are both positive and negative. The volunteer was expressing signs of increased feelings of worth and self-purpose, which when superficially looked at in relation to wellbeing lead to the conclusion that wellbeing is enhanced. However, deeper insights into this, and further probing, reveals some feelings of guilt and

negative wellbeing due to the enormity of the project, the reduced funding and responsibility which the user feels has been placed upon them:

“Sigh.... There is so much to do, you really have to get a move on. It’s impossible to do everything.....” (Volunteer E, July 2013).

Box 6.5 recounts my experiences of responsibility placed upon me within the garden.

Box 6.5 Emotional Connections to the Garden

While conducting my research I observed that the staff were keen to reiterate at many points that volunteers should attend when they feel they have time to. Each time I left I was thanked for helping. Personally I felt that if I left before the volunteering day was up, or I arrived late it was like I was shirking my responsibilities as a volunteer, impacting wellbeing. However, this is minimal in comparison to the positive impacts arising from the data, but does point towards formation of an emotional connection to the garden in the form of place attachment.

The feelings of responsibility identified above are anticipated to result in long term wellbeing gains, these emotions are indicative of the strong ties that have resulted between participants and the garden with a strong attachment to place and towards the social network within the garden. Feelings of responsibility will also lead to enhanced social development of individuals evident within their increased personal resources, increased resilience and enhanced self-worth. This will act to increase social capital impacts arising from the garden and individuals will be able to project these gains into other areas of their lives.

In summary, development of place attachment by individuals within the garden has been observed. This is a result of the generation of emotional bonds to place and within the individuals in the garden in the formation of a social network.

6.2.2 Restorative Environment

Involvement with the community garden is seen (through the collated evidence that contributes towards positive health and wellbeing impacts through the utilisation of the garden) as a restorative environment. Box 6.6 below describes an example of the use of the garden to promote wellbeing within individuals through the garden's restorative nature.

Box 6.6 The Therapeutic Nature of Gardening

Volunteer E lost their job during treatment for cancer and afterwards was unable to find another post. While seeking employment and recovering from treatment the individual became involved with the garden. Still unable to find employment this volunteer is of the opinion that if they had not been involved with the garden, the stresses of cancer coupled with the inability to find employment would have resulted in them becoming ill with cancer again. This supports existing literature which advocates the use of community gardens as a therapeutic and restorative environment, capable of aiding recovery.

This volunteer's reflective account as with others in the garden was consistent with literature advocating the use of the green space as a restorative environment (Kaplan, 1992), in which health and wellbeing becomes enhanced. Results of which are commensurate with lifestyle histories of the participants:

"I have always gardened.....I enjoy coming here and working with others, especially the younger members. It keeps me active and interested." (Volunteer D, June 2013).

Through the action of gardening it is likely that the individual is able to remove themselves from their everyday life and the problems that are experienced within in it (to escape). The garden is providing a setting that is removed from their home, where they can go and be and escape themselves from their life for an hour or two, this is consistent with Kaplan's work on restorative environments and the concept of soft fascination as described in Chapter 4, as

well as being consistent with the research undertaken by Mind, UK McMillian Cancer Research and the Forestry Commission.

Other individuals participating within the garden showed marked increases in wellbeing as a result of participation. One staff member reflected upon a volunteer experience within the garden:

“When one of the participants, first arrived at Diggin' It, he could hardly speak he had such a bad stammer. He [had] post-traumatic stress disorder, but he was just such a lovely guy and his transformation was incredible.” (Staff Member B, June 2013).

This was thought to be attributed to playing a role within the garden which in turn enabled this individual to forge a place within a social network, playing a role within it, learning and gaining skills and confidence through this process of active participation. This result has been mirrored within other volunteers in the garden over the duration of the Diggin' It programme:

“As a result of participation within the garden, we aim to ease individuals back into society, through this approach we have witnessed individuals returning to employment after long term ill health.”(Staff Member D, March 2013).

“There was a volunteer who tried to commit suicide, they came here and I suppose you could say it rejuvenated them, gave them a reason to live.”(Volunteer B, August 2013).

The impacts identified within this research on direct health are closely linked to subjective wellbeing. It is difficult to attribute impacts solely to the physical act of gardening or towards the psychological impacts. Therefore it is concluded that through involvement within the gardens the combination of direct and subjective health impacts results in increased health and wellbeing becoming realised in a mutually reinforcing cycle, providing an evidence base to support arguments in

favour of the use of gardens as a restorative environment. Features of the garden environment that allow it to be restorative, as reported by volunteer experiences, are related to its calming and outdoor characteristics, this supports literature reviewed within Chapter 4 concerning colours and moods associated with green space and the pre-existing affinity humans have with nature:

*“Yes, Diggin’ It is a very important part of my life. The environment here is calm. Being here is not stressful for me.”
(Volunteer B, July 2013).*

“This place is a calm environment, you don’t have to come here to work. You can come, sit down ...and you could collect yourself. Sometimes I did that. Being Asperger’s my head is always doing stuff, even now as I am talking to you, the garden calms that.”(Volunteer B, June 2013).

Volunteer B described how the organisation of Diggin’ It contributes towards the formation of a restorative environment through the understanding of individual needs. Some of the volunteers within this research can be considered to have unique needs, and normal expectations and commitments cannot always be applied to their state of mind. Therefore there exists an understanding within the garden that volunteers (and members of the public) do not have to garden when attending the site, but can simply use it to sit and relax, collect their thoughts and recharge:

“In this day of fast food, TV and computers, this place is a sanctuary. This place is my sanctuary and salvation.”(Volunteer I, June 2013).

This again reinforces the importance of the environment as well as the importance of the social networks established within place in aiding restorative health impacts of the community garden, as advocated by the volunteers.

6.3 Personal Development

Personal development includes positive impacts which results in increased feelings of self-worth and pride, development of skills and knowledge, enthusiasm, happiness and confidence. These impacts, as identified below, were evident among volunteers within the community garden with the benefits realised to the largest degree by those who arrive at the garden from an economically or socially disadvantaged background.

6.3.1 Pride, Confidence and Self-worth

Impacts attributed towards involvement within the garden are not considered to be isolated cases or one time phenomena; they can be observed to be occurring on different levels (relative to individuals) across volunteers. These cases can be subtle as those observed within retired volunteers who chose to garden as a way of staying busy or extensive as seen in those arriving at the garden from difficult backgrounds or pre-existing ill health.

Confidence was derived from participating in Diggin' It, when individuals were asked what they felt they had gained from volunteering it was clear they recognised the positive impacts obtained within the garden environment and processes within it:

“General knowledge, experience and probably confidence as well. I suspect if you had asked me to do this when I first joined I would not have.”(Volunteer B, June 2013).

For some volunteers, the acknowledgment that they are good at something has resulted in a substantial impact on their confidence; this was mirrored within the volunteers who arrived at the garden from isolated backgrounds and within those who experience learning difficulties or mental ill health:

“I like coming to the garden, I like weeding, the weeding jobs get saved for me and I'm really good at it.” (Volunteer A, August 2013).

These impacts are further demonstrated when considering the journey Volunteer C has made through the duration of their Diggin' It experience. First attending the garden as an alternative to standard classroom education Volunteer C was introduced to the garden through their school in order to develop social skills. Volunteer C has now left school and continues to volunteer on a regular basis at Diggin' It. A staff member describes the transformation seen within Volunteer C below:

“Since coming to Diggin' It, we [the staff] have noticed a marked change in Volunteer C. He is more confident and takes a lead in many of the activities where he would not have before.” (Staff Member B, June 2013).

Volunteer C has become a prominent member of the garden community, often seen undertaking tasks on their own initiative, helping others and planning future plots with the official title of “partial responsibility”. Since joining Diggin' It this individual has been awarded volunteer of the year and now holds their own personal allotment plot on the site for which they have sole responsibility. On this site they are allowed to grow and harvest their own produce, the only rule being that in order to hold their own plot they in turn have to commit volunteer hours to the community garden. This signifies and demonstrates responsibility, awareness and commitment towards the garden. This responsibility is regarded positively:

“When you get to eat the stuff you've grown it is great, having my own allotment here is a big responsibility so I am pleased that I have one as it means I am good at it.” (Volunteer C, July 2013).

Box 6.7 below recounts my auto ethnographic account of my experience in working with Volunteer C and describes the social bonds that were built through the duration of this research, indicating that the garden enables a setting in which trust and friendship can be built resulting in confidence of individuals evident in their ability to work and communicate with others in the garden.

Box 6. 7 Social Bonds within the Garden

During my time here I worked with Volunteer C on a regular basis, during this time Volunteer C, especially in the early days of my volunteering, helped me with activities and tasks within the garden. For example, when weeding sometimes I was unsure what was and was not a weed, Volunteer C helped me with this. As well as providing a strengthened, trusting and increasingly familiar interaction between us it resulted in mutually beneficial impacts upon individual wellbeing, place attachment and social capital as I gained new knowledge and confidence within the garden, Volunteer C's role within the garden was increased as they became teacher and helper to me. Collectively these actions and experiences would also act to increase place attachment through the positive outcomes realised from these processes. I was invited to go and see another community garden that Volunteer C works on, highlighting my awareness as gardening as a way of life for some individuals which results in social networks arising through involvement within these communities of practice. Over the research period I became aware of the enthusiasm and deep seated interest Volunteer C had developed as a result of discovering gardening.

Other examples of evidence to support involvement with the community garden as leading to enhanced personal development impacts, displayed in the form of increased pride, were found to exist among volunteers, and ultimately result in increased wellbeing:

"I am really proud at all the stuff I have grown in the garden, then we sell it or cook with it. I've never done stuff like this before." (Volunteer A, June 2013).

"I like the turf, (the layout), it's very promisingfruition. Prides a sin, but yes I feel proud." (Volunteer I, June 2013).

"I have been measuring this pumpkin every day, it's going to be in my mum's church for the Harvest festival, and I'm really pleased [as] I did not think it would grow that big." (Volunteer B, September 2013).



Photo 6.2 Pumpkins in the Garden

"I certainly felt quite pleased with myself about my pumpkins last year, I entirely grew those on my own and I was quite pleased with my potatoes as well. I was certainly pleased with myself that I had grown them so there was a sense of satisfaction there."(Volunteer B, October 2013).

These feelings of pride through the act of creating an end product was experienced personally through the activities undertaken as a volunteer through the garden. This is described in Box 6.8 reflected within my auto ethnographic account below.

Box 6. 8 Emotional Connections to Place

There was a real sense of pride when seeing the end product, be it freshly harvested vegetables, onions drying in the poly tunnels or homemade chilli jams. To know that you have put the effort in, it has been successful and you have created something which you can consume or sell is immensely satisfying and drives you to want to contribute more towards the garden. This is an example of changing attitudes and increased engagement with nature and utilising of the natural environment as a result of active participation and immersion in the natural environment.

Volunteers are encouraged to bring friends and family to meals within the garden. This in turn acts to increase place attachment to the garden, with volunteers feeling pride when introducing members of their family to the garden environment and the social network of which they have become part:

“I brought my mum to the garden, she couldn’t believe her eyes when I showed her all the weeding I had done.” (Volunteer A, July 2013).

This leads me to conclude that participating in the garden does result in enhanced feelings of happiness, pride and self-worth leading to increases in feelings of purpose in lives through the activities undertaken and the expansion of interests that arise out of active participation and social inclusion.

6.3.2 Knowledge and Skills

The development of knowledge and skills as a by-product of participation within the garden was evident throughout the research process. This includes

gardening knowledge, practical skills, social skills and nutritional education. These are described below.

The impacts of increased skills and knowledge were found to occur across all volunteers regardless of age and garden experience. These were from a variety of sources which include learning from other volunteers and members of staff within the garden:

*“I have learnt an enormous amount from *****, he is incredibly knowledgeable”. (Volunteer D, July 2013).*

Online resources, books, magazines and field trips to other gardens also provided opportunity for learning to occur. Photo 6.3 below shows the volunteer area which includes a library consisting of gardening books and magazines. During break times volunteers were repeatedly observed reading these books and taking seasonal gardening ideas from the magazines.



Photo 6.3. Volunteer space at Diggin' It Penlee

Learning occurred through the direct act of gardening and also through the use of garden produce. Staff members were observed encouraging recipe sharing and holding cookery sessions in the kitchen. When volunteer barbecues took place; salad and vegetables from the garden were used in the cooking:

“We try to encourage the younger volunteers to take the produce home to cook with, we often discuss recipe ideas in the garden and I try to motivate volunteers to share recipes with each other and the staff here.” (Staff member B, June 2013).

“We actively promote the utilisation of produce from the garden in an unusual manner to make vegetables more interesting, at the moment we are focusing on chillies and hope to make chutneys and jams from these for sale in the garden shop.” (Staff Member B, July 2013).

Discussions regarding food were observed frequently as a by-product of the gardening activities, often with the older members sharing recipes and ideas for cooking with the younger or newer volunteers. One comment which stands out for me in relation to the importance of hands on experience of food nutrition is demonstrated below:

“What are chips made from? They come from McDonalds....they are made from this a potato....no way!” (School Group Observation, June 2013).

Cooking facilities within the garden further emphasised the use of fresh garden ingredients and eating as a social activity. This was seen in the provision of a space where individuals can come to learn and contribute, new skills and lifestyle habits are emerging as the unfamiliar becomes familiar:

“Through the chilli jam making process we are showing volunteers the lifecycle of a chilli, we plant, we nurture and grow, then we harvest and use them in the garden kitchen to

make jams. For many of the younger volunteers this will be the first time they have undertaken an activity like this.” (Staff Member C, September 2013).

Workshops were held within the garden kitchen including a range of activities from baking to pickling undertaken to allow volunteers and members of the local community partake in these activities. This is hoped to increase the knowledge and confidence of volunteers and also to generate income for the garden. This yet again indicates the occurrence of increased personal development through increased knowledge and self-sufficiency, the feeling of fulfilling a role and contributing towards a collective activity which in turn acts to foster pride and resilience as well as increased direct health through healthy eating options and generating positive wellbeing outcomes.

Accounts from the younger volunteers described the impact involvement with community gardens can have on eating habits and changes in diet:

“It’s great when two people have different recipes for the same meal, often I’ll try to cook both and then see what I like best.” (Volunteer C, September 2013).

As well as nutritional education, practical skills were seen to emanate from the volunteer process, which in the younger volunteers have resulted in providing guidance for continuing education:

“Aside from the gardening I’ve helped to build the composter and BBQ in the BBQ area....These are rather major construction efforts, so I suppose I have learnt the beginnings of the trades from [Staff member].” (Volunteer C, July 2013).

“After a year and a half in the garden, I decided a garden is a place I wanted to work.” (Volunteer B, September 2013).

Volunteer B recounted to me about the time he tried to get a job at a nursery nearby, but there was no allowance for the special needs that this individual has and this led to a bad experience. Now this volunteer only wants to work at Diggin' It. This again highlights the supportive and nurturing environment Diggin' It has been able to create (See Chapter 8) highlighting the importance of the social aspect in promoting positive wellbeing.

Box 6.9 describes the impact on individual knowledge and skill realised through the garden concerning an individual with a severe brain injury.

Box 6.9 Gardens as Restorative Environments

One volunteer received a brain injury and attends the garden weekly with their carer. This individual is using the garden as a stepping stone to gain experience in the garden environment with the hope of completing a diploma starting in September 2013 with the intended outcome in the future of becoming a tree surgeon. When I asked him if he felt he had learnt a lot from the garden this volunteer advocated the practical hands-on experience that arises out of the garden environment and process of active participation.

“Only through doing, cos I’ve had theory drilled into me but this is vastly better, learning through doing.”

This provides evidence that suggest alternative (non-traditional) methods of learning will result in educational success, especially in those who experience learning difficulties as displayed with this volunteer. This would allow a wider section of society to reach their potential, ultimately reducing inequalities.

This supports literature advocating the use of alternative practical based teaching methods as identified within Chapter 4, by allowing individuals to learn by “doing” caters for multiple and special learning needs that are evident across individuals.

The skills and knowledge accrued within the gardening process and environment has been observed and reported to transfer into other aspects of the volunteers' lives as demonstrated in Box 6.10.

Box 6.10 Personal Development Impacts

When Volunteer C started volunteering outside of school at Diggin' It transport into the garden was no longer provided. In order to come to the garden the volunteer would catch the bus in from their home outside of Plymouth, being too nervous to drive in. Over the duration of participation within the garden the volunteer has grown in confidence with other everyday situations leading to the volunteer driving into Plymouth as well as electing to drive other volunteers on field trips to other gardens. This shows evidence of increased personal resources as a result of participation in the community garden leading to increases in skills, knowledge and confidence which has resulted in a change of attitude from "can't" to "can" as this volunteer realises the potential they are capable of.

This newly realised confidence has had expanding consequences extending into personal and working lives as well as acting to enable volunteers to increase the scope of possibilities for continuing education and employment opportunities through reduction in barriers to participation in the form of increased accessibility. This return to employment will in turn result in mutually reinforcing and beneficial wellbeing impacts becoming realised. If this story can be replicated through increased participation within these community based gardening initiatives then the potential benefits to the economy may be seen through increased employment and to the health service in decreased illness. Hence, the financial savings have the potential to be vast.

It is not solely those arriving at the garden with learning difficulties or ill health that gain skills (as previously mentioned). Box 6.11 below is an auto ethnographic account of the skills and knowledge I accrued.

Box 6.11 Personal Reflections on Resilience

During my time as a volunteer I also undertook activities such as jam and chutney making, assisting with educational and summer classes, learning how to make a pallet chair, helping to make a clay oven and rocket composter, as well as interacting with various communities outside the garden. This made me feel increasingly capable and less reliant on others to help me and more able to provide rather than buy for myself. This is evidence of experienced personal development benefits occurring through participation with activities within the garden. It is also indicative of resilience building and likely to improve my adaptive capacity to changes which are beyond my control.

The evidence of enhanced skills and knowledge as a result of active participation in the garden will contribute towards enhanced direct health benefits through the utilisation of fresh produce, and also contributes towards the improved wellbeing of individuals through increased social capital becoming evident. This is a direct result of enlarged personal resources occurring through the skills and knowledge accrued within the garden. This in turn will result in individuals and communities which are increasingly resilient to changes beyond their control as they display increased social capital as a result. This is a mutually reinforcing cycle of wellbeing, direct health and personal development which will collate to increase the social capacity of communities (see Chapter 7), resulting in communities which consist of stronger, resourceful, confident and educated individuals.

6.3.3 Summary

In conclusion, drawn from the evidence above it is clear that individuals participating within the community garden independent of age, gender or social background will realise positive impacts to health and wellbeing through active participation. However, the extent of wellbeing impacts will be dependent upon prior lifestyle habits and interests before joining the garden. Benefits are likely to be extensive both in reach and longevity as a result of identified pre-existing benefits and lifestyles in effect reported and observed by the older volunteers that have a prior love of gardening before their involvement with Diggin' It. These results relate to Research Aim 1 in the provision of evidence which clearly shows that individuals participating in community initiatives arising from sustainable design, in this case community gardens, do display both enhanced health and wellbeing as a result. The implications for individuals and communities arising out of these impacts identified within the results will be further discussed within Chapters 7 and 8.

6.4 Social Development

This section provides empirical evidence to answer research objective 2:

2. To identify how and in what ways social learning occurs as a result of participation within the community garden among different users.

The following evidence draws together data to support the emerging hypothesis within this research that involvement within community gardens results in positive impacts on health and wellbeing that will in turn lead to social development impacts becoming realised among participants. As with the subjective wellbeing and direct health impacts, the degree to which these benefits are realised is variable across individuals. It is clear however from the results described below and data within Section 6.1 that participation within the community gardens does result in social capital impacts becoming realised and therefore leads to enhanced social development of individuals becoming evident.

During the research process observations were made into volunteers' observed and self-reported wellbeing and the extent to which this was the result of participation within the gardens. Extensive individual wellbeing impacts which are considered a result of active participation within the garden were reported by volunteers, such as feelings of happiness, self-satisfaction, resilience, increased social networks, increased confidence and feelings of self-worth, and can be seen to impact social development experienced by individuals within the garden. Evidence for the occurrence of these impacts has been taken from comments, observations and staff reports, these are detailed below. These are closely linked with emotions of pride, self-worth and confidence, identified in Section 6.1, as they will result in mutually reaffirming benefits becoming realised.

At a basic level, interacting with others in the garden is considered to result in inclusion within a new social network, which is recognised by volunteers:

"It doesn't matter where you come from, here in the garden everyone is equal, we work together and you feel safe, it's a bit like a family." (Volunteer F, May 2013).

"I feel it has provided me with a sense of purpose and a social network." (Volunteer F, September 2013).

"It's nice to come to the garden, it's a happy place where we work together to keep it going." (Volunteer D, May 2013).

While considered basic for some, for those who arrive at the garden from an isolated background it represents a substantial social interaction within their life.

Staff found watching the socialising impacts occurring very satisfying:

"It is a pleasure and a delight to work in these gardens, seeing the communities coming together with a shared interest in gardening." (Staff Member A, April 2013).

“You can really see the youngsters connecting with the garden, learning new things and becoming more confident. You get kids who don’t speak to anyone becoming part of the group by the end of the term. It’s really satisfying to see.” (Volunteer E, April 2013).

The common interest and activities shared within the group resulted in individuals becoming included into the social network arising from the common activity. These accounts show evidence to support the notion that through participation within the gardens individuals display emotions that are attributed towards playing a valued and recognised role in that community and enjoy their time there and the activities undertaken. However, if the composition of volunteers changed this could be lost:

“There was a period of time when there was a group of four or five of us and it was as much a nice thing to come and see them as it was the garden. Through a series of events they’ve all left and I seem to be one of the last here.” (Volunteer C, June 2013).

For some volunteers, this process of participation and subsequent inclusion into a social network has had extensive social development impacts. The examples below show individuals arriving at the garden from a socially disadvantaged background. During their school years they reported a history of bullying and changed schools repeatedly. When they came to the garden it was the first time they had become part of a group rather than bullied by that group:

“I was bullied for 17 years; they took everything from me, my confidence, and my self-esteem. They took it all. Places like this, I suppose you could say because of this place my self-worth has increased, and slowly maybe my confidence is coming back...it’s going to take time.”(Volunteer B, June 2013).

“I didn’t have a very good school experience, to be frank it was probably the worst it could have been, and as a result I can’t stand group situations.”(Volunteer C, September 2013).

When asked if involvement in the garden has helped their ability to socialise with others I found evidence to support the use of the garden to foster social development:

“I am talking to you, there have been a couple of times when I’ve been in a group situation and found myself enjoying it.”(Volunteer B, September 2013).

This is also reflected in the account of Volunteer C’s social experiences since joining the garden:

“It was the first time I had been in a group, it was a strange feeling. Gradually my confidence has increased. When I first started I would avoid groups, now I am more at ease with group situations.”(Volunteer C, September 2013).

“When I am here I have met people I would not usually of chose to socialise with, well in some cases its positive but personally because I am a nervous person I don’t like meeting new people, but it doesn’t seem to be as much of a problem here. I used to really enjoy the trips to Torpoint with the other volunteers.” (Volunteer B, September 2013).

This volunteer goes on to expand to say he thinks it is a product of the garden and the calming nature of it, as generally he doesn’t make eye contact with strangers when outside of it:

“My heads down here all the time [motions to the floor], I don’t make eye contact with people on the street.” (Volunteer B, September 2013).

This leads to the conclusion (further discussed within Chapters 7 and 8) that the impacts result not only out of active participation, but also as a result of the social and supportive network in place within the garden, and the ongoing nature of the social development over time.

During the research process I was aware of the impacts previous social isolation had on individuals trust. This is described in Box 6.12.

Box 6.12 Notions of Community

During the process of participant observation it took time to build trust and rapport with some of the volunteers. This is indicative of their social history, but through the garden feelings of trust, self-worth and confidence are being built within individuals leading to social development and a renewed ability to trust and socialise with others. The results of which has led to the emergence of community which has developed through this network arising out of the shared interest of gardening. Over the period of data collection I was aware that I was becoming enveloped into this community as the trust between the volunteers and myself developed over the time I was participating in the community garden.

Evidence of becoming part of a network was observed, both within participant observation and my own auto ethnographic account (Box 6.13). There is evidence of individual place attachment occurring that collectively becomes strengthened. This results in a social and supportive community where individuals can come together to work collectively to achieve a common goal, becoming in their own rights part of the community garden and developing their social capacity:

“I love... just getting out into lovely weather and keeping my mind occupied, I've found somewhere in civilian life where people actually care about you. It's given me a place to fit into.....”(Volunteer F, August 2013).

There is evidence to suggest that the relationships forged within the garden are robust, caring and extend beyond the immediate garden environment:

*“While *** is away, I look after his bees and make sure his allotment is looked after. He suffers from a long-term debilitating illness, I call in on him at home and make sure he knows his bees are OK.”(Volunteer F, June 2013).*

Other impacts were observed to occur through the social networks developed within the garden, resulting in social capital impacts arising through changes in daily activities of volunteers, this is particularly evident within the younger members:

*“Since coming here I watch less TV as I am busy doin’ other things, I play online games now with *** and **** some nights.”
(Volunteer B, June 2013).*

This indicates an expanding interest base as a result of social interactions with other volunteers. Online gaming between the younger male volunteers within the garden arose as a result of one staff member being involved in these games and introducing the younger volunteers to it. This enhances the existing strength of the social networks arising within the community garden through the increased shared interests developing between individuals, and again extends into areas of volunteers lives away from the immediate garden environment. While this activity is perhaps not physically more active than the sedentary act of watching television it can be considered substantially more social and increasingly cognitive. This is likely to contribute towards enhanced benefits over watching television, and likely to result in increased social development.

Box. 6.13 Staff Reflections on Volunteer Progress

During the interview process staff spoke about their pride that one of the volunteers was able to take part in the interviews I was carrying out. If I had

done this three years ago when this individual had started at the garden, he would not have spoken to me let alone be interviewed by me. This shows the great advancement this individual has made within their personal resources to allow them to have the confidence to take part in the interview and the social development which must have occurred alongside the ability to trust and speak frankly about their opinions and feelings to me. Which when considered alongside their self-reported personal wellbeing in existence when they joined the garden it really is truly remarkable the progress this individual has been able to make.

Box 6.13 above further emphasises the scope of social development impacts realised as a result of garden participation.

Impacts on social capacity displayed within individuals through the development of new skills and interests as previously identified were found to be increasingly prominent within the younger volunteers. This was particularly evident on a field trip to Rosemoor gardens in North Devon. The purpose of this fieldtrip was to observe a professionally run garden in action and from this gain ideas for Diggin' It. This field trip can be considered to be "more than vegetables" as evidence for substantial social development occurring as a result of this trip was evident within the observations and discussions.



Photo 6.4 Field trip to RHS Rosemoor Garden (blurred to maintain participant anonymity).

Impacts upon the social development of the volunteers was evident in the arranging of car sharing and finding their way to the garden, which for one volunteer this was the longest journey they had undertaken as a driver. This is indicative of social impacts resulting in developing the personal capacity of individuals.

Once within the garden and exploring it there was a clear dissemination of information between the volunteers with the older and longer-term members explaining to the younger/shorter term volunteers' different processes and identifying plants, showing information sharing occurring as an impact of social development within the community garden network. Volunteers were also encouraged to ask questions of the Rossmoor staff, helping to develop their social skills and confidence in themselves within an unfamiliar social setting.

During the day other activities were undertaken such as the balance beam; see photo 6.4. During this task the aim was to balance the beam to make it parallel by distributing weight evenly. This took a while, but was eventually achieved. This is an example of the activities which are undertaken through the garden

environment that may be taken for granted by individuals without learning difficulties, however for those with learning difficulties these tasks and social interactions do not become realised so easily. Through the awareness and interactions of the Diggin' It staff and volunteers there is evident success visible in contributing towards the social development of individuals as they worked together to achieve the common goal of balancing the beam. There was evidence to show that enhanced social capital occurred across all individuals participating within the activities, with the older more experienced volunteers learning new things through the fieldtrip as well as the younger less experienced. This resulted in increased bonds between volunteers through the sharing of a common experience:

"It's inspiring to see what can be achieved within the garden, I have learnt a lot today, I hope to be able to apply some of these to our garden." (Volunteer D, July 2013).

*"It's been quite a journey, in the last year [Volunteer *] has come a long way, to see him order food in the café here is a tremendous achievement for him." (Staff Member B, July 2013).*

This impact was attributed towards the confidence this volunteer has gained by working with others within the garden enhancing their social skills, which had over time resulted in social development to extend into their daily actions and abilities:

*"He does a lot of his activities with volunteer ***. I think he has learnt a lot from him, he definitely looks up to him." (Staff Member B, July 2013).*

This evidence of social learning through exposure to others within the garden who display common interests has resulted in forging a strong social and trusting relationship between volunteers. This in turn will lead to social learning becoming increasingly evident, which in turn advocates the use of the green

environment, in this case community gardens as a tool for education (see Chapter 7).

“I like to help others in the garden, when I came here with my school I did not know anything, but now when new people come, I can help them.” (Volunteer A, October 2013).

Throughout the duration of my participant observation, through the adoption of the role of volunteer within the garden I identified social learning occurring between myself and others, Box 6.14 below describes this.

Box 6.14 Personal Reflections on Social Learning

During this experience I felt I was able to contribute towards the social development of some of the younger volunteers through conversation and sharing of ideas. In turn I learnt a lot from these volunteers in terms of gardening and cooking. From workshops and school group sessions I learnt practical skills such as how to make a clay oven, build a rocket composter and create pallet furniture. These interactions with different members of society altered my spatial perceptions of Plymouth. I felt that Plymouth as an area was smaller as it increased my social network into communities of which I would have been unlikely to mix with in my existing social network and normal daily routine. This is evidence that social barriers had been reduced increasing perceived access to communities within Plymouth.

6.4.1 Social Dimensions of Food

As a result of this study I have collected data that points to considerable social impacts occurring through the process of food consumption. For volunteers who are socially isolated or have disadvantaged backgrounds, to sit down and eat a meal as a family is not considered the social norm. Staff Member C recounted a reoccurring incident when Diggin' It started in 2006:

One of the weekly activities during this time was for volunteers to sit together at the end of a day and have a communal volunteer meal. One volunteer would

always go home without saying goodbye, as if to withdraw intentionally before the meal. When the staff member asked why the volunteer never stayed for the meal it was discovered that the individual in question had never sat down with other people to eat and did not feel confident enough to be able to join in. Through gentle and gradual exposure and encouragement this individual is now able to eat with others and has experienced the social aspect of food. This as a result has acted to increase confidence in themselves and their social network, which in turn will contribute to increased feelings of wellbeing and social capital. This highlights that nutritional aspects of the garden provide more than physical health benefits (also evident in Section 6.2). Unfortunately as a result of decreased funding these volunteer meals are not as frequent- only taking place a few times a year (See Chapter 7).

Impacts regarding nutritional awareness and eating habits were observed to extend into the home environment of the younger volunteers with Volunteers A and C describing how they would take food home with them and showed their parents how to cook using ingredients from the garden:

*“I like cooking stuff from the garden with my mum, sometimes **** gives me recipes, if there are leftovers I bring it in for lunch.”*
(Volunteer C, September 2013).

Through the evidence collected within this thesis it has become clear that community gardens provide a platform for social development to occur. Interactions, information sharing, activities and resulting knowledge all collate to increase the social capacity of individuals participating within the garden.

6.4.2 Summary

In relation to the Aims and Objectives within Chapter 1 this research has provided extensive evidence which shows that involvement within grass root initiatives arising out of sustainable design interests will result in social development impacts becoming realised on those involved- particularly those with disadvantaged backgrounds. This leads me to argue that community gardens are, and can be used, in the reduction of social injustice.

6.5 Conclusion

The individual impacts associated with the garden discussed above provide an evidence base for the community garden as a tool for increased health, wellbeing and social development. These impacts are realised through the process of active participation leading to place attachment, increased social capital, direct health benefits and increased positive wellbeing. This is a result of the combination of active participation, the restorative nature of the gardening environment, and the support networks and social learning opportunities which are in effect.

I draw attention to two major points. Firstly, the results provide an evidence for advocating the use of the natural environment on enhancing health and wellbeing, and in the provision of a platform in which health enhancing behaviours can be realised through the nurturing of healthy lifestyles. Secondly, emerging throughout this chapter is the importance that social networks play in the formation and enhancement of health, wellbeing and social development within individuals.

From these points it is clear that community gardens can be implemented to provide community building (formed from a collection of individuals based around a common interest displaying evidence of social norms, values and support) and individual health, wellbeing and social development opportunities within society. Prominent within these observations is the emerging thread that supports the notion of community gardens as not only a tool to provide green education, thus fostering pro-environmental behaviours, but as a tool to reduce social justice issues within and across communities. Chapter 8 will go on to develop reasoning, implications and future applications for community gardens as a tool for realising increased health and wellbeing across individuals through community gardening.

Chapter 7 Community Impacts, Obstacles and Opportunities

This chapter identifies community level impacts arising through the community garden case studies. These include impacts on the surrounding neighbourhood and within the garden itself, indicating the presence of multiple communities evident within the research area. This chapter then goes onto identify opportunities and obstacles arising within the collected data for community garden (place based initiative) implementation. Results from the two empirical chapters (6 and 7) will then be considered in further discussion in Chapter 8 before concluding the research findings and implications within Chapter 9, which will tie together existing intellectual hypotheses, my findings and future directions for community gardening and health and wellbeing research.

7.1 Impacts on the Surrounding Community

This section presents empirical evidence to answer research objective 3 as stated in the aims and objectives of the thesis, and stated below.

3. To explore the social capital impacts of community gardens on the surrounding community.

This research question identifies health and wellbeing impacts which occur within members of the local neighbourhood that can be attributed towards the community garden. Throughout the process of participant observation and active involvement in community outreach events as a Diggin' It volunteer, findings concerning these impacts are described below using the data collected throughout the duration of this study.

Photo 7.1 and Figure 5.1 (Chapter 5) show the proximity of the local neighbourhood to the Penlee community garden case study site. These images show direct physical access to the garden from the surrounding neighbourhood. It can be seen from these that the gardens are in walking distance of a number of local dwellings. These photos also reveal the disadvantaged nature of the housing within the surrounding residential area. The estate is comprised solely of social housing. Interactions with adults living in the surrounding

neighbourhood were sporadic. The interactions with local adults occurred solely outside of the garden boundaries (at no time did I encounter these adults within the community garden), i.e. when involved in the community outreach events such as the one described below. During these events Diggin' It would make an active effort to go out into the local neighbourhood to advertise themselves and try to engage with the local residents.

An example of these activities are shown in Photos 7.2 and 7.3 which were taken during a community event day where Diggin' It, along with other community groups and services, set up stalls in the centre of the adjacent housing estate, going right into the heart of the estate. During this day residents were encouraged to ask questions and wander around the stalls. There was a free lunch and a bouncy castle for the children to play on. As this event took place during the week individual schools attended at different times during the day and then after school. The adults were present throughout the day with the majority of individuals arriving before midday and staying for the free lunch provided at the event.



Photo 7.1 – Proximity of Local Neighbourhood to Diggin' It, Penlee site



Photo 7.2 – Community Event Day within the Heart of the Local Estate



Photo 7.3 – Diggin' It stall at a community event days

This proved to be the extent of interactions with local adults throughout the duration of the data collection period. In contrast to the adults, children residing within this neighbourhood were encountered both within the garden, as part of their school educational activities as well as during the community event days.

I undertook questioning surrounding this observation as to why the adults did not seem to be involved and engaged with the community garden. Box 7.1 describes general engagement and attitudes of the adults in regards to the role they can play within their local community gardening initiative from those who reside in the adjacent housing estate. One of the aims of this outreach event was for Diggin' It to showcase their plans in which the community outreach team would create a garden and play area in the heart of this estate. The funding for which had recently been obtained from a local business to enable Diggin' It to undertake this ambition. Throughout the day the garden plans were on display and staff were present to talk about these throughout the day.

Box 7.1 Attitudes Towards Diggin' It in the Surrounding Neighbourhood

Residents who approached the Diggin' It stand, while displaying an interest in the plans emitted a common expectation that the garden would be created by Diggin' It for the neighbourhood with no input or effort on their part. During this afternoon, and the consequent interactions with individuals, there was no evidence of the residents wanting to become involved with building and creating the garden, even when it was emphasised as a community initiative.

This quotation below was taken from one long-term resident and is representative of the majority of the views expressed by the residents on this day:

“This garden will be great for the children, its close by the flat and they can go there and play, helluva good.....when are you going to build it for us?” (Female, 50s, June 2013).

When I questioned residents if they would like to help build the garden. The general response was similar to the following quotation:

“Why would I do that? It’s not my job. They are getting paid for it so they should do it.” (Male, 20s, June 2013).

The evidence collected suggests that there is a general lack of interest and engagement with the garden as a space among the adult residents and the associated activities that occur through and within it. This was evident in their absence within the community garden boundaries and activities. Throughout this event I was aware of an underlying, prevailing expectation that “things” should be provided for the community without their input, this behaviour will result in a reduced opportunity for the occurrence of social capital impacts to become realised within the neighbourhood, among this generation of potential users. This is in evidence when dissecting the disadvantaged nature of the community and leads to the occurrence of social justice issues. The reliance and expectations placed on others to have things undertaken on their behalf results in a lack of motivation and decreased resilience evident in comparison with the community garden users.

In contrast, observations regarding the behaviour and attitudes of children at these events showed a marked difference towards the garden and the Diggin' It stall when compared to the older generations. During these events the children were observed actively visiting the stall on their own initiative, at times bringing their parents with them to show them plants and seeds. Noticeably most of the children knew the staff members by name. I attribute this to the garden visits undertaken with their schools and the promotion of and immersion within the natural environment at a young age sparking a developing interest within the community garden and the activities undertaken within it.

The dialogue in Box 7.2 has been drawn from observations of one community outreach event in August 2013 concerning a parent and child at the Diggin' It stall. This dialog reflects the generational differences within the household which have become evident within the collected data.

Box 7.2 Intergenerational Differences

The following dialogue is taken from an observation made during a community event day. The child had brought his mother over to the Diggin' It stall and was showing her some of the plants and seeds they had learnt about in the garden as a result of their school visit to the Penlee garden site.

Child : Mum can we get this?

Parent: What is it?

Child :It's a cucamelon.

*Parent: What the f***'s a cucamelon?*

Child: They look like mini melons; you can put them in salads. Can we get some seeds we can grow them in the window box?

Parent: Spose so, how much are they? I haven't got me money on me, go and find Karen see if she's got some money...

Observing this interaction along with others on the day, highlighted divisions between the community garden and the surrounding neighbourhood leading to the realisation that they were separate communities defined by interest rather than place.

The interest shown by the children towards the garden, and subsequent observations and interactions, leads me to conclude that immersion with green space and gardening activities may act as a tool to foster interest, affinity, pro-environmental behaviours and place attachment to create an increasingly environmentally aware generation that have emotional bonds to the natural environment. The result of this immersion at a younger age has therefore led to the identification of marked generational differences in engagement with the garden within the surrounding neighbourhood. The process of gardening is also one which enables readily visible achievements in the process of growing and

producing an end product. Community gardens could therefore be effective in fostering achievements through increasing accessible activities as gardening requires relatively small inputs of financial resources. This cost is minimised further if undertaken within the setting of the community garden which is monetarily free to attend and partake in. It does however require (as identified in Section 7.5) that access issues are overcome to reduce barriers to participation.

These findings suggest that there are barriers to participation in action which prevent engagement of adults residing in the local neighbourhood. As stated, and visualised within photos 7.1 to 7.3, the geographic location and direct access to the garden and staff is not considered to be a barrier to participation. This leads to the conclusion that there were deeper, embedded, social barriers to participation in effect within the adults in this neighbourhood, further discussed in Section 7.5. It also provides evidence to support the importance of education in creating cohesive and proactive communities as evidenced within the observed engagement of the children in regards to their behaviours and attitudes towards the community garden and staff, both within the garden and their local neighbourhood. While there is an observed disappointing community wide impact on the surrounding neighbourhood, there is evidence (see Chapter 6) to suggest community (collective and social) impacts are occurring within the community garden. Findings from this research have interesting consequences contributing towards the intellectual debate as to the notion of community as provided in Chapter 3 and subsequently discussed in Chapter 8.

Drawn from the evidence collected within these case studies it has become apparent that there are clear community impacts evident in the form of social capital, occurring within the boundaries of the garden which has resulted in a community of interest arising through a shared love of, and enthusiasm for, gardening within a place based grass root initiative. The implications of which point towards community gardens as a form of green infrastructure that acts to promote and foster social networks through a shared interest. This will lead to stronger communities developing within an area through the social networks that are developed and the skills and knowledge built up within the community. As a result of this the community as a whole is likely to be resilient to changes beyond their control, as well as being increasingly sustainable in their design.

This would provide a line of future investigation in the form of assessing changes in community structure within the surrounding neighbourhood as a result of environmental education of the younger generations, which is observed within clear generational differences in the attitudes and interest displayed towards the garden.

7.2 Opportunities and Obstacles for Community Garden Initiatives

I will now identify opportunities and obstacles for this community place based approach taking lessons learnt from these community garden case studies. I will consider the impacts realised within these examples, with consideration to the wider reaching implications and applications that this community based, green approach may enable for individuals and communities. This is consistent with research objective 4 below.

4 To outline the opportunities and obstacles for this community based approach.

This chapter will first identify the opportunities as identified within the research, which will overlap with the findings identified within Chapter 6.

7.3 Opportunities

The benefits identified within this research are considered to provide opportunities for both individuals and communities. These become realised through active participation and utilisation of grass root initiatives, in this case community gardens.

7.3.1 Fostering Community

There is evidence to suggest a community had formed within the boundaries of the community garden. The cumulative effects of which were seen in the respect and trust cultivated within the garden between volunteers and towards staff. This created a sharing, caring, inclusive community which had become established around a common interest. This therefore provides potential to

foster community by inserting community building infrastructures. This relates to the use of green infrastructure as discussed within Chapters 4 and 8.

7.3.2 Community Integration

Throughout the research process there was a clear indication that community impacts were evident within the immediate garden. The garden acted as an environmental locus drawing together individuals from different social backgrounds and areas within Plymouth to encompass them in the garden, resulting in the formation of a community of practise. This was seen to arise out of a common interest, in this case a shared love of gardening. Volunteers recognised the garden as a community of which they have become part of since attending the garden:

“When I first came to Plymouth I did not see any community, if you look in places like Diggin' It you find little pockets of community and that's a great thing.” (Volunteer G, May 2013).

“Diggin' It is like a family to me.....I come here, I feel safe and valued....it's almost like you can feel the garden wrapping its arms around you.” (Volunteer E, July 2013).

“I have met people I would not have done if I had not been in the garden.”(Volunteer B, September 2013).

Identified within my auto ethnography were feelings of inclusion into a community occurring through participation within the garden. I felt my perceptions of community and different residential areas within Plymouth as well as my own social circle change. As an individual I did not arrive at the garden from an isolated background so relatively the impacts I experience will be less than those suffering from isolation. Box 7.3 outlines my perceptions of neighbourhood, community and my social network as a result of participating within the community garden case studies.

Box. 7.3 Perceptions of Community

Personal perceptions of my local neighbourhood and those within Plymouth experienced changes as I developed links within the garden. I became increasingly aware of the inequalities within Plymouth and the impacts that housing, education and the environment can play in reducing these inequalities.

For me as an individual, Plymouth has appeared to become smaller even though my geographic reach has grown through the discovery of new areas that I had not previously visited, this has occurred as a result of relationships and understanding of different communities I have developed throughout the duration of this thesis. As well as this on several occasions I bumped into staff and other volunteers outside of the garden. This resulted in feelings of increased reach within my social network with the familiar extending into other spatial areas, resulting in increased feelings of security, therefore increased social capital.

Throughout the fieldwork and volunteer process I feel like I have expanded my social circle to include others that I would not normally have met. This social network is limited in its extent in the fact that outside of the physical garden boundaries and organised fieldtrips with Diggin' It, I have not undertaken any social activities outside the organised garden activities with volunteers from the garden.

The garden also acts to extend links out into the community, primarily limited to gardening networks and schools. I observed links with the local allotment holders and Friends of Devonport Park (garden environments running adjacent to the Diggin' It plots) extending the reach of the community garden and incorporating it into a larger green network. Couple this with the Growing Devon's Schools and the community outreach work carried out by the Community Development Team (CDT) it becomes evident that Diggin' It is present in different networks within Plymouth and part of a wider community of

interest that expands out of the confines of physical boundaries, which in turn provides extended social impacts for volunteers.

The links with adults in the surrounding neighbourhood were considered to be weak as evidenced within Section 7.1. This may result in members of the local neighbourhood feeling excluded from the community garden if they are aware of a community within the garden. If this is so, it may mean that the garden is widening social justice issues within the community, as to form a community there is the automatic exclusion of those who are not considered to be within that given community (as discussed in Chapter 4). This is a hypothesis which would benefit from further research as it was not a focus of enquiry within this data collection, but could act to provide valuable information concerning social justice issues and the impact of exclusion as a result of community enhancing infrastructures.

The use of web based collaborative platforms and social networking resources seen within this study allowed an increasing number of individuals to participate through a remotely extended network: in June 2014 the garden had 128 Facebook followers and 844 Twitter followers. This in itself reflects the changing social dimensions of community as technologies eliminate spatial boundaries to enable participation. This remote interest may reflect participation away from the garden as well as information sharing for volunteers directly involved in participation within the garden. This also if investigated further to assess the engagement of and benefits evident within these remote individuals could contribute towards debate surrounding social capital evident within virtual communities. Especially as a large aspect of the individual health and wellbeing impacts were attributed towards the garden environment and the social interactions occurring within the garden between volunteers which point to the importance of place within the generation of these impacts.

I argue that because of this inclusion, and the consequent individual and collective benefits, community gardens could provide a useful tool for the integration of individuals from different cultures. Currently Plymouth is experiencing a changing demographic: since 1999 the city has been classified

as an asylum dispersal area which has resulted in Plymouth absorbing the highest number of asylum seekers in the South West since this classification was given. Community gardens could be used to integrate immigrants into society and find a “place” within their new community in which they immediately play a role and experience inclusion. At a time when racism is reported to be on the rise within the UK this may provide not only a useful but timely tool to promote integration of different social and cultural backgrounds enabling impacts described in Chapter 6 to become realised across a wider section of society and closing the gap in social inequality, this will be discussed further in Chapter 8.

7.3.3 Resilient Communities

The development of social networks and personal skills and knowledge about local food, as identified within Chapter 6, should increase the resilience of individuals and the communities that they are part of. This would act to make individuals more able to cope with changes which are beyond their control, resulting in increased wellbeing of individuals and in the social capital evident within communities, this will be further discussed in Chapter 8.

7.3.4 Environmentally Aware Community

Within the surrounding neighbourhood is a generation who display reduced engagement, an absence of interest, minimal gardening knowledge and no place attachment with regards to the community garden. When considered alongside the observed engagement of children in relation to the community garden it becomes apparent that the observed impacts arise through immersion within the garden at a young age or as embedded lifestyles, which is perhaps easier to instil early on. This again advocates the role in which educational activities can be utilised to effectively foster interest and attachment towards the natural environment, in this case community gardens. This theory of embedded lifestyle history and subsequent fostering of long-term pro environmental behaviours and subsequent health and wellbeing impacts is supported within data concerning the older long-term volunteers who report a prior love of gardening as their reason for becoming involved with Diggin' It:

*“I used to teach in **** school, I was responsible for establishing and running a garden within the school. Children who displayed attention problems would be encouraged to take part within the garden as a form of practical education.” (Volunteer D, May 2013).*

“I have gardened all my life, when I was little I lived on a social housing estate and we were given an orchard to look after, ever since then I have loved gardening. All the local residents would get together and maintain the orchard, it was a lovely time.” (Garden Supporter, July 2013).

This reflects that the older Diggin' It volunteers within the garden display this prior love of gardening, which has fostered an enthusiasm for the garden environment that is not realised within the same cohort residing within the local neighbourhood.

Ultimately if these behaviours and attitudes towards community gardening are extended into educational activities it could lead to the creation of an increasingly pro-environmental generation. Bringing with it increased knowledge, skills and therefore social capital which could in turn act to elevate members of disadvantaged communities out of these neighbourhoods. This would reduce social justice issues through embedded lifestyle changes which will produce an increasingly active, educated and resilient generation as well as contribute to reducing ill health costs.

Staff recognise the success educational activities play in fostering engagement within the local community:

“It’s hard to engage the local community as there are so many of them in the surrounding area and only 2 of us; it is hard to make a dent. It would be easier to target very small areas; here it is expected that there are 900 people we should be engaging with, it is just not possible. Community engagement is most

successful with the children and organised visits through the school.” (Staff Member C, August 2013).

This lends support to the use of community gardens as a tool to promote and engage long lasting enduring relationships with pro-environmental behaviours that will in turn lead to the identified positive impacts to health, wellbeing and social development becoming realised, which in turn will result in social, economic and environmental benefits and savings becoming realised.

7.3.5 Health Economics

The NHS directs 11% of their financial resources towards mental health; however it makes up 22.8% of the UKs burden of disease (Department of Health, 2011). This amounts to £26 Billion and in addition there are around 70 million working days lost due to poor mental health (Sainsbury Centre for Mental Health, 2007). There was evidence that the community garden could be both restorative (Box 7.4) and also increase the chances of individuals returning to work or developing the skills to enter the workforce. Furthermore the community garden could prevent poor wellbeing, even among staff.

“Me: You do quite a lot of work here, and put a tremendous amount of effort in.

Staff Member: They keep me together.

In addition, a community that eats more fruit and vegetables is likely to be fitter and more able to gain and maintain employment with reduced economic losses experienced through ill health.

The therapeutic benefits arising out of this restorative environment provide the opportunity to save on escalating health costs and unemployment. The garden acts as an environment where individuals can recover and at the same time develop skills and confidence which would enable increased opportunities for gaining employment and maintaining positive wellbeing. This is evidenced within the garden and shown within Box 7.4.

Box. 7.4 Financial Incentives Associated with Health Promoting Infrastructure

Volunteer I received a brain injury, the garden acts as a place that he and his carers can go. This is an activity that is free, cognitive, practical and therapeutic. The restorative nature of the garden is contributing towards this individual's recovery and is considered to be one that is fairly low cost as it free for him and his careers to attend. The running costs of Diggin' It, shown in Section 7.5.1, if divided by the number of users is less than the costs of curing mental ill health in each individual. These findings led me to support avocation for the use of community gardens in therapeutic horticulture and in ill health prevention as it became apparent that there were considerable health and wellbeing impacts becoming obtained through inclusion and participation with the community garden.

This example raises questions as to how best to spend the public purse, how health problems are viewed by governing bodies and the usefulness of prevention over cure and the ways in which the natural environment can be utilised to enable these benefits to be realised, this is further discussed within Chapter 8.

7.3.6 Reducing Food Inequalities

I suggest that community gardens can be used as a method to reduce poor diet currently present within disadvantaged communities. Box 7.5 reflects the access to food faced within the local neighbourhood as experienced during the research process.

Box. 7.5 Food Access

During the research process, when familiarising myself with the local area, I wandered around the local housing estate. I went into the local shop, looking at the food on sale here, it was noted that the food was primarily tinned, crisps, confectionary and frozen ready meals. There was a limited selection of fresh

fruit and vegetables and those that were there looked quite old and unappealing. The community gardens have the potential to increase access to healthy edibles however other barriers to access in the local neighbourhood are evident and are required to be overcome if these benefits are to be realised fully.

The use of community gardens and participation within them will act to increase access to healthy edibles. This is evidenced within Chapter 6 when investigating the individual impacts arising out of active participation within the community gardening initiatives.

Increased knowledge regarding nutrition enables individuals to make healthier, informed decisions regarding food consumption. This will result in a healthier diet (lifestyle choices), which will result in both objective and subjective benefits to individuals health and wellbeing (health promotion). This ability to grow your own produce locally will also result in increased access to fruit and vegetables, making increased consumption of them more probable.

“We see children coming into the garden, they don’t know what a potato is, their parents don’t cook at home, lots of these children live on a McDonalds existence. Here in the garden we are able to show them where food comes from.” (Staff Member C, June 2013).

The presence of the gardens and accessibility of them within disadvantaged communities could in some cases lead to the reduction of food inequalities experienced, bringing with it a reduction in social justice issues. This therefore contributes towards increasingly robust communities which are resilient in the face of adversity, as seen in the social development impacts arising as a result of active participation within the community garden (Chapter 6). However, this is an impact which has yet to be realised with the adults in the surrounding neighbourhood due to the failure to engage with the gardens. This draws attention to the importance of understanding barriers to engagement to ensure equal access for all sectors of society this will be discussed further in Chapter 8.

7.3.7 Smart Spatial Planning to Result in Sustainable Communities

Tying all these opportunities together it becomes clear that community gardens can be used to create increasingly sustainable communities. Evidence from this thesis suggests that community gardens can increase consideration for the local environment and place attachment to the area (see Box 6.1), and as a result individuals may be less inclined to migrate out of the community, i.e. becoming increasingly cohesive as they display emotional ties to place which may take the form of pride, purpose and care in their environment.

The potential to foster communities as identified within Section 7.4.1 also highlights the important role social networks play in the formation of sustainability. This as referred to in Chapter 4 is in the form of social sustainability. The social impacts identified in Chapter 6 arising from community gardening provides an increasingly cohesive and inclusive community leading to a robust and strengthened social network, seen to extend into other similar interest networks.

Smart spatial design of urban areas, both in regeneration and urban expansion, is increasingly important as we face an era characterised by an aging and expanding population. The need to make these areas more cared for and greener both in action and design is prominent within research, policy makers and planning circles (See Chapter 8). This is reflected within the auto ethnographic account in Box 7.9 below, which describes my personal feelings towards the community in which I reside since becoming involved with the community garden.

Box. 7.9 Personal Reflections on Caring for Community

In regards to appreciation of green space and caring for the area in which I live, I feel I have become increasingly aware of the role the individual plays in creating communities. I feel from this I have become an increasingly civic and thoughtful member of my local community. For example, my general attitude in regards to litter has always been not to litter and to pick up big bits, but more

and more I feel I am constantly picking up litter wherever I go, I am more talkative with others within my community and more aware of green spaces within my area and how they are being used.

This is evidence of increased care and awareness of the local area leading to increased feelings of responsibility and environmental civicsness arising as a result of active participation within this community based initiative. However, it should be noted that this may also be an impact of my immersed study into this thesis, so may be a result of more than participation within the case study garden but an intellectual understanding of the bigger picture surrounding place based initiatives.

Evidence collected for this thesis leads me to argue that the multiple benefits attributed to community gardens will contribute towards decreasing social justice issues and creating sustainable living spaces that in turn promote health, wellbeing and social development of individuals within them acting to increase social capital within communities. This will be further discussed in Chapter 8. For the access and realisation of these benefits to encompass a wider section of society, and longevity of benefits to be achieved, key obstacles need to be overcome. These are identified and discussed in the ensuing section (7.4).

7.4 Obstacles

The following section outlines the obstacles experienced within the running of the community garden as identified within the results. These obstacles are described below and then further discussed in Chapter 8 as to the implications for community gardening initiatives and consequent health and wellbeing impacts. I will start with the most prominent issue faced by the community garden, this being funding.

7.4.1 Funding

During the data collection, through the process of participant observation, discussions and archival resources, it became obvious that there were immense financial pressures on the garden as an organisation and staff members concerning funding, which were to a degree indirectly projected onto volunteers:

“Funding, and striving to become self-sustainable, is the biggest difficulty we face.” (Staff member B, June 2013).

Throughout the duration of the study and within the resulting data it became evident that Diggin' It faces important constraints due to the nature of their funding. Diggin' It relies on short term grants, as a result of which they are required to alter the focus of their outreach in line with grant proposals and subsequent expectations placed upon them. The dependency on short term funding leads the garden to become a puppet, the strings of which are dictated by the funding restrictions, making the garden perform to the current political whims. With each grant, according to funding guidelines and specified outreach aims, there are restrictions placed on the activities and outreach focus within the garden. This is where it becomes obvious that this garden is not a grass root initiative brought about by the local community and with this, it brings difficulties in the day to day running of the gardens. This has resulted in a loss of freedom to run the garden as a true community initiative. In order for the garden to be truly community led it must become self-sustaining or a long term grant or funding stream needs to be obtained to enable the community garden to have longer term agendas to work within. This would result in fewer changes to the aims of the garden, which due to the nature of place based initiatives result in increased benefits becoming apparent which may be observed within grass root initiatives, however these grass root initiatives are traditionally middleclass and may therefore not be successful within the disadvantaged communities in which the gardens are located, as seen with engagement issues identified within this Chapter. This will be discussed more within Chapter 8.

Since the initial lottery grant in 2006, the focus and outreach activities of Diggin' It have varied from mental health, to education outreach and most recently, community engagement. This has resulted in a range of methods and approaches, which resulted in shifting the focus of support and as a result of this a decrease in volunteer satisfaction. This change in satisfaction is a result of different management strategies, consequent altering of staff energies and support applied to the running of day to day activities with volunteers within the garden. This is particularly negative when considering the pathways some volunteers arrive at the garden from and highlights the importance of the

development of social networks, which suffer as a result of changed management strategies and altering focus of garden staff. This leads to reduced support directed towards vulnerable individuals acting to reduce trust and longevity of volunteers within the garden.

As stated within Chapter 5 a proportion of volunteers arrive at the garden suffering mental ill health or isolation. Within Chapter 6 I show that through gentle inclusion into the supportive network of the Diggin' It garden, restorative impacts experienced on health and wellbeing become realised. If this focus of energies shift, as it has within this garden, then negative impacts occur as a result upon these vulnerable individuals. Staff recognise this as a monumental problem whereby the results of this change in funding and subsequent shift in outreach priorities has resulted in two easily observable impacts arising. These are described below.

Impact 1: Volunteers referred due to mental health have less support and many have left (this leaves fewer reliable volunteers available to take on work, for example through the Community Development Team which would generate funding).

When the garden first started the focus was ill mental health, as a result of this Diggin' It attracted members of the community suffering from isolation, depression and other mental health issues. These individuals were often referred by their General Practitioner (GP). During their initial time at the garden they were supported greatly by the staff. As a result of this support lots of positive outcomes arose. The following examples are taken from the Secret Millionaire documentary described in Box 7.10 (Channel 4, 2010):

“I came here about a year and half ago, when I was in a bad place, I don't have family in Plymouth, but have found a real sense of community here, the people at Diggin' It are like my family.” (Channel 4, 2010).

“I feel really happy and at ease here, you can feel it protecting you.” (Channel 4, 2010).

“Makes you feel like you have a support network, that when you are going you are doing something that is appreciated.” (Channel 4, 2010).

These are just a couple of relevant examples; the volunteers from this documentary however are no longer active volunteers within the gardens. A few have relocated while some have undeniably left the garden as they no longer feel supported in the way they originally did (according to staff reflections).

One long term volunteer who is still at the garden discussed this issue with me; this volunteer was referred by their GP as a result of poor mental health. The volunteer describes coming to the garden and gradually opening up and accepting the support network provided within the garden. Initially this was difficult to accept but became appreciated over time. However, since then the volunteer has experienced the shift in outreach focus and subsequent support within the garden change to prioritise other issues and direct resources appropriately, according to funding requirements. As a result of this Volunteer F has expressed that they feel disgruntled:

“The garden has changed..... It is not what it used to be.” (Volunteer F, August 2013).

Volunteer B also recognises changes that have occurred within the garden and considers this to be the reason why volunteers have left the garden:

“Things have changed.....There used to be 5 or 6 of us that would garden together; now I am one of the only volunteers here from that time.....it’s sad really.” (Volunteer B, September 2013).

Evidence of dissatisfaction with changes in the garden as expressed by Volunteer F are seen to extend into other volunteers experiences of the garden even if they are a relatively short term volunteer. Box 7.7 describes my auto ethnographic account of this in action.

Box 7.7 Impacts Associated with Funding Restrictions

Before initially meeting Volunteer F I had been informed both by staff and other volunteers that this volunteer was difficult to work with and often grumpy with how the garden was run. I found working with this individual fairly uncomfortable as they would grumble and I felt that they were unhappy, which in turn made me feel gloomy and slightly despondent when considering the future of the garden. This is indicative of the impacts that external funding and associated restrictions will place on the effectiveness of community based interventions and voluntary organisations.

This demonstrates the dissatisfaction that has arisen within the longer term volunteers and how this extends into the garden, projecting onto others and resulting in a changed atmosphere that acts to reduce the potential health and wellbeing impacts which could be realised. However, this volunteer is still active and plays a large role with a degree of responsibility within the garden, which indicates that even though Volunteer F is no longer 100% satisfied with the running of the garden they are still reaping benefits through involvement and in turn a reduction of health issues that they were suffering from prior to involvement with the garden. It also points to the value of 'true' place based initiatives, away from the restrictions and influences of funding, and the importance of locally tailoring outreach to enable the maximum benefits are obtained within the initiatives as identified on a local level, not decided upon from a distant political agenda.

Impact 2: Staff spend time chasing funding when they would prefer to be gardening and become dissatisfied and leave.

This highlights the importance of the community garden becoming self-sustainable and free from the restrictions placed on them as a result of the need to secure funding. Currently they hope to become financially self-sustainable to abolish these funding issues. In the short term this drive to become self-sustaining is in turn placing strain on the staff. During my participant observation I was in a privileged position to gain trust with staff so was privy to many different viewpoints. Currently there is no fixed plan as to how to become self-sustainable with staff members having different ideas as to how this can be achieved and their role within the garden:

“I feel torn. I started this job so I could interact with members of the community and teach individuals about horticulture, nutrition and the environment. Currently I feel I am not doing this, just delegating tasks and heading into the office...it’s not what I envisaged when starting here.” (Staff Member D, July 2013).

“There are definitely differences in opinion as to how the garden should be run.” (Staff Member D, July 2013).

Since then this staff member has moved on to new employment, stating their enjoyment throughout their time at Diggin' It, but with a need to move onto new pastures. This raises further questions as to why this individual has moved on.

Another staff member spoke of spending a lot of energy on outreach activities to generate income for the garden. This takes them out of the garden and away from the volunteers for the majority of the week, however while doing this some volunteers partake in the activities leading to volunteer interaction. Currently this avenue to explore funding sources is dwindling as staff report less success in securing work through the community outreach team.

“People don’t have much money at the moment. They would rather do jobs themselves than pay someone to do them.” (Staff Member B, June 2014).

As a result of these impacts the recognition of the need to become self-sustaining has become widely accepted within the garden. However, this in itself raises problems, i.e. the gap between the current income and the income which is needed. This is shown in Table 7.1.

Outgoing	£ per year	Income	£ per year
Total Salaries	44,160	Shop and Cafe	2,500
Volunteer Time	10,000	Club Activities	4,000
Training	2000	CDT	12,000
Promotion and Educational activities	9,500	Healthy Food Programmes	4,000
Transport	2,000	-	-
Overheads	25,000	-	-
Total	92,660		22,500

Table 7.1 – Estimated income and expenditure for Diggin' It (2012-2013)

As Table 7.1 shows there is a notably large financial gap between running costs and income within the gardens. This indicates that currently the gardens are not able to sustain themselves, nor is this likely to occur in the near future. Comprehensive restructuring and fundraising efforts will need to be made to ensure this. However, this in turn will raise issues surrounding the mission of the gardens and the outreach capabilities which may lead to reduced positive impacts on health and wellbeing becoming realised by the most vulnerable and disadvantaged users. Assessing the economic viability of these gardens however is not as simple as money in verses money out, but encompasses other considerations such as the cost of ill health to society, both socially and economically, discussed in Chapter 8.

“Funding is the biggest problem we face, the stipulations and money chasing.... it does not help us. We are striving to become self-sustainable and it is difficult.” (Staff member C, May 2013).

“Times are hard, people would rather do jobs themselves than pay for them, so we have to make the garden the gem and are starting to wind down the CDT activities and concentrate on the garden. Without a solid and reliable core of volunteers we are unable to work with businesses as we cannot guarantee the manpower to complete the work.” (Staff Member B, June 2014).

This research points to possible pathways in which solutions could become realised. If the NHS or Local Authorities directed, in relative terms to them, a small financial outlay to provide funding for community led initiatives such as Diggin' It, it would provide these organisations with the financial capital they require to run independently and free from grant guidelines regarding funding dispersal. This would enable the garden to be managed and run as they see fit to best meet the needs of the local community. In return, due to the benefits arising from these grass root initiatives, as evidenced within Chapters 6 and 7, health and wellbeing would be greatly enhanced and long term health costs to the NHS and Local Authorities would become greatly reduced.

Currently results from this section lead me to question the viability of community gardens, as well as the impact different forms of community garden organisational structures will have on the running and subsequent success of the garden. It also raises the question of whether these gardens are in fact community run initiatives, or rather a product of government funding, vulnerable to the musings of short term politics. However, given the potential impact of community gardens on the NHS budget it may be worth more sustainable funding being in place to allow the full potential of the health benefits to become accessed.

7.4.2 Barriers to Access

Barriers to access were identified within the results of this research. It is considered that barriers to access result in the lack of community impacts evident within the adults of the surrounding community. I propose that after funding, engagement poses one of the biggest obstacles for the community garden in the prevention of positive impacts being realised. The barriers observed throughout the research are evidenced below and identified from

spatial, temporal and cultural perspectives. If these barriers to participation are efficiently identified steps can be taken to overcome these and lead to the increased potential for community impacts to be realised, across all sectors of society, which in turn would reduce social justice issues apparent throughout society. Individual barriers to access are now discussed below.

Geographical location was not considered to be a barrier for individuals residing in the surrounding neighbourhood due to the garden running adjacent to the surrounding residential area, but may however contribute towards exclusion of others who do not reside locally. Opening more gardens could reduce locational difficulties: two volunteers (E and F) moved from Penlee to Devonport due to ease of location. Two other volunteers (B and D) who stayed at Penlee found this location more convenient. While spatial proximity to the garden is a contributing factor as to why volunteers favour a site it is not considered to be the only factor in effect and not one which is considered to act as a barrier for the volunteers present within the garden (as most commute into the garden), nor in the surrounding neighbourhood (due to close location). If spatial proximity to the garden were the only barrier to inclusion then it would be expected that a high proportion of the surrounding community compared to those outside of that community would engage with the garden. Results however show that this is not the case.

Lack of time is considered to be a major barrier to participation both within the surrounding neighbourhood and within garden supporters (those who visit the garden to buy produce):

Me:” Would you like to volunteer here?”

Garden Supporter “.....(hesitated for a while)...not really, I grow at home and it is easier to do that as I can fit it in when I have a spare moment, I do not have time to set aside to come here for a set amount of time every week or so”.

Box 7.8 below recounts my barriers to participation experienced in relation to the community garden.

Box 7.8 Personal Reflections on Barriers to Access

While conducting my research I had a set amount of time put aside to undertake the volunteer activities at Diggin' It. Since this period of time has expired, I have struggled to find time to volunteer. Work, socialising and general jobs associated with daily life have meant to travel to the garden and participate with the activities in my free time is not possible.

This is indicative of the barrier of time in constraining participation, also reflected within the age groupings of the regular volunteers who broadly fall into two categories, i.e. further education or retired, resulting in the removal of temporal barriers. However, even some of the older volunteers have decreased the time they spend in the garden as a result of becoming grandparents. This leads to a developing hypothesis that time is acting as one of the prominent barriers to participation for individuals within the gardens. The decision as to how to spend individual leisure time is therefore likely to be influenced by individual values and the perceived importance of, and joy in, the activities undertaken, which will be influenced by emotional ties towards the garden environment and activities. This is seen in the volunteers who garden at the site as a result of a prior interest or love and not through a GP referral or educational programme. The continued involvement of volunteers who arrived at the garden with no prior interest display these emotional bonds to place as having formed and the act of gardening becoming a priority in the expenditure of their leisure time.

Lack of time is amplified via the volunteer garden opening hours of 10am till 4pm during weekdays and closure at the weekends (due to staff funding), which effectively acts to eliminate those who work a normal working week:

“The garden is only open during the week we can’t go.” (Female 50’s, Penlee area).

Literature reviewed in Chapter 3 states that those most likely to volunteer are individuals in employment, therefore the opening hours severely reduce the potential for this group to participate.

However, the large number of attendees to the community events which take place during weekday garden opening hours suggest that timing was not necessarily an issue for residents of the surrounding neighbourhood. A more salient barrier was likely to be a **lack of interest** in gardening:

*“The families who have a garden don’t look after them.”
(Community Housing Officer, July 2013).*

“I’ve got enough to do already.” (Female 40’s, Penlee area).

“I don’t like gardening, it’s boring.” (Female 40’s, Penlee area).

This disinterest may be due to a previous lack of exposure and subsequent environmental education, which in turn will result in a lack of attachment towards green space and pro-environmental and sustainable activities, such as gardening. This leads to a substantial barrier to participation through the reduced importance attributed to these green activities and the understanding of them:

“Why would I grow my own food when I can go to the shop and buy it? I think it’s a stupid idea.” (Female 20’s, Penlee area).

“I don’t know anything about plants and stuff so I wouldn’t want to look stupid, I couldn’t do anything there.” (Female 40’s, Penlee area).

“Why would I garden for free? If they want people to work they should pay them.” (Male 20’s, Penlee area).

Thus the entire concept of a community garden of a nurturing base to develop skills and wellbeing was completely absent in some local residents due to these barriers that have been identified as in effect.

Awareness of the garden and the facilities within it provide a barrier to access among those who are not within the surrounding neighbourhood. Throughout the research process I asked individuals I came into contact with if they were aware of Diggin' It and what it was. The overriding response was one conveying an unawareness of the garden. This leads me to state that increased promotion of the garden is necessary to promote engagement and awareness across Plymouth, however obtaining the funds to be able to do so may not currently be possible.

When discussing activities that could be undertaken within the garden, a large majority of the local residents were unaware that it was possible to simply sit in the garden or utilise the space for their own crafts in the garden's creative spaces. The individuals who did use the garden as creative spaces undertook various artistic or musical activities such as guerrilla knitting, undertaken predominantly by middle class individuals. Again, this is likely to be a product of educational background and lifestyle history in effect, and points to the presence of social justice issues in effect.

From the evidence found within this thesis, barriers to engagement can be considered to be a product of education, time and personal capacity in the form of existing interests and emotional affinity with nature. These will be digested further within the proceeding discursive chapter.

7.5 Summary

It is evident from the results collected within this research that community gardens, if used effectively, can yield positive impacts on individual and community health and wellbeing, as well as providing a tool to which develop social capacity of individuals and communities.

Gardens provide unique opportunities for communities to come together, become increasingly resilient and profitable. To enable these opportunities to be realised more readily, community gardens can therefore be utilised as a tool to promote community integration, and enable smart spatial planning when considering urban expansion, regeneration, sustainable design and the use of health promoting infrastructures. It will also contribute towards the development of an increasingly environmentally aware generation, who will likely display characteristics of an increasingly robust and resilient society pointing to the need to increase the provision of environmental educational opportunities.

In order for these benefits to become realised more fully there are obstacles that are required to be overcome by these community gardens. Most notably the issues raised within this research point to funding problems and barriers to access. This therefore answers the research aim in Chapter 1, with the identification of opportunities and obstacles arising out of community based approaches. Now these barriers have been identified, steps can be made to overcome these in planning and policy making, which in turn will promote the opportunities and improve sustainability of health promoting landscapes (Allen, 2014; Anderson et al., 2014).

Chapter 8 Discussion

In this thesis individual and community impacts arising as a result of participation with community gardens were explored. To complement this, the individual and community level impacts of the way these organisations are funded and run day to day have also been described.

This research has identified the breadth of impacts realised as a result of active participation with the natural environment, the potential of community gardens as a tool for nurturing environmentally civic actions and behaviours, and the possible ways in which this may increase community level resilience. This work has demonstrated how community gardens are a tool for enhancing lifestyles and health locally. If such initiatives were used more widely they have potential to enhance wellbeing globally.

This chapter will develop the findings within Chapters 6 and 7 to explore the potential such initiatives have to benefit both individuals' and society. It will also explore the degree to which community gardens are effectively utilised and the potential results of increasing access to gardens. I use this chapter to connect my results with existing literature as identified in Chapters 1 to 4. The scope of the results and the potential implications arising within the results of this thesis have led to multiple impacts observed and are reflected within the volume of sub headings in Chapters 8 and 9. These headings are organised according to findings as they relate to the thesis aims and objectives. Broadly this falls the following: individual impacts on health, wellbeing and social development, community wide impacts and the implications of these (to include barriers to engagement). Finally I will discuss the opportunities arising as a result of community gardens for society, with consideration to increasing opportunities in the elimination of obstacles encountered within these results.

Following this Chapter I highlight and expand upon the potential benefits that could be expected if political attention is directed towards emphasising and

encouraging community gardens as a tool to promote and preserve increasingly sustainable communities (Chapter 9).

8.1 Individual Impacts

Individual level impacts were found to exist across all participants within this study. These were in the form of health, wellbeing and social development impacts that were identified as occurring due to the creation of embedded lifestyle changes (as seen within the older volunteers) among the participants through active participation within a community of interest. This was in the form of increased fitness, absence of illness, increased social interactions, ability to cope and the calming nature of the garden in providing increased wellbeing to occur. Within the results there was evidence to support the therapeutic nature of the natural environment (Pitt, 2014) with consideration to community gardening.

The “community” in community gardening provided opportunity for social development impacts to occur with participation in this community of interest. These impacts were visible in the sharing of knowledge and development of skill sets as well as increased personal resources of individuals, and in the social capital evident within the garden. The level of impact differed between individuals. Those arriving at the garden from a background of ill health, social isolation or learning difficulties experienced comparably heightened benefits due to their pre-existing lifestyles. This was a product of the baseline health, wellbeing and social development levels already in effect as a result of lifestyle impacts.

The main benefits as identified within Chapters 6 and 7 are recapped and subsequently further discussed in greater depth with reference to pre-existing literature and the implications these findings provide for the practical application of community gardens.

8.1.1 Direct Physical Health

Participation within the garden was found to lead to increased levels of physical activity and physical fitness across volunteers. These findings are consistent

with existing literature that shows as a result of increased physical activity through gardening there were reported changes on body weight associated with active participation. Participants reported and advocated the gardening process as leading to the maintenance of a healthy body mass (Park et al., 2008). The consequence of this healthy body weight has the potential to be far reaching with knock on effects such as a reduced risk of obesity and associated ill health. For example this may become evident in the reduced risk of heart disease and diabetes through the reduction of risk factors associated with ill health (Unruh, 2004; Mokdad et al., 2003) in the volunteers. While participating in the community garden was likely to contribute towards the maintenance of a healthy body mass in the older volunteers, it is likely that pre-existing positive lifestyles already contributed towards this throughout their life before entering the garden. It was the younger and less experienced garden volunteers who reported weight loss as a result of gardening, which is thought to have occurred as healthy lifestyle impacts were not already in existence before arriving at the garden.

Individuals also displayed impacts on their direct physical health arising through increased consumption of fruit and vegetables, this is consistent with the reviewed literature within Chapter 4 (Heim et al., 2009; Alaimo et al., 2008; Lautenschlager and Smith, 2007a) which shows evidence to suggest community garden involvement will result in a healthier diet and contribute towards maintenance of a healthy body weight. Impacts experienced by volunteers were found to be relative to the pre-existing lifestyles and health status before arriving at the garden. This supports the hypothesis and research that shows community gardening provides the opportunity to utilise different aspects of the garden and gardening activities as required in order for a host of individuals to benefit simultaneously (Tenngart Ivarsson and Grahn, 2012). This has considerably valuable applications in the promotion of sustainable design and effective use of resources leading to the maximum use of space (Anderson et al., 2014). Land availability is increasingly stressed as a result of an increasing population which places pressure on resource availability (WHO, 2014a; Rau and Fahy, 2013) making the possibility of dual use of space increasingly beneficial.

8.1.2 Wellbeing

Individual impacts on wellbeing were evident within my results; it is thought that these occurred as a result of the social and therapeutic aspects of the community garden as well as the physical process of gardening (Stigsdotter et al., 2011; Bjork et al., 200). Outlined here are the wellbeing findings and discussion surrounding the importance of these.

Within the case study sites community gardens were found to be effective in the enhancement of wellbeing for participants. This occurred as a result of the provision of a calm environment in which individuals can relax and reflect; this reduces perceptions of stress and provides a safe space for individuals to be socially, physically and mentally relaxed (Davies et al., 2014; Tenngart Ivarsson and Hagerhall, 2008). The location of the garden is one that is removed from the home life of the volunteers providing a space of “escape”. This can be considered to relate to the work reviewed in Chapter 4 where the restorative nature of green space is considered (Kaplan, 1992).

The garden also provided a social network in which individuals participating are automatically (to differing degrees) incorporated into. Incorporation into a social network will result in enhanced wellbeing occurring as a result of inclusion (Sheilds and Price, 2005). The ethos of the garden, its calming environment, as well as the solitary or group nature of the activities undertaken, result in a gradual social immersion as appropriate and required by each volunteer. This is greatly valuable to individuals who arrived at the garden suffering mental ill health or isolation issues as social interaction has been shown to foster better mental health (Cohen, 2004).

The resulting social development impacts on individuals within the garden (outlined below) will also contribute to enhanced wellbeing (Dodge et al., 2012; Pollard and Lee, 2002). These impacts which include social skills, practical skills and knowledge will result in positive wellbeing in the form of emotions such as pride, confidence and self-worth (Dolan et al., 2011). This positive wellbeing and social development will in turn act to create increasingly resilient individuals and communities (Chawla et al., 2014), likely to result in mutually reinforcing and long lasting impacts on wellbeing.

8.1.3 Personal and Social Development

Personal and social development impacts identified within this study are strongly interlinked with community impacts and individual wellbeing. These development impacts were identified as occurring as a result of interactions between volunteers and staff, as well as volunteers and the public, and through increased access to resources as observed within the results of this study. This social learning has led to increased personal resources within individuals participating in the community garden as seen in reviewed literature in Chapter 4 (Bendt et al., 2013).

The increase in skills and knowledge was not limited to the volunteers new to the process of gardening, these impacts were also identified within the experienced gardeners as a result of increased resources and a platform for learning about gardening. This was gained through interactions with other gardeners, literature and fieldtrips to other gardens, highlighting the vast potential of community gardens as an educational and personal development tool (Kransy and Tidball, 2009b) with community enhancing capacities (Kingsley and Townsend, 2006). This increase in skills and resources was complimented through the generation of enhanced confidence, pride and feelings of self-worth that arose as a result of the social learning as well as the social interactions which occur within the garden (Bendt et al., 2013). These resulted in individuals becoming able to converse with visitors to the garden, gain of some form of vocational direction or even returning to work after periods of long term unemployment. While each impact is rather different on an individual level they make the garden an opportunity structure for effects to occur on an individual social and economic level (Tenngart Ivarsson and Grahn, 2012).

These impacts in turn all lead to social sustainability consequences which will result in the creation of a resilient and increasingly happy and long-lived, nurturing community (Okvat and Zautra, 2009). This provides important results that could be incorporated into policy and planning initiatives to enhance health, wellbeing and social development of individuals to create increasingly robust and resilient communities through increasingly relevant and targeted policies (Anderson et al., 2014; Tzoulas et al., 2007, Maller et al., 2006), (see Chapter 9).

8.2 Health and Wellbeing Determinants

Within the introduction to this chapter it states that impacts observed within this thesis were not purely a result of the process of gardening. While the benefits identified within this thesis are situated within the context of a community garden, I propose that the impacts are not solely through the activity of gardening but a combination of different entities within the garden and the gardening process that include mental, physical, environmental, and social considerations.

The community gardens were found to act as a platform that allows multiple benefits to health to occur. They proved to be an effective use of space as they enable space to be used in a dynamic manner that allows for the inclusion of multiple individuals simultaneously (Dumreicher and Kolb, 2008). The community garden research sites appeared to be effective in drawing in individuals who have suffered from mental ill health and social isolation. The garden acted as an environmental loci in which a community has become established. I consider this to be a result of the opportunity the garden provides in the provision of a space where individuals can work independently as part of a greater whole which results in inclusion into a community of interest (Armstrong, 2000). The degree of immersion into this community is variable and supports a slow and steady transition into a community as or if required by the volunteer according to their health and social background reflected within their personal capacity. Community gardens enable individuals at different life, interest and health stages to participate in a collective activity with consideration to their needs and abilities (Tenngart Ivarsson and Grahn, 2012). This is reflected within the results in Chapters 6 and 7.

Historically, individuals resided within the natural environment in tribes. This refers to the genetically inherent tendency to favour and receive benefits from the natural environment as described within Chapter 4 with reference to Wilson's Biophilia hypothesis (1984). Community gardening allows for the engagement of the senses which may trigger these embedded genetic tendencies (Stigsgotter and Grahn, 2003). The sense of sight is engaged when viewing the garden and aspects within it, be this colours or textures, the artificial

or the natural. The garden engages the olfactory through the sense of smell of the garden in way of the flowers, mud, air and so on. Touch is engaged through the process of gardening and the resulting activities that occur through active participation as a result of the volunteer experience. The sensory experience of sound is encountered through simply being within the garden environment and hearing the leaves rustle or the birds' sing, to the noise of the shovel slicing through the mud when actively participating within the garden. Finally the sense of taste is invoked through the consumption of garden produce, be this fresh fruit and vegetables or as a result of culinary experiences that in turn create other sensory experiences for the participants. These sensory experiences may help to reignite individuals' genetic tendency to favour the natural environment (Wilson, 1984) and promote the restorative capacities of the natural environment (Kaplan, 1992).

Research into the natural environment as a restorative therapy supports the notion that green space will provide health and wellbeing benefits (Qin et al., 2013; Groenewegen et al., 2006), and as found within this research. However, the benefits to health and wellbeing realised within the research results emphasise more than the restorative nature of green space and therapeutic horticulture as providing these impacts. The role of social networks in the provision of health and wellbeing is identified as a major determinant of health, wellbeing and social development impacts (North Norfolk District Council, 2013). This is visualised within the extensive social development impacts occurring within the participants within the garden. These impacts are extensive individually and collectively (community wide), and highlight the importance of the social aspect of community in the realisation of positive health and wellbeing (Dodge et al., 2012; Bjork et al., 2008; Kingsley and Townsend, 2006).

Therefore, these results could potentially be replicated as a result of active participation within an alternative activity that provides the individual with opportunity to become immersed and attached with the natural environment while participating within an activity as part of a social network (Forestry Commission, 2014). Existing literature also highlights the value of community enhancing infrastructure in planning and policy to increase health and wellbeing of communities and increase sustainability of the built environment (Anderson et

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al.,2014; Tzoulas et al., 2007). As a result of this realisation I propose that while the community garden is acting as a tool to provide an opportunity structure for health, wellbeing and social development it is in fact not a vital component and could be replaced with other social activities which are situated within green space. This relates to the consideration that individuals will have varying characteristics and interests, making gardening not always an appropriate tool to improve health and wellbeing. This is seen within the disengaged individuals residing within the surrounding neighbourhood. It may be that some other form of social outdoor activity is better suited to engaging these individuals. This however is largely hypothetical and was not investigated within the exploratory scope of this thesis, but may provide opportunity for future research (see Chapter 9).

Therefore I propose that the **active participation** in an **outdoor** setting within a **community of interest** is the driver of the health, wellbeing and social development findings found in this thesis. The community garden aspect is the one that works for this group of individuals through their interest within this activity. If it were solely the act of gardening the funding avenues and consequent outreach focus would be unlikely to impact the satisfaction of existing volunteers and improve volunteer retention.

The social aspect therefore can be considered a major component of providing enhanced health and wellbeing as well as the formation of a community of interest as seen within this garden. This finding is consistent with health and wellbeing research which highlights the importance of the social aspect of health, wellbeing and community resilience and sustainability (Dempsey et al., 2005).

8.3 Wellbeing and Policy: Community Garden Context

In 2011 the Department of Health launched its mental health strategy “No Health Without Mental Health” (H.M Government, 2011b), the aims of which were to improve health and wellbeing and to improve health outcomes of those with mental health problems through the provision of high quality health

services that are accessible to all. Community gardens, as evidenced within this research, provide a health opportunity structure that could be implemented to realise these strategy aims (Penny, 2014). Community gardens also draw upon the initiative “5 Ways to Wellbeing” which is the promotion of experiences that encourage positive wellbeing (O'Toole, 2014). These are to connect, be active, take notice, to keep learning and give. Community gardens enable these experiences to be met. They provide a space in which individuals can connect with others. The active participation encountered through involvement with the garden enabled individuals to be active. They were found to take notice of their environment and others while within in the garden, and through the process of gardening and social interactions they in turn can learn and give back. This is noticeably demonstrated within the social development findings within this study (Chapter 6). The process of community gardening as shown within my results and existing literature (Davies et al., 2014; Hawkins et al., 2013; Patel, 2001) will act to contribute towards social, economic, health and wellbeing impacts becoming realised across communities.

Currently there is an emerging interest across health practitioners and researchers of the role green space can play in generating positive health outcomes (Anderson et al., 2014). With research into green space utilisation being conducted within hospitals and the establishment of community gardens within hospital grounds (Gardening Leave, 2014). To complement this there is a growing acceptance of the value of qualitative research methods and therefore data in health research (Pope and Mays, 1995). This is a departure from the traditional quantitative measures of health, but awareness is growing as to the richness of data that qualitative methods can reach where quantitative data may fail to do so (Sofaer, 1999). Findings from this research show that community gardens are effective in enabling wellbeing policy aims and objectives to be met. As community gardens or simply the natural environment as a method and health promoting resource are increasingly accepted, it is likely that these impacts will be engaged as access to these wellbeing resources are increased. This again reinforces the importance of merging planning with health to enable effective design of health promoting spaces to be created (Dredge, 2014) which will encourage healthier lifestyles (Penny, 2014).

Defining wellbeing as discussed within Chapter 2 is a complex and multifaceted, much debated matter (Dodge et al., 2012). The findings from this study may contribute towards the knowledge base as to defining wellbeing. The results from this study support the notion that wellbeing is a subjective entity, subject to change both within and across individuals (Pollard and Lee, 2003). Within this research participants showed differing degrees of health and wellbeing impacts thus supporting literature which describes wellbeing as differing according to lifestyles, cultures, sex, ethnicity, social class and so on (Ryff, 1989). The results in Chapters 6 and 7 show impacts occurring on individuals in regard to self-acceptance, positive relations with others, autonomy, environmental mastery, purpose of life and personal growth. This relates to resilience literature (Chawla et al., 2014; Colding and Barthel 2013; Collier et al., 2013) where by individuals who experience high levels of wellbeing will be best able to cope with changes beyond their immediate control due to the increases in personal resources arising from increased wellbeing with reference to the natural environment. This supports literature which states that wellbeing is a product of personal resources (Dodge et al., 2012) which in turn supports the placement of infrastructures such as community gardens that act as opportunity structures to foster wellbeing through nurturing social, physical and psychological resources of individuals and communities.

This thesis also contributes towards the growing body of evidence which advocates the use of qualitative approaches in health care research (Mays and Pope 1995). This research has been successful in the identification of health and wellbeing outcomes arising from community garden participation. I consider the use of qualitative methodologies in this investigation the only ones exploratory enough to result in the generation of in depth cause and effect multi-faceted and subjective wellbeing findings as seen within my results.

8.4 Skills and Knowledge

The skills and knowledge accrued as a result of participation within the garden also acted to increase emotions of confidence and self-worth leading to long term increases in wellbeing (Davies et al., 2014). In some cases these may

combine with the other entities to elevate an individual from a state of depression (Royal College of Psychiatrists, 2014). The capacity of individuals to interact socially is enhanced through involvement in the garden community (Chapter 6). While not measured within this study the potential long term benefits attributed to this reduced stress is, according to literature reviewed in Chapter 4, anticipated to result in increased long term health. This is a product of reduced stress level experienced over individuals' lifetime leading to reduction in the likelihood of experiencing chronic illness through enhanced wellbeing (Grossman et al., 2004; Vanitallie, 2002).

8.4.1 Intergenerational Learning

The dissemination of skills and knowledge was evident within the process of intergenerational learning within the collected data. Diggin' It staff and a group of Diggin' It older volunteers arrived at the garden displaying a prior interest in gardening and a healthy lifestyle history. On multiple occasions I observed the more experienced individuals sharing information and discussing the garden with the younger volunteers. This has led to the dissemination of knowledge from the older or increasingly practiced gardeners to the younger and/or newer gardeners. Intergenerational learning was particularly observable between staff/older volunteers and the children residing in the surrounding neighbourhood who attended the garden mostly on school visits. This in turn is likely (although more research is needed within this area) to increase community capacity through this shared knowledge between generations (Newman and Hatton-Yeo 2008), both within the garden (volunteer to volunteer) and within the surrounding neighbourhood (as a result of school visits).

This networking and information sharing may also act to increase social capital evident within communities by reducing barriers through the integration of different generational groups (Groenewegen et al., 2006). This will also increase perceptions of social safety through the observed social cohesion of different cultural groups and minorities within society (Kingsley and Townsend 2006; Shinew et al., 2004; Armstrong 2000). While not a line of enquiry within this research project it contributes towards an interesting research focus in the

future as one which may become increasingly useful and topical as the UK experiences rises in immigration levels (ONS, 2014c).

8.5 Education

There are extensive positive impacts that can become realised with community gardens if implemented as an educational tool as discovered in the results of this thesis. Environmental education is defined by Tidball and Kransy (2011) as a programme of set activities that enables individuals to interact with both the social, biological and physical environment. These activities involve set rules, and individuals are guided by others who have more experience. This definition of environmental education describes the process and interactions within the garden whereby the staff and other volunteers are teaching the younger individuals about gardening and other related environmental impacts and processes. This provides the opportunity for individuals to (as observed) interact with both the social, biological and physical environment in which the garden is situated.

As a result of immersion and active participation within the community garden case study sites children showed an awareness of the garden and the processes that occur within it. This was observed both within the garden (on multiple visits) and offsite through discussions (Diggin' It community outreach events). Children who had visited the garden were able to identify plants and vegetables that they may not have otherwise been able to do so, through the barriers to access encountered by these children. Traditionally, access to these forms of green infrastructure is accompanied by reduced access within disadvantaged communities (Garcia et al., 2009) in which a high proportion of these children visiting the garden reside in. Literature reviewed within Chapter 4 (and evidenced within the results in Chapter 7) shows that these barriers are often not solely limited to the spatial entity of green space, but often a product of social considerations which act to establish barriers to participation (Cortis et al., 2009). Involvement within community gardens at a young age can act to reduce these social barriers to participation by fostering and instilling social norms at a young age which will become evident within the lifestyle choices

over time (Krasny and Tidball, 2009b). Among the children encountered within this research there was observed an awareness of seasonal and weather patterns within the garden as children noted differences in growth rates and stages of plants on an annual basis. This seasonality is reflective of growing environmental awareness which is likely to be transferred into other areas of their lifestyles and increased personal capacity. These environmental and sustainability issues encountered as a result of experience of the garden resulted in knowledge emanated from the community garden through the educational experiences by the children participating. This is consistent with work by Tidball and Krasny (2009b, 2010), which supports my findings.

Nutritional education occurred as a result of participation within the garden. This is consistent with the findings for the adults, with impacts on nutritional habits becoming evident. This is perhaps a notable finding as it provides an opportunity to instil healthy eating impacts at a young age helping shape development to avoid patterns of negative eating habits to form and the need to moderate them or cure ill health later in life (Ozer, 2007). This may therefore be considered an effective ill health prevention tool with long term benefits (Wakefield et al., 2007). However, this is an area that lacks in evidence and requires long term analysis to support this hypothesis to create a stronger evidence base. The community gardens therefore were effective in providing a setting in which social development can occur in individuals involved with the garden.

The community outreach events within the local neighbourhood provided evidence that there was a dissemination of knowledge to parents from the children within the disadvantaged areas. This indicates that the parents are not engaged with gardening and other related topics discussed within these findings. As a result of local neighbourhood observations it became apparent that there was an emergence of generational differences within the residents of the surrounding area. This was in the form of the children being increasingly aware and engaged with the community gardening process, and more environmentally aware than older generations within this community. The cumulative outcome of these findings supports the advocacy of green education. Findings from this study are consistent with Wenger (2003), who

advocates the utilisation of the natural environment as a tool within education. This is a departure from traditional modes of education which focus on information absorbance, moving towards the learner interacting with the larger social and biophysical elements of their environment. The concept of environmental education draws on the literature surrounding activity theory (Tidball and Krasny, 2011). This relies on the following 6 elements that enable learning: participant, object, community, tools, rules and division of labour. Community gardens use participants, within a garden (object) in which other member's garden (community). Within this process they will utilise tools, adhere to rules and play a role (division of labour) within the garden. The use of community gardens as a tool in which to promote environmental education also supports attention restoration theory (Tidball and Krasny, 2011; Kaplan and Kaplan, 1989) where human attention recovers in restorative environments. This is found to occur as a result of inclusion into the garden, particularly in those volunteers who may suffer social exclusion, for example due to learning difficulties.

Community gardening as an educational tool incorporates the use of nature in changing individual's patterns of behaviour and reinserting nature into individual's culture. This enables the benefits to health and wellbeing arising through connection to nature to be realised (Mayer et al., 2008). This is particularly relevant in urban and disadvantaged communities that may have become disengaged from nature within their culture (Cardinale et al., 2012), (see examples in Chapter 7). The nurturing of a community of practice will result, and has done so in certain individuals, thus collectively sharing accepted behaviours and "norms". From these values there will be a clear identity to the community (Eckert, 2006), in this case pro-environmental behaviours and values, which is vital to adapt to the challenges faced by society (Brangwyn and Hopkins, 2008), (as outlined within Chapter 1), such as global warming and peak oil. Learning for wellbeing literature ties in with the use of community gardens as a tool for learning. As the results demonstrate it is possible to encourage:

“Learning to realise our unique potential through physical, emotional, mental and spiritual development in relation to self, others and the environment.” (O’Toole, 2014 no page).

This provides the opportunity for children to develop and engage with others and the environment while developing sustainable actions and interests throughout this process to enable changes in societal norms to develop over time. Although children were not a primary focus of my data collection the impacts observed provide a substantial and important focus for discussion and also interesting opportunities for longitudinal studies. Impacts realised provide evidence to suggest social learning in effect whereby there is a positive feedback between the learners and their environment. This is a reinforcing impact whereby the learner will change their environment and these changes will in turn effect the learner (Tidball and Krasny, 2011). This is likely to result in an increasingly environmentally aware generation emerging which could reverse vicious cycles of urban decay into a virtuous cycle of urban rebirth (Tidball and Krasny, 2011).

It is clear within the results and with consideration to wider literature that community gardens are (and can be increasingly) effective as a tool in which to implement environmental education. A result of this approach to education will be the fostering of a generation of individuals that are increasingly environmentally aware and resilient, which may ultimately result in healthier and happier communities (Kransy et al., 2009). This comes at a time where we as researchers are aware that it is not a case of protecting pristine environments anymore but a matter of changing underlying conceptions and priorities in order to improve and promote healthy ecosystem functioning through collective pro-environmental behaviours, actions and priorities. The use of hands on practical educational activities such as seen within the context of this research allows for the uniqueness and diversity of individuals to be catered for as they allow for everyone’s needs and different learning abilities (Tenngart Ivarsson and Grahn, 2012). This perhaps will result in long term benefits in the form of increasingly inclusive societies, which are open to and allow for differences enabling the individual strengths of different characters to be utilised rather than those of the individuals which fit into mainstream thinking (O’Toole, 2014).

8.6 Community Impacts

Chapter 7 identifies community impacts realised as a result of participation within the community gardens. This thread of investigation revealed that there were multiple relevant communities in existence within the scope of this research. It is noted here that individual impacts collate to produce community impacts and therefore the results identified above will likely be referred to below. The impacts realised on these different communities varied, below is an outline of the communities found to exist within the results of this thesis:

- **Garden Community.** Within the boundaries of the community garden there was evidence of a community of interest formed as a result of individuals from different areas of Plymouth coming together to take part in a shared activity within the garden. Through the space, common interest and activities undertaken within the garden a social network has formed in which there is a familiarity between individuals who may not otherwise of met. This familiarity and active participation has resulted in the formation of a trusting and supportive network to arise.
- **Surrounding Neighbourhood.** Within the surrounding neighbourhood there was a spatial community. This was seen in the housing estate which borders the garden. This is considered separate to the garden community as apart from the community event days there was no interaction with these individuals and the volunteers within the garden.
- **Virtual Community.** This was enabled through the use of social media in the form of Twitter and Facebook. Individuals remotely participated with 'the garden community' through discussions and information sharing leading to increased scope of participation. While the impacts of these have not been investigated within this thesis it would provide an interesting path for future investigation to determine the impacts this form of participation yields.

8.6.1 What Constitutes Community?

Findings of multiple communities became evident throughout the results of this thesis. This provides insights into components and characteristics which lend themselves to the formation of community, contributing towards the contested notion of community. As reviewed within Chapter 3 the concept and definition surrounding community are complex, multi-faceted, open to interpretation and there is no one recognised definition currently in existence (Clarke, 2007). The results of this thesis show that the social aspects of community are important in shaping values, bonds and social networks within a space (Manzo, 2003) and can be realised as a result of participation in community gardens (Dinnie et al., 2013). The spatial aspect of community is not one which should be down played in consideration of the importance as a loci for communities. If we consider place attachment literature (Manzo and Devine-Wright, 2014) it becomes apparent that space is important in enticing individuals to areas in which emotional connections are formed throughout the activities undertaken and personal experiences that occur as a result. In turn these experiences and interactions will act to create characteristics evidenced within the social capital displayed within the community through the emotional bonds and place attachment formed (Putnam, 2000).

Within this research communities were identified in forms of interest and of place. However, it was the barriers to engagement experienced in the characteristics of the community as evident within the social capital and personal resources which indicated clear boundaries within the research area. "Community of place" occurred in the form of the surrounding neighbourhood and the community garden, this was the result of evidence to suggest separate communities of place occurring with no observed movement of individuals into and out of both areas. Therefore they were considered to comprise of separate groups of individuals. This separateness was also evident within interests and social norms observed within the garden (community characteristics) compared to the adults in the surrounding neighbourhood. This in turn supports the notion of communities of interest as recognised to have formed within the garden as a result of multiple individuals from different residential areas within and around Plymouth, all playing a role and sharing a common interest within the garden.

Therefore both place and interest is instrumental in the formation of communities as identified within this thesis.

Community spirit and social capital was increasingly evident within the garden in the community of interest. This was seen within the community garden in comparison to the surrounding neighbourhood. This is likely to be a result of place attachment formed out of active participation with the community garden and the associated immersion in the social network (Manzo and Devine-Wright, 2014; Manzo and Perkins, 2006). The garden was considered to be a sanctuary in which individuals can come together, this supports the concept of community as one of interest which has developed to include high levels of place attachment becoming evident. Hence, within this research it becomes apparent that community participation is essential in the formation of community and the nurturing of characteristics that are displayed through the resulting communities (Manzo and Devine-Wright, 2014). This is shown in the results of this study which identifies differences in the observed characteristics and interests of the individuals included within the different communities.

Place attachment is imperative if social capital impacts are to become realised within communities through feelings of pride, responsibility and the role of self (Manzo and Devine-Wright, 2014). This place attachment reinforces links to the community and strengthens social capacity in existence through the imposed responsibility for place and the realisation of the role individuals can play. This realisation in turn leads to increasingly empowered communities (Putnam, 2000), a result of which is likely to be visible through the observed pride and care observed among individuals, as well as through increased participation within community events (Manzo and Perkins, 2006). This will also foster greater familiarity, which when coupled with emotions of responsibility will result in safer communities that are increasingly connected and resilient (Colding and Barthel, 2013; Collier et al., 2013; Okvat and Zautra, 2011; Ernstson et al., 2010; Krasny et al., 2009b). This also lends support to the importance of social sustainability in sustainable development (WECD, 1987). The integration of community enhancing infrastructures in spatial planning will be beneficial on numerous levels, i.e. social, environmental and economic, through enhanced community capacity (Anderson et al. 2014; Dredge, 2014; Tzoulas et al., 2007).

8.6.2 Community of Interest: Civic Ecology

Within the garden a community of interest has arisen within a shared space (the garden boundaries) as a result of active participation and communication with other likeminded individuals. The community garden is acting as an environmental loci, drawing together individuals from around Plymouth who share a common interest. This results in collective actions, values and social norms occurring in the pursuit of a shared goal, in this case gardening activities and outcomes. If positive, trusting, social supportive impacts occur then it is likely that the community will be increasingly cohesive and social capital development may occur (Putnam, 2000). There is evidence within my results and wider literature that shows civic ecology practices result in fostering trusting relationships and extending social networks (Saldivar-Tanaka and Krasny, 2004; Putnam, 2000). Civic ecology is defined as the combined effort of individuals within a community working collectively towards a positive environmental outcome (Fawcett et al., 2000). Literature has found that individuals involved in environmental activities within their community will experience positive health and wellbeing impacts (Husk et al., 2013). This highlights the mutually reinforcing benefits which may be encountered as a result of community gardening through the emergence of environmental citizenship impacts and social changes that occur (Dobson, 2010).

This is consistent with existing definitions of community which draw on more than just the spatial entity of community, rather, it will be impacted through personal attachment to space (Manzo and Devine-Wright, 2014). These observations also support the notion of communities of interest and the implications of civic ecology. If individuals are attached to place, or involved through a shared interest, it is likely that civic ecology practices will become increasingly evident within communities as pride, responsibility and environmental awareness is increased (Manzo and Perkins, 2006). The interactions between attachment and pro-environmental behaviour is contested within literature (Scannell and Gifford, 2010). With reference to my findings I propose that pro-environmental and civic ecology processes will become increasingly likely to occur as a result of the formation of a community of interest based in a green space. However, findings suggest that the impact of the garden within this case study is limited firstly by lack of engagement from

the local neighbourhood due to lack of interest and prior experience. This may be rectified in the long term by the engagement of children through the local schools and clubs. Secondly the impact is limited by a lack of stable and sufficient funding.

8.7 Community Garden Obstacles

As evident within the results chapters, obstacles were faced by the community garden. These were most notably in the form of barriers to access through engagement difficulties with residents of the local neighbourhood, and in the funding constraints applied to the running of the garden on a day to day basis which were shown to impact volunteer satisfaction. While there is substantial evidence from the data collected in this thesis to suggest the gardens have a positive impact on health, wellbeing and social development of individuals, these obstacles act to limit the reach of these benefits being disseminated to more people and provide some reduction in the potential impacts on existing volunteers.

Arising from these obstacles it leads me to question if this community approach can be successful as it is not a true grass root initiative, nor is it a business venture. Rather it is a middle ground between the two which brings with it its own unique issues. It is not grass roots so therefore it does not have the support of the local residents driving it forward and taking ownership over the garden. As it is not a business venture it is restricted by funding constraints which reduce the freedom in how it can be run. Traditionally funding programmes tend to be short-term and are linked to constraining targets, bureaucracy and requirements, this results in a reduced freedom to tailor initiatives and restrict potential benefits that are obtained through a community based, specifically designed initiative (Dobson, 2010). This was evident within the results of this thesis, in a community garden that is not free to be run in an independent and thus fully user orientated manner leading to a reduction in the benefits which can be reaped from it. This is an area that would benefit from increased investigation, as identified within Section 9.5.

8.8 Summary

Existing literature surrounding the ways in which green space can be utilised and improve health is seen by either simply viewing green space (Kaplan, 1992), becoming immersed within it, i.e. taking a walk (Mayer et al., 2008), through to active participation in caring for that green space (Hawkins et al., 2013). The results of this thesis show that volunteers are exposed to the visual aspects of nature, immersed within the garden and play an active role within the community through the activities undertaken. This leads to enhanced individual and collective health, wellbeing and social capital becoming evident in volunteers. This thesis finds that the key drivers of the positive health impacts arising from these results occur as a result of active participation in a green space. Therefore if these benefits are to be realised on a larger scale barriers to participation need to be removed through the insertion of accessible green space as health promoting and community enabling infrastructures. Thus, increased promotion, perhaps through education and the integration of community gardens within urban planning, will lead to increased health, wellbeing and social capacity for communities becoming realised through increasingly sustainable design of urban spaces.

Chapter 9 Conclusion and Potential Research Impacts

This chapter concludes the thesis it does so starting with an overview of the key research findings. The chapter then goes on to identify potential benefits which could become realised through community initiatives in the form of community gardens. Research limitations of this thesis will then be discussed before identifying potential for future research.

9.1 Overview of Key Findings

Findings from this research clearly indicate that as a result of active participation within the community garden case studies there were health, wellbeing and social development impacts occurring to some degree across all individuals participating in the case study gardens. This section will recap those findings below providing an over view of key findings.

First, reported direct health impacts were evident in the data collected, showing accounts of increased physical fitness by staff and volunteers, attributed to gardening activities. This is attributed to the increased levels of physical activity that are reported to occur as a result of involvement in and the resulting activities undertaken in the garden. Impacts of increased physical activity have been shown to contribute towards the maintenance of healthy body weight (Park et al., 2008), improved overall health and decreased risk of chronic illness (Bjork, 2008; Thompson et al., 2003; Bouchard et al., 1993) as suggested within the results of this thesis, which may act to provide far reaching health impacts.

Secondly, changes in diet and the resulting nutritional impacts was reported to arise as a product of community garden participation acting to improve the health of individuals as a result of increased healthy eating. This was attributed to involvement with the case study gardens reported as a result of multiple pathways. These included increased knowledge of nutrition as a result of educational activities organised within the garden, from social learning between volunteers, as well as improved access to healthy edibles. These findings are consistent with literature in Chapter 4 that shows community gardens contribute

towards increased positive direct health through increased activity (Pretty et al., 2005) and as a result of the occurrence of increases in healthy eating as well as improved access to healthy edibles (Heim et al., 2009; Alaimo et al., 2008).

Third, wellbeing impacts were also found to occur as a result of active participation in the community garden. These were evident as a result of several factors. Immersion within the natural environment was one of these factors, allowing individuals to immerse themselves within the therapeutic and restorative qualities of green space (Pitt, 2014; Stigsdotter et al., 2011; Kaplan, 1992). This is shown within the results in Chapter 6 where the garden is described as a restorative and relaxing environment for the volunteers. The inclusion into a community also resulted in the generation of improved wellbeing. This was found to occur as a result of active participation within the community garden. These impacts were seen in enhanced wellbeing as a result of increased confidence, feeling of self-worth, reports of playing a role within the garden, friendships, trust and understanding between individuals within the garden (Leave, 2014; Burls, 2007; Kingsley and Townsend, 2006). Social support and care arising as a result of Diggin' It's underlying ethos, as well as the nurturing and all inclusive attitude of the staff at the garden, resulted in a caring and safe environment in which individuals from all walks of life could attend, participate and relax in, also contributing to enhancing the wellbeing of volunteers in the case study gardens.

Fourth, social learning and personal development impacts were also evident within the individual impacts as a product of involvement with the case study gardens. This was observable in the development of skills and knowledge accrued as a result of active participation within the community garden and the inclusion into the social network which had formed from this community of interest within the garden boundaries (Manzo and Devine-Wright, 2014). This allowed for the sharing of information between volunteers to occur as well as the opportunity for the garden to act as an educational tool to deliver environmental learning (Kransy et al., 2009).

The health, wellbeing and social development impacts were found to occur to some degree in all volunteers, regardless of age, sex or socio-economic background. However, it was clear that individuals who arrived at the garden from a background of social deprivation, learning difficulties or suffering ill health experienced the greatest benefits. This highlights the use of community gardens as a health promotion tool and its value in creating resilient, robust and healthy communities through lifestyle changes as well as the potential implications for reducing social inequalities throughout society (Colding and Barthel, 2013; Okvat and Zautra, 2011; Groenewegen et al., 2006).

Throughout these results it is important to emphasise two aspects of community gardening which stand out as being major factors contributing to the positive impacts which arise through involvement. These are that community gardening requires **active participation** and **immersion in green space**. Active participation occurred as a result of contributing towards the running of the garden, it involves consideration of others within the garden, physical activity and contribution to the overall success of the garden. This active participation has resulted in social and personal development impacts becoming realised across volunteers. Immersion in green space is reported to evoke the senses and engage individuals (Stigsgotter and Grahn, 2003). This allows the opportunity for emotional and physical escape from the stresses of urban life and for relaxation to occur (Kaplan, 1992) as seen within this thesis.

Findings from this thesis suggest that community gardening may not be a suitable activity for everyone (as evident within the barriers to inclusion). However, the process of active involvement is one that requires attention and effort to be directed at an activity, the result of which is likely to result in greater inclusion into a network, in which individuals are supported and can contribute towards wellbeing benefits (Putnam, 2000). These factors mean that other green space activities which involve social networking may result in similar health and wellbeing impacts being possible, such as organised walks in green space (Forestry Commission, 2013). This implies that other green activities may be increasingly successful where community gardens fail to engage if they can immerse individuals in a green space in an activity which requires active participation.

Community wide impacts were observed within the results of this thesis. These were found in the identification of a community of interest evident within the case study gardens. The gardens acted as a place where individuals with a shared interest in gardening could attend. The result of this shared interest and repeated visits by the same individuals to the garden resulted in individuals becoming familiar with each other and friendships arising through interactions, familiarity and a common attachment to the community garden (place). This common attachment emphasises the importance of place attachment in the fostering of community (Manzo and Devine-Wright, 2014). As a result of interactions between the volunteers in the garden, social norms and values within the community gardens were adopted. These were observable in the underlying rules and social values evident to have evolved within the garden. These community findings provide an evidence base to support the use of green infrastructure in enhancing community capacity which is likely to result in increasingly sustainable design through the potential to create more robust communities (Anderson et al., 2014) as a result of the collective individual impacts discovered within these results.

Identification of barriers to access in the surrounding neighbourhood identified within this research clearly shows that there is a need to improve engagement towards the garden in the adults of the adjacent neighbourhood. However, this was not so with the children residing in this neighbourhood. The observable generational differences in attitudes displayed towards the community garden in the surrounding neighbourhood points to the importance of green education and the potential of community gardens to be utilised as a tool for learning to instil skills and knowledge. This will foster environmental and sustainable lifestyles as the social norm for the individuals and communities, leading to positive health outcomes in young people which will most likely continue into adulthood (Kransy et al., 2009a). This is likely to have far reaching consequences contributing to increased health and wellbeing through better lifestyles and may contribute towards decreasing inequalities through improved access to green space (Barbosa et al., 2007).

Wider reaching implications of these findings should also be considered. For example, if individuals make healthier lifestyle choices it is likely that risk factors

associated with ill health will decrease and overall health will increase (Stampfer et al., 2000). This will lead to the reduction of costs associated with ill health, leading to economic incentives to drive forward these health promoting infrastructures. The savings of which may become substantial (Merkur et al., 2013). These findings therefore have implications in health research and funding supporting the evidence base for increasing access to health promoting infrastructures such as community gardens. The findings from this research also provide evidence of challenges faced by Diggin' It which result in reducing the scope and longevity of health and wellbeing benefits found to occur within the garden. To enable the full potential of community initiatives to be met the following obstacles need to be overcome: funding, resources and barriers to access. By overcoming these obstacles the benefits to health, wellbeing and social development on a community and individual level will become greater.

Possibilities for the use of community gardens in creating effective and sustainable policies and practise are discussed below arising from the health promoting findings of this thesis, both on an individual and community level.

9.2 Implications for Policy and Practice

This section outlines implications for policymakers and planners that arise out of the results collected within this thesis, these are detailed below.

9.2.1 Resilience Building

Community gardens can play a role in creating increasingly resilient communities (Okvat and Zautra, 2009). As previously identified, resilience refers to the extent to which individuals and communities are able to effectively adapt to changes which are beyond their control (IPCC, 2007). Adapting to the changes society faces as a result of climate change, rapid urbanisation and an aging population emphasises a need to live an increasingly sustainable and less resource hungry lifestyle (Collier et al., 2013; Hopkins et al., 2005). This is becoming increasingly topical and can only be expected to continue to become so as we are considered to enter an age of austerity, the global population is

estimated to reach 6 billion in the near future, with finite resources to cope with this (Rau and Fahy, 2013). This thinking is reflected in the re-emerging interest among some social groups as to the importance of the good life and sustainable living. This has also acted to shape political agendas in the 21st Century (Rau and Fahy, 2013) and is seen in the development and use of wellbeing as a measure of progress (Moran et al., 2008).

Communities which lack resilience are increasingly at risk of shifting into an undesirable state when faced with change (Tidball and Kransy, 2007). Therefore it is desirable, and in the long term beneficial, to develop tools and strategies which will build resilience. Additionally the need to increase personal resources in order to achieve these aims in line with a changing climate and resource availability becomes increasingly apparent (Brangwyn and Hopkins, 2008). Community gardens could, if encouraged, provide a pathway to achieving these aims through increased personal resources and thus the ability to cope. This will allow adaption to changes that are beyond control to occur, which will lead to increased resilience (reduced vulnerability) across individuals and collectively within communities from social, economic, environmental and health perspectives (Colding and Barthel, 2013; IPCC, 2007) becoming realised.

Gardens provide a number of pathways in which resilience building can occur: firstly through the provision of a restorative setting (Van den Berg et al. 2010), and secondly through a community of interest (Colding and Barthel, 2013) and as evident within the result of this research. It is likely that there will be fostered a collation of social norms, values and knowledge that will lend its self to creating characteristics of resilience and pro-environmental behaviours (Kransy and Tidball, 2009b) within the community of interest arising from community gardening.

Gardens also provide a potential pathway to increasingly sustainable food consumption (Hill, 2011), that may lead to avenues of opportunity for marked changes in economic resilience as well as physical health and social aspect. This may lead to enhanced ecological citizenship through increased interactions

as a result of community garden participation and increased awareness of food source (Seyfang, 2005).

9.2.2 Potential Implications for Social Justice

Social justice, as defined within Chapter 3, is concerned with the ability of all individuals to realise and achieve their potential, to have equal access to resources, and as relevant within this thesis, harness equal health, wellbeing and social development (Putnam, 2000). The results from this thesis support existing literature which calls for increased use of health promoting infrastructures in planning to aid the reduction of inequalities within society (Allen, 2014).

The community gardens in this study are located within disadvantaged areas, which are characterised by reduced life expectancy, poorer health and unemployment, compared to the citywide average (Plymouth City Council, 2012). The results from this thesis suggest that inequalities may be reduced by community gardens through environmental education, increasing social capital and reducing unemployment. If rates of unemployment are reduced it is likely that these individuals will have increased personal and social resources as well as monetary gains arising from employment (Putnam, 2000). These cumulated impacts will become evident as individuals display increased social capital, health and wellbeing, which is likely to lead to increasingly proactive communities through increased social capital evident within the community (Kingsley and Townsend, 2006). As a result of this social capital it is likely that these communities will become increasingly resilient, increasingly proud and therefore take more care and have more input into their communities (Kingsley and Townsend, 2006; Simpson, 2005; Pretty and Ward, 2003; Pretty, 2001; Putnam, 2000; Minkoff, 1997), reinforcing and building on individual and community impacts as they become realised. These will all contribute towards reducing the gap that exists within different socioeconomic communities and lead to the reduction of inequalities.

The community gardens in this study are located within disadvantaged areas which are characterised by reduced life expectancy, poorer health and

unemployment, compared to the citywide average as shown within Chapter 5. However, the population living locally was not engaged, which leads to the question of whether community gardens are an effective tool for socioeconomically disadvantaged neighbourhoods, or rather that community gardens is perhaps a rather middle class ideology impressed upon disadvantaged communities, or one in line with current short term political agenda.

As evident within my results, I propose community gardening is an ineffective method to employ within the adults of the surrounding neighbourhood as they lack the type of lifestyles that are apparent within those in the garden. Within existing literature, environmental interventions in the form of eco-strategies may result in adverse impacts on disadvantaged societies through the widening of inequalities (Vallence et al., 2014); it is likely that this is occurring with regards to the surrounding neighbourhood within the adults. Therefore, I suggest the need for a different approach to be adopted to engage this group of individuals.

Traditionally, sustainable living initiatives may be considered to be a preferred middleclass activity at risk of widening inequalities (Vallance et al., 2011). However, the potential impacts realised as a result of environmental education may result in these opportunities becoming increasingly accessible for wider sections of society as seen within the results of this research. To further widen participation, community gardens should be promoted among GPs and professionals responsible for those with mental health issues, learning difficulties and others who are socially excluded. Furthermore, community gardens should be promoted by local employers, landlords and estate agents to attract volunteers from the general population to increase health and wellbeing impacts. If these practices are implemented successfully, not only will it build resilience within communities, but could be instrumental in reducing inequalities and social justice issues.

9.2.3 Sustainability

The results in this thesis provide evidence for the role social networks can play in fostering sustainability. This is shown in the formation of community arising within the garden boundaries, and in the values, norms and attitudes arising individually and collectively as a result.

It has become clear within the results that there are lifestyle impacts occurring within individuals participating in the community gardens. This provides an opportunity for sustainability to become incorporated into everyday lives for these individuals through the lifestyle changes, behaviours and attitudes arising as a result of the community garden (Woodcroft, 2012; Groenewegen et al., 2006). Arising from these environmental actions and behaviours it becomes apparent the link between community garden participation and the social behaviours forming as environmental friendly lifestyles become an accepted social norm (Barr and Gilg, 2006). This is consistent with the interlinking nature of social, economic and environmental sustainability described by Vallance et al., 2011. It is also evidence to suggest that community gardens can act to provide a platform for environmental citizenship to occur through environmental learning and contribution to a collective good (Dobson, 2010).

According to the literature reviewed in Chapter 4, and with consideration to my research findings, I propose that community gardens will result in increased and positive impacts occurring in regards to sustainability (Holland, 2004). Through the changes in lifestyle habits and social norms occurring through active participation, a resulting increase in sustainability from social networks and values will arise, as well as strengthening of social capital evident within communities (Groenewegen et al. 2006). This is supported in the results which show the generation of emotional ties arising as a result of place attachment (Manzo, 2003) within volunteers through participation in the garden. Policies which take into account wellbeing impacts will result in the generation of increasingly sustainable and effective policies (they are more likely to succeed and be longer lived) (Dolan and Peasgood, 2008). This will be further enhanced through the placement of community enhancing infrastructure by incorporating them into design of urban areas (Anderson et al., 2014), an example of which is considered to include green space in the form of community gardens.

Findings within this thesis also support literature which describes the importance of underlying social and environmental values in influencing individual behaviours (Barr and Gilg, 2006). This is demonstrated in the degree of participation evident across different sectors of society encountered within this research. Implications arising from my research should encourage the development of policies that concentrate on changing underlying attitudes, beliefs and behaviours. This is evident within the context of community gardens, and it may be that increasingly active promotion and involvement within these areas may benefit society in the long term if implemented at an appropriate target audience, increasing policy longevity and community strength.

However, as evident within the results, community gardening is not considered an effective method to employ to engage adults in the surrounding neighbourhood with community green space initiatives. Adults residing in the surrounding neighbourhood were considered to lack the pre-existing interests conducive with community garden participation, as found in the older volunteers in the case study gardens, as a result of pre-existing interests and lifestyles. Within existing literature environmental interventions in the form of eco-strategies may result in adverse impacts on disadvantaged societies through the widening of inequalities (Vallance et al., 2011); it is likely that this is occurring with regards to the surrounding neighbourhood within the adults. Therefore I suggest the need for a different approach to be adopted to engage this group of individuals. This also supports the findings advocating the importance of environmental education as it is likely this will lead to increased possibilities in terms of social sustainability becoming realised.

Through the combination of social, environmental and economic factors arising out of active participation with the community gardens there will be a growth in the likelihood of securing increasingly sustainable futures for individuals and communities. Therefore this thesis contributes towards the growing body of literature which highlights the important role green space, in particular community gardens and social sustainability, plays in creating sustainable communities, policies and development (Ferris et al., 2001).

9.2.4 Planning for Public Health

Results from this thesis provide evidence to strengthen the case for consideration of health promoting infrastructure in the design of urban areas (Anderson et al., 2014). It is clear that as a result of active participation with the community garden, all volunteers experienced positive impacts on health and wellbeing. Community gardens were found to increase access to healthy lifestyles and reduce risk factors associated with ill health. This occurred through the encouragement of health promoting behaviours as a result of active participation with the natural environment and inclusion into a social network. Integrating health promoting resources into community could result in substantial collective health benefits, not only to individuals but across communities (Danning et al., 2014). Results of effective planning for public health will not be limited to direct health and wellbeing but will also result in positive impacts on resilience building, reduction of inequalities and increase sustainable living impacts. This highlights the mutually reinforcing and interlinking of individual and community wide impacts arising in the findings of this thesis and reflects the importance of place in shaping individual and community health profiles (Public Health England, 2014).

9.3 Research Limitations

Given the auto-ethnographic nature of the research, personal reflection on my own research practice was an important part of the learning process and on the basis of these reflections, there are a number of areas where specific limitations or changes in practice should be noted.

In the first instance, maintaining a sense of positionality and articulating this in my field work notes and dissemination has been a specific challenge, in particular the desire to remain neutral throughout the research process in order to reduce bias in the results (Milner, 2007). This is particularly important within qualitative research which consists of immersed observations by researchers (Pink, 2009). The possibility for error was reduced through the use of an auto ethnographic diary that ensured my experiences and opinions were not combined within the participant observations. This allowed me to reduce the

potential for bias and identify my opinions separately with reference to my own position in regards to the research participants and the research setting (Rose, 1997). In doing so I was able to develop another layer of analysis within the research process and ultimately aim to remove this bias from the results. Furthermore, individual reports were validated throughout the process during follow up discussions, my own personal observations and reflections, as well as staff observations of volunteers. This ensured some form of cross checking and confirmation of the results obtained throughout the research process to reduce bias.

A second issue that could be perceived as a research limitation is the case study nature and confined group of individuals with whom I worked. However, working with a specific and dedicated group of individuals enabled me to build strong and lasting relationships with the research participants as required with this qualitative research methodology (Berg and Lune, 2004; Pope and Mays, 1995), enabling increasingly rich results to be obtained. The small sample size and specific locality of the gardens does however limit the social and spatial generalisations that can be made. Nevertheless my work paints a rich analysis as to the impacts occurring within my case study sites. The observations and conclusions drawn from this work will then contribute towards existing intellectual thought surrounding the subject matter.

A further consideration is the dynamic relationship between researcher and participant through ethical considerations (Dewalt and Dewalt, 2010). The ethics of my research was an area of concern within the planning of the research stage and the subsequent write up of my findings. As described within Chapter 5, participants within my study were partially made up of individuals who are considered to be vulnerable. By this I mean individuals who experience some mental or physical disability or those who arise from an isolated social background. Within my research I encountered participants who advocated the garden and were proud to be involved, both within the community garden and within my research. As a result of this they were happy to be identified within the thesis. However, due to the vulnerable nature of these individuals I chose to keep the anonymity across all of my research participants. Not only does this protect the vulnerable individuals who provided consent to be named within my

research, but also those who wished to remain anonymous due to the sample size of my participants.

Children were encountered within my research but due to the ethical considerations when working with children it was decided that my research would not directly focus on them as participants of my study. The results therefore were based on indirect observations and discussion with staff members and volunteers. This made it imperative that not only my positionality as the researcher, but that of the staff and volunteers within the garden, were considered when interpreting impacts to avoid biased results to the best degree possible within this qualitative methodology.

Data regarding the demographics of the volunteers could have been explored in greater depth. It was anticipated at the commencement of the study individuals from the surrounding neighbourhood would be present as volunteers within the case study gardens as reflected in the deprivation data for the areas of Devonport and Penlee described within Chapter 5.

Finally, I recognise the power I have in writing this thesis in terms of presenting an argument that seeks to challenge social stereotypes through encountered positive representation of the likely health and wellbeing effects of community gardening projects (Gray and Leyland, 2009). Therefore the responsibility this bestows on me as a researcher and contributor to current intellectual debates within academia is one that is not to be taken lightly. Observations of the surrounding neighbourhood within my study were not as thorough or prolonged (due to temporal and resource limitations as well as research focus) as the garden observations. As a result of this it may be that the findings within the surrounding neighbourhood may benefit from increased attention in order to investigate unanswered lines of enquiry that have arisen during the research process.

9.4 Future Research

Some findings while outside the main remit of this thesis, would make valuable contributions to academic knowledge if developed further. The findings of this thesis point to the following research questions which are summarised below.

Within the results of this thesis it was found that adults residing in the local neighbourhood were not engaged with the community garden, but the children were. This was considered to be a result of visits to the garden with their school. Arising from this observation it would be interesting and beneficial to peruse this finding further, to explore the role of green education in instilling pro-environmental behaviours and values, and the potential this has to change attitudes, values and norms to green space in disadvantaged communities. If it is found that immersion with the natural environment at a young age can act to shape attitudes and foster pro environmental behaviours in disadvantaged communities then opportunities to reduce inequalities evident in society can be seized.

The adults within the surrounding neighbourhood were not found to be engaged with the community garden, therefore there is potential to explore exclusion impacts arising from green space community initiatives. This would be valuable as the widening of inequalities within society is a concern, and efforts must be undertaken to ensure this is reduced (Allen, 2014).

The findings of this research show that one of the dominant obstacles faced by the community garden was a result of the restrictions placed on the day to day running and outreach focus as a result of funding avenues. Therefore, more research should be undertaken to determine how volunteer run initiatives (like community gardens) should be funded, and how adequate funding should be sustained. Arising from this question and other obstacles faced by the community garden case studies, identified in Chapter 7, is the emerging question as to the viability of community gardens and if they can be truly community led.

9.5 Final Remarks

The findings from this thesis provide empirical evidence that demonstrates active participation in the community gardens results in health, wellbeing and social development impacts for all individual participants directly involved with the case study gardens. Findings at the community level were mixed, this provides insights into barriers to exclusion and inequalities in and across communities within the study area. The results of this thesis contribute towards a greater appreciation of how sustainable living initiatives can provide social and economic opportunities which can promote health and wellbeing for individuals and communities, contributing towards sustainable design of urban areas through the incorporation of green infrastructure.

Appendix 1 Consent Form



GEOGRAPHY

College of Life and Environmental
Sciences
Amory Building
Rennes Drive
Exeter
UK EX4 4RJ

DIARY AND INTERVIEW

CONSENT FORM

Please complete this consent form:

- I/We have received and read the Participant Information Sheet
- The Interview is entirely voluntary and I/we understand that I/we am/are free to withdraw at any time
- I/we agree for the Interview to be tape recorded and transcribed and my diary to be transcribed
- I/we agree for the researcher to take photos and use them for the project.
- I/we understand that the interview recording will be kept for the duration of the study
- I/we am aware that my personal information will be kept confidential
- I/we understand that data will be anonymised and that participants will not be identifiable in any written reports.
- I/we give consent for anonymised data to be used for publication.
- I/we agree that the anonymised information I/we provided can be used for publication in print and electronic media. Please note that all such publication is strictly anonymous and you will not be identified.
- I would like my name to be used in the project:
Yes No
- I/we use Social Networks:

Please note that a decision to withdraw or not to take part will not affect participation in future studies.

Signature _____ Date _____

Please write your name and full postal address clearly in block capitals.

Name (BLOCK CAPITALS) _____

Address (BLOCK CAPITALS)

_____ Postcode

Landline telephone:-----

Signature (Researcher) _____

Appendix 2 Interview Questions

The questions below are those used when conducting semi structured interviews, acting as prompts to ensure all lines of enquiry were touched upon. Deviations from these questions were common.

Personal

How did you become involved with the garden?

How long have you been a volunteer?

Why did you join the garden?

Are you a member of any other gardens/allotments

Have you experienced things through Diggin It that you feel you may not have been experienced otherwise? What are these?

Has being involved in this garden impacted other areas of your life?

Where do you live? How do you commute?

Who do you live with?

Gardening / Garden

What is it you like about the garden?

Do you feel gardening is physically demanding?

Have you noticed any differences in your appearance since becoming a volunteer?

When did you last go on holiday? When you are on holiday do you miss the garden?

Do you like how the garden is organised?

How could it be organised differently?

Do you have any activities you particularly like to do?

Do you have any activities you don't like?

Is there anyone here that you do not like to work with?

If you had a problem do you feel you could talk to the organisers?

Do you feel under any pressure when in the garden?

What is it about the garden you like?

Do you feel any responsibility towards the garden?

Do you have an input into the running and planning in the garden?

If the garden was to close how would you feel?

Do you garden at home?

Education and Nutrition

Do you feel you have learnt much since becoming a volunteer?

Has gardening impacted your career choice or continued education?

Have you developed any skills and interests from the garden?

Do you use garden produce?

Do you cook at home? Do you use garden produce?

Have you started eating new foods or more fruit and vegetables since being at the garden?

Relationships

Do you feel confident to express ideas to the staff?

How do you feel you relate to the staff?

How many volunteers are there at Diggin It?

Are you involved in other community groups or doing activities outside of Diggin It that are either with other members or involve related activities?

Are you friends with other volunteers?

Do you meet outside the garden?

Do you bring your family here?

Have you met people you would not have if you were not a volunteer?

Has being a volunteer effected your ability to interact with others both in and outside of the garden?

What would you do if you were not involved with Diggin' It?

Wellbeing

Have you ever hurt yourself while gardening?

What happened? How did the staff respond?

How does being in the garden make you feel?

How do you feel if you cannot come to the garden?

Is there anything you don't like about the garden?

How do you feel when you think about your role and achievements in the garden?

Are you proud of being a volunteer here? Why?

Are you aware of any lifestyle changes since becoming a volunteer?

Do you do things that you may have not have before you attended the garden?

Do you feel any of your values or outlooks have changed? Towards yourself or others?

Physical

Have you noticed any differences in your physical health since becoming a volunteer?

How do you travel to the garden?

Do you feel healthy or more active since becoming a volunteer?

Is gardening your main activity?

What other activities do you do?

Were you physically active before volunteering at the garden?

Do you play computer games?

Green space

Do you feel any different if you are outside for a long period?

How do you feel if you are inside all day?

What is it about this environment (the garden) that you like?

Do you spend much time outside when you are not in the garden?

Appendix 3 Examples of Coding Method

The images below comprise of a page from research diary and an example of coding data to analyse and produce results, as discussed within Chapter 5.

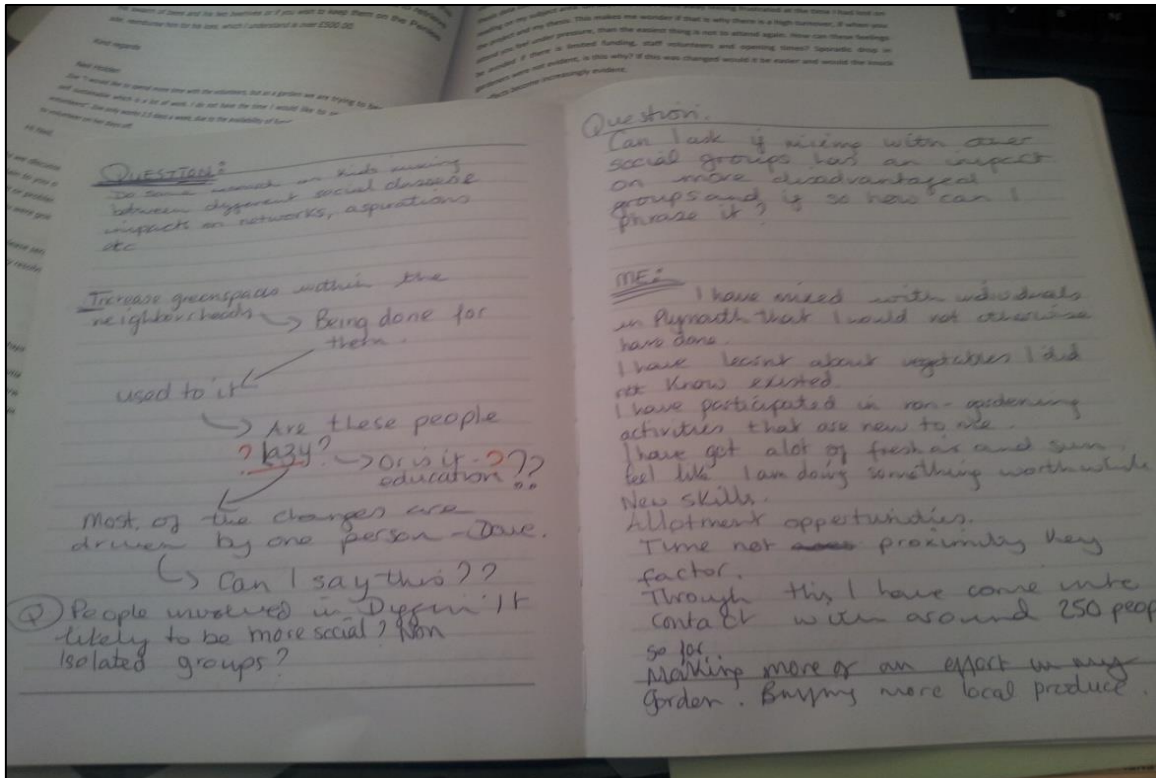


Figure Appendix 3.1 Sample page of research diary

Marcelle donated 40k to Diggin It and explains that we transformed it with social enterprise status so that it could be more commercial by selling vegetables and raising profile to get more volunteers.

"...the garden provides us with a place we can go together, *** can get on and do something by herself and I in turn can do my own activity, it is something we can do independently in the same place".

Community Development Team run by Dave, two core volunteers associated with the team. Activities undertaken include:

They are gaining skills and experience that could in turn lead to jobs.

Talking to one volunteer he has decided to go to college to do a carpentry course because it will enable him to do more in the garden. He came to the garden through his school, as did the other ** * volunteers. This accounts for the needs these young people have in the learning environment and recognises that they are unable to spend all day in the classroom, as well as this these individuals display reduced ability to interact socially and the garden has helped them to improve their social skills and everyday confidence.

"Since coming to Diggin It, we (the staff) have noticed a marked change in ***. He is more confident and takes a lead in many of the activities where he would not have before".

Figure Appendix 3.2 Sample of coding typed up notes from research diary

Appendix 4 Pre-existing Indices and References Incorporated into Themes for Coding

This appendix includes some examples of pre-existing wellbeing indices that were reviewed for use within this thesis. While it was decided that the use of these indices was not appropriate for this thesis (as discussed in Chapter 5), individual questions and elements within these were utilised in the development of thematic analysis within this thesis, a selection of which are included below.

- **Warwick Edinburgh Mental Wellbeing Index**

This scale published in 2006 assess mental wellbeing, it focuses on hedonic and eudemonic perspectives in its assessment. The scale is comprised of 14 worded questions that can be answered by scoring each from 1 to 5. This is a more detailed approach to aspects of wellbeing than HPI.

STATEMENTS	None of the time	Rarely	Some of the time	Often	All of the time
I've been feeling optimistic about the future	1	2	3	4	5
I've been feeling useful	1	2	3	4	5
I've been feeling relaxed	1	2	3	4	5
I've been feeling interested in other people	1	2	3	4	5
I've had energy to spare	1	2	3	4	5
I've been dealing with problems well	1	2	3	4	5
I've been thinking clearly	1	2	3	4	5
I've been feeling good about myself	1	2	3	4	5
I've been feeling close to other people	1	2	3	4	5
I've been feeling confident	1	2	3	4	5
I've been able to make up my own mind about things	1	2	3	4	5
I've been feeling loved	1	2	3	4	5
I've been interested in new things	1	2	3	4	5
I've been feeling cheerful	1	2	3	4	5

Figure Appendix4.1. Warwick Edinburgh Mental Wellbeing Index

Therefore within the thematic analysis words terms such as 'feeling relaxed', 'feeling cheerful', 'been feeling good about myself' were identified and used to show positive wellbeing.

- **WHO – 5 Wellbeing Index**

This index also uses a questionnaire style format to assess the wellbeing of participants over a reflection period of two weeks.

The questions asked can be seen below in figure 4. 2.

	<i>Over the last two weeks</i>	All of the time	Most of the time	More than half of the time	Less than half of the time	Some of the time	At no time
1	I have felt cheerful and in good spirits	<input type="checkbox"/> 5	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 0
2	I have felt calm and relaxed	<input type="checkbox"/> 5	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 0
3	I have felt active and vigorous	<input type="checkbox"/> 5	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 0
4	I woke up feeling fresh and rested	<input type="checkbox"/> 5	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 0
5	My daily life has been filled with things that interest me	<input type="checkbox"/> 5	<input type="checkbox"/> 4	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 0

Figure Appendix 4.2. WHO-5 Wellbeing Index

Using this index words such as calm, relaxed, fresh, reinvigorated, active and interested were identified to show evidence of positive wellbeing.

- **Office of National Statistics (ONS) Wellbeing Index**

Created in the UK by ONS, which was first started to be developed in 2010.

This wellbeing index was created from the results of the National Debate and reflects the UK's public responses to the following question's; 'What matters most to you?', 'What is Wellbeing?' and 'What should be reflected in measures of national wellbeing?' (ONS 2011).

From these questions the most frequent responses that arose from the debate included these topics:

- Health
- Good connections with friends and family

- Good connections with a spouse or partner
- Job satisfaction and economic security
- Present and future conditions of the environment
- Education and training

From this ONS generated a framework to understand wellbeing which reflects the findings of the debate these are as follows:

- Individual well-being is central to an understanding of national well-being. It includes objective circumstance, for example an individual's employment status; and subjective well-being which includes the individual's experiences and feelings
- National well-being is affected by how these circumstances, experiences and feelings are distributed across society, and how well current levels of well-being can be sustained into the future or between generations
- A set of domains, such as health, and education will need to be established to help capture the individual measures which together determine national well-being
- Local factors are also relevant to well-being, e.g. access to green spaces and strength of community involvement

(ONS 2011)

Using this index, the individual bullet points above were utilised to develop and identify themes that show evidence for enhanced health and wellbeing among volunteers within this study, for example increased education, environmental awareness, health and social networks.

Coding Examples.

Table 3 below provides some examples of the development of themes that were used within this thesis with consideration to existing wellbeing literature and indices to identify impacts within the data analysis. The coding theme relating to

each point will be multiple, highlighting the interactive nature of the concept of wellbeing.

Key Themes with Reference to Literature	Key Words
<p>Self-sufficiency, this is how well an individual is able to cope and support themselves, the degree to which they are capable of doing so will impact wellbeing (Giovanni & Hall 2009).</p> <p>This is also concerned with living a less resource hungry lifestyle. Research has found that communities living a lower carbon, more sustainable existence display increased resilience to the impacts of climate change (Brangwyn & Hopkins 2008) and therefore will result in increased levels of wellbeing in times of hardship, which are likely to be experienced in the future.</p>	<p>Individual</p> <p>Social Development</p> <p>Resilience</p> <p>Community</p> <p>Sustainability</p> <p>SWB</p> <p>Decreased Stress</p>
<p>Purpose and self-worth. People that have a higher sense of purpose and self-worth display higher levels of happiness (Middlemiss & Birch 2010). This could be linked to other factors such as employment, as people who are employed will tend to display higher wellbeing (North West Public Health Observatory 2009).</p>	<p>Individual</p> <p>Resilience</p> <p>Social Capital</p> <p>Social Development</p> <p>SWB</p> <p>Belonging</p> <p>Destiny</p> <p>Ambition</p> <p>Aspiration</p> <p>Motivation</p>
<p>Connectedness and community. A feeling of belonging to a wider community and the satisfaction that derives from participation in the broader society are important to wellbeing (Brangwyn and Hopkins 2008). Communities that work together are likely to display a higher collective happiness (Transition Network 2012). The wellbeing of others connected to the individual will also influence individual wellbeing. ONS found in their research into wellbeing among young people and families that parents were only as happy as their happiest child (ONS 2011). It</p>	<p>Community</p> <p>Self-Worth</p> <p>Purpose</p> <p>Connectedness with Others</p> <p>Part of Something Bigger</p> <p>Belonging</p> <p>Playing a Role</p>

<p>has been found that communities that socialise or work together are more connected and therefore more resilient to changes and negative impacts that may occur (such as resource shortages) and display a higher collective wellbeing (Transition Network 2012 & Brangwyn & Hopkins 2008).</p> <p>Playing a role within society as conducive to positive wellbeing (Ferris et al. 2001)</p>	<p>Satisfaction</p> <p>Friendship</p>
<p>Exercise and access to green spaces. This is an area of increasing interest within the academic world, with emphasis placed upon the importance of the natural environment as a driver for increased wellbeing within individuals. This is now also extending into the area of blue space and the positive impacts of access to the marine environment on wellbeing (De Silva-Sanigorski 2011). This is closely linked to leisure activities and free time.</p>	<p>Direct Health</p> <p>Relaxation</p> <p>Leisure time</p> <p>Fitness</p> <p>Interest</p> <p>Weight</p>
<p>Leisure time, will also impact wellbeing. If individuals have more time to explore what interests them away from work it is likely they will display increased positive wellbeing (Eddington <i>et al</i> 1995).</p>	<p>Social Capital</p> <p>Wellbeing</p> <p>Health</p> <p>Interest</p> <p>Friendship</p> <p>Happiness</p> <p>Fulfilment</p> <p>Personal development</p>

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