The origins, development and perceived effectiveness of horticulture-based therapy in Victoria

by


Submitted in fulfilment of the requirements for the degree of

Doctor of Philosophy

Deakin University

February 2015
I am the author of the thesis entitled: The origins, development and perceived effectiveness of horticulture-based therapy in Victoria.

submitted for the degree of submitted for the degree of Doctor of Philosophy

This thesis may be made available for consultation, loan and limited copying in accordance with the Copyright Act 1968.

'I certify that I am the student named below and that the information provided in the form is correct'

Full Name: Christopher Reed
Signed: 
Date: 1/02/2015
I certify the following about the thesis entitled:

The origins, development and perceived effectiveness of horticulture-based therapy in Victoria.

submitted for the degree of Doctor of Philosophy

a. I am the creator of all or part of the whole work(s) (including content and layout) and that where reference is made to the work of others, due acknowledgment is given.

b. The work(s) are not in any way a violation or infringement of any copyright, trademark, patent, or other rights whatsoever of any person.

c. That if the work(s) have been commissioned, sponsored or supported by any organisation, I have fulfilled all of the obligations required by such contract or agreement.

I also certify that any material in the thesis which has been accepted for a degree or diploma by any university or institution is identified in the text.

‘I certify that I am the student named below and that the information provided in the form is correct’

Full Name: Christopher Reed

Signed: [Signature Redacted by Library]

Date: 1/02/2015
Acknowledgements
I have been very fortunate that I have received kind and generous support throughout this study. My supervisors, Associate Professor Mardie Townsend and Dr Claire Henderson-Wilson, have patiently guided and advised me during this time and I am very grateful for their wisdom. This study could not have been completed without the contribution of those participating. The practitioners, students and key figures in HBT in Victoria have been the core of this study. It is also appreciated that many of these participants have continued to encourage me throughout the time of my candidature. I thank my wife, Vicki for her support and tolerance and also thank my children who have had to endure years of diverted attention. I greatly appreciated the assistance given by my daughter Asha, who helped me to transcribe many of the interviews. I also thank my work colleague and friend, Amanda Marshall for her constant and constructive feedback and encouragement. I also thank Amanda for her proof reading and editing skills. Finally I thank the staff of Kevin Heinze GROW (formally Kevin Heinze Garden Centre) for supporting this work and the changes and challenges it contains.
Contents
Abstract ........................................................................................................................................... 1
Chapter 1. Introduction ................................................................................................................ 2
  1.1. Background ....................................................................................................................... 2
  1.2. The Research Issue and Aim ........................................................................................... 4
  1.3. Thesis structure ................................................................................................................. 4
Chapter 2. A review of the relevant literature .............................................................................. 7
  2.1. Introduction ....................................................................................................................... 7
  2.2. Horticulture and human health ........................................................................................ 7
  2.3. The effect of urbanisation ................................................................................................ 8
    2.4.1. Biophilia .................................................................................................................... 12
    2.4.2. Attention Restoration Theory (ART) ......................................................................... 14
    2.4.3. Psycho-evolutionary Theory ..................................................................................... 16
    2.4.4. Ecopsychology ........................................................................................................ 18
  2.5. Connecting people with nature ......................................................................................... 19
    2.5.1. Children in natural environments .............................................................................. 20
    2.5.2. Gardens as nearby nature ....................................................................................... 21
    2.5.3. Gardening and dementia .......................................................................................... 22
  2.6. Horticultural therapy (HT) – definitions and origins...................................................... 23
    2.7. Origins of HBT .............................................................................................................. 29
      2.7.1. Occupational Therapy .............................................................................................. 29
      2.7.2. Benjamin Rush ......................................................................................................... 30
      2.7.3. The Quakers ............................................................................................................. 30
      2.7.4. Smith and Pear: World War One .............................................................................. 31
      2.7.5. Emergence of OT ..................................................................................................... 32
      2.7.6. The Menninger Clinic .............................................................................................. 33
    2.8. HBT in Australia ............................................................................................................. 34
      2.8.1. Early Years ............................................................................................................... 34
      2.8.2. OT development in Australia .................................................................................... 36
      2.9.1. “The view through a window” ................................................................................. 36
      2.9.2. User centred practice ............................................................................................... 39
    2.10. Healing gardens ............................................................................................................. 39
      2.10.2. Design elements ..................................................................................................... 40
      2.10.3. Patient or person’s choice ...................................................................................... 41
      2.10.4. Healing garden assessments ................................................................................. 42
      2.10.5. The case for hospital gardens ................................................................................. 43
      2.10.6. Some benefits provided by healing gardens ........................................................... 44
      2.10.7. HBT and veterans’ programs .................................................................................. 46
2.10.7.2. Things to consider regarding Veterans and HBT ................................................ 47
2.11. HBT programs in different settings ........................................................................... 47
  2.11.1. Plants and HBT for health outcomes ................................................................. 48
  2.11.2. Gardening for health outcomes .......................................................................... 49
2.12. HBT in other countries ............................................................................................... 51
  2.12.1. Some global examples of HBT ........................................................................... 51
  2.12.2. Sri Lanka and the Butterfly Peace Garden .......................................................... 53
  2.12.3 Garden culture and HBT in Italy .......................................................................... 54
2.13. HBT in Australia ........................................................................................................... 55
2.14. HBT in Victoria ............................................................................................................ 58
  2.14.1. Origins .................................................................................................................. 58
  2.14.2. The Victorian State Schools Nursery (VSSN) .................................................... 59
  2.14.3. The Kevin Heinze Garden Centre (KHGC) ......................................................... 60
  2.14.4. The current view of HBT in Victoria ................................................................. 61
2.15. Conclusions ................................................................................................................. 64
2.16. Rationale for this research ......................................................................................... 65

Chapter 3. Methodology ....................................................................................................... 68

  3.1. Aim ............................................................................................................................... 68
  3.2. Research Questions ..................................................................................................... 68
  3.3. Objectives ................................................................................................................... 68
  3.4. Research Design ......................................................................................................... 68
  3.5. Assumptions ............................................................................................................... 70
  3.6. Theoretical Perspectives ............................................................................................. 70
    3.7.1 Identification of informants .................................................................................... 75
    3.8.1. A Literature Review ............................................................................................. 78
    3.8.2. Practitioner Interviews ......................................................................................... 79
    3.8.3. Focus groups ........................................................................................................ 81
    3.8.4. Key Informant Interviews ..................................................................................... 83
  3.9. National Ethics Application Form (NEAF) ................................................................. 84
  3.10. Analysis of Interviews ............................................................................................... 85
    3.10.1. Extracting data “chunks” .................................................................................... 87
    3.10.2. Analysing the focus group data ......................................................................... 88
  3.11. Reflecting and reviewing the process ....................................................................... 89
    3.11.1. Limitations ......................................................................................................... 90
    3.11.2. Strengths ......................................................................................................... 90

Result Chapters ..................................................................................................................... 91
4.0 Origins and evolution of HBT in Victoria ................................................................. 91
List of Abbreviations

ABI  Acquired Brain Injury
AFSC  American Friends Service Committee
AHTA  American Horticultural Therapy Association
AMTA  Australian Music Therapy Association
AOTA  American Occupational Therapy Association
AT  Art Therapy
ASTHP  Association of Social and Therapeutic Horticulture Practitioners
ADD  Attention Deficit Disorder
ART  Attention Restoration Theory
ACPMH  Australian Centre for Posttraumatic Mental Health
ANZATA  Australian and New Zealand Art Therapy Association
ANZJAT  Australian and New Zealand Journal of Art Therapy
BMCC  Bloorview MacMillan Children’s Centre
CHTA  Canadian Horticultural Therapy Association
FG  Focus group
HBT  Horticulture Based Therapy
HT  Horticultural therapy
HTAV  Horticultural Therapy Association of Victoria
ILGC  Ilma Lever Garden Centre
JHTA  Japanese Horticultural Therapy Association
JCAHO  Joint Commission on Accreditation of Healthcare Professionals
KHGC  Kevin Heinze Garden Centre
KHTA  Korean Horticultural Therapy Association
In  Informant
MS  Multiple Sclerosis
MT  Music Therapy
NEAF  National Ethics Application Form
OT  Occupational Therapy
OTAUSWA  Occupational Therapy Australia, Western Australia
PET  Psycho-evolutionary Theory
PPP  Past and Present Practitioner
PTSD  Post Traumatic Stress Disorder
QOL  Quality of Life
RTRC  Royal Talbot Rehabilitation Centre
SH  Social Horticulture
SRT  Stress Reduction Theory
SRV  Social Role Valorisation
STH  Social and Therapeutic Horticulture
TH  Therapeutic Horticulture
VH  Vocational Horticulture
VSSN  Victorian State Schools Nursery
WILD  Wellbeing through Integrated Learning and Development
### Tables

1. Timeline of key events relating to HBT in Victoria........................................35
2. Comparison between HBT, AT and MT..........................................................58
3. List of informants............................................................................................76
4. Data Analysis groups.......................................................................................85
5. HBT according to intended and unintended outcomes.................................130
6. Perceived benefits in rehabilitation...............................................................131
7. Perceived benefits in drug and alcohol programs...........................................133
8. Perceived benefits in disability programs.......................................................135
9. Perceived benefits in aged care, dementia and ABI programs....................138
10. Perceived benefits in schools........................................................................144
11. Perceived benefits in children’s community gardening programs...............147
12. Perceived benefits in a health treatment facility..........................................149
13. Perceived benefits in vocational programs....................................................151
14. Perceived benefits in community gardens.....................................................155
Figures
1. Model of horticultural therapy.................................................................24
2. Model of the benefits of horticultural therapy.......................................26
3. Model of the health and wellbeing outcomes of therapeutic horticulture...28
4. Analysis flow chart..................................................................................88
5. Benefits of HBT as reported frequencies.................................................158
6. Recurrent pattern of HBT programs in Victoria........................................169
Images

1. Rehabilitation centre HBT gardens ............................................................... 132
2. Kevin Heinze Garden Centre ..................................................................... 137
3. School based HBT project ......................................................................... 146
4. Community Gardens Ringwood ................................................................ 156
Appendices

1. Coding groups according to category or function .................................................. 224
2. Plain language statement and consent forms ............................................................ 225-230
3. Interview prompt questions for past and present practitioners ............................. 231
4. Focus group prompt questions for occupational therapy students ........................ 232
5. Interview prompt questions for new and emerging practitioners .......................... 233
6. Questions for Key Informants ................................................................................. 234
7. Analysis by data “chunks” ..................................................................................... 235
8. Permissions ............................................................................................................ 236
Glossary of Key Terms

Therapy
The treatment of physical, mental or social disorders or disease.
From New Latin therapia, from Greek therapeia attendance; see therapeutic.
(Collins, 2009)

Origin of therapy
1846, "medical treatment of disease," from Mod.L. therapia, from Gk. therapeia "curing, healing," from therapeuein "to cure, treat."
(Collins, 2009)

Therapeutic
Of or pertaining to the treating or curing of disease; curative
(Collins, 2009)

Therapy, horticultural,
A subcategory of nature-assisted therapy focused on gardening and horticultural activities for therapeutic benefits.
(Jonas, 2005)

Horticulture Based Therapy
A term used in this study to describe a range of horticultural and related activities that have a real or perceived therapeutic outcome.
Abstract
In most countries that have similar economic and social structures to Victoria/Australia, Horticulture Based Therapy (HBT) is well established and widely available. Why this is not so in Victoria/Australia was the subject of this study. Evidence was gathered through an exploration of the literature, through interviews with 30 past and present practitioners and five key informants, and two focus groups. This helped to identify the origins, development, structure, depth and variation of programs and practitioner perceptions of benefits. It was found that in Victoria there are a wide range of health and wellbeing interventions using horticulture. The identification of personal empowerment as a benefit for HBT participants was an important finding of this study. Although reliant on sole practitioner support, it was found that HBT in Victoria/Australia had similar origins and provides similar benefits to international programs. Although HBT in Victoria shares some of the characteristics of international HBT, there is little or no organisational support or connectivity. Compared to other complementary therapies, HBT in Victoria/Australia does not have the same profile, level of application or professional status. To help overcome this position, this study provides recommendations that may assist HBT reach its potential as a valuable health and wellbeing resource in Victoria/Australia.
Chapter 1. Introduction

1.1. Background

In many countries horticulture has been used as a practical and professional health intervention for many years. Internationally, the use of horticulture based therapy (HBT) is widely accepted and is applied to assist recovery and rehabilitation in both formal and informal health settings. It has also been used extensively in a range of community-based social and recreational programs where the therapeutic outcome is focused on people with disabilities and those with mental health disorders. In many countries, horticulture, healing gardens and therapeutic gardening are accepted as part of health plans and rehabilitation. It is also broadly accepted in such countries that therapeutic horticulture has a positive influence on emotional states and behaviour.

The origins of modern therapeutic horticulture are somewhat complex but the relationship with occupational therapy is clear. Although using occupational activities for improving health is said to go back hundreds of years, it is generally agreed that modern occupational therapy started in response to large numbers of service personnel being wounded or affected by conflict during the First and Second World Wars (Smith & Pear, 1917; Weaver & Wright, 2007). Horticulture was seen as one of the successful occupational activities assisting recovery.

Supporting the view that horticultural activities could be therapeutic were publications such as Wilson’s Biophilia (1984) which hypothesised that there was a link between human wellbeing and natural environments. When Wilson hypothesised that humans had an instinctive bond with all other living organisms, discussions emerged about the relationship between human health and exposure to nature. Wilson considered that because humans evolved in nature there was a benefit to embrace nature as a way to fully experience life. The 1980s was also the time when Steven and Rachel Kaplan began to publish their views that for humans to thrive, they are best situated in natural environments. The Kaplan’s The Experience of Nature (1989) described the benefits gained by gardeners, including lower stress levels, physical wellbeing and higher levels of personal satisfaction. Kaplan and
Kaplan (1989, p.152) offered a less restrictive view of nature than just wilderness and wide open spaces but included local “nearby nature” such as roadside plants and backyard gardens. These early studies were major contributors to the foundations of modern horticultural therapy which emerged from the progressive development of occupational therapy. Coincidently, at about the same time, architect Roger Ulrich was looking for ways to improve hospital design. Researching hospital records, Ulrich found that those patients with a view of a natural scene recovered faster, were more content, and needed less pain medication (Ulrich, 1984). This was the beginning of the development of healing gardens in modern medical practice and added to the stature of horticulture as a healing discipline. Many others, including Cooper-Marcus (1994), Relf and Dorn (1995), Lewis (1996), Gerlack-Spriggs and Wilson (2002) have since contributed to the recognition that horticulture can enhance the health and wellbeing of humans.

In Australia, the emergence of horticulture as an independent therapy did not occur as it did in other countries. To some degree, the historical elements of HBT followed a similar path to that overseas, but subsequently HBT failed to emerge fully as an independent professional discipline. Although HBT is evident in Victoria/Australia, it is informal and unstructured and little is known about the practice or its origins. What little is known shows that HBT does not have the same level of application or professional status in Victoria/Australia as in other advanced countries such as the United States of America (USA) or England.

Although therapeutic horticulture does not have the same status as in other countries, it does share some historical similarities. Aldous (2000) describes hospital-based horticultural activities dating back as far as the 1850s at the Willsmere Hospital in Kew, Victoria and similar programs in other Australian cities around the same time. Aldous also describes a number of programs in the 1970s that he claims as the first examples of therapeutic gardening in Victoria. However, it is now difficult to find any evidence of these programs; almost all have ceased and their history is only recorded by academics such as Aldous.

Nevertheless, HBT did persist in Victoria/Australia. Unlike the professional uptake of HBT in Europe and USA, Rayner (2006) describes
HBT in Australia as dominated by small groups and dedicated individuals who work in a range of institutions and settings. Adding to this, Rayner notes that there is little research, no accreditation, limited training and no registration of practitioners. Despite this, anecdotal evidence suggests that HBT is still widely available and has a dedicated, if informal, practitioner group and a range of participants who benefit from the application of HBT.

1.2. The Research Issue and Aim
There is little written information available about HBT in Victoria, with the origins, development and current programs largely unknown. There is no explanation as to why HBT has not developed a profile in the same way as in other similar countries, or even what constitutes HBT in Victoria/Australia. Aldous (2000) and Rayner (2006) have undertaken studies and published articles on HBT, but these have largely reported what was occurring elsewhere in the world and did not provide in any great detail about what was occurring within Australia. This may have been because HBT as a practice is not clearly identified and practitioners are not registered or accredited. As a result, finding where HBT is occurring and who is providing the activity is a difficult task in itself. In view of the lack of any consistent or formally approved approach to providing HBT in Victoria/Australia, it was decided that any horticultural program that was intended or had potential to have a therapeutic outcome needed to be taken into account in this study.

The aim of the research underpinning this thesis was to examine HBT in Victoria to provide an account of its origins, development, recent and current practice. The views of the past and present practitioners and others who have influenced various aspects of HBT in Victoria provide the primary data for this study. As well as documenting the evolution of HBT in Victoria, the thesis examines the issues facing HBT in Victoria and makes recommendations for consideration.

1.3. Thesis structure
The thesis is structured as follows:
Chapter One: Introduction
Chapter Two: A literature review: recognising horticulture-based therapy and defining the practice.
This chapter examines the existing literature relating to HBT. This includes the definitions of HBT and different ways HBT is provided, the relationship between HBT and health, and the relationship between HBT and nature. Existing evidence relating to the influences on the development of HBT in Victoria/Australia are examined, along with the contrast between this and the development of other therapies, in particular Art and Music therapy.

Chapter Three: Methodology

This chapter describes the objectives, research methodology, theoretical framework and predominant paradigms related to the study.

Chapter Four: Results - The origins and evolution of HBT in Victoria

This chapter presents the origins and evolution based on the experiences of informants. It presents issues relating to information, language and terminology and then describes the role of influential organisations and key programs.

Chapter Five: Results - Factors facilitating and inhibiting the development of HBT in Victoria

This Chapter presents factors that the study informants considered to have facilitated HBT development in Victoria. This is followed by those factors that the informant said inhibited the development of HBT in Victoria.

Chapter Six: The benefits and effectiveness of HBT for various groups or situations.

This section presents the benefits of HBT as perceived by the informants in this study. It covers those benefits that are intentional and not intentional and presents these benefits under 13 program categories.

Chapter Seven: A personal reflection of HBT

This chapter is a reflection on the key themes of the study presented from the perspective of the thesis author, himself a HBT practitioner.

Chapter Eight: Discussion

This chapter takes into consideration the findings of the previous chapters and presents the major themes and how they impact on HBT now and into the future.

Chapter Nine: Conclusion and recommendations
This chapter presents a summary of the study including the implications of the findings. It also provides a number of key actions that may assist ongoing HBT development and offers recommendations for immediate implementation.
Chapter 2. A review of the relevant literature

2.1. Introduction

As noted above, the profile of HBT in Victoria/Australia is not well developed or documented and its history is largely unknown. Acquiring an informed view of HBT in Victoria/Australia has required openness to the influences that may have affected its origins and development. To achieve this, both global and local perspectives were considered. This literature review draws on a wealth of information from many countries and regions and assists to build a picture of HBT as it emerged, developed and is currently applied. The review overall not only explores therapeutic horticulture, but also the foundations on which HBT was built. To do this, it was necessary to understand the nature-human relationship, urbanisation and the development of gardens and the theoretical perspectives of nature-based therapy. This chapter also identifies the development of HBT through Occupational Therapy (OT) and provides examples of HBT from Australia and elsewhere.

2.2. Horticulture and human health

Recognition of the therapeutic benefits of horticulture is not just a modern phenomenon. In 1699, Leonard Maeger advised his countrymen “to spend their spare time in the garden, digging, setting out, or weeding; there is no better way to preserve your health” (City Farmer, 1988, p.1). The evidence that various aspects and applications of horticulture have a positive influence on human health is persuasive. Throughout history gardens have been referred to as healing places. Furgeson (2009) makes reference to Japanese Zen Gardens and Monastic Cloisters as early examples of the use of gardens for human health, while Myers (1998) states that Egyptian physicians prescribed walks in gardens for those with mental health disorders.

This relationship between gardens and nurturing is a persistent theme. In 1835 English poet laureate Alfred Austin described “the glory of gardening: hands in the dirt, head in the sun, heart with nature. To nurture a garden is to feed not just on the body, but the soul” (Austin, 2013).

While a spiritual connection between gardens and human health was evident historically in Zen Gardens, Cloisters and the work of Egyptian physicians, it was not until comparatively recent times that the theoretical
foundations of human health and nature began to emerge (Myers, 1998). Today horticulture-based therapies are increasingly being recognised for the role they play in enhancing human health (Kaplan & Kaplan, 1989). This notion will be explored throughout this chapter.

According to academics such as Wilson (1982), Kaplan and Kaplan (1989), and Stigsdotter and Grahn (2002), the use of horticulture for human health has its origins in human evolution and society. Human societies have evolved in communities closely connected to nature as both a provider and a threat, with humans relying on nature for the basic elements of survival (Wilson, 1990). There are many contributing factors to the importance of nature for human health, in particular that humans are most comfortable in natural environments (Wilson, 1984; Kaplan & Kaplan, 1989; Rose, James & Watson, 2003; Townsend, Moore & Oldroyd, 2006, Annerstedt & Wahrborg, 2011). Annerstedt and Wahrborg (2011) stress that these findings highlight the importance of nature as an "important resource in mental and public health care" and that there is a need to increase efforts into research of this subject.

Commenting on the impact of climate change, Brodine (2008, p.1) states that even in modern society, “the fundamental realities of all human life”, food, water and shelter, come from nature. “We need nature for our survival”. Yet, although human survival may depend on nature and human health is enhanced by the benefits nature provides, it has not prevented humans distancing themselves from the natural world.

The benefits of nature for human health are well documented. In more recent times a number of researchers such as Relf (2006), Chambers (2009), Freeman, Dickinson, Porter and van Heezik (2012) and others have found evidence that horticulture and associated therapies offer a mechanism for accessing some of the benefits provided by nature. As the human population of the world has now reached a stage where more people are living in urban rather than rural areas, this is likely to gain increased importance (United Nations, 2014).

2.3. The effect of urbanisation.

In early societies, humans lived from generation to generation with a clear understanding of the world around them. Schrover (2007) describes a
change in human habitation that commenced in the 19th century. Prior to this, only 7% of the European population was living in cities; most people lived a rural subsistence lifestyle in small communities where contact with the natural world was constant. This changed when the Industrial Revolution (1750-1850) first introduced technology and machinery to agriculture, largely replacing the work of farm labourers (Schrover, 2007; Wyatt, 2009). Progressively, the Industrial Revolution also changed the way manufactured goods were produced (Wyatt, 2009). Industries continued to grow and the demand for labour in cities created a large increase in the urban population and, as a consequence of this increased urbanisation, human interaction with nature was reduced (Wrigley, 2010).

In 1800, there were only 23 cities in Europe with a population of over 100,000 citizens. By 1900, there were over 135 cities in Europe with over 100,000 citizens (Schrover, 2007). According to Freestone (2008), the rapid growth of the urban population, poor housing, and changes in manufacturing methods caused an increase in pollution, disease and poverty. The increased density of urban populations had city planners seeking solutions to the problems associated with increasing urbanisation (Freestone, 2008).

The development of communities with parks and home gardens owes much too early urban planners such as Ebenezer Howard. Howard stressed, in his classic book of urban planning, “Tomorrow: A Peaceful Path to Real Reform” (1898), that there was a need for ‘garden cities’ to provide a more agreeable living environment for those living in cities (Freestone, 2008). Further to this, Howard suggested this should not only include access to nature through the availability of public and private gardens, but housing would be set in a garden, with a backdrop of green, productive agricultural land, natural features and low density rural institutions (Freestone, 2008).

Through this model, Howard was responsible for the world’s first planned suburban development in England. However, Howard’s dream of creating working class alternatives to crowded unhealthy cities was largely unfulfilled when investors required Howard to change his plan, making such homes unaffordable to poorer workers (Freestone, 2008).

The movement to counter the negative health effects of urban living however was not confined to England; most industrialised cities were
developing their own ideas. For example, in Oslo, Norway, rapid growth and overcrowding during the late 19th century led to similar planning changes to those described by Freestone (2008), including the development of suburban villas. According to Johansen (2005, pp.1-2), the villa gave the population of Oslo (or Christiana as it was then named) access “to fresh air with the understanding that taking pleasure in nature could benefit the general health of the body”. Unlike Ebenezer Howard’s working class utopia, the villa movement was generated by architectural style. Johansen (2005, p.6) not only describes the importance of the arrangement of rooms but also that “the villa is so closely connected to the garden that it cannot really exist without it”.

This trend towards creating green spaces in urban environments also occurred in the United States, where urban planners such as Olmsted (1822-1903) were instrumental in setting up public parks. Ranney (1990, p.428) describes a chance encounter between Olmsted and a local physician. The physician remarked to Olmsted that a “park has added years to the lives of many of the most valued citizens, and much increased their working capacity”. From this, Olmsted anticipated a new role for parks and gardens as a means to relieve the stress of city life and improve the population’s health (Lewis, 1996). Frederick Olmsted along with his design partner, Calvert Vaux went on to design and build some of America’s best known public parks including Central Park in New York City.

The drive of people like Howard and Olmsted for green spaces in urban environments eventually provided more liveable urban environments. However they were not always appreciated in their own time. A political rift led to Olmsted’s dismissal during the last stages of the building of Central Park and Howard’s planned garden city did not gain broad acceptance until after World War 2 when it became known as the New Town Movement (Merlin, 1980).

The examples provided by Ranney (1990), Johansen (2005) and Freestone (2008), show that the rise of cities and industry coupled with the unplanned increase in urban living did not provide healthy human environments. Forward thinking planners such as Howard and Olmsted presented the need for housing and community reform. An important part of this was the call to reconnect to a more natural way of living, away from the
disease and pollution of the early industrial cities. This idea of ‘green space’ was seen as a healthier way of living, with private gardens an indication of status, and planning and provision of public gardens a necessity (Lewis, 1996).

However, the achievement of this ideal is still incomplete. In the USA, Richard Jackson of the Centres for Disease Control states that, in current western society, there will be “no significant improvement in public health and the quality of life unless there is more attention paid to how living environments are designed” (Jackson, 2001, p.1). Even more challenging is the impact on population health in emerging economic powerhouses such as China and India. In China over 50% of the population already live in urban areas (National Bureau of Statistics of China, 2014). Professor Xi-Zhang Shan of South China Normal University noted that although more urban green spaces are needed to serve the rapid increase in urban populations, planning for this is increasingly bogged down by bureaucratic indifference (Xi-Zhang Shan, 2014). In contrast, although the urban population is less in India (32%), there is national awareness of the growing need for green space. Using the motto “Green Cities, Green Minds”, the Centre for Urban Green Spaces (CUGS) promotes green space development though scholarships, conferences and awards (CUGS, 2014).

A modern take on the issue of changing environments found Greenfield (2008) and Perlovsky and Kozma (2011) emphasizing that there can be an issue with rapid change. Since the beginning of the Industrial Revolution and often over very short periods of time, many humans have had to adapt to new urban lifestyles. Greenfield (2008) and Perlovsky and Kozma (2011) believe that humans have yet to fully adapt to modern urban existences. As far back as 1972, Watt was making the argument that humans needed extensive exposure to certain stimuli over an extended period to allow them to properly evolve. Watt (1972) was also of the opinion that with prolonged exposure, the human brain can adapt. This is now widely accepted under the term neuroplasticity.

Since Watt (1972), neuroscientists such as Greenfield have voiced concerns that with such rapid change since industrialisation, the human brain has not been able to respond quickly enough to the increasing rate of stimuli
According to Greenfield (2008) people’s lives are increasingly dominated by artificial stimuli in their work and homes. Stilgoe (2001) had the view that humans are affected by artificial environments and considers that such environments are bad for human health. He believes that artificial stimulation and an existence primarily in human environments causes fatigue, and a loss of vitality and health. To mitigate this Kuo and Sullivan (2007), Fan, Das and Chen (2011) and Abbott (2012) support the notion that contact with nature can help moderate some of the negative aspects of urban living, technology and modern lifestyles. This follows Kaplan and Kaplan’s (1989) suggestion that it may be beneficial for humans to have greater contact with nature and take a break from the increasing stimuli that may negatively impact on their health (Kaplan & Kaplan, 1989). The argument that nature and evolution have an impact on human health and wellbeing is the theoretical foundation of many nature based therapies, including HBT.

2.4. Theoretical perspectives on the nature-human connection

This section presents the various theories articulating the links between nature contact and human health outcomes. Included here are brief descriptions of Biophilia, Attention Restoration Theory, Stress Reduction Theory and Ecopsychology and some of the evidence supporting these theories.

2.4.1. Biophilia

Erich Fromm (1973) first used the term Biophilia to describe the love humans have for life and living things. In the 1980s Edward O. Wilson became a prominent voice for biodiversity and the exploration of the natural world. The Biophilia Hypothesis was developed by Wilson (1984) to emphasize the essential connection between humans and all things in nature. As Wilson developed this further he considered that a relationship with nature was crucial for humans to survive and to evolve because humans have “an innate emotional affiliation” to other living things (Kellert & Wilson, 1993, p.31). Wilson (1984) theorised that there are human biological and evolutionary origins in the human connection with nature. He compared people growing up in an environment largely stripped of plants and animals
“to monkeys raised in laboratory cages and cattle fattened in feeding bins” (Wilson, 1984, p.118). Wilson (1984) not only suggests that there is a bond between humans and the environment but that humans are not fully experiencing life unless there is a close and natural connection with the environment.

Subsequently, others have articulated similar beliefs that humans evolved in company with other organisms including plants and animals and that this made up a complex matrix of association that has assisted human survival (e.g. Kellert, 1997). They claim that humans not only rely on this relationship for their physical existence, but it is believed by some that nature is the core of human existence and human survival could be compromised if people lose their affiliations with nature (Kellert, 1997; Suzuki, 1997; Gullone, 2000; Tidball, 2012).

Kellert (1997), a close associate of Wilson, also claims that there is an innate attraction between humans and nature and that this attraction contributes to the emotional and psychological needs of humans. This nature-human relationship is constantly being examined and researchers such as Suzuki (1997) believe that biophilia is the right theoretical structure to explore the subject further. Tidball (2012), when he explored individual and community disaster resilience, used biophilia as the theoretical base. With the prospect of higher levels of technical, political and geophysical disasters in the immediate future (Oliver-Smith, 2002; Zhang, Brecke, Lee, He & Zhang, 2007), Tidball (2012) proposes that “urgent biophilia” may provide a restorative environment that assists resilience. This may not be the original direction Wilson (1984) was seeking for biophilia, but with the hypothesis based on an evolutionary perspective, it is not incompatible. This supports the reality of different circumstances confronting humans and therefore a corresponding need for different human responses to changes to nature emerging (Tidball, 2012).

Along with supporters of the biophilia hypothesis, such as Kellert and Tidball, there are those that consider biophilia less compelling. Although there is considerable support for the positive benefits of nature and human wellbeing, Joye and De Block (2011, p.208) consider that biophilia tries to take this in terms of very broad ideas and present them in a very "narrow
evolutionary psychology framework”. According to Joye and De Block (2011, p.193) “this is a problem” because almost any “possible affective attitude towards life like entities” could be accommodated within biophilia. According to Joye and De Block (2011, p.189) this is not robust enough and exposes biophilia to the possibility of conflicting interpretations. Joye and De Block (2011) suggest that much of the substance of biophilia can be found in better-defined theoretical perspectives. Hartig, van den Berg, Hagerhall, Tomalak, Bauer, Hansmann, Ojala, Syngollitou, Carrus, Herzele, Bell, Podesta, and Waaseth (2010) suggest that biophilia fails when it does not consider biophobia. They suggest both contributed to human evolutionary learning and it is through this process that humans have succeeded in different environments. Humans that have responded to positive environmental circumstances such as having access to sources of food and shelter while being aware of the negative aspects of nature such as predators, physical danger and venomous animals, are more likely to survive and evolve. In light of the comments here, Biophilia should be considered in terms of a broad philosophical foundation that suggests that humans and nature have a close bond. A number of other theoretical perspectives based on the benefits of nature for human wellbeing are also referred to in this study. These are discussed below.

2.4.2. Attention Restoration Theory (ART)

It is now widely accepted that humans respond to stimuli with two types of attention: voluntary and involuntary. William James (1892) was the first to propose aspects of “voluntary” and “involuntary” attention when investigating mental activity and distraction. Voluntary attention, referred to by Kaplan (1995) as directed attention, requires determined and sustained effort (James, 1892; Kaplan & Kaplan, 1989; Stigsdotter & Grahn, 2002), while involuntary attention is said to require “no effort at all” (Kaplan & Kaplan (1989, p.179). Involuntary attention (James, 1892) or ‘soft fascination’ (Kaplan & Kaplan, 1989) is described as being a directly excited response to certain stimuli in the environment. James (1892, p.231) provided examples of stimuli eliciting involuntary attention such as “strange things, moving things, pretty things, wild animals”. Directed attention, in comparison, is not related to any specific
stimuli. The effort to direct attention on a particular thought requires the energy to suppress and inhibit irrelevant information. This places pressure on the capacity to maintain direct attention, leading to increased levels of mental fatigue (Kaplan & Kaplan, 1989). People with mental fatigue are subjected to increases in irritability, reduced capacity to plan and less ability to deal with uncertainty (Koriella et al., 2001, pp. 575–576).

Kaplan and Kaplan (1989) describe sleep as one way of recovering from mental fatigue but it has its limitations. Ideally, they say, rest from directed attention should also be available during waking hours. Involuntary attention available in ordinary natural settings can achieve this (Kaplan & Kaplan, 1989; Stigsdotter & Grahn, 2002; Herzog, Maguire, Nebel, 2003; Berman, Jonides & Kaplan, 2008).

According to Kaplan and Kaplan (1989, p.189) there are four ways that contact with nature assists recovery. The first, described as ‘being away’ relates to “involving oneself in cognitive content different from the usual”. ‘Natural’ environments provide an ideal place to ‘be away’. Accessible natural places such as parks, beaches and even one’s own backyard provide respite from the pressures and obligations of everyday life (Kaplan & Kaplan, 1989; Kaplan, 1995).

The second way in which contact with nature assists recovery is extent. This is described as experiences that fully engage a person’s attention. According to Ouellette, Kaplan and Kaplan (2005, p.176.) this requires the person to be in an environment that has sufficient scope so that they can dwell there long enough to allow their mind to naturally rest “whether or not the physical place is vast”. As Hertzog, Maguire and Nebel (2003, p.160) point out; extent allows the time for directed attention to rest, and this can occur in large open spaces such as wilderness areas or even small spaces “such as Japanese gardens”. The third aspect, fascination, relates directly to the interesting and engaging features of nature. Clouds, trees, animals, sunsets and even the play of light on leaves are fascinating. These and other aspects of nature capture and hold the attention naturally without interrupting other thoughts.

The fourth aspect is the compatibility between nature and humans. As Wilson (1984) indicated, people have a high level of compatibility with a
natural environment. Popular pastimes such as gardening, fishing and hiking show a pattern of purposeful human behaviour that indicates a desire to be involved in nature. This compatibility provides an ideal environment for attention to rest.

Many studies have shown that contact with nature can provide one or more of these four characteristics, but purposeful nature-based activities consistently have all four present (Stigsdotter & Grahn, 2002; Bodin & Hartig 2003; Herzog, Maguire & Nebel, 2003). It is interesting to note that although coming from different perspectives, researchers such as Stigsdotter and Grahn from landscape design and Bodin and Hartig from environmental health hold very similar understandings about the role of nature in human health. Researchers interested in the relationship between humans and nature support the view that nature is the most reliable source of mentally restorative experiences (Kaplan & Kaplan, 1989; Stigsdotter & Grahn, 2002; Bodin & Hartig 2003; Herzog, Maguire & Nebel, 2003; Berman, Jonides & Kaplan, 2008). Where all four characteristics outlined above are present, it is likely that involuntary attention will flourish, and even if a few are present, there is likelihood that mental restoration will occur (Kaplan, 1995). An environment with the four characteristics is likely to provide outcomes that assist individuals to take control, deal with difficult aspects of life, think more clearly and make decisions about themselves and their life (Korpela et al., 2001).

However, not all natural environments provide restorative experiences and not all urban environments restrict recovery. Some aspects of nature can be dangerous and stressful, while other aspects can be restorative (van den Berg, Hartig & Staats, 2007). Ultimately, the potential for benefits from the restorative characteristics of the environment vary according to the personal needs of those in that setting (van den Berg, Hartig & Staats, 2007).

2.4.3. Psycho-evolutionary Theory

With similarities to the Biophilia hypothesis, Psycho-evolutionary Theory (PET) is based on human responses to the environment. Like natural selection, followers of PET suggest that over time there has been a genetic component to our survival. They suggest that because time has not allowed
humans to fully adapt there is now an imbalance between how our ancestors
coped in a natural environment and how modern humans react in urban
environments (Mitten, 2009). The assertion put forward by the supporters of
PET is that stress occurs because humans have never fully evolved to cope
with the level of physical and cognitive energy required in busy urban
environments. On an evolutionary scale humans have only recently began to
construct built environments but have experienced the rewards of natural
environments from the beginning of human evolution (Ulrich, 1993).

According to psycho-evolutionary theorists modern humans respond to
a natural environment in much the same way as their ancestors. Natural
environments do not require extensive cognitive processing, they are familiar,
therefore being in such environments means that stress levels are likely to be
reduced (Ulrich, 1983). In contrast, the energy required to navigate busy
urban environments causes involuntary physiological responses which in turn
causes stress (Stigsdotter & Grahn, 2002).

Cities are not natural environments and therefore “man cannot trust his
reflexes but must make use of logical thinking” and therefore cannot naturally
rest (Stigsdotter & Grahn, 2002, p.62). According to Ulrich (1983), this may
cause elevated heart rates, negative emotional responses and anxiety in
humans. He suggests that providing natural views such as meadows or lakes
prompts reflexes that allow the individual to relax, while open, light, savannah-
like natural areas give the most positive response to stress because “they
resemble man’s original home” (Stigsdotter & Grahn, 2002, p.62).

This theory proposes that places that most humans typically consider
to have aesthetic attraction - places that are calm, interesting and pleasant
are most likely to moderate stress. Natural settings that contain plants, water
and other features such as views of sky, lake or sea, have these
characteristics and are the environments most likely to reduce stress in
humans (Ulrich, 1983). Just as contact with nature has been shown to have
important implications for human restoration, there is also strong support that
nature can contribute to a reduction in human stress.

Joye and van de Berg (2011, p.2) largely support the notion that nature
is a restorative environment. However, they have some concerns about PET
and its evolutionary origins. In a recent article they challenge many of the
assumptions put forward by PET supporters. They point out that there is little
discussion around the types of “restorative nature” and that most PET is
largely based on the assumptions of “western urbanites”. At the centre of PET
is that savannah like environments were early human’s original home. This,
Joye and van de Berg (2011) say, fails to take into consideration that human
evolution occurred in many different natural environments over an extensive
period of time where humans were able to adapt and survive. As Joye and
van de Berg (2011, p.6-7) suggest, humans may not be pre-disposed to any
particular environment but rather they are “hardwired” for survival. Humans
that recognised non-threatening environments that contained food and shelter
were likely to seek out similar environments. This is they suggest, is a learnt
response rather than genetic, and this information could be passed from
generation to generation. They also suggest that in the light of the current
trend towards urban forests and urban greening it is important to consider a
mix of urban and natural environmental features that can promote restoration
(Joye and van de Berg (2011, p.6).

2.4.4. Ecopsychology

When psychologist Harold Searles first explored the relationship
between human mental health and nature in 1960, he proposed that elements
in nature may impact on humans in different ways. Searles presented a
hierarchical model of demand where different aspects of everyday life may
affect human health. According to Searles, there is a hierarchy of demands
that may induce stress and these start with personal relationships. He states
that the close relationships with family and friends demand more attention
than unknown people; animals demand less, while plants, rocks and water
demand almost none, as they are familiar and they are there all of the time
(Searles, 1960; Iwarsson, 1997; Ottosson, 2001). Pre-dating Biophilia by over
20 years, Searles (1960, p.6) considered that a relationship with nature
“constitutes one of the most basically important ingredients of human
psychological existence”. Further to this, he suggests that while everyday life
places stress on humans, elements within nature can softly balance a
person’s own psychological needs (Searles, 1960; Stigsdotter & Grahn, 2002,
p.62). The broader use of the term ‘nature’ to include human relationships
separates Searles’ theory somewhat from ART. Searles is often referred to as a contributor to the origins of ecopsychology (Iwarsson, 1997; Ottosson, 2001; Martin, 2010).

Ecopsychology not only examines the therapeutic aspects of human-nature relationships but also includes human concern about environmental issues. This includes the psychological and spiritual relationship between humans and nature. Followers of ecopsychology consider that the nature-human role is not complete until humans take responsibility for protecting natural places and other species (Baillie, 2003). Like the Biophilia hypothesis which described the interconnected relationship between living things, in ecopsychology there is an expectation that because nature heals humans there is a reciprocal responsibility. According to Croft (2007), it is essential that ecopsychology includes the impact of environmental issues such as climate change on human emotional health. From an ecopsychology perspective, it makes sense that to gain the benefits of nature humans should have a vested interest in protecting natural assets on a planetary scale.

2.5. Connecting people with nature

The following section provides a range of other perspectives on people and nature connectedness. Whereas contributions to the literature on the relationship between human health and nature have increased since Kaplan and Kaplan (1982) and Ulrich (1984) published in the 1980s, until quite recently, Australia’s contribution has been modest. However, in recent times there has been increasing interest from academics in Australia. Some of the contributions to nature-based health and human wellbeing research in Australia have included: exploration of outdoor education and bush adventure therapy (Pryor, Carpenter & Townsend, 2005); health promotion through contact with nature for the population at large (Maller, Townsend, Pryor, Brown & St Leger, 2005) and for targeted groups (Pryor, Townsend, Maller & Field, 2006); and civic environmentalism (expressed through membership of conservation groups, for example) as a mechanism to assist people with mental health issues and broader general wellbeing (Townsend, 2006; Moore, Townsend & Oldroyd, 2006). Albrecht, Sartore, Connor, Higginbotham, Freeman, Kelly, Stain, Tonna and Pollard (2007) also examined the impact of
environmental change on individuals and concluded that, when ecosystems change, the impact on human health is likely to be negative. While these are generally well conducted studies with relevance to this research, the limitations are that they relate to specific groups, some of which have little relationship to HBT. They do, however, help to highlight the positive health impact that occurs when humans engage in nature-based activities and this is also the foundation of HBT.

2.5.1. Children in natural environments
The nature-human relationship has been explored in many different settings. For example in Chicago, Taylor, Kuo and Sullivan (2001) found that Attention Deficit Disorder (ADD) in children was moderated in neighbourhoods that contained vegetation. Taylor et al. (2001, p.75) found that the “greener” or more “vegetated” a child’s everyday environment, the more manageable their deficit symptoms are in general. In addition to this, Taylor et al. (2001, p.75) propose that green environments have a positive impact on children both with and without ADD. Taylor et al. (2001) suggest that incorporating vegetation into places where children live, learn and play, could have significant benefits for children’s wellbeing. This view was supported by Bowker and Tearle (2007) in their study of garden-based projects in schools. They found that children who were part of a garden-based program were more motivated, achieved greater learning outcomes, and had increased self-esteem. An evaluation of the Stephanie Alexander Kitchen Garden Program in Australian schools prepared by Block, Gibbs, Staiger, Townsend, Macfarlane, Gold, Long, Kulas, Okoumunne and Waters (2009) found that, in addition to the benefits presented above, children’s gardening in schools also increased social interaction, lifted confidence and was particularly beneficial for non-academic learners. This group according to Block et al. were able to improve their knowledge through learning and skill development in the garden.

Maintaining the association between children’s wellbeing and nature requires ongoing opportunities for children to connect to nature. According to popular author Richard Louv, “time in nature is not leisure time; it is an essential investment in our children’s health” (Louv, 2008, p.120). In his book “Last Child in the Woods”, Louv (2008) examined the impact of the diminished
contact children have with nature. He states that the key contributing factors to this diminished nature contact are the emphasis on organised play and sport, increasing use of vehicles, deteriorating parks, larger houses and fear. According to Louv (2008, p.123) “fear is the emotion that separates a developing child from the full, essential benefits of nature, fear of traffic, of crime, of stranger danger and of nature itself”. Such fear has created a barrier that now prevents many children exploring the world around them. To counter this, Louv (2008) suggests that the physical and emotional health of children (and adults) would improve if they could have a closer relationship to nature.

Cheng and Munroe (2012) in their study of children’s attitudes towards nature found that there is a link between children’s connections with nature and access to nature near their homes. Although Cheng and Munroe’s (2012, p.45) study was limited to just 4th year students in one county in Florida, USA, it was consistently shown that children who could access nature went on to develop more robust connections with nature, and the outcome of this was enhanced “physical and psychological health”. Similarly, a study by Asah, Bengston and Westphal (2012) on the influence of childhood nature experiences, found that, when children have access to nature and participate in nature-based activities, they are more motivated to engage in nature-based activities as adults. These studies highlight the importance of both the accessibility and proximity to nature to be able to fully realise the health and wellbeing benefits.

2.5.2. Gardens as nearby nature.

In the USA, Kaplan and Kaplan (1989) have long supported the position that the benefits provided by nature need not be just found in the wilderness. Coining the term ‘nearby nature’ to describe what is “nearby for most people, most of the time”, Kaplan and Kaplan (1989, p.162) emphasize that urban landscapes such as parks, nearby trees and community spaces are equally valuable. Domestic gardens too have been identified as key sources of “nearby nature” and it is claimed that they should be included as natural areas that benefit human health (Kaplan & Kaplan, 1989; Freeman, Dickenson, Porter & van Heezik, 2012). Although Freeman and colleagues (2012) found that there has been very limited research on the health values of
domestic gardens, they note growing public interest in this area. It may be that Kaplan and Kaplan (1989, p.171) were right when they described domestic gardens as an “amazing phenomenon” which provides a “clear example that the nearby-natural setting does not need to have great extent, even very small gardens provide many of the benefits.” Along with the home domestic gardens, gardens in rehabilitation, disability and aged care facilities could all fall under the banner of “nearby nature”.

2.5.3. Gardening and dementia

Understanding of the health benefits of engaging in garden activities was strengthened by the findings of Simons, Simons, McCallum and Friedlander (2006), who found a strong link between regular gardening and the prevention of onset of dementia. In their longitudinal study of the elderly population of the City of Dubbo, New South Wales, Simons and colleagues found that, for both men and women, regular gardening was the most effective activity for lowering the risk of the onset of dementia.

This longitudinal study over 16 years followed 2805 men and women aged 60 years or older living in the community and initially free of cognitive impairment. The results provided 115 cases of dementia in 1233 men (9.3/100) and 170 cases in 1572 women (10.8/100). According to Simons et al. (2006), the most effective lifestyle choices to reduce the risk of the onset of dementia are “any intake of alcohol” which predicted a 34% lower risk, “daily gardening” which predicted a 36% lower risk, and “daily walking” which predicted a 38% lower risk of dementia for men, but interestingly, walking provided no significant reduction of risk for women (Simons et al., 2006, p.70).

Simons and colleagues therefore recommended “the maintenance of physical activity, especially daily gardening, in the hope of reducing the incidence of dementia in future years” (Simons et al., 2006, p.70). Although the study by Simons et al. (2006) was comprehensive it was restricted to one regional city. A broader sample or a replication of the study in other areas may help to identify if these results are consistent across different geographical, social and economic variables.
2.6. Horticultural therapy (HT) – definitions and origins.

The previous sections have shown that contact with nature, whether it be wilderness or localised to a home garden, can provide an improvement in the physical and psychological wellbeing of humans. There seems to be little difference if this occurs as part of planned and measured programs or informal social activities (Relf, 2005; Sempik, Aldridge & Becker, 2002).

Horticultural therapy is a general term used to describe people-plant interactions. It has a number of definitions, depending on the context in which it is being applied. However there is no one internationally agreed description or definition. Relf and Dorn (1995) expressed concern that “horticultural therapy frequently is used as a catch-all phrase applied to anytime anyone gardens and feels better, acts better, or gets better under any conditions” (Relf & Dorn, 1995. p1). To add to the confusion, the name “horticulture therapy” has been used to apply to children’s gardening, hobby gardening and even home food production in developing countries (Smith, 1985; Relf & Dorn, 1995; Aldous, 1997). At an extreme, it could be used to refer to a person digging potatoes out of the ground, a labourer picking apples or a farmer sowing corn, as they are all engaged in horticultural activities from which they may gain a sense of wellbeing.

According to Aldous (1997), the extent to which horticulture is therapeutic can also be circumstantial; when “drought stricken farmers are planting trees by the thousands, farmers found it therapeutic, just to see something, anything, grow” (Aldous, 1997, p.19).

In the USA categories of HBT are clearly defined and methods of practice follow these definitions. In the UK, aspects of HBT are also categorised but it is a less formal social and therapeutic model.

The following model of horticultural therapy as it applied in the USA (Fig.1) was developed by Relf (2005). It shows that under this paradigm a trained horticultural therapy professional is required to be working on horticultural activities with a diagnosed client to achieve measurable goals.
Relf (2005) recommends that the term horticultural therapy should be reserved for professional practitioners specifically trained in this discipline, while allowing for other forms of therapeutic horticulture to be recognised. However, with such variance in practice globally (s.2.10; s.2.13), such a definition would be difficult to apply. Many countries, including Australia, continue to practice various forms of HBT under the general term of horticultural therapy.

Horticultural therapy as described by Relf and Dorn (1995) is based on the advanced and professionally developed practice in the USA. However this is only one of four types of HBT that is recognised in the USA. In 2007 the American Horticultural Therapy Association (AHTA) produced a position paper that classified aspects of horticulture-based activity into categories. To some degree this addressed some of Relf and Dorn’s (1995) concerns. The AHTA structure divides programs into four categories: horticultural therapy, therapeutic horticulture, social horticulture and vocational horticulture.

**Horticultural Therapy (HT)**

_Horticultural therapy is the engagement of a client in horticultural activities facilitated by a trained therapist to achieve specific and documented treatment goals. AHTA believes that horticultural therapy is an active process which occurs in the context of an established treatment plan where the process itself is considered the therapeutic activity rather than the end product._
Horticultural therapy programs can be found in a wide variety of healthcare, rehabilitative, and residential settings.

Therapeutic Horticulture (TH)

Therapeutic horticulture is a process that uses plants and plant-related activities through which participants strive to improve their well-being through active or passive involvement. In a therapeutic horticulture program, goals are not clinically defined and documented but the leader will have training in the use of horticulture as a medium for human well-being. This type of program may be found in a wide variety of healthcare, rehabilitative, and residential settings.

Social Horticulture (SH)

Social horticulture, sometimes referred to as community horticulture, is a leisure or recreational activity related to plants and gardening. No treatment goals are defined, no therapist is present, and the focus is on social interaction and horticulture activities. A typical community garden or garden club is a good example of a social horticulture setting.

Vocational Horticulture (VH)

A vocational horticulture program, which is often a major component of a horticultural therapy program, focuses on providing training that enables individuals to work in the horticulture industry professionally, either independently or semi-independently. These individuals may or may not have some type of disability. Vocational horticultural programs may be found in schools, residential facilities, or rehabilitation facilities, among others. (AHTA, 2007, pp.1-2)

In the AHTA model of horticultural therapy, a trained therapist leads a planned horticulture-based activity where goals are specified and client and therapist work together as part of a treatment plan as illustrated in Figure 1 (Relf, 2005). According to the AHTA (2007), therapeutic horticulture is similar to horticultural therapy but less formal. It provides practitioners who are
trained in horticulture offering a range of active or passive horticulture-based non-clinical programs. The intended outcome is an improvement in the person’s wellbeing, but it is not as specific or goal-related as horticultural therapy.

Social horticulture, according to the AHTA (2007) model, has no trained therapist but there is an expectation of a wellbeing outcome. Social horticulture by this definition is wholly about gardening as a social, leisure or recreational activity. There are no treatment plans or planned intention of providing a clinical result. The model indicates that social horticulture does not fall within the scope of horticultural therapy because any benefits flowing from it are unplanned and perhaps even unintended.

The intention of vocational horticulture programs is to train people to work (and therefore provide income). The development of skills and opportunities may place them closer to the therapeutic end of the spectrum than social horticulture.

Figure 2. (Relf, 2005)
Figure 2 presents Relf’s (2005) representation of areas of benefit that HBT can provide. Evolving from earlier diagrams, this version adds spiritual and philosophical components into the benefits of horticultural therapy. The model shows that all or some of these elements are possible benefits in a HBT program.

In the USA, it may be fair and professionally responsible to apply the AHTA (2007) categories as a means to describe HBT. However, because HBT in many other countries is not as advanced as in the USA, it may be difficult to apply this model elsewhere. It would be particularly difficult in countries where there are no formal horticultural therapy qualifications available, Australia for example, or where the level of training would not be acceptable in the clinical context to apply the title “horticultural therapist” (Relf & Dorn 1995; Rayner, 2006).

In the UK, Sempik, Aldridge and Becker (2003) made the distinction between horticultural therapy and therapeutic horticulture, describing horticultural therapy as a process that “has a pre-defined clinical goal similar to that found in occupational therapy”. By contrast, therapeutic horticulture is described as a process that is “directed towards improving the well-being of the individual in a more generalised way” (Sempik et al., 2003, p.3).

This version of HBT is similar to the AHTA model in one way: it separates the profession of horticultural therapy from the less clinical aspects of therapeutic horticulture. This is not to say that therapeutic horticulture is any less legitimate than horticultural therapy. STH is more widely used in the UK than the clinical application of horticultural therapy. Horticultural therapy continues to be provided, though is often incorporated into social and recreational programs or indeed provided as part of an occupational therapy program (Sempik et al., 2003).

The Social and Therapeutic Horticulture (STH) model (Fig.3) developed by Thrive, (a major HBT organisation in the UK), is widely accepted and has two divisions: active and passive. The active aspect was described by Aldridge and Sempik (2002) as having “rehabilitation, acceptance and inclusion” as goals, whereas participants in a passive
program “may appreciate nature because of its tranquillity, peace and spirituality” (Aldridge & Sempik, 2002, p.3).

Figure 3. (Thrive, 2012)

In some countries that provide HBT, tertiary education and training is available, as is accreditation and registration. In countries such as the USA, the education and accreditation process is highly evolved, with universities providing a range of tertiary options from degrees to accredited certificates in HBT. The UK and Canada offer diploma courses in HBT in formats that are appropriate to the needs of practitioners in these regions. Further supporting practitioners in the USA, the AHTA provides national registration and accreditation. The UK is also working towards a register of practitioners through the recent establishment of the Association of Social and Therapeutic Horticulture Practitioners (ASTHP) (Brown, 2013).

According to Rayner (2006), the position of HBT in Australia currently fits the description of ‘lack of sophistication’, with no formal qualifications or specific training available to enable practitioners to be accredited horticultural therapists. There is not even an agreed definition of HBT in any form. Therefore confusion arises as to whether horticultural therapy should include social, recreational and vocational programs in the description. The current definition of horticultural therapy provided by the Horticultural Therapy Association of Victoria (HTAV) is:
A process of using plants and garden related activities to promote wellbeing of mind, body and spirit. (HTAV, 2012)

Cultivate, the representative organisation for HBT in New South Wales has a similar but slightly different version to that of the HTAV:

Horticultural therapy is a process in which plants and gardening activities are used to improve the body, mind and spirit of those people for all ages, backgrounds and abilities. (Cultivate, 2011)

The lack of consistency between Australian states in terms of a definition highlights the situation in Australia, where there is no overall authority or representative body. The descriptions provided by HTAV and Cultivate share the same ambiguous qualities, doing little to differentiate between various horticulture or gardening activities. These catch-all phrases do not help the cause of HBT in Australia and appear similar to those that concerned Relf and Dorn in the USA twenty years ago.

2.7. Origins of HBT

The following section looks at the emergence of HBT from the beginnings of Occupational Therapy (OT). Included here is the influence of individuals and organisations in the development of OT. How this evolved into HBT will also be introduced in this section.

2.7.1. Occupational Therapy

Nature-based activities were some of the most consistently used approaches in the early practice of OT. Although there is an apparent lack of specific information relating to the historical origins of OT internationally, a broad outline can be constructed from available sources. There are strong similarities in the way OT emerged in Australia to the way it emerged in other countries, in particular the USA. In the developmental years of OT, nature was a central component of many early OT programs and gardening, farm work and long walks were often prescribed to assist the recovery of patients (Van Atta, Roby & Roby, 1980; Sempik et al., 2003). The two most influential hospitals in the early development of OT in the USA were both located in the
state of Pennsylvania. Benjamin Rush led the program in the Pennsylvania Hospital while the Quakers of Pennsylvania developed a similar program at the Friends Hospital (Van Atta, Roby & Roby, 1980).

2.7.2. Benjamin Rush

There are many references to Dr. Benjamin Rush, a signatory to the American Declaration of Independence and Professor of the Institutes of Medical and Clinical Medicine (Pennsylvania University, 2011) as the originator of therapeutic horticulture. The American Association of Horticultural Therapy (AHTA, 2009) credits Rush as contributing to the use of horticulture for therapeutic purposes.

Sempik, Aldridge and Becker (2003), however, do not support this view and consider that much of the attention placed on Rush is based on one sentence published in “Medical Inquiries upon Diseases of the Mind” (Rush, 1912). Rush noted that male “maniacs” who were engaged in occupational activities such as cutting wood, making fires and digging the garden and female “maniacs” employed in washing, ironing and scrubbing floors recovered, while others not so employed would “languish away” (Rush, 1812, np; Sempik et al., 2003).

According to Sempik and colleagues (2003), this sentence has been used out of context. They note that many authors have used this sentence as evidence that Rush brought the “attention of the world to the fact that gardening has the potential to treat people who are suffering from some forms of illness” (Sempik et al., 2003, p.1). However, Sempik and colleagues (2003) believe the contribution Rush actually made was to provide a step in the search for a causal and scientific explanation of the health benefits of horticulture and gardening. What Rush was advocating for was the use of meaningful occupational activities to assist the patient’s recovery. He had not singled out gardening as particularly or singularly helpful.

2.7.3. The Quakers

Also considered pioneers in the development of OT, the Quakers of Pennsylvania based many of their treatments on Rush’s work but were also critical of Rush’s more radical approaches to medical treatment and felt a need to establish their own programs (Van Atta, Roby & Roby, 1980, p.4). The
Quakers opened the Friends Hospital not long after Rush’s death in April 1813, stating that the asylum was to be devoted exclusively to the humane care and treatment of the insane (Van Atta et al., 1980). The program at the Friends Hospital largely consisted of fresh air, gardening, warm baths and “genuinely empathic concern” (Van Atta et al., 1980). The use of work or occupation for the treatment of the mentally afflicted was a belief shared by both the Quakers and Rush (Van Atta et al., 1980; Sempik et al., 2003).

Neither Van Atta and colleagues (1980) nor Sempik and colleagues (2003) present Rush and the Quakers as providers of horticulture as a specific health treatment. According to Van Atta et al. (1980) and Sempik et al. (2003) work was the therapy with gardening and farming as part of a general work program. Sempik and colleagues state that Rush in particular “has appeared in hundreds of articles on the benefits of horticulture” (Sempik et al., 2003, p.1), where it might be more accurate to describe both Rush and the Quakers as contributing to the idea that work could be therapeutic.

2.7.4. Smith and Pear: World War One

OT had several influences on its uptake as a health practice, including needs arising from overcrowded mental hospitals, the industrial revolution, World War One and increasing residential density. To meet the need for rehabilitation, particularly in the area of mental health, new forms of therapy were developed (Creek & Lougher, 2008).

Working to assist the recovery of injured military personnel during the First World War (1914-1918), Smith and Pear explored the idea that work may assist those with mental health conditions. In 1917, Grafton Smith, the Dean of Medicine at Manchester University Medical School, and Tom Pear, an experimental psychologist, were commissioned to provide an explanation to the medical profession of the First World War phenomenon of “shell shock”. This condition is now widely described as Post Traumatic Stress Disorder (PTSD) (Australian Centre for Posttraumatic Mental Health, 2011). Smith and Pear started to investigate the therapeutic value of work and came up with the notion that work might be a way of distracting the attention of the patient from their worries and anxieties. Exploring this idea further, Smith and Pear (1917) assessed a range of activities including gardening. Like Rush and the
Quakers before them, it would seem that Smith and Pear did not place any particular value on the application of gardening as a therapy. While they state that sometimes they provided gardening to overcome anxiety, it was only considered for “patients who are only mildly affected and earnestly want to get better” (Smith & Pear, 1917, np).

2.7.5. Emergence of OT

Simpson and Straus (2003) state that the use of horticulture in some OT treatment programs started to show promise within treatment programs in the early 1900s. The recording of some of these horticulture based activities found its way into OT textbooks and increased the interest in HBT at that time (Simpson & Straus, 2003). Kielhofner (2004) describes the formal recognition of OT in the United States as starting at a meeting of “likeminded individuals” in 1917. It was this group that went on to form the National Association for the Promotion of Occupational Therapy, later to become the American Occupational Therapy Association (AOTA). Kielhofner (2004) is careful to point out that this was not the beginning of OT, because OT in one form or another had evolved and was refined by practice over many years.

The women’s OT department of Bloomingdale Hospital in White Plains, New York opened in 1917 and in the first year, training in horticulture was introduced (Tereshkovich, 1973). The horticultural ties to occupational therapy were further strengthened in 1936 when the British Association of Occupational Therapists (BAOT) formally acknowledged the use of horticulture as a specific treatment for physical and psychiatric disorders (McDonald, 1975). In 1942 the Milwaukee Downer College, the first college to award a degree in occupational therapy, was also the first to offer an accredited course in horticulture within the occupational therapy program (Tereshkovich, 1973).

In the 1950s, social worker and occupational therapist, Alice Burlingame, developed a program with Eleanor McCurdy, an occupational therapist at Pontiac State Hospital, which they described as horticulture therapy. Burlingame, in collaboration with Michigan State University, also developed the first text in horticultural therapy, published in 1960 (Lewis, 1996).
2.7.6. The Menninger Clinic

The ongoing development of OT was closely associated with the Second World War (1939-1945), when thousands of soldiers and war veterans required rehabilitation for both physical and mental health conditions. This was a fertile field for the development of new therapeutic interventions and the Menninger Clinic in the USA was a leading provider of therapy programs at this time.

The development of modern horticultural therapy is often attributed to Karl Menninger, an influential American psychiatrist. Menninger began working in greenhouses and outdoor gardens with Second World War veterans. Patients were those who “experienced physical and emotional problems” and Menninger believed that horticulture “promoted work, social, and cognitive skills” (Levin, 2007, p.14).

Levin (2007) follows the premise already expressed by Van Atta et al. (1980) and Sempik et al. (2003), describing Menninger’s therapy as largely occupation based. Levin (2007), however, considers that Menninger may have been the first to recognise the social and cognitive value of horticulture as a therapy.

The real credit for developing the horticulture program at the Menninger Clinic, in Kansas, USA, lies with Rhea McCandliss. After working with Menninger at the Topeka army base where she was the head gardener and Menninger the base director (Gerlach-Spriggs et al., 1998), McCandliss followed Menninger into therapy work. Later, McCandliss assisted with the development of the first undergraduate horticultural therapy program at Kansas State University in 1971 (Simpson & Straus, 1998).

Although the Menninger Clinic is widely referred to as the original provider of HBT, disappointingly there is little past or present reference in the literature to the function of the therapeutic horticulture program, the patient group or any specific outcomes. The limited literature only gives reference to Menninger as the provider of therapeutic horticulture without any real depth of understanding about what this meant. The reference to flower and vegetable beds and a greenhouse, along with McCandliss’s later efforts, is the best
evidence that HBT occurred at the Menninger clinic (Simpson & Straus, 2003).

The Menninger Clinic is also referred to as an early provider of Art Therapy (Ford-Martin, 2009) and Music Therapy (Bright, 1999). Therefore, while the Menninger Clinic had a role in the development of horticultural therapy, it was not exclusive of other options.

2.8. HBT in Australia

The history of HBT in Australia is not as well recorded as that in USA and knowledge about its development is equally vague. Few references to HBT in Australia are available and those that exist are generally authored by only a handful of contributors. This has necessitated the accumulation of information from a range of formal sources and some informal sources such as newspapers, magazines and brochures, as part of this review.

2.8.1. Early Years

Although there is little record of the early years of HBT activities in Australia, the available information indicates that its origins were similar to other countries. According to Aldous (2000), HBT in Australia commenced in the 1850s when hospital farms such as Callan Park in Sydney, New South Wales and Wilsmere Hospital in Kew, Victoria, started garden allotments. While horticulture activities were more often for the benefit of the institution in the way of food production than for the patient, there was general agreement that farming, gardening and general outdoor work were beneficial for many patients (Aldous, 2000).

The events presented in Table 1 illustrate some similarities to the early years of HBT development in other countries but in the later years the formality of accreditation, education and the formation of representative associations did not occur in Australia as it did elsewhere.
Table 1

Timeline of Key events relating to HBT in Victoria

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>1850s</td>
<td>Callan Park (Sydney) and Willsmere Hospital Kew, Victoria, use gardening to assist patients</td>
</tr>
<tr>
<td>1909</td>
<td>Deaf and Dumb Society opens a farm at Blackburn, Victoria to grow flowers</td>
</tr>
<tr>
<td>1910</td>
<td>Cyril Everett Isaac establishes the Victorian State Schools Horticultural Society</td>
</tr>
<tr>
<td>1913</td>
<td>Victorian State Schools Nursery established</td>
</tr>
<tr>
<td>1914-1918</td>
<td>World War 1- First rehabilitation of Australian soldiers using garden based activities</td>
</tr>
<tr>
<td>1939-1945</td>
<td>World War 2- OT is increasingly used for the rehabilitation of service personnel, including garden based programs</td>
</tr>
<tr>
<td>1960s</td>
<td>The counterculture movement increases the interest in the environment</td>
</tr>
<tr>
<td>1970s &amp; 80s</td>
<td>Environmental activism spreads through the Victorian community</td>
</tr>
<tr>
<td>1978</td>
<td>Queen Elizabeth Geriatric Centre, Ballarat, and the Knox Centre accredited as the first users of HBT in Victoria</td>
</tr>
<tr>
<td>1979</td>
<td>Kevin Heinze Garden Centre opens in Doncaster, Vic</td>
</tr>
<tr>
<td>1980</td>
<td>George Vowell Centre for the Blind opens including a HBT garden</td>
</tr>
<tr>
<td>1982</td>
<td>David Aldous presents the therapeutic value of horticulture to the Health Commission of Victoria</td>
</tr>
<tr>
<td>1982</td>
<td>Ilma Leaver Centre opens, Coburg, Vic</td>
</tr>
<tr>
<td>1982</td>
<td>The Banksia Centre opens, Canberra</td>
</tr>
<tr>
<td>1982</td>
<td>the Horticultural Therapy Association of Victoria is established</td>
</tr>
<tr>
<td>1985</td>
<td>Smith publishes &quot;Therapeutic Horticulture: a Growing Field&quot;</td>
</tr>
<tr>
<td>1992</td>
<td>Victorian State Schools Nursery closes</td>
</tr>
<tr>
<td>1993</td>
<td>Banksia Centre closes</td>
</tr>
<tr>
<td>1990s &amp; 00s</td>
<td>HBT loses favour as drought impacts on water availability</td>
</tr>
<tr>
<td>1996</td>
<td>Dr Ashley Craig and colleagues at the University of Technology, Sydney, conduct a study that concludes that plants in hospitals aid recovery</td>
</tr>
<tr>
<td>2002</td>
<td>Launch of Healthy Parks Healthy People Literature Review</td>
</tr>
<tr>
<td>2005</td>
<td>Ian Forbes designs the largest healing garden in Australia for the Queen Victoria Hospital, Adelaide, South Australia</td>
</tr>
<tr>
<td>2006</td>
<td>The &quot;Dubbo Study&quot; finds that gardening is one of the most effective ways to prevent the onset of Dementia</td>
</tr>
<tr>
<td>2006</td>
<td>Royal Talbot Rehabilitation Centre introduces horticultural therapy as part of the clinical process</td>
</tr>
<tr>
<td>2006</td>
<td>Townsend and colleagues publish “Feel Blue? Touch Green” with the message that nature-based activities can assist the treatment of depression.</td>
</tr>
<tr>
<td>2006</td>
<td>Rayner states HBT in Australia is still dominated by small groups and dedicated individuals</td>
</tr>
<tr>
<td>2011</td>
<td>Ilma Lever Garden Centre closes</td>
</tr>
<tr>
<td>2011</td>
<td>The new Royal Children’s Hospital opens in Melbourne featuring planned views of parkland and green spaces and children’s gardens</td>
</tr>
<tr>
<td>2012</td>
<td>The Australian Institute of Landscape Architecture presents the Bloom Healthy Spaces Exhibition. Kevin Heinze Garden Centre is an exhibitor</td>
</tr>
<tr>
<td>2012</td>
<td>The Kevin Heinze Garden Centre is notified that the current lease will expire in the near future. Relocation is planned</td>
</tr>
<tr>
<td>2012</td>
<td>A new site is secured by Kevin Heinze Garden Centre</td>
</tr>
</tbody>
</table>

2.8.2. OT development in Australia

The development of therapeutic horticulture programs in Australia followed similar patterns to those in England and the United States (Sempik et al., 2003; Van Atta et al., 1980). The most significant factor was the development of occupational therapy programs during the Second World War (1939-1945), providing therapy for rehabilitating soldiers (Aldous, 1998). However, unlike in the UK and USA, there were few Australian soldiers reporting “shell shock” or war trauma. Tyquin (2006) puts this down to distance, the stoic nature of the Australian “digger” and the stigma attached to mental illness.

Nevertheless, Occupational Therapy Australia, Western Australia’s website (OTAUSWA, 2000, np) states that “occupational therapy was first practised in Western Australia in 1942 during the Second World War at the 110th Military Hospital”. A number of newspapers at the time including The Advertiser (Adelaide), the Tasmanian Mercury (Hobart) and The Argus (Melbourne) reported the use of the “comparatively new” medical science known as occupational therapy. Occupations that were described included working on the grounds, vegetable gardening and other tasks to “occupy the mind usefully” (Tasmanian Mercury, 1942, np). The development of modern OT emerged from these early applications and OT is now a well-established element within health and medical services in Victoria.

2.9. Horticulture in health care

The following section looks at the emergence of HBT from the early 1980s. Among the issues to be explored will be the start of the legitimacy of HBT and how it can be integrated into medical practice. This section will also explain healing gardens and their role in health facilities.

2.9.1. “The view through a window”

In the 1970s, pharmaceutical advancement could have ended the use of gardens for human health (Ban, 2001; Moncrieff, 2002). However, at the same time as drug therapy reached medical refinement, interest in the healing aspects of nature also increased (Kaplan & Kaplan, 1982). This interest was supported by emerging evidence of the value of healing gardens and the influence of natural views on health. Most authors attribute the “natural view”
movement to Roger Ulrich (1984) and his study entitled “View Through a Window May Influence Recovery from Surgery.”

Ulrich (1984) was investigating aspects of environmental aesthetics in architecture and the impact on emotional wellbeing and physiological stress. Ulrich (1984) stated at the time that he was interested in the subject, but had no practical applications in mind. This changed when he observed the hospital records of cholecystectomy patients to determine whether a room with a view assisted recovery. In his observations of these patients Ulrich noted:

Twenty-three surgical patients assigned to rooms with windows looking out on a natural scene had shorter postoperative hospital stays, received fewer negative evaluative comments in nurses' notes, and took fewer potent analgesics than 23 matched patients in similar rooms with windows facing a brick building wall (Ulrich, 1984, p.420).

This could be said to be the beginning of a new relationship between health and nature where even a view of a natural scene was recognised as benefiting human health. More recently Kahn, Friedman, Gill, Hagman, Severson, Freir, Felman, Carrere and Stolyar (2008) tested the restorative effects of a view from a window by comparing it with the benefits of a view of a giant plasma screen linked live with a high definition camera recording the exact same view visible though the same window. The findings of Kahn et al. (2008) supported Ulrich (1984), when the view of the plasma screen showed no benefit for the subject group. To measure the effects, Kahn and colleagues monitored the heart rate of 90 participating students recorded as they performed a range of challenging physical and cognitive tasks. Kahn et al. (2008, p.2) found “in terms of heart rate recovery, students who sat opposite the plasma window showed no benefit at all” while the students who sat opposite the real window recovered more quickly. The results of this experiment were considered to be consistent with past research which supports the view that natural scenes provide benefits such as reducing stress (Kahn et al., 2008). However, Kahn and colleagues caution that their experiment should be considered in the context of its limitations such as: the technology did not present a scene as clearly as the view without technology
as mediator, and that the participating students knew the plasma view was not real.

Although there are similarities with the work of Kahn et al., Pretty, Griffin, Peacock, Hine, Sellens and South’s (2005) earlier study of the benefits of exercising in green environments used a different technique. Here the scenes compared were both technology-mediated. At the University of Essex, Pretty and colleagues (2005) used exercise bicycles facing rural and urban photographic scenes projected onto a wall to measure heart rates and emotional responses. In this study, pleasant rural scenes had the greatest effects in reducing blood pressure and increasing self-esteem (Pretty et al., 2005, p.31). The improvement in mood, however, was less convincing, with pleasant rural views and pleasant urban views having a similar effect on mood (Pretty et al., p.30).

This may be explained by the participants’ activity. In the Kahn et al. study, participants were deliberately given cognitively stressful tasks to perform as part of the experiment. In the Pretty et al. study, the participants were under the physical stress of riding a bicycle but not subject to imposed cognitive stresses.

Providing natural views as part of health facility design has continued to grow in popularity. Even in Australia, a country that has come late to the HBT party, hospitals are being built with natural views. Ian Forbes, the designer of (what he describes as) “the largest healing garden in Australia”, at the Queen Elizabeth Hospital, Adelaide, South Australia, refers to Ulrich’s contribution and Wilson’s Biophilia Hypothesis as inspirations for the development of this garden (ABC, 2008).

The view only goes so far according to Relf (2006) who favours healing gardens that are more interactive. Relf (2006) maintains that “Ulrich and others focused primarily on the environment in the treatment setting”, where the benefits happened through the observation of nature rather than the interaction with nature. Relf (2006) considered that far greater outcomes occur when humans interact with “prominent amounts of real nature content such as green vegetation, flowers, and water” and that this interaction, according to Relf, “should have beneficial effects on the majority of its users” (Relf, 2006, p.5).
2.9.2. User centred practice
The acceptance of non-medical approaches to health may owe much to the work of clinical psychologist Carl Rogers who coined the phrase "client-centred" in the 1950s for various forms of therapeutic practice (Stewart, 2001). Boeree (2006, p.6) claims that Rogers “felt that the therapist should not lead the client but the client should say what is wrong and find ways of improving”. According to Boeree (2006), this “non-directive theory” allows the client or patient to develop their own independence and self-direction beyond the clinical environment.

The move towards patient-centred treatment was a step towards “sensitivity to nonmedical and spiritual dimensions of care in the built environment that provides a supportive and nurturing physical space and is designed for patients, families, and employees alike” (Shaller, 2007, p.1).

According to Ulrich (2006) and others, natural settings help to heal and improve the health of people in the alien and often stressful environments of hospitals. Providing acknowledgment that gardens have a role to play in health systems, in 2001 the Joint Commission on Accreditation of Healthcare Professionals (JCAHO), the leading accrediting health care body in the USA, presented a special achievement award to the Legacy Health System for their commitment to the psychological well-being of their patients by providing specific gardens for patients (Epstein, 2002).

2.10. Healing gardens
“Healing garden” is a broad, collective term for different types of gardens that are purposely designed to promote human health. Under this heading are specific types of gardens, such as gardens for veterans (Kirk, Karpf & Carman, 2010), hospice gardens (Sadler, 2007), rehabilitation gardens (Rusk, 2012; Währborg, Peterson & Grahn, 2014), hospital gardens (Ulrich, 2006) and therapy gardens (Stigsdotter, 2005).

2.10.1. The “loss” of healing gardens
When Tian (2005) reviewed the history of therapeutic gardens in China he found that the earliest documented was Bei Tian Yuan, which was established in 717A.D. as part of the first public hospital in ancient China.
Healing gardens were also associated with early Japanese (Furgeson, 2007) and Egyptian (Myers, 1998) health treatments. Healing gardens developed further in the early 1900s when occupational therapy became accepted as an effective treatment method (Atta, Roby & Roby, 1980; Sempik et al., 2003). As OT progressed, so too did healing gardens, being particularly valued as an environment to assist recovery (Simpson & Straus, 2003). However, the valued status of healing gardens changed in the mid-1900s.

When discussing healing gardens, landscape architect Clare Cooper-Marcus (2005, p.1) made the point that there was disengagement between nature and medical treatment “from approximately 1950 to 1990 when the therapeutic value of access to nature all but disappeared from hospitals in most western countries”. A USA National Institute for Health (2012) report shows this was a time of rapid clinical and pharmaceutical advancement, with the development of synthetic penicillin making antibiotics and vaccines freely available, human aorta transplants being performed and ultrasound being used for prenatal care for the first time. These medical, pharmacological, and procedural advances assisted the practice of modern medicine, and recognition of the therapeutic value of nature for healing all but disappeared until the 1990s (Stigsdotter & Grahn, 2002).

2.10.2. Design elements

Healing gardens began to make a comeback in the 1990s. Drawing on historic precedents, clinical studies, and existing guidelines as well as personal experience, Eckerling (1996) described a healing garden simply as a “garden in a healing setting designed to make people feel better” (Eckerling, 1996, p.1). This rather simple statement contains two important elements; the first is “design”, and the second a focus on making people feel better. According to Eckerling (1996), the garden is designed and, therefore, is not just a random event. The garden is purpose built to allow the second of the elements to occur, “to make people feel better”. There is no suggestion that the garden will provide a cure or replace medical practice. Cooper-Marcus (2005, p.4) points out that “healing” is not synonymous with cure as “a garden cannot mend a broken leg or cure cancer”. However, according to Cooper-Marcus (2005, p.8), a healing garden may “be a way of awakening the
senses, calming the mind, reducing stress, and assisting a person to marshal their own inner healing resources”. Cooper Marcus and Sacks (2014) stress that any garden designed for health facilities must be driven by evidence. They suggest participatory design that includes medical professionals, patients, administrators, family members and staff working with designers to focus on the goals of the therapeutic space. They state that this is essential when creating a successful therapeutic garden.

Along with gardens being emotionally helpful environments, Hartig and Cooper-Marcus (2006) claim that healing gardens can provide the opportunity to assist recovery and generally improve health. According to Hartig and Cooper-Marcus (2006), gardens and the activities that occur in them can be classified as passive and active. Passive garden activities are those where there is no direct interaction with the garden. Viewing a garden through a window or walking, sitting or sleeping in the garden are passive activities. Activities such as play, exercise, gardening and sports are active elements. Healing gardens can be active, passive or both according to Hartig and Cooper-Marcus (2006).

2.10.3. Patient or person’s choice

Gerlach-Spriggs, Kaufman and Warner (1998) consider that a healing garden can only be achieved if the designers work closely with the medical profession (Gerlach-Spriggs et al., 1998). Vapaa (2002) and Cooper-Marcus (2005) agree, but add that healing gardens should also be developed with the population for which they are intended. In the case of healing garden design, the patient is an important part of this population because the healing garden is part of their recovery process (Cooper-Marcus, 2005; Vapaa, 2002). Cooper-Marcus (2005) and Vapaa (2002) believe that patients should be part of the design process and given options of choice within the garden so that they can experience a sense of control often missing in health environments. In consideration of this Erickson (2012, p.95), states in her study on restorative garden design, that a designer “should research the specific needs of the population that will be using the garden.”

It is particularly important that the person or patient should be considered and consulted when designing a healthcare environment. There
are quite different user groups that access healing gardens and their needs
are not necessarily the same. A healing garden for veterans with PTSD is not
likely to be the same as one for a paediatric cancer centre (Sherman, Varni,
Ulrich & Malcarne, 2005; Anderson, 2011). Bearing this in mind, opportunities
for greater involvement of patients and others in healing garden design should
be encouraged so that healing gardens are specific to each group’s needs.

2.10.4. Healing garden assessments
Gardens by their very nature change over time and the use of healing
gardens can also transform. Therefore the cost and benefits of including
healing gardens into healthcare environments needs regular review according
to Sherman, Varni, Ulrich and Malcarne, (2005). They suggest that the
purpose and function of healing gardens should be regularly assessed to
ensure that the gardens are serving the needs of the user group. This view
came about after assessing the healing gardens at Rady Children’s Hospital,
San Diego where they found the gardens were no longer being used in the
way they were intended.

Carley’s Magical Garden, located in the paediatric cancer centre at
Rady Children’s Hospital was opened in 1999. Comprised of three separate
garden areas it was designed to provide a “soothing, calming healing space
for patients, family and staff” (Sherman et al., 2005, p.4). During their
evaluation of Carley’s Magical Garden, Sherman and colleagues (2005, p.13)
were surprised by the extremely low incidence of use by patients and visiting
children. They considered this finding important because the gardens were
specifically designed for these children. After investigating this anomaly
Sherman and colleagues (2005) concluded that the level of participation by
children had declined because of the way the children’s medical conditions
were managed. As medical management changed, oncology became largely
provided as an outpatient or home treatment “therefore only the most
seriously ill children receive treatment in hospital” (Sherman et al., p.14). In
most cases Sherman and colleagues (2005) found that the children in the
hospital were too ill to participate in outdoor activities. Adult family members
still used the gardens as did hospital staff but the main purpose of the
gardens was gone.
From these observations, Sherman and colleagues (2005) concluded that hospitals providing healing gardens should be aware of the need to regularly assess the use of the gardens to ensure they remain relevant and functional. This would also provide an opportunity to introduce new design elements based on the evidence provided by the user groups as suggested by Cooper-Marcus, (2005) and Vapaa, (2002)

2.10.5. The case for hospital gardens

It would be easy to say that all medical facilities should include aspects of HBT, including healing gardens in their design. However, a study by Mourshed and Zhao (2012) considered this in the context of the priorities of the health systems and economic and cultural conditions in China. It was found that the priorities were different to Western health facilities.

When assessing the design preferences of nurses, doctors and hospital administration staff, Mourshed and Zhao (2012, pp.363-367) found that “indoor plants and interior/exterior landscaping” were “considered to be of low importance”. According to Mourshed and Zhao’s (2012) survey of healthcare providers and administrators in two large Chinese hospitals, the physical and environmental aspects that mattered most were those that had immediate impact on people and their health. Mourshed and Zhao (2012, p. 367) said that the widely reported positive aspects of plants and gardens in healthcare should be considered as part of “the integrated whole”. Those elements most valued by the participants in their study included cleanliness, comfort, air quality, noise, thermal comfort and other environmental aspects. Mourshed and Zhao (2012) recognised the value of healing gardens, plants and nature but considered the priority needs were hygiene and patient comfort.

Hartig and Cooper-Marcus (2006) found that healing gardens in modern Western hospitals can also arouse controversy when “scarce resources” are allocated to provide healing gardens. Such conflicts highlight the argument between “real” medicine and what some would call “alternative” health. Hartig and Cooper-Marcus (2006) make the point that administrators and medical staff may indignantly claim “why a garden, of all things, instead of
another MRI machine when people have to wait so long for a scan” (Hartig & Cooper-Marcus, 2006, p.3).

Ulrich (2006) provides a counter argument, stating that good design of a hospital physical environment promotes better clinical outcomes, increases safety, and reduces stress for both patients and staff. Ulrich (2006) suggested the inclusion of single rooms, high daylight exposure and “a view of nature” to reduce stress, depression and pain. According to Ulrich (2006) this would add 5.3% to the initial cost to build a hospital but his could be recouped in one year (Ulrich, 2006). Taking this further it could be said that healing gardens are a good investment, if you have the funds to invest.

2.10.6. Some benefits provided by healing gardens

Healing gardens are becoming increasingly popular and are now provided for a range of different populations including veterans (Kirk, Karpf & Carman, 2010; Mitrione, 2012), people with mental illness (Sempik, 2007; Währborg, Peterson & Grahn, 2014), disadvantaged children (Chase, 2000), patients in hospitals (Gerlach-Spriggs & Wilson, 2002) and people with dementia (Morgan, 1999).

Clare Cooper-Marcus (1994), an early proponent of healing gardens, considered the healing garden as a way of balancing human emotions and feelings while being a source of sensory and visual stimulation. This occurred by drawing the focus of attention away from the individual and evoking a change of mood to calmness and balance (Cooper-Marcus, 1994, p.24). According to Gerlach-Spriggs and colleagues (1998) a healing or restorative garden should “evoke rhythms that energise the body, inform the spirit and ultimately enhance the recuperative powers inherent in an infirm body or mind” (Gerlack-Spriggs et al., 1998, p.3). This was demonstrated by Währborg, Peterson, and Grahn, (2014) when they compared a group of patients diagnosed with severe stress and/or depression in a garden based program, with a control group from the general population. They found that there was “a significant reduction in the healthcare consumption among participants compared to the reference population” (Währborg, Peterson, & Grahn, 2014, p.271).
In the USA, where healing gardens have a long history, the benefits of a healing garden were described by Sherman, Varni, Ulrich and Malcarne (2004, p.3) as relating to a natural space where “physical symptom relief, stress reduction, and/or improvement in one’s sense of well-being can occur though passive or quasi-passive activities, such as listening, strolling, sitting, or exploring in that space”. While the description of a healing garden provided by Sherman et al. (2004) suggests such gardens may have a much narrower focus than the more obvious environmental factors described in the study by Mourshed and Zhao (2012), nevertheless healing gardens can provide an opportunity to give some control back to the patient and offer a gentle affirmation that there is life outside hospital and medical systems.

Gerlack-Spriggs and Wilson (2002) considered a healing garden should be essentially a medical concern, with the same standards as other medical practices. Where the medical professional may ask if the patient’s medication has relieved the pain or cured the disease, Gerlach-Spriggs and Wilson (2002, p.5) believe that “one should be able to ask if walking in the garden has improved strength, balance or mood”. Stigsdotter and Grahn (2002) came to a similar conclusion, considering the overall wellbeing of the individual was equally important as curing the illness where the patient experiences a personal feeling of recovery (Stigsdotter & Grahn, 2002).

Although Burton (2014, pp.446-447) provided a broad summary of healing gardens in The Lancet Neurology, and many convincing examples of the benefits of HBT, he came the conclusion that much of the future potential of healing gardens rests on “whether they can reduce health-care costs”. Commenting on the “initial research”, including that by Ulrich (1984) and others, Burton (2014, p.447) suggests that if the widely claimed benefits of HBT are proven to be “real”, then there may be a time when “prescribing time in the garden might be nothing unusual at all”. This suggests that there is still much work to be done to convince the health and medical sectors that HBT is “real”. Some of this convincing may come about by highlighting the breadth of HBT programs in health and community settings.
2.10.7. HBT and veterans’ programs

HBT is historically tied to recovery and rehabilitation programs designed to assist people who have been affected by war and conflict (s.2.7.5; s.2.7.7). The positive impact of gardens and gardening on the health of individuals involved in conflict has been recorded from the First World War (1914-1918) to present times.

2.10.7.1 Gardening Leave

Gardening Leave was established in South Ayrshire, Scotland in 2007 to enhance the therapeutic experience of ex-military personnel with combat related mental health problems. Hosted by the ex-services mental health welfare society, Combat Stress, Gardening Leave provides complementary clinical and non-clinical rehabilitation using HBT (Atkinson, 2009).

In the UK, the National Health Service has a Service Framework to establish a quality standard for health services. Under this framework there is a mental health standard to determine the quality of service provision. Jacqueline Atkinson, Professor of Mental Health Policy at Glasgow University, used this standard when evaluating the Gardening Leave program in 2009.

Atkinson found that there were positive therapeutic benefits of using HBT in line with the UK national standards for improvement in mental health. The foremost mental health disorders identified during the evaluation of the veteran population in the Gardening Leave program were substance abuse (alcohol/drugs/tobacco), psychiatric disorders including clinical depression, bipolar illness, psychotic conditions, obsessive-compulsive disorder and behavioural problems associated with PTSD (Atkinson, 2009, p.9).

The evaluation provided by Atkinson illustrated that Gardening Leave was able to assist veterans by giving structure to the day (often missing for many veterans). There were also psychological benefits to the program including participants having better levels of concentration, less stress, improvements in mood, and providing a sense of pride and achievement while generally improving participant health and fitness (Atkinson, 2009). Atkinson (2009) found that the program was particularly helpful for veterans with PTSD. Atkinson’s evaluation shows no evidence of bias but it would be beneficial to
have this type of assessment replicated in a range of veterans programs, with or without HBT.

2.10.7.2. Things to consider regarding Veterans and HBT

There are over 26 million people who are part of the veteran population in the USA. Not only is this population growing, it is also ageing (Kirk, Karpf & Carman, 2010). Kirk, Karpf and Carman (2010, p.73) suggest that sensitively designed HBT environments can help support the demands of ageing veterans in long-term and geriatric care. It is not only in aged care that HBT is growing. Green spaces, gardening and healing gardens have the potential to fill the need for healing, socialisation and recreation in long-term rehabilitation (Kirk, Karpf & Carman, 2010). In response to this need, Veterans’ Affairs in the USA have begun to implement healing gardens in veteran’s facilities across the country where there is “a growing appreciation of the use of therapeutic green spaces” (Kirk, Karpf & Carman, 2010).

Brock Anderson (2011, p.50) in his exploration of healing gardens for veterans found there were many obstacles to overcome when setting up a healing garden for veterans. Scepticism, lack of funds and disagreements about the design had to be resolved, along with practical considerations such as security and maintenance. He suggests that before well-meaning people start a healing garden they first need to educate and inform the population about the benefits of healing gardens.

There are no formal studies about the use of HBT for veterans in Victoria/Australia. With the growing evidence of the value of HBT and support coming from researchers and veterans’ organisations in other countries, there is a need to further explore these options for veterans in Australia.

2.11. HBT programs in different settings

Since Ulrich, many others have shown that patients respond well when there is a connection or access to the natural world (Ulrich, 1984; Shaller, 2007; Kahn et al., 2008). Patients recover faster (Ulrich, 1984), staff are less stressed (Sherman, Varni, Ulrich & Malcarne, 2004) and there is a positive financial outcome for hospital administrators (Ulrich, 2006; s.2.10.4) Further to this, there is growing evidence that not only can healing gardens benefit
patients in recovery but plants themselves provide healing qualities in clinical and non-clinical environments.

2.11.1. Plants and HBT for health outcomes

In one of the few Australian studies on plants in health environments, Burchett and Wood (1994, p.6) referred briefly to a pilot project in which colleague, Dr. Ashley Craig, a clinical psychologist, tested “whether the presence of indoor plants in a hospital room can help speed recovery”. Although this was a small study with limited results, Craig found “that the indoor plants affected alpha waves as well or better than other objects, and that the effect was on the right-hand side of the brain, that is the artistic, creative, intuitive side of the brain” (Burchett & Wood, 1994, p.6).

In a more recent study into the benefits of plants for office workers Burchett, Torpy, Brennan and Craig (2010) found that there was a 50% to 65% reduction of negative mood states when workers were in the presence of plants. Burchett and colleagues (2010) also found that just one plant in an office can provide this benefit. This study was limited in numbers and compliance of the control group (no plant) was poor. Burchett et al. (2010, p.34) described the “no plant” group as “less engaged” in the project than those with plants which they described as a “finding in itself”.

Park (2006) conducted a far more extensive study on the value of plants in hospital rooms. Park’s study, conducted in two suburban hospitals in Korea, tested the theory that ornamental plants could be used to improve patient outcomes for patients recovering from surgery. To achieve this, Park (2008) conducted three clinical studies in two hospitals involving 160 patients, collecting data on the length of hospitalisation, analgesics used, vital signs (blood pressure, heart rate, temperature and respiratory rate) and ratings of pain intensity, pain distress, anxiety and fatigue. Park (2008, p.76) found that patients in rooms with plants experienced significantly reduced levels of pain distress, pain intensity and anxiety, while fatigue recovery was quicker and days of hospitalisation were less.

The evidence to support use of horticulture in rehabilitation was strengthened by Verra, Angst, Beck, Lehmann, Brioschi, Schneiter and Aeschlimann (2012), who studied the response when horticultural therapy
was added to pain management programs for patients with chronic musculoskeletal pain. The results, although limited by process, time and short term measurement of score changes (4 weeks), showed positive outcomes (Verra et al., 2012). These outcomes included an improvement in “physical health, coping ability and health related Quality of Life (QOL) for people with prolonged pain related disability” (Verra et al. 2012, p.49).

Mizuno-Matsumoto, Kobashi, Hata, Ishikawa and Asano (2008) recorded a different experience when they tested the beneficial effects of horticultural therapy on patients with cerebrovascular injury. They found that, although patients showed no real improvement in mood after horticultural therapy, there was improvement in sensory perception, in particular the visual and colour processing areas (Mizuno-Matsumoto et al., 2008). Whether this mixed result occurred because of the limitations of the program or that Mizuno-Matsumoto et al. (2008) were working with a group with damaged cognitive functioning due to their injury, is not known or explained.

2.11.2. Gardening for health outcomes

There are numerous benefits attributed to HBT, Leith (2006) for instance considers wellbeing, self-esteem and integration are often outcomes of HBT programs. Supporting Leith’s (2006) view from a disability perspective, Bardach (1975) suggests a person with a disability may adapt to their limitations but their confidence grows when horticulture provides tangible results. When this is achieved as part of a group this can encourage interaction, communication and integration as a result.

This was demonstrated when Sempik, Aldridge and Becker (2005) assisted vulnerable people in a garden-based HBT project over a three year period. This project placed adults who were disadvantaged by disabilities or socially excluded due to mental health disorders, into a number of different horticulture-based activities. The project supported 137 participants with physical or cognitive disorders in 24 garden projects across the UK. According to Sempik et al. (2005, p.5), the horticulture activities had a positive effect, including building “a closer relationship between vulnerable (socially excluded) and non-vulnerable members of society”. Sempik et al. (2005) reported that engaging in horticultural activities was empowering for most of
the participants. Those with a socially isolating condition such as mental illness were able to create a common link with others in the community through participation in these groups. This in turn provided “an opportunity for self-reflection, relaxation and restoration and promoted self-confidence” (Sempik et al., 2005, p.5). Sempik et al. (2005) not only reported on individual programs and their effectiveness, they also state that they witnessed a general improvement in the physical and mental health of participants.

Jon Fieldhouse (2003) also noticed similar outcomes while studying the social aspects in allotment gardening in the UK. Fieldhouse (2003) found that the elements of nature, gardening and social interaction enhanced wellbeing and provided a sense of personal agency for people with or without a disability. Supporting this, Sempik et al. (2005, p.2) acknowledge that people with disabilities and mental health disorders have been the focus of STH but that it is now used across the UK to promote social inclusion, and health and wellbeing for a wider range of community, social and cultural groups. Sempik et al. (2005), in summing up the benefits of STH, state that there is a social and psychological gain similar to paid employment. Supporting this further, Sempik and Aldridge (2005, p.159), found that as well as providing a restorative experience, STH “can provide social opportunities, a sense of identity and status and engagement”.

Parker (2004) had a similar experience in the Sunflowers project in Nottingham, England. Participants in this program were engaging in HBT because their enduring mental health issues meant they could not access the wider community. Parker (2004) considered gardening to be one way to provide a reality-based program that had the added benefits of socialisation, nutritional education and “experiencing the pleasures of nature”. This occurred in an environment where social isolation meant “some residents had difficulty accessing groups away from their unit and limited opportunity to be outdoors” (Parker, 2004, p.20). Parker (2004) reported the experience of gardening at Sunflowers as “calming” while providing opportunities for creativity and self-expression.

Although there are considerable similarities in the outcomes when discussing groups of disadvantaged people who participate in HBT, Parkinson, Lowe and Vecsey (2011) make the point that all people are unique
and this diversity should be considered when assessments are made. Working with people with mental health disorders, Parkinson et al. (2011) found that there were different responses depending on the gender balance and the level of involvement of individuals. Parkinson et al. (2011, p. 531) also found that people with mental health disorders “by their very nature, were not as socially inclusive” as those who do not have mental health disorders. However, Parkinson et al. (2011) did find that positive social interactions were consistent across all groups when participants were engaged in HBT.

2.12. HBT in other countries

It is not feasible to present all of the current and diverse global HBT programs in this review but an attempt has been made to provide a sample of practice in some countries.

2.12.1. Some global examples of HBT

Although the USA and the UK are most often associated with HBT, therapeutic horticulture is widely used in many other countries. In Sweden, for example, Abramsson and Tenngart (2006) describe horticultural therapy being available to a growing number of target groups including those on long term sick leave, people out of work and those needing cognitive training. Abramsson and Tenngart (2006) also describe increasing interest from aged care facilities, mental health care programs and programs for those with various disabilities. In Denmark, Corazon, Stigsdotter, Jensen and Nilsson (2010) describe the development of a healing forest designed to assist the recovery of people with stress related disorders. In the Netherlands, van den Berg, Winsum-Westra, de Vries and Van Dillon (2010) conducted a qualitative study of allotment gardening and found that it can contribute to an active healthy lifestyle, especially for elderly residents. In Denmark, the encroachment of building development on allotments is seen as a public health issue and, as a result, allotment gardens are now protected by legislation (van den Berg et al., 2010).

In Asian countries, the interest in HBT varies from country to country but Pfeffer, Deyton and Fly (2009, p.28) report that HBT is “more advanced and interest more widespread in Korea and Japan”. Pfeffer, Deyton and Fly (2009, p.28) consider this level of interest is due to both countries actively
researching HBT and to an increase in the number of elderly residents requiring physical and psychological interventions. According to Toyoda (2012), HBT was introduced into Japan by Setsuko Grosse a therapist who had studied HBT in the USA in the 1990s. Unlike the USA, the pathway to the widespread use of HBT in Japan was not exclusively through the health or medical sector, but it was “introduced and spread by citizens who learned and were interested in it” (Toyoda, 2012, p.53).

As an example of how HBT can emerge in developing nations, agricultural scientist Narong Chomchalow (1997, p.4) was working in South East Asia and assisted disadvantaged communities in rural areas by providing “gardening because it certainly helps the gardeners both physically and mentally”. Chomchalow was impressed by both the capability of the workers with disabilities and the benefits to health and wellbeing provided by garden work. He noted that there were “numerous reported cases of the therapeutic value of gardening, stressing the healing qualities of gardening, particularly for those who are being disturbed by disability, chronic illness, or other mental disturbances” (Chomchalow, 1997, p.4).

In a more dramatic account of the ultimate belief in the healing power of gardens for communities, Allam (2006) reported that in the face of the ongoing conflict in Iraq after the fall of Saddam Hussein in 2003, park workers defied personal risk to replant public parks. Allam (2006) states that even after 30 park workers were killed doing their job in 2006 they continued, defiantly “planting two million flowers, shrubs and trees. This, they declared, “is the right time for flowers” (Allam, 2006, p.7). Sadly Allam may have spoken too early as conflict has once again returned to Iraq.

The literature has shown that HBT is in different stages of development in different countries. Some countries, such as the United States, are ahead of others in developing formal qualifications, professional training, national accreditation and clinical and non-clinical applications of horticulture as a therapy (Relf, 2006; Pfeffer, Deyton & Fly, 2009). In other countries, such as Sri Lanka, Italy, Bosnia, and even in Australia, HBT is still emerging. Some examples will explored in the next section.
2.12.2. Sri Lanka and the Butterfly Peace Garden

According to Fernando (2004), people with mental illness in Sri Lanka were once described as pissas or “mad ones”. Now some are engaged in work as part of a horticulture project. Fernando (2004) describes this project as one way of preparing the mentally ill to socially and emotionally recover and be able to return to their community. Fernando (2004) also describes how the project initially started with patients just working on the gardens around their wards. The observed benefits to the patients were so profound that it prompted the director of the hospital to expand the program (Fernando, 2004, p.2).

Another HBT program in Sri Lanka provides children with the opportunity to recover from the impact of civil war. The Butterfly Peace Garden, based in Batticaloa, is an independent organisation supported by local and international care agencies. One of the founders of the Butterfly Peace Garden, Dr Robbie Chase (2000) from Canada’s McMaster University’s Centre for International Health, states that in 1996 the peace garden was created specifically to assist war affected children. Chase (2000) in his presentation at the Conference on War Affected Children described the Butterfly Peace Garden as a place where “children can heal and become healers within their communities” (Chase, 2000, p.2). According to Chase (2000), 95% of the children in the Butterfly Peace Garden program had direct experience of death. Chase’s colleague Joanne Santa Barbara (2004) asserts that one in five of these children had PTSD.

According to both Chase (2000) and Santa Barbara (2004), the Butterfly Peace Garden plays an important role in the rehabilitation of the participating children by involving them in activities that reunite them with their childhood and culture. Chase (2000) and Santa Barbara (2004) consider the Butterfly Peace Garden as rehabilitation for participating children but also as a peace building and reconciliation measure at the community level.

The Butterfly Peace Garden was modelled on the Spiral Garden in Toronto, Canada, an integrated, outdoor, art, garden, and play program that runs each summer at Bloorview MacMillan Children’s Centre (BMCC). According to those at BMCC (2005), the purpose of the Spiral Garden is to assist the rehabilitation of children affected by trauma or disability. One
difference between the Butterfly Peace Garden and the Spiral Garden is that the latter has a strong environmental message. Central to the Spiral Garden’s operation are the patterns, processes, and rhythms of the natural world which are said to provide the context for healing (BMCC, 2005, p.2).

2.12.3 Garden culture and HBT in Italy

The position of HBT in Italy is different to most European countries but shares many similarities to Australia. The depth of information available was scarce and what information was available was found and translated from internet searches. These were not journal articles or books but rather in the form of brief reports or newsletters without details and should be considered in that context.

Like Australia, Italy has an established culture of gardening. It was the first country to establish botanic gardens and now boasts 30 across the country (Attlee & Ramsey, 2006). The main garden activities among the general Italian population focus on the production of food or fragrances (Attlee & Ramsey, 2006). The culinary connection is well known, with wine and Italian cuisine often being a product of horticultural practice.

HBT in Italy is not well known. The organisation Orti didattici (2007) describes Italy as having very little horticultural therapy. Zerbini (1997) described the practice of HBT in Italy as “random”. This lack of HBT formality was also reported by Ferrini (2001) who wrote of nature based health programs being new and unknown even though Kaplan and others have been presenting the benefits of nature and gardens for decades.

Zerbini, an agronomist, stated at a conference in 1997 that horticultural therapy in Italy is unsophisticated and based on episodic demands and individual sensitivities (Zerbini, 1997). Another similarity to the position of HBT in Australia is that while universities in Italy may have once included HBT in their educational programs there are none currently available (Pfeffer, Deyton & Fly, 2009). Rayner (2006) presented a similar position in Australia, with no formal qualifications in HBT available. Compared to other European countries such as the Netherlands, Germany and England where HBT is an entrenched and widely utilised health intervention, HBT in Italy is just evolving.
The population that Ferrini (2001) describes as using HBT programs includes people experiencing disability and social hardship. While the evidence of these programs is slim, it is consistent with other countries including Australia (Relf, 2006; Aldous, 2006). A recent internet search reveals most of the interest in HBT in Italy is focused on orti didattici or teaching gardens for children and social farming. Another similarity to Australia was expressed by Zerbini (1997) who states that there is a need for professional therapists to provide the HBT programs and a need for structure, organisation and coherence of accumulated experience. Rayner (2006) notes a similar position in Australia where most people involved with HBT come from non HBT occupations, including teachers, nurses and gardeners. While it might appear that HBT is not well known in Italy it appears to be informally used in a number of settings. In this way it shares some similarities to the position in Australia.

2.13. HBT in Australia

Australia has a strong gardening culture. Horticulture, and in particular gardens, are part of everyday life for many people. In Victoria gardening could be said to be even more entrenched, with the state having a rich history of public, commercial and private gardens. For many years Victoria was promoted as “The Garden State” (Culture Victoria, 2012), but the enthusiasm for gardening in Victoria is not evident in the profile and acceptance of HBT.

Where Sempik (2003) and York and Wiseman (2012) draw attention to the lack of empirical evidence of the purpose and planned outcomes of HBT programs globally, the position in Victoria/Australia is even more deficient. Because of the scarcity of both statistically valid and peer reviewed information, it has been necessary to rely on anecdotal evidence from people who have an interest in HBT, and a small number of qualitative studies.

It has been many years since Aldous (1984) urged welfare, health and community organisations to provide convincing arguments and develop programs so that the positive social benefits of horticultural therapy could be demonstrated to government and industry. Although HBT is still a part of many programs in Victoria, it has a very low profile and therefore little has been done to achieve Aldous’s aim.
There is little current evidence to explain why HBT in Australia has not followed the same pattern of emergence and sustainability that has occurred in other countries. The reports by Smith (1985), Aldous (2000) and Rayner (2006) show a consistent but informal interest in HBT. Where comparable therapies, such as Art and Music therapy, have gained in popularity and validation in Australia, HBT has not.

Over 30 years ago, Aldous described the therapeutic value of horticulture in a paper for the Health Commission of Victoria. Basing this report on studies of HBT in other countries, in particular the USA, Canada and the UK, Aldous provided three explanations for the positive influence of plants on humans. Aldous does not refer to any particular study but states that "researchers" have provided the evidence.

The first point Aldous (1982, p.2) makes is that "plants are stimulus objects for which the human perceptual apparatus is specifically primed". The second influence on humans described by Aldous (1982) is less specific, involving the stimulative aspects of nature in general. The third aspect Aldous (1982, p.2) presented was the dependence of humans on nurturing with the emphasis on the responsibility for another living thing, including plants.

Much of this seems to be influenced by Kaplan and Kaplan, in particular their book Humanscape (1978). There is some relationship between what Aldous presents as "influences" and the beginnings of ART. The "stimulative aspects" could be interpreted as attention or what Kaplan and Kaplan would later call soft-fascination. There are also elements of Biophilia (Wilson, 1984) even though Aldous's presentation occurred two years prior to the publication of Wilson's seminal article. This does illustrate that the information was available and current for Aldous and that there was enough level of interest for Aldous’s presentation to be included in the Health Commission conference in 1982. The thesis author contacted Aldous to determine the outcome of the presentation to which he replied; “to my knowledge there was no response on the Health Commissions per se and no recommendations came from it” (Aldous, personal communication 2013). The interpretation of the health and wellbeing benefits provided by Aldous shows that he was well informed and an early advocate for HBT. Unfortunately the response indicates that the Health Commission at that time were not fully
convinced by this presentation. What we know of present HBT in Victoria indicates that little has changed in terms of the status of HBT since Aldous made his original presentation in 1982.

In Victoria /Australia, horticultural therapy is a term widely used to describe all garden or horticulture-based activities that may be considered therapy. According to Aldous (2000) and Rayner (2006), HBT in Australia is based on social, recreational, vocational and observational horticulture. Smith (1985) studied HBT as a Churchill Fellow and included horticultural activities in physical rehabilitation, psychiatric programs, disability, alcohol and drug recovery programs, recreation, vocational training and employment, and accessible garden programs.

Although HBT does not have a high profile, it is said to be widely used in Victoria. Rayner (2006, np) describes HBT in Australia as “dominated by small groups and dedicated individuals” and claims that these small groups and individuals are participating in many garden-based programs. The descriptions of Australian horticultural therapy programs provided by Smith(1984), Aldous (2000) and Rayner (2006), suggest there are few practitioners that use horticultural therapy in a way that fits the description provided by the AHTA and “fewer still are clinically based programs” (Relf , 2005; Rayner, 2006, np). Although Australian HBT has similar origins to HBT in other countries, Rayner (2006, np) adds that there is “no formal certification or registration in Australia, nor is there any professional association for horticultural therapists”.

Internationally and in Australia, Art Therapy (AT) and Music Therapy (MT) have similar origins to HBT, and are sometimes provided at the same time and place to the same participant groups or patients. As shown in Table 2, the professional standing in Victoria/Australia of these complementary and at times competing therapies is not equal (Tyson, 1981; Wylie,1999; AMTA, 2011; Vick, 2011; Hensell, 2011; ANZATA, 2011; Halpen, 2011). The table gives a clear indication that HBT is not as structured or professionally represented as AT or MT.
Table 2
Comparison of current professional practice in Australia: HBT, Art Therapy (AT) and Music Therapy (MT).

<table>
<thead>
<tr>
<th></th>
<th>HBT</th>
<th>Art Therapy</th>
<th>Music Therapy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Origin</td>
<td>OT</td>
<td>Psychology</td>
<td>OT</td>
</tr>
<tr>
<td>Education standard</td>
<td>Nil</td>
<td>Master of Art Therapy</td>
<td>Master of Music Therapy</td>
</tr>
<tr>
<td>Accreditation &amp; Registration</td>
<td>No accreditation or registration</td>
<td>Practitioners can be accredited and registered by ANZATA. The ANZATA approves MT courses and will accept international AT professionals</td>
<td>Practitioners can be accredited and registered according to the rules and requirements of AMTA. The AMTA provides accreditation of courses</td>
</tr>
<tr>
<td>Research and reporting</td>
<td>Informal or individual</td>
<td>The Australian and New Zealand Journal of Art Therapy (ANZJAT). Peer reviewed journal</td>
<td>Australian Journal of Music Therapy. Peer reviewed journal</td>
</tr>
<tr>
<td>Professional practice and standards</td>
<td>Informal</td>
<td>A Code of Ethics &amp; Standards of Professional Practice for all registered AT practitioners</td>
<td>International uniform approach to practice in 40 countries. Standards of Practice and Code of Ethics apply to all registered MT practitioners</td>
</tr>
</tbody>
</table>

2.14. HBT in Victoria

The following section provides a view of the origins of HBT and some of the key individuals and organisations instrumental in its origin. Presented along with this is an overview of past and present program participation.

2.14.1. Origins

There is little evidence available relating to the origins of HBT in Victoria. An account of this history has required the author to look beyond formal literature sources such as journals and books and seek information wherever it was available. One illustration of the often opportunistic nature of this search started with a conversation between the thesis author and a delegate at the 2008 HTAV State Conference. She said that in a nearby park there was a plaque stating that the original use of the land was by the Deaf.
and Dumb Society (now Vicdeaf). Finding a link to an early example of the use of therapeutic horticulture was not entirely successful at this park. On visiting the park the only evidence (beside the plaque) was a brochure stating that the Deaf and Dumb Society purchased the property in 1909 to provide land and a residence, “Lake Park”, so the “aged, infirmed and feeble minded deaf mutes” could grow flowers and vegetables for the Melbourne Market. It is likely that this facility was based on similar hospital farm programs at the time (s.2.8.1). Although it is not recorded that the program provided by the Deaf and Dumb Society had any therapeutic aim it could be speculated that a health or wellbeing outcome may have been an outcome of this type of horticulture work (s.2.11.2).

The first institution to develop a recognised therapeutic garden in Australia was the Queen Elizabeth Geriatric Centre in Ballarat, Victoria in 1978 (Aldous, 1998). According to Aldous (1998, p.19) garden and medical staff provided areas for seated gardening and walking rehabilitation for “the confused and wandering resident”. In the same year the Spastic Society of Victoria opened the Knox Centre Wholesale Nursery, a semi-commercial enterprise that was established to provide employment for people with physical disabilities (Aldous, 1998). This program operated as a wholesale plant nursery and was established in Vermont, Victoria. Recent references to these horticulture programs have not been found. The Queen Elizabeth Geriatric Centre is now incorporated under Ballarat Health Services but neither their website nor Annual Report (2011) refers to any specific garden based programs. The Spastic Society of Victoria has since changed its name to Scope Victoria (Scopevic, 2004) and personal communication with staff at Scope indicates that the nursery was shut down after a few years.

2.14.2. The Victorian State Schools Nursery (VSSN)

The evidence of the origin of HBT provision in schools in Victoria is largely dependent on firsthand or anecdotal accounts of current and former teachers, rather than the literature. Only small fragments of information are available to identify the origins of horticulture-based programs in schools. Libby (1996) notes in the Australian Dictionary of Biography that
conservationist, Cyril Everett Isaac founded the Victorian State Schools Horticulture Society in 1910 and shortly after founded the VSSN in 1913. The VSSN could be described as an incubator of HBT, with several influential HBT practitioners including the late Kevin Heinze (founder of the Kevin Heinze Garden Centre (KHGC) and 2 informants in this study, all working at the VSSN in the 1970s and 1980s. The VSSN was very active at this time and was not only supplying plants, but also staff and supporters were enthusiastically involved in supporting garden programs in schools. The VSSN also produced two books: “Sowing the Seeds of Horticulture” (VSSN, 1986) and “Growing with Horticulture - Horticultural Activities for Australian Schools” (VSSN, 1988). These were provided to schools as references for teachers but are no longer available.

Although there was interest and support for gardens in schools, the impracticalities of maintaining and protecting the gardens from vandalism and long periods of absence due to school vacations, reduced the presence of gardening as part of schooling in the 1980s (Heinze & McArthur, 2000, p.188). According to Cardwell and Spinks (1988), this was also a time of economic restraint, resulting in a reduction of State Government support for the continuation of non-core schooling and the VSSN closed in the early 1990s.

In 2001 gardening returned to Australian schools in the form of the Stephanie Alexander Kitchen Garden Program (SAKGP) (Block, Johnson, Gibbs, Staiger, Townsend, Macfarlane, Gold, Kulas, Okoumunne & Waters, 2009). The SAKGP was established to inform children about nutrition and obesity, but an evaluation of the program by Block et al. (2009) not only found it served this purpose, but also provided many of the benefits we associate with HBT. The SAKGP started with one school in Collingwood, Victoria and now has over 744 schools involved across Australia.

2.14.3. The Kevin Heinze Garden Centre (KHGC)

The Kevin Heinze Garden Centre (KHGC) was established in 1979 in Doncaster, Victoria, to provide recreational gardening for children with disabilities (Aldous, 2000). Kevin Heinze worked for the VSSN but was best known in Australia for presenting the television gardening program “Sow What” for over 20 years.
According to Heinze and McArthur (2000), the idea for a garden program for children with disabilities came about when Heinze visited England in the early 1970s. Inspired by seeing children with disabilities learning about gardening, Heinze wanted Australian children with disabilities to not only learn about gardening, but wanted them to be working with living, growing plants (KHGC, 1999; Heinze & McArthur, 2000).

KHGC commenced programs in 1979, initially providing gardening and potting activities for children from “special schools” in the Melbourne metropolitan area (Heinze & McArthur, 2000). The early KHGC programs could be regarded as the foundation of subsequent social and recreational HBT programs for people with disabilities in Victoria. Up to this point, HBT in Victoria had a rehabilitation, diversional or vocational role with often an unintended therapeutic outcome. When KHGC opened the programs were intentionally focused on the therapeutic outcome as part of planned garden activities.

KHGC changed its name in 2014 to Kevin Heinze GROW (Gardening for Recreation, Occupation and Wellbeing) and now runs a range of programs for adults and children with disabilities or other health disadvantages.


The dearth of recent research about HBT in Victoria has limited this review to, for the most part, the contributions of Rayner (2006) and Aldous (2004). The late David Aldous, School of Resource Management and John Rayner, School of Land and Environment both worked at University of Melbourne and their past contributions on the subject HBT in Victoria form much of the background of this study.

Although it was not Aldous’s principal role at Melbourne University, he consistently published articles and research on HBT for many years. His published works include: “How horticulture benefits the disabled (1982); “Therapy from the garden: how it began” (1994); “Horticulture and the older person” (1999); “Horticultural therapy perspectives in Australia and New Zealand” (2004); and others. However, the most recent position of horticulture as a therapy in Australia was summed up in 2006 by John Rayner, lecturer in Urban Horticulture at Melbourne University, when he presented an “Overview
of horticultural therapy in Australia” at the Horticultural Therapy Association of Victoria’s biennial conference.

The position of HBT in Victoria/Australia was described by Rayner (2006) as being very limited, with little or no horticulture/horticultural therapy training, no certification or registration. Moreover, Rayner (2006) commented that HBT research is at best in the form of undergraduate research projects. Likewise Aldous (2004) refers to the University of Melbourne where students may take part in a “research project in HT” (Aldous, 2004, p.4). Once again there are no specific projects identified.

According to Rayner (2006) “education and training for horticultural therapists is limited” (Rayner, 2006, np) while Aldous (2004) states that there are no formal qualifications in HBT or any form of registration. Both Rayner (2006) and Aldous (2004) also refer to community HBT courses that run irregularly and workshops that happen from time to time. Rayner (personal communication, 2012) has since introduced a module of HBT into the horticulture Masters degree at Melbourne University.

Aldous (2004) does refer to La Trobe University, as at one time offering HT training as part of the occupational therapy degree and therapy diplomas in the 1980s. Considering the relationship between OT and HBT and how HBT emerged from OT in other countries, it raises the question as to why HT training is no longer provided at La Trobe. The relationship between HBT and OT is further explored throughout this study.

Rayner (2006) describes horticultural therapy in Australia as being dominated by small groups and dedicated individuals working across a range of institutions and settings. According to Aldous (2004, p.5), these institutions and settings include those that provide therapy, rehabilitation, education and training and can be “a source of employment and leisure, particularly for the unemployed, the aged and people with varying disabilities”.

Hamilton (1987) is a reference for both Rayner (2006) and Aldous (2000). Hamilton (1987) claimed that there were “529 horticultural therapy programs in Victoria” with 4432 participants in these programs (Aldous, 2000, p.20). Aldous (2000, p.20) describes these programs as having “the emphasis on vocational training and recreation for clients with developmental disabilities”, and programs where “psychiatric clients related to psychiatric and
Neither Rayner (2006) nor Aldous (2000) specify how Hamilton arrived at the numbers provided, his methodology, or even how he defined “horticultural therapy”, so caution should be used when considering this data.

Both Aldous (2004) and Rayner (2006) provide summaries of then current HBT programs and activities in Victoria/Australia, with both stating that these programs are provided by OTs, recreational therapists, diversional therapists, teachers, disability workers, nurses, horticulturists and volunteers. Rayner (2006) also states that there is an increasing “focus on HBT activities in aged care” (Rayner (2006, np)). One such program is described by Rayner (2006) as a “horticultural therapy” program with activities for aged care residents. The most recent data provided by the Australian Institution of Health and Welfare (2011) puts the number of people in residential aged care facilities at 185,482 and notes that this number will rapidly increase in the next few years. This indicates that there is potential for increasing HBT usage if there is an increase in HBT awareness.

Activities and programs for people with disabilities in Victoria are also widely reported by Aldous (2004) and Rayner (2006), with both detailing the activities of KHGC and the former Ilma Lever Garden Centre (ILGC). While Aldous also includes the Royal Talbot Rehabilitation Centre (RTRC), Rayner (2006) reports this separately as an example of HBT in rehabilitation. Rayner notes that the RTRC program is supported by a clinical nurse who is a trained horticulturalist and provides, what Rayner (2006, np) describes as, “a formal horticultural therapy program for patients recovering from serious brain injuries”.

The Australian Institute of Health and Welfare (2013) stated that 4.2 million people or 18.5% of the Australian population have a disability. This includes 6.2 per cent of people that have a profound or severe core-activity limitation. The Australian Bureau of Statistics (2012) in their feature on Australia social trends notes that of all children in Australia, 288,348 or 7% have a disability. The thesis author worked in adult and children’s disability programs for over 30 years and found that most disability day services have some form of gardening program. Some are said to include vocational gardening training or garden maintenance teams that provide commercial
services in the community. Many schools also provide garden programs. Infoxchange, a community and social information network, lists 28 disability services in Victoria that provide some form of horticultural activity. The majority of these activities are vocational programs (Infoxchange, 2009).

Other programs and activities that Rayner (2006) and Aldous (2004) regard as HBT in Victoria include unspecified programs for the unemployed (Aldous, 2004, p.2), food production using gardening, in particular for those with disabilities (Rayner, 2006, np), and community gardens and public gardens that contain therapeutic or sensory elements (Rayner, 2006, np).

Two recent Victorian based studies provide an indication that there may be an increasing interest in HBT. Kingsley, Townsend and Henderson-Wilson (2009) examined the health benefits of participating in a community garden in Port Melbourne. They found that gardeners perceived a range of benefits including being in a de-stressing environment, providing opportunities for social connectedness, interaction with others, a sense of personal achievement, physical exercise, access to better food and a sense of spirituality (Kingsley et al., 2009, pp.211- 213). Whatley (2012, p.4) found similar outcomes occurred when she worked with people with mental illness in a community garden in Coburg, Victoria, noting numerous social, organisational, physical and occupational benefits. Hopefully this indicates a movement towards people in Victoria/Australia having more of an awareness of the benefits of HBT. This study aims to assist this by providing evidence that HBT is an important health and wellbeing intervention that should be widely available to people in Victoria/Australia.

2.15. Conclusions

There is reliable evidence that HBT is good for human health. In many countries, this is suitably recognised and supported through health systems and community organisations. Internationally, HBT has progressed and educational opportunities are available for HBT practitioners to qualify in their field. As qualified practitioners, they can join professional associations representing their practice, become accredited practitioners and contribute to peer-reviewed journals. At this point this is not so in Victoria/ Australia.
Although the evidence is sparse, it is clear that HBT in Victoria/Australia emerged and evolved in a similar way to many other countries. In Victoria/Australia, however, even though the practice of HBT is widespread it has never fully developed into an independent profession; neither did it remain in OT or any other specific domain. There is evidence that practitioners working with HBT in a range of different settings in Victoria/Australia have very positive outcomes. Unfortunately the uptake of HBT is limited because it lacks a health or even a community profile. This study looks at these issues and seeks to clarify the current position and the possible future of HBT in Victoria/Australia.

2.16. Rationale for this research

Both Rayner (2006) and Aldous (2004) reported that there is potential for HBT, particularly in an ageing population like Australia. Where Rayner (2006) identified the need to increase the profile and recognition of HBT, Aldous (2004) was concerned that this will not occur until HBT courses “are established at baccalaureate and graduate diploma level” in Victoria/Australia (Aldous, 2004, p.3). HBT in other regions of the world is highly regarded and is a part of most health systems. In regions such as Asia, HBT is growing rapidly to help cope with the demands on health services in ageing populations (Pfeffer, Deyton and Fly, 2009; Toyoda, 2012). In the USA, there are plans to greatly expand HBT services for veterans (Mitrione, 2012; Kirk, Karpf & Carman, 2010). This would not occur if HBT was not beneficial, effective and cost efficient. In Victoria/Australia, where HBT is considered outside of both the medical and complementary health systems, there is a lot of work to do to convince those in authority to consider HBT as a legitimate contributor to human health and wellbeing. Rayner (2006) and Aldous (2004) both spoke of this as a disadvantage for many Australians who do not currently have access to a HBT program. However, this could also be seen as a disadvantage to Australian governments and health providers who are missing out on a cost effective and efficient health intervention that can be applied as a preventive for conditions such as dementia (Simons et al., 2006; Fabrigoule et al., 1995) or a treatment for depression (Mackinnon et al., 2004; Townsend et al., 2006).
Rayner (2006) suggested that improving the quality of existing programs and introducing professional evaluation of outcomes may assist the professional appeal of HBT. He considered that this may be a way of convincing hospital administrators and funding bodies to look on HBT more favourably (Rayner, 2006, np). At this point little is understood about HBT programs in Victoria/Australia. As Rayner (2006) and Aldous (2004) state, this position needs to be rectified so that a suitable structure and methods of practice can be considered and established.

According to Aldous (2004, p.4), to increase the profile of HBT it is essential to record reliable statistics by undertaking empirical research to “establish a priority on the level of HBT benefits, socially and medically with financial benefactors”. Aldous (2004, p.5) also suggested that governmental departments and community agencies “need more than anecdotal information when making financial decisions for HBT programs, hence the need for greater research” to establish the position of HBT and establish the health benefits both socially and medically.

Considering the number of recorded benefits of HBT from international contributors such as Ulrich (1984), Kaplan and Kaplan (1989), van den Berg et al. (2010) and others it would seem the focus should now be on establishing or expanding local knowledge.

There have been a number of relatively recent Australian research contributions that support HBT, including a dementia study by Simons et al. (2006) and related studies on the value of nature for human health by Townsend et al. (2006), Henderson-Wilson (2006), Pryor (2009) and others. There have also been studies more closely linked to horticulture and health such as the study by Burchett et al. (2010) on the value of potted-plants on air quality. These all add to the evidence that links health to horticulture, but there needs to be clearer and more specific links to the physical and applied therapy similar to that which is available in other countries.

Rayner (2006, np) presented the need for a HBT “champion” who can “advocate and lobby for more support and funding” and greater cooperation with other disciplines such as health professionals, landscape peak bodies, and garden industry associations (Rayner, 2006, np). It is not known if Rayner was suggesting an individual or a representative group of HBT providers.
According to Rayner (2006, np), the status of HBT with both State and Federal governments is poor and “there is no health strategy or initiative that readily fits therapeutic horticulture outcomes”. At the commencement of this study the current relationship between government, health authorities and HBT was unknown. Also unknown was the current position of HBT practitioners in their communities, and how they relate and network in these settings. To further understand HBT in Victoria/Australia it was considered necessary to know the level of practice, who is involved and what the conditions are in which they practice. In other countries such as USA professional HBT associations such as AHTA perform this function. Thrive in the UK supports HBT nationally while the newly established Association of Social and Therapeutic Horticulture Practitioners support practitioners directly (ASTHP, 2014). There is no similar organisation in Australia that represents practitioners as professional providers of HBT. There is a need to understand why this is so and what would be an appropriate solution.

It was ten years ago that Aldous (2004) was supporting the need for more research to assist HBT gain a higher profile. Subsequently, Rayner (2006) made the point that “there is a need for more detailed information on the current status of HBT in Australia, particularly to plan strategically for the future” (Rayner, 2006, np). Since then there have been many more studies on HBT internationally (Kaplan, 2008; Pfeffer et al., 2009; Fan et al., 2011; York & Wiseman, 2012; and others) but little progress on understanding the origins, development and benefits of HBT in Victoria/Australia. There is little known about the practitioners, program types and structure or the uses of HBT for different participant groups. This study intends to provide information that will fill these knowledge gaps. The findings of this study are designed to be a foundation point from which future research can build a comprehensive and compelling understanding of the position of HBT and advance its standing within the health sector and the general community.
Chapter 3. Methodology

3.1. Aim
The aim of the study was to investigate the origins, development and perceived effectiveness of HBT in Victoria/Australia in a number of health and community settings. This included an exploration of past and present practice and facilitating and inhibiting factors.

3.2. Research Questions
What is the scope and nature of past, present and emerging horticulture-based therapy programs in Victoria? What is their perceived impact on the mental, physical and general health and wellbeing of participants?

3.3. Objectives
1. To document the origins, evolution and development of horticulture-based therapy (HBT) programs in Victoria.
2. To identify and describe the scope, intent, perceived efficacy, range and characteristics of current HBT programs in Victoria.
3. To describe the perceptions of past and present participants, practitioners and staff of participating organisations about the effect of HBT programs on mental, physical and general health outcomes of participating individuals and communities.
4. To examine the perceived health and wellbeing outcomes for individual participants at different levels of involvement in HBT.
5. To communicate the results of the study to practitioners, program managers, service providers and policy-makers.

3.4. Research Design
It was noted in the previous chapter that there is little available information on HBT in Victoria with Rayner (2006) and Aldous (2004) acknowledging the presence of individuals and groups practicing HBT in Victoria but little being known about them. An Interpretivist and Constructivist based approach has been used in this research, largely because this study draws on the experiences of past and present practitioners and others to provide information. Proponents of Interpretivism and Constructivism share...
the goal of understanding the complex world of lived experience from the point of view of those who live it (Australian National University, 2009). According to Blaikie (2007), the origins of Interpretivism came from hermeneutics and phenomenology. Interpretivism reflects a social reality that is a product of the interplay between a setting’s inhabitants and the social regularities which occur there. It can be understood by creating models that rely on typical situations, typical players and typical actions (Blaikie, 2007).

This qualitative study was designed to "seek to understand human experience from the perspective of those that experience them" (Yegidis & Weinbach, 2002, p.17). In other words, it sought to understand the experiences and perspectives of past and current HBT practitioners. Qualitative research is a method of investigation about qualities and characteristics that are often complex therefore it was considered the best approach for this study. Qualitative research methods also provide for the collection of descriptive information gained through questioning or observation suited to this study (Robertson & Reed, 1998).

Specific methods were used to gather information. A review of the literature was used to get a broad understanding of HBT (s.3.8.1). Interviews with past and present practitioners were used to provide an insight into the evolution, scope and practice of HBT in Victoria (s.3.8.2). Focus groups were used to identify the place HBT occupied in OT according to emerging OT practitioners (s.3.8.3) while interviews with Key Informants was used to gather information relating to HBT use in specific areas of practice (s.3.8.4).

Qualitative research relies on inductive logic and often interviews are not structured. In this study a more semi-structured approach was adopted with some questions prepared for the interview, however the interviews were allowed to flow according to the conversation at the time. It was intended that the interviewer would learn something from one interview that may have positively influenced the way further interviews were conducted. This was done to ensure the best possible opportunities provided for the subjects to tell their stories.

Through this approach, this study evolved as information was collected and the researcher became the primary instrument for data collection and analysis. Yegidis and Weinbach (2002) explained that there is no pretence of
the interviewer being objective or value free; the relationship between the interviewer and those being interviewed can facilitate understanding. Yegidis and Weinbach (2002, p.18) also suggested that qualitative research is subjective, it seeks to understand, uses inductive logic and produces hypotheses. They further suggested that the researcher is the instrument and quantitative research information is often processed as it is received.

3.5. Assumptions

Different paradigms have different ways of connecting experience, ideas and reality. Largely these are articulated in ontological and epistemological assumptions (Blaikie, 2007, p.13).

Ontological assumption:

Is concerned with the nature of what exists, ontology answers the question ‘What is the nature of social reality’. Ontological assumptions are embedded in theoretical ideas and divided into two opposing categories: idealist and realist. The ontological assumption of this study concerns the relationships that can exist between HBT practitioners or between a community of HBT practitioners and others (Blaikie, 2007, pp.13-18).

Epistemological assumption:

Is “a theory or science of the method or grounds of knowledge”. Epistemological theories are theories of how people come to have knowledge of the world around them or how we know what we know (Blaikie, 2007, pp. 18-24). The epistemological assumption relating to this study is concerned with how the HBT practitioner acquires knowledge, the scope of that knowledge and how that knowledge is shared.

3.6. Theoretical Perspectives

This project drew on the following theoretical perspectives to guide the design and methodology, particularly the analysis and discussion of the data: Biophilia hypothesis, Psycho-evolutionary Theory, Attention Restoration Theory (ART) and Social Role Volarisation (SRV).

As highlighted in the previous chapter, Wilson (1984) proposed in ‘Biophilia, The Human Bond with Other Species’, that there is an instinctive bond between humans and other living organisms. He claims that not only do
humans seek connections with nature but that these affiliations are rooted in their biology. Based on human evolution and referencing genetic memory, the Biophilia hypothesis suggests that natural settings are the innate preference for human habitat and that humans cannot comfortably exist without having a close connection to nature. Although it could be said that Biophilia is a very broad hypothesis and can be criticised for largely excluding biophobia, Biophilia is a suitable foundation for this study which includes aspects of nature based therapy.

In the same year that ‘Biophilia’ was published, Roger Ulrich found that patients recovering from surgery recovered faster and required fewer analgesics if they had a room with a window with a natural view (Ulrich, 1984). Ulrich’s study provided the medical connection between nature and health, presenting the initial evidence for further research into the impact of gardens and “green outlooks” on patient recovery and wellbeing. The Psycho-evolutionary Theory developed by Ulrich (1991) and others claim the health benefits of nature are due to a restorative influence on emotional centres of the limbic system of the brain. (Stigsdotter & Grahn, 2002).

The Psycho-evolutionary Theory and the Biophilia Hypothesis both emphasise that humans are, above all, biological individuals and are best suited for living close to nature and are deeply affected by their surroundings. The Psycho-evolutionary Theory provides a theoretical perspective that humans need nature not just to feel good, but also to heal. The theory further asserts that because humans evolved in open savannah like natural areas, it is in these surroundings that they are the least stressed, and that in other environments, particularly cities, humans become severely stressed because they are constantly reacting to stimuli which trigger unconscious reflexes. The restorative effect of gardens and nature, even a view of nature, helps to restore the sub-conscious balance (Ulrich, Simons, Losito, Fiorito, Miles & Zelson, 1991; Stigsdotter & Grahn, 2002). The major difference between Biophilia which is deeply seated in nature as a preferential environment to promote good health in humans, and Psycho-evolutionary Theory focuses on recovery but they are both essential in understanding the context and findings of this study.
Kaplan and Kaplan (1989) identified the effects of involuntary and directed attention and developed Attention Restoration Theory (ART). According to this theory, the health effects are due to the restorative influence of verdure on cognitive functions (Stigsdotter & Grahn, 2002). This theory asserts that humans require more energy to employ higher cognitive processes and functions than spontaneous or unconscious processes or functions. Kaplan and Kaplan (1989) identify two types of attention; spontaneous attention, later described as soft fascination, and directed concentration, generally called directed attention. It is the directed attention of daily life that consumes energy and affects health while the soft fascination of natural environments has a restorative affect (Kaplan & Kaplan, 1989; Stigsdotter & Grahn, 2002). In this modern world of consistent stimulation ART makes sense to people and it resonates throughout this study. People are relating to nature as a means of escape from social norms and community expectations and way of disassociating themselves from the pressures of modern life.

Searles (1960) first proposed a hierarchy of demand when working with people with schizophrenia. At the time Searles (1960) asserted that the health benefits of nature are due to nature making demands that can softly balance the person’s own ability and control (Stigsdotter & Grahn, 2002). Similar to Kaplan and Kaplan’s Attention Restoration Theory, Searles (1960) states that some things demand more attention than others, with humans making the most demands on each other, while nature, rocks, water and plants make the least demands. A person does not need, or have, to interact with nature. It is there all the time and therefore is less demanding (Searles, 1960). The need to find another place away from the daily demands that cause human stress is reiterated in many aspects of this study.

These are some of the key theories that have contributed to the growing popularity of horticulture as a therapy and the emergence of healing gardens in modern medical practice. In addition to these theoretical perspectives, this study draws on the human specific theory of Social Role Valorisation (SRV) popularised by Wolfensberger (1991) in the 1990’s. SRV followed Wolfensberger’s earlier normalisation principals where the goal was to create or support valued roles in society for those who traditionally do not hold such roles, such as people with mental illness or disabilities. In this
context, this study has had the capacity to not only examine the healing and health benefits of horticulture as valued benefits; it also considers the outcome when those who practice horticulture are valued as contributors to their communities (Sempik, Aldridge & Becker, 2002). Osburn (1998) describes SRV as a social model where people are more likely to have good life experiences if they hold valued social roles in communities.

Cocks (2001) suggested that the “segregation from valued society is a major wound experienced by devalued people and reinforces negative societal beliefs about that group”. This may be why Osburn (1998) considers the high value of work as a social role that may assist to empower those who are traditionally disadvantaged. The therapeutic value of work (Kielhofner, 2004) is well documented as is the therapeutic value of horticulture (Levin 2007; Relf, 2006). SRV has been widely practiced throughout disability services in Victoria since the 1990s.

3.7. Study Sample

The intended study sample was thirty past and present practitioners of horticulture-based therapy. Only a few potential interview subjects were identified through the literature because of the limited literature available and the elapsed time since some of the literature was published. Many of those referred to in the literature were no longer working or able to be contacted. When investigating past programs, it was common to find that they were no longer available and quite often the organisation that ran the program was no longer listed in service provider indexes.

The status of horticulture based therapy in Victoria made selecting an interview sample more of an informed judgement than for a more clearly defined subject. For example, there is no agreed definition or scope of programs described as Horticulture Based Therapy (HBT) or horticulture therapy (Relf & Dorn, 1995), there is no accreditation or formal course of study (Rayner, 2006) and with no peak body there is no registration or database of practitioners.

Practitioners of HBT may not identify themselves as such but consider HBT as a part of their daily work. Included in this study are practitioners from diverse professions including teaching, diversional therapy, rehabilitation, care
workers, disability staff and managers. This was not a limitation to the study because it was desirable to provide a wide view of the scope of experience from different practitioners and perspectives. It should also be noted that some of the data gathered by this method may be limited to the experiences of one practitioner working in a specific setting; drug and alcohol rehabilitation for example. Where this occurs in this study this is identified and the data considered in light of the limited sample.

This study has included a range of practitioner experiences that are considered HBT. Some practitioners may not identify themselves as HBT providers and this was the key reason for a selective sample. Robertson and Reed (1998, p.104) describe a selective sample as a ‘non-random sample selected because of the suitability to produce the type of data required for the study’. A selective sample was therefore considered appropriate for recruitment in this study.

When a prospective interview subject was identified in the literature or through personal knowledge (judgement sample) and agreed to be part of the study, an opportunity arose for this subject to draw on their knowledge of others who might contribute to the study (snowball sampling).

Mugo (2009) describes judgement sampling as a sample that is obtained according to the discretion of someone who is familiar with the relevant characteristics of the population. Snowball sampling, according to Mugo (2009), identifies people who know others who are information rich, thus making them suitable interview subjects.

Trochim (2009) identifies snowball sampling as especially useful when you are trying to reach populations that are inaccessible or hard to find, which largely describes HBT practitioners in Victoria. Several prospective interview subjects were identified through this process and it was found to be a successful source of informants in a field where practitioners are often difficult to identify.

Another source of interview subjects was found at the Horticulture Therapy Association of Victoria (HTAV) conference in October 2008. A presentation by the thesis author at the conference yielded several interested delegates who indicated though an expression of interest form that they were interested in participating in the study (opportunistic sampling).
Mugo (2009) sees opportunistic sampling as following new leads during field work and taking advantage of the unexpected flexibility. The opportunity at the HTAV conference was important because HBT practitioners are often difficult to identify within larger health or general populations. In an example of snowball sampling, some of these practitioners identified others they considered to be able to contribute to the research and they were duly considered (judgement sample) and some were regarded as suitable interview subjects.

According to Mugo (2009), this combination of mixed purposeful sampling helps in triangulation, allows for flexibility, and meets multiple interests and needs. Using different sample selection methods also provided the variation required for the study.

Because of the lack of a clear description of what constitutes horticulture therapy, horticulture based therapy, gardening therapy or its many sub-groups of practice, practitioners likewise were not a homogeneous group. A few were full-time HBT practitioners but the majority were providing a few hours to a few days of HBT practice as part of their employment role. Some of the practitioners’ employment roles included teaching, nursing, occupational therapy, management, disability support and a range of care support roles.

Adler and Adler (1987), Mason (2010) and others state that there is no set sample size for qualitative research but rather the sample is largely dependent on the subject. They suggest that this may be best kept to between 12 and 50 with the mean being 30. The sample size for this study was kept to 30 interviews.

3.7.1 Identification of informants
All study informants provided consent to be identified however the identification of participants has been kept confidential. Consent was required because there are a limited number of practitioners in Victoria and some may be identified by association with certain programs or organisations. The agreement to be identified was part of the NEAF application and an explanation was included in the Plain Language Statement. The participant Consent Form provided options to remain anonymous and to check written material for accuracy.
The identification was only relevant if those reading the thesis were familiar with the informant or if the document contained a description of the person and the context of their HBT work to the study. All individuals in this study were provided with the opportunity to review the transcripts of their interviews to ensure it was a factual account of their contribution. Several informants accepted this offer and some small adjustments were made to the transcripts. Where individual quotes or comments were provided, a code number was used to indicate the contributor. The code numbers are presented as a table in Appendix 9. In the body of the study informants will be identified as Informant followed by their informant number or “FG” for focus group and their focus group number. Quoted comments by informants are abbreviated to “In.” followed by their informant number.

Table 3: Study Informants (KI indicates a Key Informant)

<table>
<thead>
<tr>
<th>Informant Number</th>
<th>Informants by occupation</th>
<th>Relationship to HBT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Manager of a drug and alcohol program</td>
<td>Provided a HBT program for recovering addicts</td>
</tr>
<tr>
<td>2</td>
<td>University lecturer – horticulture</td>
<td>Strong supporter of HBT in Victoria. Provides the only higher education module in HBT.</td>
</tr>
<tr>
<td>4</td>
<td>Minister of religion</td>
<td>Provided a community HBT program for disadvantaged children.</td>
</tr>
<tr>
<td>6</td>
<td>Rehabilitation nurse (KI)</td>
<td>Provides clinical HBT programs in Victoria</td>
</tr>
<tr>
<td>7</td>
<td>Volunteer coordinator in a HBT program</td>
<td>Manages a team of volunteers who support facility based HBT programs for adults and children with disabilities</td>
</tr>
<tr>
<td>8</td>
<td>Disability support worker</td>
<td>Provides support for a group in a HBT program.</td>
</tr>
<tr>
<td>9</td>
<td>Former manager of a HBT organisation</td>
<td>Supported HBT and those interested in HBT. Distributed HBT information in Victoria.</td>
</tr>
<tr>
<td>10</td>
<td>Alternative health practitioner</td>
<td>Provided HBT as part of holistic healing practice.</td>
</tr>
<tr>
<td>11</td>
<td>Author and media personality</td>
<td>An early pioneer of HBT who now advocates HBT though TV, radio and print.</td>
</tr>
<tr>
<td>12</td>
<td>Aged care manager</td>
<td>Emerging HBT practitioner setting up a sensory garden in aged care.</td>
</tr>
<tr>
<td>13</td>
<td>Former CEO of a park foundation</td>
<td>Supported the use of HBT through park programs.</td>
</tr>
<tr>
<td>14</td>
<td>Manager of a disability vocational program</td>
<td>Used HBT as a moderating influence on participants in vocational programs.</td>
</tr>
<tr>
<td>15</td>
<td>Manager of a rural disability service</td>
<td>Set up and developed an extensive HBT</td>
</tr>
<tr>
<td></td>
<td>Role</td>
<td>Description</td>
</tr>
<tr>
<td>---</td>
<td>-------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>16</td>
<td>Support worker in alternative health (KI)</td>
<td>Provided participant support in a HBT alternative health facility</td>
</tr>
<tr>
<td>17</td>
<td>Disability support worker</td>
<td>Provided support for children in a HBT program</td>
</tr>
<tr>
<td>18</td>
<td>Trainer in HBT facility</td>
<td>Trained young people in horticulture at a HBT facility</td>
</tr>
<tr>
<td>19</td>
<td>Teacher</td>
<td>Provided HBT at all school class levels</td>
</tr>
<tr>
<td>20</td>
<td>HBT practitioner in a HBT facility</td>
<td>Provided HBT programs for people with dementia or Acquired Brain Injury</td>
</tr>
<tr>
<td>21</td>
<td>Former CEO of a community garden organisation</td>
<td>Supported the view that community gardens provided HBT</td>
</tr>
<tr>
<td>22</td>
<td>Teacher of Horticulture</td>
<td>Former designer and leader of a HBT programs</td>
</tr>
<tr>
<td>23</td>
<td>Horticulturist in a HBT program</td>
<td>Provided horticulture support for those in HBT programs</td>
</tr>
<tr>
<td>24</td>
<td>Horticulture student in a HBT program</td>
<td>Supported practitioners to provide HBT</td>
</tr>
<tr>
<td>25</td>
<td>Coordinator of a community farm</td>
<td>Managed a suburban community farm for adults with disabilities</td>
</tr>
<tr>
<td>26</td>
<td>University horticulture staff member</td>
<td>Supported students undertaking HBT as part of their Masters course</td>
</tr>
<tr>
<td>27</td>
<td>Occupational therapist in HBT program</td>
<td>Formally worked as an OT in a HBT program</td>
</tr>
<tr>
<td>28</td>
<td>Occupational Therapist (KI)</td>
<td>OT recent graduate who worked in HBT during professional placement while still at university</td>
</tr>
<tr>
<td>29</td>
<td>HBT Landscape design</td>
<td>Designer and consultant in HBT gardens</td>
</tr>
<tr>
<td>30</td>
<td>Early practitioner</td>
<td>An early practitioner with links to both KHGC and HTAV</td>
</tr>
<tr>
<td>FG 1</td>
<td>Occupational Therapy student</td>
<td>5-10 week full time placement in HBT facility</td>
</tr>
<tr>
<td>FG 2</td>
<td>Occupational Therapy student</td>
<td>5-10 week full time placement in HBT facility</td>
</tr>
</tbody>
</table>

3.8. Data Collection:

This study consisted of four phases of data collection: literature review, semi-structured interviews, focus groups and Key Informant interviews. The interviews and focus groups for this study were conducted between 2008 and 2009 in accordance with the National Ethics Approval Form. In accordance to
the participant consent form in 2011 all subjects were provided with an opportunity to comment on the accuracy of the interview contents.

3.8.1. A Literature Review

This study began with a review of the literature examining other nature based therapy practice to understand what differentiates HBT from these other fields, how HBT emerged and evolved internationally, the range and key characteristics of international HBT and the identification of tools, interventions, frameworks, definitions, holistic interventions, resilience and other subjects to assist development of appropriate research frameworks. Included in this literature review were peer reviewed publications, related books, newspaper articles, articles on websites and informal documents such as brochures. The inclusion of informal documents was necessary because of the lack of literature relating to HBT available in Australia.

A range of online resources were assessed using key search terms such as horticulture therapy, health and nature, garden therapy, healing gardens, occupational therapy, healing nature, social gardening, recreational horticulture and other similar terms. These search terms were applied to databases such as sciencedirect, thelancer, healthinsite, infoexchange, sagepub, envirolink, islamonline, sciencealert, findarticles, springerlink, along with Australian government links. Through these databases, 135 articles were accessed, reviewed and included in this study.

As highlighted in the previous chapter, the review of the literature identified the history and emergence of HBT in Australia and in particular how HBT emerged and evolved both internationally and in Victoria, early HBT practitioners and programs in Victoria, the range and characteristics of current HBT programs, and evidence relating to the aims and perceived health and wellbeing outcomes of HBT programs in Victoria. Because there is so little available literature about horticulture based therapy in Victoria/Australia, comparable therapies were also viewed as a source of potential information. How some of these therapies emerged and developed in Victoria/Australia provided a comparison to the way HBT evolved and offers an opportunity to see the bigger picture of therapy in Victoria/Australia.
3.8.2. Practitioner Interviews

Semi-structured interviews were conducted with:

a) 5 early practitioners and principal providers of HBT practice, to understand the emergence, evolution and outcomes of early HBT in Victoria.

b) 6 current practitioners of HBT to understand the scope, characteristics and perceived outcomes of different HBT programs in Victoria.

c) with 5 health providers, 3 rehabilitation specialists, 5 disability case managers and 6 other key providers who refer people to HBT programs to understand the validity of HBT programs, the target group, the scope of practice and emerging HBT programs and practitioners.

A semi-structured interview approach was used to allow for the degree of flexibility needed when interviewing subjects who have different backgrounds, experience and knowledge (Robertson & Reed, 1998). The semi-structured interview approach was used to explore issues that are complex and do not lend themselves to easy answers. The interviewer was free to provide more information, prompt or explore questions as they arose (Robertson & Reed, 1998, p.105). This also allowed for a relationship to develop between the interviewer and the subject and provided scope to modify the interview according to the circumstances. Interview questions were provided as a starting point but allowed the subject to respond and vary the direction of the interview to a certain extent.

According to Robertson and Reed (1998), there can also be negative aspects to a semi-structured interview such as the interviewer unconsciously having an influence on the subject and the potential for large amounts of superfluous information (Kayrooz & Trevitt, 2005, p.192). To limit this, the interview questions provided some structure and gave the interviewer opportunities to return to the interview subject. This was particularly useful when those being interviewed diverged into providing personal experiences that were not related to this study.

A review of the literature and anecdotal information from present practitioners provided the framework to develop a set of questions to be used during interviews. A set of 24 mostly open ended questions were first developed to give responses that would provide information about past and present HBT practice and its value as a therapeutic intervention for different
populations (see Appendix 5). These questions were tested at KHGC and with some minor adjustments deemed suitable for use in this study.

The questions were developed with the intention that they would be delivered to practising or past practising therapists. It became evident early in the study that not all of the interview subjects could be defined as practitioners, in fact there are very few who would identify themselves as such. They would more often describe themselves as teachers, managers, care workers or having other occupations that had a role providing programs or services that included horticulture. It became evident that others could also make a significant contribution to the study. This semi-structured approach allowed for variations to the original 24 questions. For some informants the original questions were not relevant or did not apply to the type of program they provided. In these instances interviews became semi-structured only around relevant questions of the original 24, while those that were not relevant or could yield little information were omitted. When it was clear that substitute and relevant interview questions were required they were provided. This included variations for informants who were involved in HBT but were not necessarily past or present practitioners, organisational managers for example. Some slight modifications were also made and some irrelevant questions discarded to be able to include practitioners in related therapies and others (Appendix 7). While changes in the prompt questions may have limited the data collected for some areas, they also opened up opportunities to explore other issues relevant to the subject of HBT.

In some cases the interview questions were delivered verbatim for others the questions provided a broad framework. All questions were framed according to the informant and their particular relationship to horticulture-based programs and the health or wellbeing outcomes of these programs. However, care was taken to ensure that questions were not asked in such a way that they would lead/influence informant answers.

The interviews were conducted at the time and place that was most suitable for the informant, in most cases this was at the subject’s workplace. The interviews lasted between 25 and 75 minutes in length. The difference can be explained to some degree by the relevance of the questions to the subject, that is, if the questions were not relevant the response was brief.
Subjects providing lengthy answers or conversation can in part explain the longer interviews. All interviews were recorded and transcribed into ‘Word’ format. Copies of recordings have been provided to the Principal Supervisor and the transcribed interviews are on a fingerprint access protected computer and password protected USB device.

3.8.3. Focus groups

Denzin and Lincoln (1994) see the group interview as essentially a qualitative data gathering technique that finds the interviewer/moderator directing the interaction and inquiry in a very structured or unstructured manner, depending on the interview’s purpose. Additionally, Kitzinger and Barbour (1999) see it as a valuable tool for exploring how points of view are constructed as well as how they are expressed. Furthermore, Merton, Fiske, and Kendall (1994) suggest that the focused interview with a group of people "will yield a more diversified array of responses and afford a more extended basis both for designing systematic research on the situation in hand" p.135).

The inclusion of a focus group of OT students came about through the process of interviewing past and present practitioners. Several past and present practitioners reflected on a time when the practice of OT in Victoria included HBT as part of OT training and practice. The role of OT being instrumental in the early development of HBT was also identified in the literature (s.2.71; s.2.7.; 2; s.2.7.3; s.2.7.4). This led to a selective and opportunistic approach best described as purposive sampling (Barnett, 2009) with the researcher selecting informants based on the project and on the potential contributions of informants (Barnett, 2009).

Two focus groups comprising occupational therapy students were conducted to further explore their views on the history, development and perceived effectiveness of HBT in Victoria. The focus groups yielded further information about HBT in Victoria supporting the other qualitative approaches in the research. Lewis (1995, p.1) suggests the outcome of a focus group can include:

- Obtaining general background information about the subject.
• Generating impressions that the informants have gathered about the subject.
• Diagnosing the potential for problems.
• Stimulating new ideas and creative concepts.
• Learning how participants talk about the subject.

In this study the inclusion of the focus groups was used to identify:

• The groups understanding of HBT
• Any perceived connection between HBT and OT
• The groups current knowledge of HBT
• What students see as their future practice
• Any perceived benefits of HBT
• If they see any potential to include HBT in their OT practice.

Although there were some differences in the areas of future vocational interest, the OT focus groups were largely homogenous (Vaughn, Schumm, & Sinagub, 1996). This follows Brown’s (1999, cited in Barnett, 2009) recommendation that the group should consist of four to twelve if the group is homogeneous and six to twelve if heterogeneous. A balance between the need to have enough people for a lively discussion and the danger of an overwhelming group size was achieved using this method. The original aim of this study was to recruit between four to twelve informants in the OT HBT focus groups. This was met with eight students who were divided into two focus groups.

The OT focus group were made up of eight OT final year Masters students. Each of these students had undertaken at least four weeks of supervised professional practice placement at KHGC. These students were selected because the KHGC is a known provider of HBT and, being in their final year of study, they had also experienced the full OT curriculum. These students had also undertaken numerous other OT placements in the community. It was considered that this number of students would be likely to have had a broad range of OT experiences in their placements. One focus group was also given a one day placement at RTRC to compare HBT at KHGC to the more clinical
application in rehabilitation. It is acknowledged that there is potential for bias when students on placement are used, but with KHGC being the only place in Victoria that offered OT placements in a HBT environment it was opportunistic to use this approach. The intent was to draw on emerging OT practitioners to test the concept that if HBT was not itself structured that it may be able to regain a place within current or emerging OT.

It is acknowledged that this is far from ideal, especially since all focus group members were from one university and may not represent OT students from other education providers. To limit potential bias, open-ended questions were used during the focus groups to facilitate open discussion. The thesis author was not involved in the supervision of OT students at KHGC.

Open-ended questions were used to solicit additional and specific information (Appendix 6). Sometimes called infinite response or unsaturated type questions, by definition, open-ended questions are broad and require more than one or two word responses (Richardson, 2009). The group of questions used for the focus groups were based on modifications of the past and present practitioner interview question set.

3.8.4. Key Informant Interviews

Interviews were conducted with five Key Informants. Four Key Informants were selected prior to the interview process while another was included later. These individuals demonstrated the ability to provide detailed information about current and emerging HBT trends and issues. This method was used because a convenience sample is useful in getting general ideas about the phenomenon of interest while Key Informant Interviews are qualitative in-depth interviews with people who know what is going on in the community (Mugo, 2009; UCLA, 2009). Barnett (2009) states that having too many different voices could detract from the overall purpose when we use this approach; therefore the sample was purposely kept to a select few.

Longer interviews with one health provider, one rehabilitation specialist, one disability case manager and two OT practitioners were conducted to understand the motivation, aims and expectations of certain groups when referring individuals to HBT programs and to clarify responses coming from the OT focus groups (Appendix 8). This contributed to further understanding
the perceived validity of HBT programs, the target group, the scope of practice and emerging HBT programs and practitioners. It is acknowledged that the inclusion of Key Informant’s may have run the risk that their views would dominate the study or provide a positive bias based on the relationship with the author. Every effort was made to ensure there was little opportunity for this to occur. Key Informants were provided with the same set of questions as other informants but could elaborate on areas of their own HBT practice. The author was also included as a Key Informant through an analysis and reflection of his personal experience as a HBT practitioner. This is presented as Chapter 7 in this study. Although there is obvious potential for bias in this reflection, it has been included to provide an understanding of the motivation and experience of one practitioner over an extensive period of time.

3.9. National Ethics Application Form (NEAF)

The NEAF was completed and submitted with approval granted in September 2008. A consent form for past and present practitioners gave the option of being identified in the research document (s.3.7.1). Those that did not want to be identified could choose to contribute to the study as an anonymous informant. The involvement of people with disabilities was also approved but was not required.

The potential for bias by using practitioners known to the author was recognised during the study design. Every effort was made to include a varied group of informants using for the most part, snowball sampling. The number of informants known to the author prior to the commencement of this study was purposely limited to four. These individuals were included because of their potential to provide quality data not available through random sampling. They were identified as four of the five Key Informants in this study. To further limit any bias the interview prompt questions were designed not to lead the informant but rather to allow the informant to tell their own HBT story. Occupational Therapy students participating in the focus groups were not supervised or directed by the author and were not known to the author prior to the study.
3.10. Analysis of Interviews

Table 4: Information collection

<table>
<thead>
<tr>
<th>Information collection method</th>
<th>Number of informants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Interviews with past and present practitioners</td>
<td>25</td>
</tr>
<tr>
<td>Interviews with Key Informants</td>
<td>5</td>
</tr>
<tr>
<td>Focus Groups (2)</td>
<td>8</td>
</tr>
</tbody>
</table>

Drawing on Sim and Wright’s (2000) methods, where they suggest exploratory studies such as this are best analysed throughout the transcribing process, a constant comparison was used to gauge the emerging themes. Along with the emerging themes, the manner in which they interacted with the subject of the study and the theories relating to the study were used to develop an analytic structure. The exploratory nature of the study made it important to include all aspects of HBT including those that are intentional or unintentional. For example, in some cases the early practitioners described what would now be considered a therapeutic intervention using horticulture but at the time few of these programs were identified as therapy. The term horticultural therapy was not in general use in Victoria/Australia until the 1980’s and even then it was used by few practitioners.

A grounded theory analysis was adopted as the principal research method after early identification of some complex themes within the study subject. The analytical method fits within Strauss and Corbin’s (1990) description of grounded theory as “the process of breaking down, examining, comparing, conceptualising and contextualising data”. A key element of the use of grounded theory in this study was the development of specific labels in the analysis to produce category information or open coding (Corbin & Strauss, 1990). The use of open coding provided the opportunity to explore the interview content thoroughly. Initial open coding produced four core categories which, for the convenience of the researcher, were named “primary codes”, these were:

- People
- Programs
- History
- Motivation
The researcher provided a separate file for each of these core categories as a starting point of the analysis. A full set of identical interview transcripts were placed in each file. Using this method, all of the information was examined four times to identify each core category item in the data. This systematic approach was used to identify the core category in the transcripts of each of the four data sets. For example: any relevant reference to the core category “people” was highlighted in the text of the interview transcript. This was repeated until all the information for each of the core categories was identified under each of the four categories. At this point, all four core categories, people, programs, history and motivation, had a full set of coded transcripts for each individual core category. The information provided by Key Informants and past and present practitioners was analysed using this method.

This method did not exclude information from one core category being used in the other core categories. For example, if there was information that related to the core category “programs” it might also have a relationship with core category “history” if it was a past program. Both were included in the data analysis and were later used to identify relationships.

Early in the analysis of the interview transcripts it emerged that there was a substantial amount of data collected from most of the subjects. This early view of the data also showed that there were relationships within the data and between the core categories to be explored. This required categories to identify relationships within the core categories and relationships between the core categories. Strauss and Corbin (1990) describe this process of linking categories to identify relationships between them as axial coding. In this study the process was to identify, deconstruct and link the data through open coding and to identify any connection between and within the categories though axial coding.

A second set of codes were developed to identify specific information within each of the four core categories. Each core category had a number of “secondary codes” (See appendix 3) specifically provided to further identify aspects of the information that linked that information within the core category or to other core categories. The “secondary codes” were based on the subject of the study and the knowledge of the researcher; they were not created to be
specific but acted as a starting point. Each of these codes had a descriptive or an interpretive function and provided information to further develop a relational link later in the analysis (Strauss & Corbin, 1990).

The “secondary code” provided the opportunity to split the data to smaller data extracts within the transcripts therefore giving more specific information. Each transcript was read and a “key” was applied to those items that seemed to fit that “secondary code”. “Secondary coding” was done quickly to avoid procrastination over the finer points of the detail with the understanding that the data would be collected elsewhere in the analysis if missed and it was permissible to discard poor data or data that is not relevant under that code.

“Secondary coding” was individually applied to each transcript in each of the four core categories (primary code). For example, for the core category “people” the transcript was read and assessed to apply each of the nine “secondary codes” in the category. This was repeated for each of the four core categories until all of the “secondary codes” were applied (see Figure 4).

3.10.1. Extracting data “chunks”

At the conclusion of the coding, for each of the four core categories, a separate file was produced to contain all of the identified data under each category. The file was divided into headings for the four core categories and under each of the four core categories a subset of headings for each of the “secondary codes” was provided.

Each interview transcript under each core category heading was approached sequentially and each piece of data of the secondary code was copied from the interview transcript and pasted under the identified heading in a Word document. Figure 4 shows the process used in analysing the data in this study.
3.10.2. Analysis of Focus Group Data

The same method used for analysis of the Past and Present Practitioner (PPP) group was used in the analysis of the OT focus groups, with some
modification. The OT group’s data was extracted and analysed as a group response without definition of individual input.

The coding was kept quite simple for the OT group because the data provided in the focus group interviews was different to that generated by the PPP interviews. The data provided was in response to the questions asked and the questions were largely based on the subjects identified by the PPP group. Primary codes and secondary codes were used but for this set of data the codes were different. Primary codes were kept to the main headings of the study, Origins, Development and Perceived Effectiveness while secondary codes reflected the headings shown in s.2.2. This was somewhat simpler than the analysis of data from the PPP group which contained complex codes necessary to be able to extract individual responses reflecting often long time exposure to the subject of HBT. Students were not expected or required to have any exposure to HBT other than their exposure to HBT during their professional practice placements.

3.11 Reflecting and reviewing the process

It was largely the lack of published local knowledge that influenced the undertaking of this study. This was not necessarily a limitation because a dearth of local information enabled the author to approach the study with an open mind. Having the majority of informants opportunistically selected allowed for varied views and experiences to be recorded. This provided opportunities to change the author’s limited assumptions as the information collection progressed. Rather than seeing this as a challenge each interview was approached as a source of new information. As most interviewees were unknown to the author prior to the interview, relationships were spontaneous and largely informal. The relaxed nature of the interview process allowed for a free flow of information resulting in an abundance of data. The data analysis was then set up to allow for this volume and diversity. It was considered that there was a need to capture all of the data. This further influenced the development of an analysis process shown in Figure 4.
3.11.1 Limitations

This study on HBT in Victoria meant that with limited information and lack of connectedness of practitioners, access to a random sample of practitioners was difficult. There were simply not enough known practitioners to draw random sample. The use of all of the practitioners known to the author may have overcome his problem but would have created a strong bias within the study. The use of snowball sampling largely overcame this problem. Having the author strongly associated with HBT in Victoria largely limited the study to practitioners that were unknown to the author.

From the beginning of this study, the lack of available local information about HBT, practitioners, programs and organisations was obvious. Local research into HBT was limited to just a few contributors. This made finding informants difficult, particularly when most did not identify themselves as being involved in HBT. The lack of local knowledge also had an impact on the informants of this study. The majority of informants, regardless of their level of involvement in HBT, had little knowledge or even understanding that their activity was considered HBT. This required time to convince potential informants that their involvement in the study was appropriate and that they had valid information. The need to use opportunistic and snowball sampling is acknowledged as far from ideal. The use of a larger random sample may be feasible in further studies once HBT has more structure and practitioners can be more readily identified.

3.11.2 Strengths

The lack of information was also seen as strength of this study. It has allowed for informants to disclose their activities without preconceived ideas or points of reference. It allowed for a down-to-earth reflection on each informant’s HBT involvement and the outcomes of this involvement. With few existing HBT practitioners identified during the planning of this study, the opportunistic and snowball sample provided a very eclectic group of informants. This group were able to cover the many different applications of HBT presented in this study. Being the first study of its kind has allowed for a high level of flexibility and the opportunity to explore all the aspects of HBT in Victoria.
Result Chapters

The previous chapter, Chapter 3, outlined the methods used in this study. Interpretivist and Constructivist Theory were applied to gather the experiences of past and present practitioners and others. This yielded the majority of the data concerning the relationship between the practitioners and the settings in which HBT occurred.

The next three chapters present the results of the study using three major themes: origins (Chapter 4), development (Chapter 5) and perceived benefits (Chapter 6). These themes were identified as key elements in the evolution of HBT. This ‘origins’ chapter presents the experiences of the informants and their views of key organisations, individuals and programs. The ‘development’ chapter presents facilitating and inhibiting factors. Facilitating factors include the sub-themes relating to the individual, promotion, social interaction, environmentalism, funding and clinical health outcomes. Considered as inhibiting factors were; dependence on individuals, lack of skilled staff, poor structure and organisation, limited access to information, low profile, lack of availability of funding and few facilities. Chapter Six presents the perceived benefits and effectiveness of HBT organised within categories where HBT was intentional and where it was unintentional. Under each of these categories is a description of current and recent programs and the perceived benefits identified by the informant/s in that program.

4.0 Origins and evolution of HBT in Victoria

This chapter presents the origins and evolution of HBT based on the experiences of informants. Using the methodology described in Chapter 3, individual informants contributed their views on the origins and evolution of HBT in Victoria. Using the multiple coding and analysis methods shown in Figure 4 (p.88) key themes relating to the origins and evolution of HBT were identified. This chapter first presents the issues relating to information, language and terminology (s.4.1), then presents the role of influential organisations, such as the Victorian State Schools Nursery (VSSN), Kevin Heinze Garden Centre (KHGC), Ilma Lever Garden Centre (ILGC) and the Horticultural Therapy Association of Victoria (HTAV) (s.4.2). This is followed
by descriptions of the origins of key programs, such as HBT in the school system, the development of community gardens, the introduction of vocational programs for adults with disabilities, the emergence of HBT in disability day services, the role of OT and the use of HBT in rehabilitation (s.4.3).

4.1. Early HBT in Victoria - terminology, descriptions and HBT identity.

The term ‘horticultural therapy’ was not known to the majority of the informants when they were setting up programs. This is not difficult to understand, given that informants often depict themselves working in non-horticultural vocations, such as teaching, disability or aged care.

When asked to describe their early days working with HBT, several informants said that they were not fond of the terms ‘horticulture’ or ‘therapy’ to explain the practice. A former manager, involved with the establishment of the HTAV in the early 1980s, suggested at the time that “the public won’t like the name” because “it is a hard name for the ordinary person to understand” (In.30). Others considered that ‘horticultural therapy’ did not accurately describe what they were doing but, without a reasonable alternative, it would seem the practice was described as ‘horticultural therapy’ by default. It was argued at the time that:

.....the word horticulture is the wrong word and then therapy is the wrong word too; horticulture makes it sound too scientific and hard and the therapy thing, I do not need to do that, is doctor stuff.

(In.11)

Lacking any detailed descriptions of HBT, there was a strong sense from early practitioners that what they did was uncomplicated and straightforward. It was not structured or required to follow any particular format. It was an activity that was based around gardening or potting and the perception was that this provided pleasant and positive engagement. As the following quote suggests, early practitioners did not consider their work as therapeutic:

All I knew was that I was coming to a centre working with people with special needs in gardening. So I think the horticulture therapy, the words sort of came later. So never, in my mind, I never thought of it as therapy or horticulture, it was just a Centre and that was it basically, and from there things just grew.

(In. 30)
When describing the intent of early HBT programs informants described wanting to provide a place for gardening. Their descriptions also show that there was an unstated therapeutic intention. For example, Informant 30 stated that a program she set up in the 1970s was more about interactions and emotions rather than just a simple gardening program:

*I think that we are using gardening as a means to make people feel important, using gardening as a means as an interaction with people, people feeling good about themselves.*

(In. 30)

Although she did not use the term ‘therapy’, the description of her activities appears to be of HBT. Early practitioners did not discuss gardening as a pastime, or an opportunity for people to grow food crops, and they did not discuss therapy. Instead, they discussed what they knew at the time; they described using gardening to “make people feel good” or “feeling good about themselves”. These were the terms used most consistently by past, current and emerging practitioners. Some also referred to this as empowerment. The desire to help people within their area of practice, at a school for example, and to help people individually, was seen as a motivation for many past and present practitioners to introduce a HBT program.

**4.2. Key organisational influences on the evolution of HBT in Victoria**

This section presents four key organisations that influenced the evolution of HBT in Victoria. They include the Victorian State Schools Nursery, Kevin Heinze Garden Centre, Ilma Lever Garden Centre and Horticultural Therapy Association Victoria. Following this are other factors that were influential along with some of the key issues faced by early practitioners.

**4.2.1. The Victorian State Schools Nursery (VSSN)**

Although there is little written about the VSSN it was a key contributor to the establishment and development of HBT in Victoria (c.2.15.2). What is known is that it was established in 1913 to provide plants and horticultural education for children enrolled in Victorian schools. The VSSN was active in this role for many years, training teachers and students until it closed in the
1990s. Some of the leading past and present HBT practitioners worked for the VSSN in the 1970s and 1980s when it was at its peak. The late Kevin Heinze, possibly the most active influence on HBT in Victoria for over 40 years, worked for the VSSN, as did several informants of this study. VSSN could be described as the origin of many HBT programs, past and present.

4.2.2. The Kevin Heinze Garden Centre (KHGC)

The VSSN was a key contributor to the establishment of the Kevin Heinze Garden Centre. Informants 1 and 11 were working for VSSN at the time KHGC was established, as was Kevin Heinze. Heinze provided the idea and inspiration while others such as Informants 1, 11 and 30, contributed by helping to plan the garden and train volunteers.

The initial role of KHGC was to provide social, recreational and therapeutic gardening for children with disabilities when it opened in 1979. Early programs were garden-based activities for children from “special schools” in the Melbourne metropolitan area. Although Heinze was never directly involved in the Centre once it was established, he influenced the early program development. He said that he wanted children to be able to work with plants because he saw the therapeutic potential (Heinze & McArthur, 2000). Other than this, there was no specific plan for the style or structure of programs provided; rather it just evolved.

According to Informant 30, the early days of KHGC was a time when it was largely managed and staffed by volunteers. Informant 30 was the first paid employee and she said that her role was to manage the volunteers and deliver suitable HBT activities. She said this was difficult because there was little HBT information in the early 1980s and that “no one was an expert and we were all learning from each other”. This was consistent with other informants who reported that there was little HBT information available and they had to experiment with programs. As Informant 30 said, sometimes programs worked and sometimes they did not:

.....everyone was new and we were not quite sure how it was going to develop, where it was going to lead or what was going to happen, so I guess you could say it was the early days of experimenting.
(In. 30)
It was fortunate that experimenting with different program approaches worked as evidenced by the current program structures at KHGC. These programs were developed over time and were based on the needs of specific groups. As the current volunteer manager (Informant 7) explained, KHGC has developed programs for children with disabilities, adults with disabilities, people with dementia, those recovering from brain injury and people with mental health disorders. Both Informant 30 (early KHGC) and Informant 7 (current KHGC) show a consistency of program development over decades. This has largely been based on the experiences and knowledge of staff and volunteers. Through this, KHGC developed its own versions of HBT programs and these now consist of social, recreational and vocational programs and OT based horticultural therapy.

From the beginning, the role of volunteers was essential to the KHGC model as they not only supported participants in the programs, but were part of the program itself. Informant 7 said that Heinze would often drop into KHGC and would reiterate that he believed the interaction between participants and volunteers was essential. She also said that for adults and children with disabilities working with volunteers was important because this:

\[..... \text{creates a different kind of relationship and that affects the behaviour of the group and that is sometimes a reflection of the volunteers in the group.} \]

(In. 7)

Explaining further, she said that the volunteers have different ways of interacting with people in the program. Some were outgoing and active, others were more social; this was reflected in the reported outcomes. Some people were stimulated, others were more relaxed. Volunteers also gave KHGC the capacity to support many more people in HBT programs than might have occurred if relying only on paid staff. For over 35 years, KHGC has been an example of HBT; staff have continuously developed HBT programs, and over this time these have been adopted by other HBT providers.

4.2.3. Ilma Lever Garden Centre (ILGC)

Like KHGC, ILGC was purpose built to provide HBT in a garden environment. According to former staff members at ILGC, the program
commenced in the late 1980s. There is little published information about ILGC. What is known is that as a child Ilma Lever contracted poliomyelitis. Later in life, she founded the Victorian Disabled Drivers Association and ILGC (Auslit, 2013). Located in Coburg, ILGC was established to train people with disabilities in horticulture. Later the focus became more specific, providing horticultural activities for people with dementia or brain injury (nican, 2013). ILGC was largely modelled on KHGC and the programs had some similarity. According to Informant 20, there were two key differences. Firstly, ILGC was primarily supported by staff rather than volunteers. Secondly, at some point ILGC had become a small program within a larger community health organisation. The latter occurred before the current staff were involved in ILGC and they could not say why this happened when interviewed.

Another difference was that whereas KHGC had hundreds of adults and children attending regular programs, ILGC only had about 30 active adult participants. This may be because the purpose was limited to providing respite for socially isolated people with brain related disorders. Although limited in numbers, the ILGC program grew in popularity for its target group, particularly in the northern suburbs of Melbourne. A key purpose of the ILGC program was to reduce social isolation, as key Informant 20 said:

...the focus of the gardens is people with acquired brain injury or frail elderly (with dementia) so people mainly have that background, that is the main mix, most people are quite socially isolated so it may be their only day out of the house each week. (In. 20)

Although ILGC was small in comparison to KHGC it was very influential. It was a facility with the single purpose of providing HBT. ILGC had a presence in the HBT field for over 25 years but closed in June 2011.

4.2.4. Establishment of the Horticultural Therapy Association of Victoria.

HTAV was established in 1982 by a group of people with an interest in HBT. The influence of the VSSN on the evolution of HBT in Victoria is demonstrated in the establishment of HTAV. Several informants who were involved with the formation of the HTAV reported that they were also closely associated with KHGC. About 10 years after VSSN personnel helped with the establishment of KHGC, KHGC was in turn influential in the establishment of
HTAV. As stated previously, Informant 30 was an early manager of KHGC and during this time she also initiated the formation of the HTAV, later becoming its first president. The connections continued when Kevin Heinze became the patron of HTAV, serving in this position until his death in 2008. However the association was not initially secure with Informant 30 describing "the struggles we had". These "struggles" included the difficulty of finding a place to meet and establish an office. Continuing the relationships between HBT organisations, HTAV was first located at VSSN and later moved to KHGC when VSSN folded in the 1990s.

Informant 30 described the first years of HTAV where there was a lack of HBT information for practitioners to set up programs. Rather than despair over this she said that they went on to produce their own booklets. These booklets were based on what they could find in the international literature and their own personal experience, as represented by the following quote:

*I guess that has always been a problem; when I was working for the Horticultural Therapy Association, basically we looked overseas for anything; we put together those three or four booklets. It was not very much but at the time it helped.* (In. 30)

Although very basic and largely written by HTAV members, the booklets became essential tools for those setting up HBT programs in Victoria. Written in the 1990s, the booklets are now dated and only provide the most rudimentary information. Several informants said that the booklets are still available through the HTAV and this was confirmed through a visit to the HTAV website.

The HTAV also presents a biennial horticultural therapy conference which is the only event in Australia where HBT practitioners come together in large numbers. The conference is an opportunity for practitioners to gain up to date information. This includes presentations by international HBT leaders such as Diane Relf. This thesis was influenced by the 2006 HTAV conference where Rayner (2006) presented his paper on horticultural therapy in Australia, stating that there was not enough local research.

In recent years the HTAV appears to be struggling again. Informant 30 said that it has “fallen in a heap”. There was no specific reason given for this
sentiment, however KHGC severed its connection with HTAV in 2008 and the HTAV now operates from a Balwyn North (Victoria) office.

4.3. **Key program influences on the evolution of HBT in Victoria**

This section presents six key program areas that have had an impact on the evolution of HBT in Victoria. The results have shown that influential programs included HBT in schools, community gardens, vocational disability services, disability day services, occupational therapy and rehabilitation.

4.3.1. **Informal HBT in the school system**

The involvement of children in HBT programs in Victoria was not widely reported in the literature. However, informants in this study have indicated that children have participated in HBT programs for many years within the school system. It is likely that this was influenced by the VSSN as several of the past and present practitioners in this study were involved in the VSSN. One came to the VSSN after working with children with disabilities in State schools; another worked with VSSN until it closed in the 1990s. Individual teachers also introduced HBT into schools to help the development of children whom they considered were not achieving academic goals or had some form of disability. One former teacher (Informant 11) spoke of working at a school in the early 1960s with a group of children who had learning difficulties. She said that providing opportunities for children to plant trees and work in the school garden gave the children a positive outcome, as highlighted in this quote:

…..they would learn how to grow plants from seed and cutting, nice things about nature and plants and things. (In.11)

At the time it was not known to her as any type of therapy, but she considered this helped children in a practical way.

Interviews with past and present teachers found that within schools, there are children who benefit from being in a garden. Some teachers are beginning to see this in HBT terms. An example of this was a current teacher (Informant 19) who was working with children in schools. She said that HBT assisted isolated children to be part of the social system of the school. In this case, the teacher became aware of the benefits of HBT by observing children
though her work and had read books such as Louv’s “Last Child in the Woods” (2008). The influence of individual teachers such as Informants 11 and 19 certainly helped to introduce HBT in the schools where they taught.

Although not part of the school’s curriculum, teachers reported positive outcomes such as children engaging in increased conversation, less negative behaviours and feeling a sense of achievement and increased self-esteem. Such positive perceptions possibly led to the sustainability of individual HBT programs within individual schools. It is not surprising that practitioners said that as they became more convinced of the benefits of HBT, they further developed their own program within the school. It was also found that when some teachers moved to another school or similar workplace (such as a disability service), they were likely to develop HBT in their new place of work. Informants 7, 1, 15, 19, 22 and 29 had all been teachers in the education system at some time. They had also initiated or experienced HBT while teaching and were still involved in HBT in one way or another. This supports the view that once a teacher has experienced HBT they are likely to remain engaged in HBT programs throughout their working life. However, there was no certainty that a HBT program would remain in the school once the teacher supporting the program had exited. This issue will be further discussed later in this chapter.

4.3.2. The development of community gardens

Informant 21 was the former CEO of a community garden organisation in Victoria. She said that the beginning of modern community gardens can be traced back to the 1980s when “people started looking at a range of issues to do with environmental and sustainable development” (In. 21). The 1980s was also the time when reportedly the first key research was published suggesting that nature was beneficial to humans (Kaplan & Kaplan, 1982).

According to informant 21, community gardens continued to grow in popularity from the 1980s to current times. This has not only provided opportunities for people to grow plants for food but to also provide an ever growing number of venues for HBT to develop. As community gardening grew in popularity diverse groups of people started to use the gardens. According to Informant 21, many current community gardeners had moved to Australia
from hostile, dangerous or economically poor conditions. This included refugees and immigrants whom she described as coming from “all sorts of foreign environments as in unhealthy environments, mentally unhealthy” (In. 21) and used community gardens for recovery along with growing food plants.

Both Informants 18 and 21 described community gardens as cultural and community places where people can recover from trauma, become less stressed and receive the benefits of being in nature. In the 1980s, community gardens in Victoria were not likely to be recognised as providing such opportunities but now people such as Informants 18 and 21 are comfortable attributing “widespread social and health benefits” to time spent in community gardens. Along with the increasing popularity among new arrivals, Informant 21 stated that community gardens have also become popular with many in the general population (s.2.15.4).

4.3.3. Vocational programs

In the 1950s, parents of young adults with disabilities began to establish work related programs so that these young people could experience employment (Aust. Govt., 2013). These programs became known as sheltered workshops and provided many different vocational experiences including gardening and nursery work. Many of these early enterprises have continued to provide horticulture-based work while new ones have emerged. Informants found that engaging in horticulture-based work was particularly suited to people with disabilities because the work could accommodate many different levels of skill. They also reported that in some instances, behaviours of concern were moderated.

Some of these vocational programs have been operating for over 30 years, with one growing from a few participants to over 100. The manager of this program (Informant 14) attributes the continued growth of the program to the natural setting and the nature of the work (working with plants). There was also a financial outcome for the organisation. The plants produced at the nursery were sold and the profits were used to provide support for participants, purchase machinery and expand the program. Because these types of programs were profitable and popular, they were replicated across Victoria from the 1970s to current times. Infoxchange (2015) is a community
and social information network. In 2015 it listed 127 community services in Victoria that have garden programs. The majority of these involved some kind of horticulture work.

4.3.4. The emergence of HBT in disability day services.

A former manager of a HBT organisation in Victoria (Informant 9) highlighted the evolution of HBT through its introduction into the disability day services sector. She said of her introduction to therapeutic horticulture:

*I always did a lot of gardening. I do actually have a brother with a disability. I have a love of gardening and could see very much the connection.* (In.9)

Many current practitioners have also made this connection and have applied HBT within the disability sector. The inclusion of HBT in disability day services has had a long, but generally unrecorded history. Over 30 disability day services currently use KHGC for HBT and according to Informant 7, records at KHGC show that this has been constant for over 20 years. Although disability services appear to have continued engagement with HBT, little is known about these activities.

This lack of detail may be somewhat explained by the experience of Informant 15 who was part of a HBT program that was very popular but ceased after a time. She was a program manager of a rural disability service in the 1990s. Participants attending the service were said to have significant intellectual disabilities, while some also had physical disabilities. Her interest in HBT developed after attending a permaculture course. Later she thought that gardening could be good for those attending the centre where she was employed. Having learnt horticulture skills at the permaculture course she said it was her decision to build this into something tangible for her clients in the disability service.

*.....then from what I learnt I tried to pass on to the clients here and to the other staff, what we could do. What was good for the environment, basic tasks, nothing too complicated.* (In.15)

This interest was developed into a program involving people with disability to grow vegetables. In a short period of time she noticed that participants were
“less stressed, more comfortable” and “were achieving more than they usually did” (In.15). This in turn led to more extensive garden development until all of the people attending the centre were involved. She recalled that about 30 participants were involved with HBT for both recreation and therapy.

The program was highly successful with the garden eventually spreading over several hectares of reclaimed land that once was part of a coal mining enterprise. The HBT program included both plants and animals and was supported by three staff members. Informant 15 described the gardens as having:

...different “rooms”, we had peppermint, we had mint room with lots of peppermint, we had lemon and rose, which was sort of aimed at sensory gardens. The different smells the different textures.....some citrus trees out the back...
(In.15)

She said that over the years, the garden flourished and eventually became a focal point of community interest. This provided many opportunities for social interactions often missing for people with disabilities. Supporting the point that outcomes can come from passive involvement, the informant noted that:

....some do not even want to participate but they want to be there, they just want to sit and watch. Yeah, so they just enjoyed it, that sort of thing, instead of staying inside, they just want to come out, relax and watch us being physically active.
(In.15)

Others were said to be more active as they “want to turn over the soil because they found it so calming” (In.15).

Unfortunately, HBT at this facility is no longer available. The reason given by the informant was that the staff members that provided the program have now moved on and new staff were not interested in being involved. Similar experiences to Informant 15 were reported throughout this study and will be discussed in other sections. There is great potential for HBT to have an important role in the disability sector as it can provide opportunities for skill development, reduction of social isolation and can moderate behaviour. However, as Informant 15 has indicated, the sustainability is largely dependent on individuals. This theme of sustainability will be explored further in section 5.2.
4.3.5. The role of Occupational Therapy (OT)

Both internationally and in Australia, occupational therapy is closely associated with the origins of HBT (s.2.7.5; s.2.8.2). Although there is little information about the development of OT in Victoria, several key informants for this study recall working with OTs in the 1980s. Informant 3 said that in the 1980s, OTs sometimes used HBT while working with patients in rehabilitation. Horticulture was also included in OT training according to Informant 6. Up until the 1980s this relationship between OT and HBT in Victoria closely resembled the development of HBT in the USA (s.2.7.6) but this changed in the 1970s when the USA introduced the first horticultural therapy courses leading to HBT becoming a practice unto itself (s.2.7.6). Many other countries followed suit but in Victoria/Australia, HBT did not separate from OT and it did not become a separate practice.

To gain a sense of the current relationship between OT and HBT, this required the input of current and emerging OTs (s.3.8.3; s.3.8.4). Informant 28 (Key Informant) was an OT educated and employed in Victoria; Informant 3 (Key Informant) was an experienced OT educated and employed in the UK before moving to Australia in 2009. Informant 3 described her OT training and early experience in the UK as practical: “we did some of the craft activities and did less of the statistics and academic stuff”. In the 1990s she witnessed a change occurring in OT training in the UK. She found that it became “more academically focused "and that although the training changed, HBT was still used in daily practice. This was different to current and emerging OT practice in Victoria where HBT is rarely used. As Informant 3 recalls, OT in Victoria became more about assisting patients to develop or retain independent living skills and less about “occupation”. At this point the use of horticulture diminished.

The focus groups revealed that current OT students have little understanding or experience of HBT. None of the 8 OT students that participated in the two focus groups had any formal training in HBT. It is not surprising that they said that they were not inclined to use it once they were
qualified. The view of the Key Informants and emerging OTs was that the use of HBT in Victoria by OTs is infrequent at best.

When OTs were no longer using HBT it left a void but some individuals in the health sector and the general community remained interested in HBT. It was largely this group that went on to establish their own programs and assisted the ongoing development of organisations such as KHGC and ILGC.

4.3.6. The use of HBT in rehabilitation

The development of HBT programs in the rehabilitation sector was largely based on the belief by individuals that there were beneficial outcomes for their patients. One informant was working as a rehabilitation nurse when he left to pursue his interest in horticulture; he later returned and found a way of combining both interests:

I came back in 2003, primarily to nurse, back into nursing. I also had a day a week that I kept free for horticulture pursuits. I started to come out and potter in the garden in my spare time and my boss on the ward here started to encourage me to bring other patients out.
(In. 6)

This example of informality of commencement of a HBT program is consistent with the origins of these programs. Being reliant on the interest and initiative of one individual was commonly mentioned by informants of this study as integral to the development of HBT. Informant 6 had the chance to prove to others that HBT has a place in rehabilitation and can be an effective tool for recovery.

In a similar way, Informant 1 applied his knowledge of horticulture to develop a HBT program for people in drug rehabilitation programs. He came from a non-clinical background with no experience of rehabilitation but like Informant 6, he realised that he could “experiment” with HBT to see if it could assist recovery. Over a period of 10 years he increasingly applied HBT in several major drug rehabilitation programs. The informant described his early experience as “winging it a bit”. Since then, the HBT programs have developed into an established part of patient rehabilitation process and recovery plans.
4.4. Summary

Findings outlined in this chapter have cast some light on how HBT emerged in Victoria. It was found that HBT programs were not easily established as practitioners often struggled with definitions, language and terminology and were unsure of their own direction. This highlights the difference between Australia and international practice. The language of HBT is well established internationally. Relf and Dorn (1995) clearly described the definitions of HBT in the USA while Sempik, Aldridge and Becker (2002) articulated the use of language in the UK.

Early practitioners reported that they found information difficult to find and therefore, were more likely to initiate a program based on their own views. Informants provided little evidence of a formal structure or procedure in the development of HBT programs. However, organisations, such as VSSN, KHGC, ILGC and HTAV may have influenced some of the emerging practitioners. Given the timeline (1970s & 1980s) it is likely that the establishment and popularity of these organisations was influence by early HBT theorists Kaplan and Kaplan (ART) and Ulrich (PET). It was found that the contribution of individuals in various aspects of HBT was essential to the development of HBT in Victoria. This was particularly so in disability, aged care, drug and alcohol recovery and rehabilitation practice. Individuals such as Rhea McCandliss (Simpson & Straus, 1998) were early contributors to the development of HBT internationally. However the individuals in other countries were already supported by established rehabilitation programs and quickly formed associations of like-minded people. This provided structure and sustainability that this study has found is not available in Victoria/Australia.

Some of the key themes identified, such as sustainability, information availability, structure of programs and the benefits as perceived by the informants will be covered in more detail in the factors facilitating development section (s.5.1), the factors inhibiting development section (s.5.2) and the section relating to the perceived benefits (s.6).
Chapter 5 - Factors facilitating and inhibiting the development of HBT in Victoria

In the previous chapter the origins of HBT in Victoria were explored. This included a discussion of informant experiences of the development of HBT. Some of these experiences were positive, while others were not. Both positive and negative responses were identified though informant interviews and sorted using the coding methods described in Chapter 3. The coding and analysis are steps are shown in Figure 4 (p.88). The analysis first identified key themes and then these were divided into facilitating and inhibiting factors.

The first part of this chapter presents the factors that were considered to facilitate HBT development these include: the dedication of individuals (5.1.1), the value of publicity and public acceptance (5.1.2), growing concern about the environment (5.1.3), and the impact of funding and access to government support (5.1.4)

This is followed later in the chapter with those factors that were said to inhibit development including:

5.1. Factors facilitating the development of HBT

This section presents the key factors found to have facilitated the development of HBT. These include the influence of the individual, publicity and public support, the environment and funding.

5.1.1. The dedication of individuals

Of the 30 key informants in this study, 12 said that they initiated a HBT program. Without the input of such individuals, it is likely that HBT would not have developed at all. A number of characteristics were common to these individuals: most had an interest in gardens, parks or the environment and were drawn from the aged care, disability support, education and health care sectors.

Informants generally had a strong belief in the value of horticulture in providing a sense of wellbeing and calmness. Several informants stated this was something they had experienced themselves. One example was a disability support trainer who was working with young adults, who said that:
I suppose in a very loose way my own personal horticultural therapy....I suppose it starts off with something like that and then you can see how you can use it to help other people. (In.18)

For other informants, it was their own life experience that influenced them looking at HBT as a way of helping others. Both Informant 18 and Informant 12 had worked in the horticulture industry and said they used these experiences to develop their program. As a diversional therapist, Informant 12 decided it was within the scope of her role to establish a sensory garden. She commented:

\[ I \text{ had a love and interest in gardening as a child. I started my career in the nursery industry in production and tried some retail then decided I would like to know how I could use these plants. So I took the opportunity to go in a new direction and what I would like to do. To develop a sensory garden. (In.12) } \]

A different type of garden was created by Informant 22. Using her experience as an early HBT practitioner, she delivered a home-based garden program that allowed an aged person to retain her garden and reduce her social isolation. She Commented:

\[ \text{When I went to her place you could not get into the back yard, it was housing commission, tiny little pocket, it was overgrown, she never went out, she was quite depressed. It is now a beautiful little court yard with an outside garden setting, we have our coffee there, she goes out, she sits in the back garden, she reads, you know, to me that is still the same thing. (In. 22) } \]

In this instance the program was as much about social contact, by working in the garden together, as it was about making a garden. From this experience she witnessed positive outcomes and the program grew. Over several years Informant 22 spoke of her experience to others who went on to develop similar programs.

Another example of the dedication of an individual was presented by Informant 4. As a strong advocate for children to engage more with nature he established a HBT program in a city courtyard. He considered that gardening was a simple and effective way of experiencing nature. In his words:
......I try and get in there and encourage the children to do it themselves......mainly it is just creating the opportunity for the kids to be able to get in and do some gardening 
(In.4)

Also working with children and sharing a similar point of view to Informant 4, a current teacher said she extended her garden program after having success working with children who were underperforming in school, had a disability or were socially isolated, saying:

*I worked about 5 hours just maintaining the gardens; from there I became the “pied piper”. From there I went to the principal and I would say for the last 6 years we have run a course of some sort to teach the children about the garden and it has developed from there.* (In.19)

Describing this further, this teacher explained that the HBT program grew from a few children to involving all of the school. This was possible because of the positive relationship between her, the school principal, and the children:

*I guess my connection has grown with how the school has developed and the need for it (HBT) and from there my love of it (the garden program) and the pleasure I get out of the children participating with this has grown.* (In.19)

As the lone practitioner, Informant 19 was not only the initiator of the program she was its chief advocate. Recognising the benefits of HBT she approached the school principal for support to run a permanent garden program to assist students. The motivation of Informant 19 was purely altruistic and the wellbeing of the children was foremost to her. The principal agreed that HBT has a place within the school and the program was expanded. Informant 19 and her principal supported HBT not only because children succeeded in their garden activities, but they also found that it could also moderate existing negative behaviour and reduce isolation at school.

The findings suggest that the dedication of individuals is a very important factor in the development of HBT. Informant 6 stated strongly that as “with a lot of other programs, it is the key person that drives it”, adding “that has been the evolution here; it has been myself that has created it, had the interest, had the passion” (In.6). These were factors that were common to many HBT programs. This sums up the influence of individuals who have initiated a HBT program; the factors for success were based on their interest
to establish a program and they were the ones who advocated and promoted it both internally and externally.

5.1.2. The value of publicity and public acceptance.

The role of the practitioner as the advocate and promoter of HBT programs was demonstrated as an important factor for success by several informants. This sometimes extends beyond the individual and becomes promotion of HBT in general.

While working in rehabilitation, Informant 6 found that publicising the benefit of a therapeutic horticulture program through the popular media of magazines and newspapers, assisted the establishment of his program. He considered that once people were aware “this can give word of mouth an opportunity to work” (In.6). He found that the response from patients was:

... a very positive reaction, they see it as a very positive thing, and hearing them talk about it (HBT) and then telling their families and then their families coming to have a look at the garden and the nursery area where they have been working, and it is like gold, like a nugget of gold. (In.6)

The promotion of HBT was also supported by Informant 2 who said:

You’ve got to have good examples of things that are working, you need profile, and if you do not you’re just out there competing with a whole lot of other programs. (In.2)

Informant 6 was actively seeking a higher profile for his program in many different media outlets and he considered that this was successful, commenting:

I find that here there has been exposure through people seeing it (HBT), it has been on Gardening Australia (television program), there is magazine articles, there has probably been about twenty articles written over the last five years about the program, or gardens or the hort (sic) therapy program. (In.6)

Informant 6 found that publicity was a particularly important tool when his program was emerging. His HBT work needed credibility to gain internal support from his managers. Stating the value of HBT on television and being published in gardening magazines and newspapers gave him the chance to present his case to a broad audience. Interest and support by the general public in turn influenced the hospital management. This was a winning
strategy for Informant 6 who has continued to develop HBT programs. He suggests the need for:

.....good working examples and highlighting them, that’s when talking to others, encouraging people, if they want to start a program utilise the local media, utilise the connections that you can have, just share your story so they know about it and they want to do a story so more people are hearing about it. So at different levels different things are happening. (In.6)

According to both Informants 2 and 6, good working examples of HBT can play a key role in facilitating HBT. When good examples are provided they can be used to publicise individual programs along with HBT in general. This can be a method to gain public support which in turn can influence decision makers.

5.1.3. The growing concern about the environment.

One of the persistent themes throughout this study was the influence of community environmentalism. Interest in the environment facilitated an awareness of the positive effects of nature on human health. This was linked to the development of a number of HBT programs in this study. Following this line of thought, one former CEO described the purpose of her organisation as:

.....an environmental education charity and as such we engage people with nature so they understand how to look after and appreciate the importance of the environment. (In.13)

Describing this further she added:

Not only for the sake of the environment but obviously for the holistic sense, for that being a spiritual perspective of being in nature, there’s a whole range of ways in which we engage people. (In.13)

She said that the recognition of the benefits of nature produced a flow through to the development of HBT programs. The organisation she managed engaged people in HBT in several ways. For example, a park-based program was developed because of a strong belief that HBT could assist to moderate the behaviour of young people with mental health disorders. This successful program was followed by a program that assisted children with disabilities in horticulture-based activities.
The environment, including aspects of sustainability, climate change, global warming and drought, were frequently mentioned by informants. The high profile of environmental issues provided a starting point for discussion that could facilitate HBT development. A former community garden CEO said that gardens “mirror people’s general awareness in the community about the finite nature of our resources” (In.21).

In some schools the interest in the environment was most pronounced and clearly influenced the development of HBT. Widespread exposure to major environmental issues such as climate change promoted interest from teachers and students. One teacher described her HBT program in these terms:

...the purpose is to teach children about our environment and to teach children about sustainability, looking after our world to have a hands on effect on how our school environment looks and grows and to care for it and to own it. (In.19)

Although this teacher described this as an environment program the outcomes she reported, including changes in poor behaviour and calmer students, are those most often found in HBT programs.

Those involved in environmental issues were from throughout the community and therefore provided opportunities for HBT to develop in diverse locations. A horticulture graduate (In.26) working with students at a university described her program in an almost spiritual way:

I think it should be used to help to reconnect to that primal belonging “I belong to something greater” which in itself is a healing thing when you feel like you are not just a small human alone you are actually capable of creating change through what you do so you can change a garden. (In.26)

Informant 26 was a graduate of environmental studies and advocated for greater awareness of nature as a healing source.

According to several key informants, the extensive community and political interest in the environment has facilitated the establishment of HBT through environmental activities and though environmental organisations. Some of these activities were supported by both government policy and funding, such as revegetation projects. More often they were supported by schools or community groups where informants were employed.
5.1.4. The impact of funding and access to government support

It was widely reported by informants in this study that access to funds to provide a HBT program was limited. The question relating to funding was generally answered negatively and informant responses included; “government funding is just too difficult, too convoluted” (In.6); “complicated, because until it (HBT) has an identifiable tag it does not fit anywhere neatly” (In.7) and “from my experience it is hard to get funding” (In.24). This negative response was expected because HBT is yet to become widely recognised in the health sector and is currently unlikely to receive direct funding.

However, informants spoke of programs where government funding was often provided indirectly. In most cases the funds were provided to individuals with disabilities as a support package. Informant 7 used this funding to facilitate the involvement of people with disabilities in HBT programs and commented:

...... to anyone who needs different types of support. Practical support sometimes, like physical support when the volunteers are not here or someone needs extra help to support volunteers in terms of delivering the program in ways that they enjoy. (In.7)

Although the funding is provided indirectly by government it is rarely credited as such. Another indirect form of government funding was provided to horticulture based vocational programs.

Over the past 20 years the Australian government has provided funding so that those on welfare benefits could be trained to be employed. There has been a history of those experiencing disadvantage, particularly people with disabilities, working in commercial plant nursery programs. According to Informant 14, the expectation of vocational training and employment was often difficult to deliver because of the level of intellectual and physical disadvantage. In an attempt to overcome these disadvantages, the Australian government has provided funding to organisations to train people with disabilities to develop skills so that they may enter the workforce.

Those responsible for vocational programs such as Informant 14 and Informant 1, observed positive emotional responses when working with people who have disabilities, mental health issues or in drug and alcohol programs.
As a manager of a government funded vocational program, Informant 14 also noted that this funding provides resources, allows for programs to be established and specific training to take place:

*I see the reason it (vocational training) has continued to be successful is that it is structured specifically for people with disabilities, the success is because we work within the nursery we have all the equipment we really need.* (In.14)

Vocational drug and alcohol programs largely resembled those for people with disabilities. Informant 1 had worked in both sectors in various roles including vocational training. He considered that HBT was a contributing factor assisting positive employment outcomes for people in residential drug and alcohol programs. In his opinion HBT is important when: “after the person has done this therapy that the person is going back to work or start work”.

(In.1)

Although Informant 1 said that only 22% of participants completed rehabilitation successfully, for those that did, employment was a contributing factor. The facilitating factor that allowed this to occur was the access to government funds. Adequate resources and funds are seen as essential to the success of HBT programs. As the responses of informants show, government funds may be available if the HBT program is responsive to their policies, such as reducing discrimination and increasing employment.

5.1.5. Summary of facilitating factors.

This section has presented some factors that facilitated the development of HBT in Victoria. This largely supports the The strongest of these was the interest, drive and dedication of individual practitioners. For some this involved being actively involved in promotion. Community environmentalism, particularly in schools was presented as an opportunity to introduce HBT. Although most informants found the access to government funding was difficult others reported that indirect government funding was available, particularly for vocational based programs. While this section presented the factors facilitating the development of HBT in Victoria there are others that inhibit development. These are presented in the following section.
5.2. Factors inhibiting the development of HBT in Victoria

This section identifies those factors that have inhibited the development of HBT. It was found through the informant interviews and subsequent coding and analysis methods described in Chapter 3 that inhibiting factors considerably outweighed facilitating factors. This was not just in the number of inhibiting factors but also the level of impact they had on HBT development. The analysis identified key inhibiting themes including: the dependence on the individual (5.2.1), the availability of skilled and trained staff (5.2.2), the low profile of HBT (5.2.3), the lack of a description or definition (5.2.4), low profile and lack of professional recognition (5.2.5) limited funding (5.2.6) and lack of suitable HBT places and facilities (5.2.7).

5.2.1. The dependence on individuals

As stated in the previous section, single practitioner programs were the most prevalent form of program delivery reported in this study. While informants acknowledged the contribution of individuals as facilitators, they also described the dependency on one person as a risk. Informant 30 was an early practitioner and stated that there is a danger of a program ceasing when “those people who are passionate lose that passion or move on to somewhere else” (In.30).

Informants from current programs reported that this is still an inhibiting factor for the development of HBT. When an individual is the initiator, developer and advocate, all of the structure and support generally rests with that person. This risk was widely reported by many informants including Informant 11 who stated that:

......once that one person loses interest or something and they go, they move on or whatever. As people do very often, a program just falls in a heap and does not go anywhere. (In.11)

Being in a team does not necessarily diminish the risk. Informant 15 was part of a team of teachers providing a range of innovative HBT programs at a disability centre. After several years she was the only member of the original team. She stated that the cause of this was a “decrease in the energy and interest” (In.15). The lack of support was not confined to her colleagues;
Informant 15 had also lost interest as members of the team departed and more responsibility was placed on her, the remaining practitioner. Eventually she became the manager of the facility and the HBT program was largely forgotten. When asked to explain this she shrugged her shoulders as if confirming her lack of interest. This practitioner had gone from being one of the most enthusiastic supporters and innovators of HBT, to now having little involvement at all. Informant 6 also found the energy to keep a program going creates pressure on the individual:

*I think that is part of the issue too, people trying to start programs up or run programs, managing where to get funds, having time to do that without burning yourself out.* (In.6)

The risks associated with being reliant on an individual were not confined to those involved in providing programs; it was a uniform result across all HBT sectors. For example, Informant 2 who provided a module of HBT training at university level but said “if I stopped having an interest in it, it would stop”.

It would seem that programs run by a single person programs, and those supported by individuals, can be developed with enthusiasm and run with passion, but will be unlikely to prevail unless some form of additional support is provided. This is a considerable inhibiting factor in the development and sustainability of HBT in Victoria.

5.2.2. The lack of skilled and trained staff

There are a number of skills required to successfully provide a HBT program. In most countries where HBT is available, these skills are developed through formal HBT training courses accessible through universities and colleges. It is also expected that practitioners in some of these countries are accredited and registered as a HBT professional. These formalities are missing in Victoria/Australia (s.2.14) and it is suggested that this is an inhibiting factor for the development of HBT.

HBT in Victoria is dominated by individuals who self-proclaim themselves as practitioners, many deservedly so. However, without a standard of practice or formalised education there are no certainties that
those who call themselves practitioners have the ability to do the job.

Highlighting a need for skilled practitioners Informant 1 stated:

......the selection of staff is one of the most important things. One of the biggest things is to have that staff member who can successfully work with your clients to bring out the best in that individual. (In.1)

He also suggested that not only are trained personnel a resource, they maximise the funding available for programs because they can apply their skills effectively:

You are not throwing wages at someone who does not have a clue how to work with a client, the right person in the right place. (In.1)

He added that it was difficult when staff needed a duality of skills in both horticulture and an appropriate social science:

We are training staff when they have a horticultural background or they may have a drug and alcohol background so we are re-training them to bring the two together. (In.1)

The need for duality of skills was also expressed by Informant 7:

The lack of trained staff that have an overview of intellectual disability or horticulture or whatever else to bring those things together at a professional level there is no specific course for it. (In.7)

Several informants suggested that it is often up to them to ensure the HBT practitioner is skilled enough to undertake the requirements of the job. This puts pressure on them, because each time new staff members are required, they need to train them to provide HBT. Informant 9 found that this:

...... is a major issue we have either people that come from a caring background and no idea about plants or people that know about plants but have no idea. So it has been very difficult to find staff even with an interest in both. (In.9)

Informant 6 considered the practicality of developing formal training when the profile of HBT and current need for therapists may not support such training:

...we set up training to establish the cred (sic) as hort (sic) therapists but then there are no jobs out there to advertise for because people do not know what hort (sic) therapy is about. (In.6)
Furthering this point, he suggested that because HBT is not accredited it is unlikely to be supported in the health care system. A different perspective was presented by Informant 17 who said that “staff may not be interested or skilled to practise horticultural therapy” (In.17). In this case, the informant was pointing out that in some instances, staff lacking any form of training in HBT are put into a position where they are required to support a HBT program. This could result in disinterest and the neglect of the program. Summing up the views of many of the informants, Informant 2 stated that for HBT:

.....to be recognised there has to be some expansion of education. I think that has to go back to educating therapists and horticulturists, educating organisations on how these programs are effective and how they can be used and how the need to be funded. (In.2)

Therapeutic professions such as Art Therapy (AT) and Music Therapy (MT) have overcome the duality of skills problem though an education and accreditation process. At this time professional accreditation does not exist for HBT in Victoria/Australia (s.2.14).

The importance of having staff with the practical skills and the ability to support a HBT program was a recurrent theme with many informants. The lack of formal training opportunities has an impact on many aspects of HBT and remains a major inhibiting factor. With training there may be potential for improved quality and consistency of programs along with a greater certainty for HBT sustainability.

5.2.3. The lack of structure, description or definition

According to Rayner (2006), Victoria shares a common problem with all of Australia: that HBT has little or no formal structure (s.1.1). Other informants also pointed out a lack of an agreed definition. This makes it more difficult for practitioners to gain sufficient interest to run regular programs, attract funding or be understood by health practitioners. It was also found that without clear program structures and uniform methods of practice, it is hard for people to understand the role of HBT and the benefits it might provide. Informant 6 described programs as:
In support of this, Informant 9 described programs as “ad-hoc”.

Although informants recognised there is a need to have a definition to link to the profession, most feel there is difficulty finding one definition to fit all aspects of HBT in Victoria/Australia. Informant 6 questioned the use of the term horticultural therapy as an overall description. He suggested this did not represent most HBT programs because horticultural therapy was more suited to clinical applications “when in actual fact that is not really what we might be doing” (In.6). His view was that “ninety nine percent of the people here in Australia are doing the therapeutic horticulture side of things, the wellness and wellbeing” (In.6) rather than the clinical horticultural therapy.

The majority of informants agreed that the terminology used in HBT causes confusion in the general community, and even among those providing HBT programs. Some considered the term therapy an issue, while for others it was horticulture. Some informants considered therapy a clinical term and not suited to social, recreation or vocational HBT. Others considered that horticulture was too broad and “gardening really should be just a simple thing for anyone to do. It should not be an elitist kind of thing” (In.11). What informants are saying is that for HBT to develop in Victoria/Australia everybody needs to be speaking the same language. However, there has been little consistent agreement on any description and therefore the term horticultural therapy has persisted. There is still considerable support to “take away the clinical jargon” (In.29).

According to Informant 2, having “no clear model” was an ongoing issue particularly when attempting to cover all aspects of HBT. He said that he was:

“trying to look at the theoretical underpinnings of this and applications of where it sits in terms of case studies and then some ideas of where it might go into the future, particularly in relation to schools and community gardens and the therapeutic sector.” (In. 2)
The idea of looking for “where it sits” and the identification of the role of HBT was a significant factor in inhibiting the development of HBT, as mentioned by Informant 6:

......programs then are more about recreational activities than the hort (sic) therapy model that we term ourselves in using it as a treatment goal.... and doing exactly the same things sometimes I am saying yep, that is hort (sic) therapy, and then yep that is therapy with horticulture or that is recreation based, that is treatment based.

This lack of clear description makes the promotion and marketing of HBT difficult. Until practitioners are using the same terminology and definitions the confusion about the function and aim of HBT may continue to restrict development.

5.2.4. The limited access to information and retention of information

Informants found that there was considerable frustration when attempting to access information when seeking to establish a HBT program. There was a uniform view that local information was very limited and behind the times. Informant 30 spoke of “making it up as they went along” (In.30) adding that she “did not clearly understand what they needed to provide to participants as a program” (In.30). Furthermore, past and present practitioners said that they were hindered when people accept horticulture as an activity but are not convinced that it can improve human health and wellbeing. Informant 9 commented:

.....there is not a lot of convincing information about nature and health and wellbeing and this type of health intervention (HBT) is largely unknown (In.9)

This meant that most new practitioners had to mount a convincing argument to get acceptance for a HBT program. This took time and energy and was frequently repeated.

Informants mentioned that it was not helpful that local information is difficult to access. Not much lasting information is produced, retained or passed on to emerging practitioners. In most countries information is provided as part of approved courses, but as Rayner (2006) stated, there are no approved Australian tertiary courses in HBT therefore this avenue is not
available (s.1.1). As noted in 4.3.1, most HBT programs are run by a single practitioner and this is a risk to sustainability. It is also a risk for information retention because if the program ceases, it is unlikely that information is passed to the next generation because few practitioners have documented their experience. Others who commented about limited information included Informant 19 who said:

.....that specific quality information about running and supporting people in horticultural therapy programs is scarce, particularly Australian information (In.19)

and Informant 9, a former CEO of a HBT based organisation, said that HBT information in general:

.....is not widely available and is likely to be found in the alternate medicine section of a library, bookshop or websites. (9)

It is unfortunate that this situation continues with current practitioners who are said to be “winging it a bit” (In.1) or having to discover for themselves what works in their program by using trial and error methods. Informant 22 found that the information that was available was limited:

I know I always used to struggle around activities when people used to ask me what I can create in the programs. I used to learn from people, I used to go and visit and learn, I would like to think in two years there might be more but there was not much at all. (In.22)

Some informants expressed frustration that when setting up a HBT program, even in the past few years, there was little local information available. Even at the most basic level information was difficult to obtain. It was particularly disturbing hearing from Informant 4 who had little knowledge of HBT even though he was researching nature based therapy as part of his Doctorate of Theology. He mentioned:

I have sort of just done our own thing, it is only in recent times I heard of a horticulture therapist or a gardening therapist, I have known for several years about art therapy. (In.4)
Informant 4 highlighted the very important issue of HBT awareness. He was not able to be informed about HBT because he lacked the information to identify certain activities as being HBT. The fact that he was performing HBT tasks was not something that he became aware of until the program was up and running. This suggests that until HBT has a higher local profile and a clear definition and structure this problem will continue. Informant 30 had the view that this lack of information is due to the relative infancy of HBT in Australia and stated:

.....written things take particular people with those sorts of skills time to actually put it down on paper and write it. In a young environment, a young group, you are not going to have that as often, as much, so there is not as much around at the moment. (In. 30)

It would appear that there is not only a lack of information about HBT but also a lack of information on how to acquire, store and distribute such information. It was pointed out by Informant 30 that people need time to develop the skills to write quality documents that inform others. Similarly, Informant 2 noted that HBT does not have a solid research base in Australia and this makes it difficult for people to develop specific skills. Therefore, HBT struggles with a lack of professional credibility as a result, Informant 2 stated that:

......you start to see these deficiencies that exist here in terms of the knowledge base, particularly when, and I have only looked at the literature a little bit but you see examples of hort. therapy overseas and there is less development here than there is elsewhere. (In.2)

and

.....we are not involved enough in some good research that would actually provide or verify a lot of the benefits of these sorts of activities. (In.2)

In light of the abundance of international information available, it is extraordinary that most of the informants in this study considered that there was little information about HBT available. However, in an environment where the subject of HBT is not commonly known, this should not be unexpected. When emerging practitioners have not been exposed to HBT in any way, they may consider that what they are doing was unique. In a community where a consistent definition of HBT is still to be decided, where information is scarce
and education is virtually non-existent, emerging practitioners, even those with the best of intentions, may struggle to develop programs.

5.2.5. Low profile and lack of professional recognition

It should not be surprising that many informants consider that HBT has a very low profile in Victoria/Australia. The lack of structure, definition, training and information would not be conducive to creating a useful level of professional recognition. In comparison, Informant 5 spent several months studying HBT in the USA and she found that HBT practitioners there had:

...... real recognition that you were part of a team, part of a hospital team or the therapy team or the treatment team or a part of the education team. (In.5)

Informant 27 recently worked in the UK as an OT where she found the health system more flexible than Australia and open to programs such as HBT. Providing the health outcome matched the need of the patient, much of the rehabilitation was at the discretion of the practitioner, she suggested. She provided the example where:

......you have got somebody who you have been working on their grip release stuff. They do get it the end when they are able to pot that plant or put that in the soil (In.27)

After more than 10 years as an OT practitioner in the UK, Informant 27 said that from her experience, HBT is recognised as an independent practice and is also widely provided by OTs. This level of recognition is yet to occur in Victoria/Australia. Informant 27 was trained as an OT in the UK in the late 1990s and HBT was part of her OT training. By way of contrast, the OT students (focus group informants in this study), when first asked about their knowledge of HBT, provided the following responses:

- I have never been told anything about that, I have never heard it never heard of it
- I have not heard of them (HBT practice)
- (I do not know about HBT) definitely not at Uni(sic)
- I think I might have come across some garden activities in some textbooks in the form of OT, just generally nothing in too much detail. (FG1 & FG2)

In Australia OT, AT and MT are readily accepted by the health sector as valued and valid therapeutic interventions but HBT has little recognition.
Informant 9 was a former CEO of a HBT organisation and had the opinion that HBT is not fully understood and “may be perceived as flaky or odd and people do not see the intrinsic value” (In.9). Another informant commented that there is “little public awareness, which influences interest and demand” (In.2).

Informant 11, on the other hand, considered this an issue of public understanding and terminology. In her words:

"......you would say to them "and do you find it is less stressful in the garden" That is the therapy, and they would go, “Oh yeah”. I do not think people perceive that. I think that this is not very well known." (In.11)

Informant 6 was a current rehabilitation centre nurse and presented similar issues in a clinical setting:

"Public awareness, management level awareness, community awareness, funding, are some of the issues. Like here, this is not a mainstream therapy." (In.6)

The awareness and identity issues along with a lack of formal definition or qualifications are factors inhibiting the development of HBT. Further to this, there is no recognised body representing HBT in Australia. Small local associations, such as the HTAV, exist but are generally providing information at a basic level. There was widespread support amongst the informants for a national organisation to represent HBT and the interests of practitioners. Many informants felt that the lack of an organised approach inhibited the development of HBT in Victoria/Australia. As Informant 2 stated it is:

"..... almost crucial that there is a national organisation. If I could only identify one thing they really need to push this through into the future." (In.2)

Informant 7 also saw the need for a representative organisation stating that “there has to be an overarching umbrella I think, to work with all the groups” (In.7). Informant 21 added:

".....you have got to have some kind of lobby group to go to government to say, yes it is a valued thing, people do want this, we are twenty organisations that say that, we represent 20,000 people or something." (In.21)
The development of HBT in Victoria/Australia will continue to struggle because of a lack of professional recognition, low profile and little professional structure. Many informants voiced the view that there is a need for a group or organisation to represent the field of HBT and its practitioners at a national level. This was seen as one way to unify HBT practice and provide a voice for practitioners.

5.2.6. Funding and its impact on development

Informants throughout this study linked the development (or lack thereof) of HBT to funding. They considered that funding would not improve until HBT had a place in health, or that the benefits of HBT were more widely known. Informant 9 was the former CEO of an influential HBT organisation. She proposed that it is difficult to acquire funding if there is no clear identified product, stating that:

....the biggest challenge is, people with the funding, get them to see the fact that this is important...., I think you can do that and I think that is happening, but then it is for them to see the importance of it over and above something else.(In.9)

Adding to this she found that acquiring funding was “incredibly difficult, again because it (HBT) is not understood, it is not valued” (In.9).

In Victoria most health interventions are funded through the public health system. Being outside of this system inhibits the development of HBT considerably. Informant 6 was developing his HBT program as part of the creative therapies program at the rehabilitation centre where he worked. He said that within the health service art therapy and music therapy received funding but “horticulture did not” (In.6). This placed considerable pressure on him as he tried to find sources outside of the Centre to fund the development of the program. He commented:

We had some philanthropic funding come through that then meant we could have a one day a week program for the campus, for the horticulture therapy program. (In.6)

The funding limitations continued because, as he explained even when you did get a grant it was “hard enough to get enough out of a grant to get it to stretch as far as you would like” (In.6). Over time, the convincing health
outcomes of his program and public support gained him the backing of the Centre management that allowed for some level of financial security. In this case, as in many other cases in Victoria the perseverance of one individual saved the HBT program (s.5.1.1).

In the previous section (s.5.1) it was suggested that almost all of the informants considered that there was little or no government support for HBT. This was not necessarily so when indirect funding, such as a government provided Individual Support Package (ISP) funding was taken into consideration (s.5.1.4). In Victoria an ISP can be allocated to a person with disability to meet their disability related support needs (Victorian Government, 2015). Organisations such as KHGC provided HBT for individuals with using this source of funding. However, it was a persistent view that government support was so unlikely that it was not even a consideration for some practitioners. Informants attributed this to the issues presented in section 5.1, including the lack of credibility, no formal accreditation and limited training and information. Informant 8 attributed the lack of government support to more pressing and urgent social and welfare needs in the community stating that:

I do not think it would be as supported because there are things that should be really supported that stick out and I really think that horticulture would possibly come at the lower end of the scale. (In.8)

There was also a suggestion that governments have a preferential list of funded interventions and HBT “does not fit neatly in existing funding streams” (In.7). One informant found that applying for funding was, “counterproductive to establishing and running programs” when it takes considerable time and energy to apply with no certainty of a successful outcome (In.6).

Some informants suggested that there is a high level of uncertainty and anxiety for most HBT providers who do not have access to adequate funding. Informant 3 was aware that funding would:

....be hard because horticulture is not really classified as medical adding that there should be more funding for this kind of stuff because it is beneficial to a lot of people (In.3).
Only one park-based program had direct support of government as the primary source of funding. The former CEO expressed the view that “in terms of government support for us it has been terrific” (In.13). This was not specifically for a HBT program but for the organisation in general. Because secure funding was available, this program was highly successful. This informant was the only one in this study to be confident enough to state that “at the moment we are looking to expand what we are doing” (In.13). Unfortunately a recent change in government priorities found that the organisation is now restricted to core programs and it has had little expansion.

The lack of funding was seen as one of the most inhibiting factors faced by most informants. It was also seen as difficult and complex to acquire and was not generally available to support the development or sustainability of HBT in Victoria.

5.2.7. The lack of suitable HBT places and facilities

The purpose of HBT is to engage people in horticultural based activities that are beneficial to their health and wellbeing. Sometimes this is difficult when there is a lack of access to suitable horticultural settings. Over time some organisations have developed specific facilities for HBT. Being purpose built gives facilities the scope to develop larger more complex programs. Informants noted that they could also provide a wider range of experiences because they had resources to do so. This included raised garden beds, specialised tools and equipment, suitable pathways and automated irrigation. There is also an element of participant security associated with suitable facilities. Informant 17 states that people can relax more readily in an environment with “really good disability access so that it helps people feel comfortable”. KHGC is the only remaining example of a purpose built HBT facility that has these assets.

Even though purpose built facilities can provide opportunities for large numbers of participants, longer hours of operation and suitable support for people with disabilities, chronic health issues and disorders, new facilities are not being developed in Victoria. Informants 1, 9, 20 and 30 suggested that the impact of other inhibiting factors such as the lack of profile and recognition
has had an impact on the potential for more widespread establishment of HBT facilities.

Although facility-based programs such as ILGC and KHGC have the greatest longevity, they are also vulnerable. ILGC has recently closed after more than 20 years providing facility based HBT. KHGC is in the process of relocation after notification of the end of the Centre’s lease. Even though these facilities were purpose built for HBT the overall sustainability of HBT programs is still fragile.

5.2.8. A summary of inhibiting factors

This section has explored the factors that inhibit the development of HBT. It has shown that the lack of structural formalisation is a considerable risk because programs are dependent on the individual’s ongoing commitment and energy. The availability of skilled and trained staff was largely non-existent and it was difficult to train incoming staff. The lack of a consistent description or definition made it difficult to explain HBT to others and this inhibited the take up of programs. While there was little in the way of local information this was complicated when HBT was not easily recognised by those seeking information. The low profile of HBT was often given as the reason for the limited understanding and few funding opportunities. It was also reported that purpose built facilities could be venues for the development of HBT but there is no expected growth in that area. Many of the inhibiting factors were linked to the lack of structure and organisation of HBT in Victoria. It was proposed that a representative group or organisation was needed to represent practitioners and to promote the many benefits of HBT.

5.3. Chapter summary of factors facilitating and inhibiting the development of HBT in Victoria

This chapter has presented those factors identified by informants as those most likely to facilitate or inhibit the development of HBT in Victoria. This largely supports the findings of Smith (1984), Aldous (1982, 1984 & 2000) and Rayner (2006). It was found in this study that the dedication of individuals involved in HBT can be both a facilitating and inhibiting factor. Individuals were seen as the initiators and key supporters in the development of HBT but
there was also considerable reliance on the individual for the sustainability of the program. In 2006 Rayner (np) reported that HBT in Australia was “dominated by small groups and dedicated individuals”, it would seem that little has changed. The reports by Smith (1985), Aldous (2000) and Rayner (2006) show a consistent but informal interest in HBT but little formality in any aspect of HBT. This study has found that this is a persistent theme and a major barrier for HBT development. The use of publicity and public support was presented as a facilitator as was the growing interest in the environment; the latter was particularly prevalent in schools. Although access to funding was seen as a facilitator it was also acknowledged as difficult to attain and problematic. Some informants attributed many of the issues facing HBT to the lack of a clear description or definition, lack of information and limited public understanding, while others struggled with the recruitment of suitable staff when there was no formal HBT education available. All of the issues presented here were previously presented by Smith (1984), Aldous (1982, 1984 & 2000) and Rayner in earlier studies and presentations.

Although the inhibiting factors seem to outweigh the facilitation factors, most informants in this study were driven to continue with their programs because of the positive benefits they observed. These perceived benefits are presented in the following Chapter (s.6).
Chapter 6 - The benefits and effectiveness of HBT for various groups or programs.

The previous chapter has presented those factors that have facilitated or inhibited the development of HBT. A facilitating factor not covered previously was the belief that HBT provided beneficial health and wellbeing outcomes to a wide range of people. This section presents the benefits of HBT as perceived by the informants in some detail. During the coding of the interview transcripts it became obvious that informants had many and varied experiences that they perceived as benefits of HBT. As coding progressed new themes emerged and these were categorised. Prior to analysis these were sub-divided into intentional and non-intentional outcomes. This was done to identify HBT outcomes that occur in both HBT and non-HBT programs. Considering the lack of structure, definition and informant knowledge of HBT it was important to identify the extent of HBT in different settings. This section will cover those benefits that are intentional and not intentional and presents the benefits under 13 program categories. These programs were found in intentional programs such as: clinical rehabilitation, drug and alcohol recovery, disability programs for adults and children, garden programs for people with dementia, garden programs for people with ABI, planned sensory gardens in aged care and includes the observations of OT students in clinical and non-clinical settings. Included in non-intentional HBT were: school based garden programs, community based HBT programs for children, alternative health programs with HBT healing gardens, vocational horticulture and community garden programs.

Structure

The information provided by informants revealed that benefits of programs can be loosely categorised into two groups: intentional and unintentional.

1. Intentional

In programs with an intentional benefit, the use of HBT was provided for the primary purpose of achieving a therapeutic effect.

2. Unintentional
In many cases the therapeutic effect was a secondary outcome to the intended purpose of the program.

The table below outlines current HBT programs featuring practitioner involvement along with their benefits.

**Table 5**

HBT programs in this study according to intended and unintended outcomes

<table>
<thead>
<tr>
<th>Programs where benefits of HBT are intended as the primary outcome</th>
<th>Programs where benefits are a secondary outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical rehabilitation using HBT</td>
<td>School based garden programs</td>
</tr>
<tr>
<td>Drug and alcohol recovery programs</td>
<td>Community based HBT programs for children</td>
</tr>
<tr>
<td>HBT for adults with disabilities</td>
<td>Alternative health programs with HBT healing gardens</td>
</tr>
<tr>
<td>HBT facility based children’s programs</td>
<td>Vocational horticulture</td>
</tr>
<tr>
<td>Garden programs for people with dementia</td>
<td>Community garden programs</td>
</tr>
<tr>
<td>Garden programs for people with Acquired Brain Injury</td>
<td></td>
</tr>
<tr>
<td>Planned sensory gardens in aged care</td>
<td></td>
</tr>
<tr>
<td>Observations of OT students in clinical and non-clinical settings</td>
<td></td>
</tr>
</tbody>
</table>

**6.1. Programs in which HBT is the primary outcome**

Programs in which HBT is intentional and for which the therapeutic benefits are seen as a primary outcome include those in rehabilitation, in drug and alcohol recovery, targeted at people with disabilities, dementia and ABI and in aged care. An outline of current programs is provided prior to the presentation of perceived benefits.

**6.1.1. Clinical rehabilitation using HBT**

Widely used as part of OT in Victoria in the past, current use of HBT in rehabilitation is now confined to just a few practitioners. Informant 6 is a rehabilitation specialist at a leading rehabilitation centre and one of the few informants in this study to describe their role as "horticultural therapist"; he said he considered his role as:

"...more along the lines of horticulture therapy model, using gardening and garden related activities as part of their treatment goals." (In. 6)
He spoke of his early commitment and drive to establish a small program within the brain injury ward. This was undertaken as a personal project within the centre. To entrench the program in the recovery planning process he gained the commitment and support of management and other allied health practitioners. The HBT program is now a part of the clinical and procedural structure of the centre where referrals are made to Informant 6 as part of the patient recovery plan. While this account is based on the experiences of one informant, the information provided has been acquired over 10 years of practice and observation.

In most rehabilitation settings the emphasis is often on expediency of recovery. He said that having patients in long-term or slow stream rehabilitation gave him the opportunity to work consistently with patients and for him to plan and achieve recovery outcomes. Table 4 shows that Informant 6 has a view that, along with physical therapy and social interaction, HBT provides elements of relaxation and stress reduction which can facilitate improved clinical outcomes.

<table>
<thead>
<tr>
<th>Informant 6’s comments regarding benefits in a rehabilitation setting</th>
</tr>
</thead>
<tbody>
<tr>
<td>So at the end of a session or during a session seeing them just being a bit more relaxed</td>
</tr>
<tr>
<td>...a nice relaxing activity to do and they actually feel quite, they get enjoyment out of it</td>
</tr>
<tr>
<td>...certainly have not had anyone go away stressed</td>
</tr>
<tr>
<td>...he calmed down, he got a bit more settled, he could see the benefit, actually enjoyed what we were doing and chatting with me at the same time</td>
</tr>
<tr>
<td>Sitting around a potting up table and all of a sudden someone is initiating doing things they would not normally do in a physio (sic) session</td>
</tr>
<tr>
<td>...the cooling effect, the soothing effect, the relaxing effect of being in a green environment</td>
</tr>
</tbody>
</table>

This demonstrates two aspects of the application of HBT in rehabilitation. One was the clinical intervention as part of a treatment plan assisting the physical recovery of a patient, for example:

...up at a potting up bench as she was progressing to improve her balance. So over time we could see the impact of her doing that, the garden environment was actually a benefit. (In. 6)

The other was using HBT as rehabilitation treatment to promote the psychological, social and emotional recovery of patients. His view was that:
...patients understand doing the physio, doing the OT all those sorts of things, the need for that, but this is bit more, is more along the therapeutic horticulture guideline of using garden activities to provide a change in their day that is along the lines of wellbeing. (In.6)

Positive comments made by patients included “this is the best thing I have done all of the time since I’ve been here” (In.6). Informant 6 also found that brain injury patient’s trauma was often moderated when HBT was used. Linking patients to familiar tasks was a way to:

......encourage people in a rehab scene to get back to normal, so for them if they are gardeners, a lot of the people who come into the program are gardeners, they want to know how they can get back into doing it. (In.6)

Even if the patient had never been connected to horticultural pursuits previously, he found that a horticultural based activity provides patients with something they perceive as normal. He commented:

I think it has a lot of impact to our psychological wellbeing and our mental wellbeing just that connecting and using gardening and garden related activities. (In. 6)

Image 1 Rehabilitation garden, Kew, Victoria. (C. Reed).

In the rehabilitation of accident victims it was pointed out that there was a need for patients to look outside of themselves rather than being wholly consumed by their injury. According to Informant 6, HBT gives the person an opportunity to do this because:
...it is nurturing, hort (sic) therapy is a nurturing model. We are doing that to nurture people, because a lot of hort (sic) therapy activities happen where people may not be able to initiate doing those activities themselves. (In.6)

According to Informant 6, horticultural activities are something a person relates to as a normal, pre-illness or pre-injury pursuit, not necessarily a clinical therapy. Adding to this, he considered that patients who have had gardens find this is an opportunity to return to a normal familiar activity. Patients can demonstrate skills while reconnecting to a normal life. This ultimately can lead to better recovery outcomes as highlighted here:

That is what I love about gardening and using it in this context using horticulture as a therapeutic model because it is actually quite a normal activity. And touching on that point before about getting that self-esteem and value, going, 'I can do this, I can get back into gardening. I was worried that I might not be able to garden again'. (In.6)

Informant 6 has witnessed the benefits and has been active in personally promoting HBT. He advocates for its wider use in rehabilitation health sectors.

**6.1.2. The use of HBT in drug and alcohol rehabilitation.**

There are few areas of rehabilitation where the patient is in residence for extended periods of time. Post injury rehabilitation was one: recovery and rehabilitation programs for people with drug or alcohol addiction is another. Victoria has several drug and alcohol rehabilitation programs where participants attend by referral and largely enter through the justice system. Others were referred by doctors or health professionals, and some patients self-referred. The use of HBT in drug and alcohol recovery is not widely known. Informant 1 had over 15 years’ experience providing HBT in a large drug and alcohol organisation. He is the single source of the information for this section. Table 5 presents a range of social and emotional outcomes Informant 1 attributes to HBT in the drug and alcohol context.

**Table 7**

| Informant 1 comments regarding benefits in a residential drug and alcohol recovery program |
|...starting people out working vegetable garden building up their confidence |
Informant 1 considered that HBT in recovery programs assists the patient’s physical and mental recovery as part of their treatment plan. Nurturing was a word he used to describe the therapeutic environment when HBT diverted the patient away from their daily struggle with addiction. He said that diversion to garden activities reduced the time the patient spent reflecting on their addiction and he considered this provided an avenue for further healing.

The structure of HBT in this recovery or addiction program was similar to the clinical rehabilitation program. Both were part of a planned multidisciplinary approach using a range of therapies but the reported benefits were slightly different. In the rehabilitation program the reduction of stress and the resultant calmness were widely reported. These benefits were not dominant in the drug and alcohol recovery program. Instead the drug and alcohol HBT program provided participants with a sense of self-worth, confidence and being valued while social inclusion was reported in both.

6.1.3. Programs targeted at people with disabilities

There is some evidence to suggest that HBT for people with disabilities in Victoria dates from the beginning of the 1800s (s.1.1). In more recent times HBT has been a feature of disability programs across a range of groups and services. Often driven by a sense of desire for equality, early practitioners recognised the value of people being able to participate in a normal and valued activity such as gardening and this has continued within current practice. About half of the informants reported that they had at some time worked for facility-based therapeutic programs for people with disabilities. Informant comments in Table 6 are typical in disability programs.
Table 8
Informant brief comments relating to the perceived benefits in disability programs

<table>
<thead>
<tr>
<th>Informant brief comments relating to the perceived benefits in disability programs</th>
</tr>
</thead>
<tbody>
<tr>
<td>I see it more as a therapeutic relaxing activity. (In.23)</td>
</tr>
<tr>
<td>....calming and everyone seems to have a smile on their face especially the groups I have worked with, because it is so therapeutic. (In.24)</td>
</tr>
<tr>
<td>....you see a lot of people interacting with others more readily. (In.8)</td>
</tr>
<tr>
<td>I would say that it grounds people so touching dirt, having their hand fully in dirt, getting dirt of their faces, touching plants even pulling plants apart it is a very tactile thing. (In.26)</td>
</tr>
<tr>
<td>....the physical in terms of exercise that’s a great thing. (In.23)</td>
</tr>
<tr>
<td>....equally important was the social interaction, not just the gardening but it was that social time. (In.30)</td>
</tr>
<tr>
<td>....display more confidence in their abilities. (In.8)</td>
</tr>
</tbody>
</table>

No particular disability was dominant among participants. Informant 7 said the participants in her programs were not confined to any particular disorder or disability; all groups were represented including people with physical, sensory and intellectual disabilities, and sometimes various combinations of all these disabilities. According to informants, most programs were only provided for small groups of individuals for one or two hours each week.

The informants described most activities as informal with passive recreation, communication and social interaction being the aim. The individuals in each program participated at the level of their ability, some at a greater extent than others. Informant 8 states there was a general:

......increase in confidence, an awareness of the natural environment and overarching all of this is a sense of wellbeing (In.8).

Continuing on the theme of increased confidence; a care worker at a disability centre said that:

......individuals in my experience display more confidence in their abilities, more confidence with their skill and also the social aspect of it, you see a lot of people interacting with others more readily. (In.17)

This interaction with others was seen as a very important outcome for people with disabilities because they are often excluded from conversations in community settings. A major value of HBT is having an activity which increases the prospects for communication. A coordinator of a disability service was very positive about this opportunity commenting:
What I have seen of gardeners is they love to share, there might be discussion around your secateurs or where did you get that particular plant from, and I have seen it particularly so in my main area around disability. (In.7)

In the disability sector there was a strong sense that HBT is used in many settings because adults and children have the capacity to actively or passively participate. This once again was a positive benefit identified by Informant 7 who stated that:

.....anybody in the community can benefit from horticulture therapy because any kind of person, adult or child would benefit by being in garden space. Being passive in that space or doing something mildly active in that space like looking and listening to things or being physically active in that space and I think everyone would benefit from being somewhere in that activity range (In.7)

Often reported was the calming effect of HBT. Most of the informants, said HBT calmed or relaxed those in the program. A past practitioner recalled “people being a bit calmer in their behaviour” (In.30) while a more recent practitioner commented that in the participant group “no one goes away really stressed or yelling or screaming it does not induce behaviour of concern” (In.15) and “they are calmer and they will leave a lot less stressed and a lot more comfortable” (In.15). Informant 7 described a positive response in terms of deviant behaviour when she said that:

.....they would bang their heads, and then they would go out and have a look at your veggie garden or whatever and they would just calm down and you think, that is what a garden is all about.(In.7)

In one disability program, a support worker challenged the view that the calming effect could simply be put down to the change of location or different scene. She made the following comparisons about a facility based HBT:

I think as soon as you walk in you feel the vibe of the place, which is calming and everyone seems to have a smile on their face because it is so therapeutic. (In.8)

In contrast the same informant noted the difference between this and a program that was not horticulture based where:
...we were doing an arts project it did not involve horticulture, everyone had a positive outlook and everyone worked really well together. It just did not have that same calming affect though, I have noticed here (KHGC), it really does have that calming effect. (In.8)

Image 2. Sensory stream, Kevin Heinze Garden Centre. (C. Reed)

Although the calming effect was widely reported by informants, one informant, at a community farm provided a different view. The farm was part of a large disability service in a South Eastern suburb of Melbourne. It was located several kilometres from the main facility. The main facility provided services for hundreds of participants in supported programs while the farm had far fewer participants. The farm-based informant said that having limited numbers changed individual behaviour. He believed that larger numbers of people in the facility caused the stress and that people were calmer in an environment with fewer people. He said that:

......most of the guys just want to be out here all the time; it is a smaller group there is a hundred clients back there and a lot of these guys are over stimulated, one of the blokes here we have seen less behaviours because he is not getting over stimulated all day. (In. 25)

A counter argument might be that the farm environment itself was calming and reduced the problem of over stimulation. Informant 7 found that the HBT environment is often alien to new participants and not initially calming but may become so over time. Speaking from personal experience she described an individual that:
....came in agitated and so disconnected, not finding a niche anywhere and not finding a way to be comfortable. After two months, three months he is able to come in, get himself settled with a support worker supervising him and he has particular activities that he has now adopted and chosen to do himself (In.7).

This observation gives the impression that the person might become more focused over time but there is initial agitation or confusion about a new place. Once again this is not conclusive but adds to the evidence that HBT may also have a role to play in behavioural modification. Overall this indicates that HBT may have an increasing role in disability services if it was more widely available.

6.1.4. Aged care, dementia and Acquired Brain Injury (ABI)

The responses of the informants confirm that HBT occurs as part of programs for residents of aged care facilities. The programs were described as low impact garden activities, sensory gardening and social and recreational activities. While most programs were conducted at residential facilities, others were provided by KHGC and ILGC.

Programs at ILGC (no longer operating) and KHGC for those with dementia or ABI closely resemble those provided in aged care. Several informants worked in HBT programs for people with dementia and for people in slow stream ABI rehabilitation. In these programs the initial rehabilitation had occurred and the patient had been discharged from hospital.

Both KHGC and ILGC provided programs for those who have spent time in the health system and are now regarded as being in slow-stream rehabilitation or permanent care. The informants listed a number of beneficial outcomes including assisting long-term recovery leading to a better quality of life.

Table 9

<table>
<thead>
<tr>
<th>Informant comments relating to the perceived benefits of HBT in aged care, dementia and ABI programs.</th>
</tr>
</thead>
<tbody>
<tr>
<td>.....a big part of the program is get people socially engaged (In.20)</td>
</tr>
<tr>
<td>The positive effect on people’s social and emotional and physical well-being, I mean gosh, you cannot speak highly enough if it can you (In.11)</td>
</tr>
<tr>
<td>....you could say it is a physical benefit and also I think there’s the emotional and social benefit (In.5)</td>
</tr>
<tr>
<td>.....most people seem very curious, most people are happy, most people are quite tired but in a good way (In.20)</td>
</tr>
<tr>
<td>.....they enjoy and spending time with people without that sense of being “I am doing therapy”</td>
</tr>
</tbody>
</table>
The goal of HBT in aged care, ABI and dementia programs was to improve the physical and mental health of participants. The theme of social interaction was common across various ABI and dementia specific programs. While working in an ABI program, Informant 20 found that the ability of participants to contribute to a specific goal was important for patient stability. A horticulture based activity such as potting a plant tested a range of cognitive and physical skills. She found that the outcome provided a way for people to learn to accept their current level of ability. This was particularly important for people with ABI because, although the patient was different to their pre-illness/injury self, they “can find they’re still useful people”. She considered that it was “very important for them (people with ABI), to feel useful and have something to contribute to a group” (In.20). This aspect of group involvement was largely about social inclusion and retaining or gaining confidence. The role of the staff supporting this, she said, was to “try and make sure every client gets a bit of social interaction” (In.20).

The burden of clinical treatment for people with dementia or brain injury was an issue for several informants. This was often seen as a negative experience for people who were sometimes confused and fatigued. Informant 20 found that horticulture based activities did not have the same negative impact, mentioning:

\[\text{....they might be doing physio and all these different clinical therapies and then they can come here and do something which is sneakily therapeutic. (In.20)}\]

This notion of HBT being “sneakily therapeutic” has been described by several informants in different ways and in different settings. This was explained as an intention to provide therapy without the patient or participant being aware of the underlying intent. Along with this, informants also said that they provided “normal” activities to minimise the impact of present or past clinical treatment. As one said, “what’s really good about horticultural therapy or this kind of program is it is non-clinical” (In.6).
Along with this aspect of informal therapy was the need to get the patient back to doing normal things. According to Informant 20, HBT provides:

....some satisfaction out of still being able to do tasks. So a lot of people that have had strokes might think they have lost that ability to be active and now have the sense of satisfaction of completing tasks and the social side of being engaged in a social group, getting time off from their main carer. (In.20)

Several informants considered this particularly important for those patients recovering from brain injury. Becoming active again, in particular being active and independent of their main carer, was seen as important because the person can have some sense that they are:

.... active stimulated people who want to engage with the community they are living again, they are really engaged in life again and that is really rewarding. (In. 20)

Even though the patient might never return to their pre-injury condition, the need for patients to engage in everyday activities was strong. HBT was one way of engaging people in familiar activities. This provided an opportunity for patients to gain confidence and help them come to terms with their current condition, as Informant 20 suggested:

A lot of people that have had strokes might think they have lost that ability to be active and now they’re in a role that someone is caring for them all the time they come here and they can find they are still useful people. (In. 20)

Some of the patients with dementia were in the later stages of this degenerative illness. One informant found benefits that may be unique for this group. She said that in a world that is increasingly alien it is important:

....just to get people involved in growing things, I think working with nature or with plants there has to be an element of spontaneity in things like that because it might be raining one day or it might be really hot and I think that really helps them be adaptable and that can be therapeutic. (In. 20)

Along with this aspect of resilience this informant also found the involvement in HBT makes people “tired but happy” (In.20) and provides a sense of achievement. Although much of the emphasis in ABI recovery was on cognitive recovery, physical improvement was also important. Informant 7 said that some people might be:
hesitant about walking around and then after a few months they might be more confident, walking a bit more and things like that, try a few new things. (In. 7)

Informant 11 recalled that her 89 year old father enjoyed working in the garden in the aged care facility where he was a resident. He was active when he “plants his sweet peas and he gets out there and prunes and weeds”. This she considered this was very positive adding that:

*I think gardening and horticulture is a way, is a real thing that really motivates people to maintain fitness and increase mobility (In. 11).*

In the HBT garden environment people can safely explore their physical and cognitive conditions and boundaries. It can also be a place where they can come to terms with a situation that for some has significantly changed their lives and bought on challenges of daily living. In such cases, HBT is considered a way of:

*...getting over them (challenges) so to speak and its accepted that that is who they are and that is what is happening for them at the moment. (In. 7)*

According to Informant 7, “getting over them” might mean recovery and at other times it might mean a person coming to terms with their current condition. An interesting point made by a former staff member of ILGC was that ILGC did not identify the HBT program:

*I guess it would have to come under the banner of health at this stage but that is just my experience, because we do not run as a horticultural therapy program we run as a respite for carers program. (In. 20)*

The point made here is that respite is a known health term in Victoria/Australia and is funded under “the banner of health” while HBT is not.

6.1.5. The perceived and/or potential benefits of HBT in clinical and non-clinical practice

OT students were part of several focus groups in this study. The overall aim of including these students was to examine the role that HBT may play in OT practice in Victoria. In this section the aim is to identify those aspects of HBT that the focus groups perceive to be the benefits of HBT. Focus Group 1
(FG.1) reported their observations of a community based HBT program (KHGC) while Focus Group 2 (FG.2) reported from a clinical rehabilitation setting.

Informants in FG1 could see the value of horticulture-based work to build specific skills and overcome some physical conditions in the context of OT. They also found that participants in HBT appeared to enjoy the activity and therefore engaged in a meaningful occupation that could be beneficial because:

*If gardening is meaningful to someone I think it would have therapeutic benefits to them, in particular if that is what they enjoy because people are more likely to participate when they enjoy something, it is meaningful.* (FG1)

This observation, commonly expressed by Informants in FG1, was consistent but nevertheless, HBT remained undervalued. Most were convinced that HBT in community settings had little therapeutic benefit, but rather the garden environment was the attraction, a change of scene, a pleasant diversion rather than a therapy. One OT student commented:

*:....everyone that has come here that we have spoken to and asked if they enjoy coming here, they all say that they do, and it is something that if they are coming here for a couple of weeks, it is something they look forward to and they enjoy doing.* (FG1)

It would appear that informants in FG1 could see the outcome of HBT as a positive but happy coincidence rather than a planned and effective therapy. The informants in FG1 could also see the value of a garden-based program on a social and emotional level as suggested by comments such as:

*....it is a good atmosphere, good experience especially in the community because they get to mingle with other people.* (FG1)

and

*I think it is relaxing for some and a place to explore and explore different senses whether its smell or touch, getting close to nature and the fresh air is good.* (FG1)

A change of opinion occurred when OT students were given the opportunity to observe and evaluate HBT in a clinical setting. This group of students (FG2) found a common ground with the rehabilitation practitioners. In
the clinical approach to HBT, informants in FG2 could see the connection between OT and HBT more clearly with comments such as:

....just having an environment like that in an acute setting, like what we saw, was very therapeutic. (FG2)

This is clinically horticultural therapy and having a goal and getting to it. (FG2)

....in the clinical setting they have got the specific therapeutic rehab goals. (FG2)

....therapists will be trying to do certain movements with the clients in a clinical setting. (FG2)

In the clinical setting, informants in FG2 could observe that HBT could be used to facilitate a physical and medical based outcome. According to the student group HBT:

....has the potential to be a lot bigger, like as we went to the centre yesterday. They could expand their garden and make it so much bigger and more therapeutic and have stuff for different clientele. (FG2)

These comments indicate that OT students see HBT as having some benefits in a “clinical” or “acute” setting. This is different to the way students see HBT in a community setting, where the perceived value lies more in the social and emotional gains.

6.2. Programs where HBT is a secondary outcome.

The programs presented in this section were intended to have a primary aim other than HBT. Included here are school and community-based programs for children, alternate health programs, and vocational training and community gardens. The secondary outcomes provided by HBT were highly valued in these programs.

6.2.1. HBT programs in schools

Schools in Victoria have a long history of providing HBT programs. The VSSN encouraged participation in horticultural activities for over 50 years. Although the VSSN closed in the 1990s the influence seems to have
Informant 11, a former teacher and staff member at VSSN recalled working at a school in the early 1960s with a group of children who had learning difficulties. Rather than having disruptive students in class she took them to plant trees and to work in the school garden. She said this was a positive outcome for this group. She did not consider this as a therapy at the time but she considered it a useful activity. As she remarked:

..... I bet you anything that they look back at that school and the schools looking really good because it has got all those trees there, and you know, that is something to be very proud of. (In. 11)

According to three informants, the students that were most often selected to participate in school based HBT were those that were socially isolated, loners or had some form of disability. The informants reported a range of perceived benefits of HBT in schools. Included were an increase in children’s self-worth, improvement in social skills and greater emotional control. Table 8 presents a range of informant comments regarding their perception of the benefits of HBT in schools.

<table>
<thead>
<tr>
<th>Informant comments about the perceived benefits in school based HBT programs</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Table 10.</strong></td>
</tr>
<tr>
<td>You would walk around the schools with kids and they say, ‘I did that, that mulch there, I mulched that’ (In.11)</td>
</tr>
<tr>
<td>...this young boy who never spoke then one day he just said, “that is magic” and it was about picking, digging potatoes (In.30)</td>
</tr>
<tr>
<td>.....it was a great thing for them, a real pride thing (In.11)</td>
</tr>
<tr>
<td>I had a little boy with extremely bad behavioural problems and it changed him and calmed him (In.19)</td>
</tr>
<tr>
<td>I used to have kids who were, just a little, just a bit left of centre and they loved it, they loved it (In.11)</td>
</tr>
<tr>
<td>Calming, it calms people down I would say especially the children (In.19)</td>
</tr>
<tr>
<td>.....he did not realize he was learning: you have got 10 worms, if you divide it by two,..., and he did not realize he was still learning (In.19)</td>
</tr>
</tbody>
</table>

Most school based informants reported that their initial motivation to offer gardening was to give children a practical activity out of the classroom. The responses of several teachers suggested that HBT was often identified sometime after the garden activity had commenced. They said that they
noticed that children acted differently during the gardening activity and this was a positive change. They further developed this to assist student groups to achieve or learn in a different way, in response to their particular needs. Informants said that a children’s gardening program may engage disruptive children in vegetable growing, but what they also witnessed was the moderation of deviant or disruptive behaviour. The outcome mentioned most often by teachers was an improvement in the social and emotional state of the majority of the children involved. An example was provided by a teacher (Informant 19) who had a boy in her class who she described as “extremely difficult” but once he was in the HBT program he changed. She said that:

...he was amazing, he would be considerate in the garden, he would work and I never saw him raise a hand, swear and all of the things he was doing in class. I had a different boy, and that was, probably for me, the biggest difference in a child. (In.19)

They did not report any negative stigma attached to these activities and children in these programs were often joined by their peers, as suggested here:

I have found then is that they are all little people without the friendships but they are making friends and being a garden group together so they are friendships are made, and its lovely watching the older kids showing the littlies how to use the tools properly (In.19)

The teachers involved said that by doing something that is useful and valued, children may be less likely to engage in anti-social activities:

I do not know if there is any real evidence, but what I hope is it means that they grow up loving a tree and not vandalising things and hoping that the world looks a bit greener and a bit better environmentally. (In.11)

Informant 19 recalled that some children would run though the garden without consideration but this changed when they became engaged in gardening programs. She attributed the change to the fact that the children had contributed to the care and growth of the garden. The children now had a ‘hands on’ impact on how the school environment looked and grew and it was their duty to care for it. This teacher anticipated that the skills gained would
remain with the children and may provide lasting social responsibility. She commented:

*The use of gardening in schools increases the sense of community not only within the school but later in life. A tangible recognition of this in the community may assist children to retain the value and apply this to the greater community.* (In.19)

One current teacher stated that when children grew, harvested and shared what they had grown with others, particularly adults, it was a recognised and tangible achievement. She said that:

*.....to produce something, there is a sense of reward for what they are doing...pick whatever was there, and that was very much an outcome for them because there is a sense, to them, a reward for what they have done, they could share with other people.* (In.19)

The experience of this teacher was that school based HBT programs can be an effective method to re-connect students with the social structure of the school. She said this can occur when the child is provided with a valued role within their school or community. For a child who is essentially an outcast the impact of a HBT experience was recalled as:

*.....something that is so visual and to see things growing and changing.... there is a real buzz around the school environment* (In.19)

Image 3. Frog Bog Project at a school in Croydon, Victoria (C. Reed).

Most recently issues around climate change and sustainability have given some impetus to providing nature-based programs in schools. The type
of new activity most often reported by informants consisted of developing gardens, growing vegetables and building natural environments. According to the informants, these activities were HBT programs and they allowed participants to feel better about themselves because the outcomes were valued by all in the school community.

6.2.2. Community based HBT programs for children

Not all HBT programs for children occurred in schools. HBT for children was also reported in community settings. These occur in a range of different places from church based activities and weekend environment focused programs, planting trees for example.

One informant was conducting research on garden activities for children. In his role as a church minister, Informant 4 started connecting disadvantaged children to garden activities because he had a strong belief that children were disadvantaged by not having access to a natural environment. He said he was “overwhelmed by the amount of concrete” (In.4) in the immediate area. This provided the impetus to develop a HBT program in a disused courtyard. There was a mix of ages from 4 year olds up to teenagers, some with behavioural issues. The participating children were also described as:

....kids from quite stable households, a broad range of socioeconomic backgrounds, cultural backgrounds too. (In.4)

Table 9 contains some comments by Informant 4 who worked with and observed the group over one year.

Table 11

<table>
<thead>
<tr>
<th>Comments by informant 4 about his community gardening project for children.</th>
</tr>
</thead>
<tbody>
<tr>
<td>....some have behavioural issues but once they are in the group with the others they tend to settle down</td>
</tr>
<tr>
<td>.... the kids are fairly excited by it so they are brighter</td>
</tr>
<tr>
<td>I would say they are quite bright and active, I do not think they are ratty, they are very enthusiastic</td>
</tr>
<tr>
<td>....behaviourally she had a lot of issues but over time she seemed to settle down with the other kids</td>
</tr>
<tr>
<td>....to produce something, there is a sense of reward for what they are doing</td>
</tr>
<tr>
<td>It seems to be very satisfying for them</td>
</tr>
<tr>
<td>....the purpose is for them to gain a relationship with a plant or the earth in some way</td>
</tr>
</tbody>
</table>
Describing an initial meeting with the owners of the courtyard he found resistance to the idea of a garden because:

...you cannot take the concrete up because when they go we will have to weed it or do something with it, or put concrete back. (In.4)

Eventually a small garden was built with:

...a brick wall on one side and it has got concrete on the bottom so in summer the veggies just get cooked, unless we can keep a lot of water, but otherwise it is generally, generally therapeutic. (In.4)

Even when the program was up and running and popular with the children, he found that the criticism continued because the educational expectations of the parents did not include HBT. He did persevere and found a group of children attending the garden regularly. One measure of success was the harvesting of a crop of vegetables:

...stacks of tomatoes and lettuces came up everywhere. We made salads to serve around to folks to have when they are having morning tea. (In.4)

The program emphasised the sense of excitement in younger children and provided an opportunity for discovery and curiosity. It was considered that this helped to reduce the negativity of children living in an urban environment. The informant was very aware of this and started the garden because:

.....there is a freedom for the children. Being normal I suppose they just love getting the water and getting wet and carting the water to drown these little seedlings. (In.4)

As the program became more popular, Informant 4 noticed some positive responses to the garden activities; in particular those who had exhibited poor behaviour became more settled. The other consistent outcome he observed was that the program provided children with the connection to nature that he was seeking.

6.2.3. HBT in health and alternative health programs

This section is based on the experience of one informant who was the founder of an alternative health program. After surviving cancer himself, Informant 10 identified a need for a different approach to healing. He founded
his program to be complementary to conventional medicine and provide preventative interventions. He did this by establishing a program for cancer and multiple sclerosis patients in a rural setting with extensive gardens. The program was based on nutrition, meditation and exercise. Although supporting patients to continue prescribed treatment this informant had the view that:

*The real problem in modern medicine is trying to look for fairly simple drug based solutions. Whilst that has a lot of appeal because people like a simple solution, people are not prepared to adjust their lifestyle and those pills are just going to be a stopgap sort of thing and sooner or later they are either at their original condition or they will get something else.* (In.10)

This program has been successfully operating for over 25 years and now involves research, medical advice, training and health and wellness services. Although HBT is not an essential component of many health treatment methods in Victoria, it did have an important and continuing role to play in the programs provided at this facility. There were 20 different practitioners working with patients including nutritionists, counselling staff, masseuse, music therapists and medical doctors. Informant 10 said that he used aspects of HBT because he believed that “there is that natural potential of nature to heal the troubled or unwell” (In.10). He stated that:

*....gardens have a number of different ways they contribute to healing, and part of what has been important in having a residential centre, is having a big garden.* (In.10)

and

*....the whole landscape in a way is the garden and we are very fortunate we chose to be in a place where the landscape is conducive to what we are doing. It just has an atmosphere of peace and I think many people just come on to the land and feel that.* (In.10)

Informant 10 considered the environment as “calming”, “restful” and “could contribute to healing”. Table 10 presents some other comments made by Informant 10.

**Table 12**

<table>
<thead>
<tr>
<th>Comments by Informant 10 about the perceived benefits of HBT in a health treatment facility</th>
</tr>
</thead>
<tbody>
<tr>
<td>*....<em>If you get cancer you tend to shut down and more like connecting through the earth through the garden</em></td>
</tr>
<tr>
<td><em>....we were doing a lot of prevention or better wellness type programs</em></td>
</tr>
<tr>
<td><em>....get into this atmosphere and they bond quite quickly and they are really kind with each other</em></td>
</tr>
<tr>
<td><em>....what we were talking about before there is just a sense of comfort and ease that comes with people or that comes to people</em></td>
</tr>
</tbody>
</table>
Clarifying his holistic approach he said the program aim was:

"...helping people with their quality of life, and length of life, and in healing which is mainly with cancer and Multiple Sclerosis (MS). The program makes a major impact with both those areas. (In.10)"

There was also a strong message, not only through this informant, but generally across all Informants in this study, that HBT and healthy food production go hand in hand. At this facility most of the food consumed was grown by the patients. Informant 10 states:

"There are big problems for cities that are not looking after their land, soil and earth because this has caused deficient soils and this in turn produces deficient food which ultimately produces deficiencies in people. (In.10)"

In addition to this, he saw that the garden had the potential of “grounding the person”. This sounds like a pun when used in context of gardens and healing, but he was serious in his belief in the positive effect of the garden. This was something other than attending to a medical condition or health procedure and it was “something a bit tangible”.

"...just sort of helps to ground people actually and often when people are going through difficult times they can either become emotionally volatile and just proportionally lethargic or just get overly emotional in a way that is not helpful or else they can just really shut down. (In.10)"

There was also consideration that the garden was an escape, a place that: “...helps people to get away from day to day busyness and worries and concerns” (In.10).

Along with helping people to relax and be more comfortable Informant 10 considered HBT could assist general health. He commented:

"I would like to see gardening seen as a preventative aspect of good health like the way gyms are. There is real value as having that accepted as part of a health physical lifestyle. (In.10)"
With over 25 years of experience and observations, Informant 10 considered HBT was an important component in the treatment of patients when integrated into health, healing and wellbeing programs.

### 6.2.4. Horticulture based vocational programs and HBT

In this study the earliest associations relating to HBT were in work based programs for people with disabilities (s.2.15.1). This position of vocational training programs involving horticulture has continued within current practice.

Five informants were involved in past or present vocational HBT programs in Victoria. Three of these programs were full-time where the informants provided the programs for young people with disabilities. One was part-time and was part of a drug and alcohol program. The remaining program was for adults who were long-term unemployed. Comments by several informants who provided vocational programs are presented in Table 11 below.

#### Table 13

<table>
<thead>
<tr>
<th>Informant comments regarding HBT in vocational programs</th>
</tr>
</thead>
<tbody>
<tr>
<td>.... horticulture I just think it does its thing: it is therapeutic without being overly promoting that it just is (In.23)</td>
</tr>
<tr>
<td>I see it more as a therapeutic relaxing activity and then they learn some skills about how to grow plants and also its outdoors which is beneficial and light exercise so there the main things. (In.23)</td>
</tr>
<tr>
<td>I think for the individual it is relaxing, I think it can be quite a social garden as a group (In.23)</td>
</tr>
<tr>
<td>.... it gives skills that can be general life skills or it can then be employment (In.23)</td>
</tr>
<tr>
<td>I think it would be better if basically the general public accepted it a bit more as a genuine form of therapy. I think in other countries they have more, it is more developed like somewhere like the UK or in England (In.23)</td>
</tr>
<tr>
<td>I think it is just a very open space for them to be and the garden is obviously very beneficial to them.(In.18)</td>
</tr>
<tr>
<td>....kids that have come for the whole year, and they seem to really benefit from it. I have noticed that improvement over the year (in.18)</td>
</tr>
<tr>
<td>...from the socialization to the actual horticultural skills you can see an improvement and in attitudes, you can see an improvement in all of them really over the year (In.18)</td>
</tr>
<tr>
<td>....they are learning it’s a very positive enjoyable environment (In.18)</td>
</tr>
<tr>
<td>I think it is very relaxing (In.18)</td>
</tr>
<tr>
<td>....it gets them connected to nature so it gets them beyond themselves (In.18)</td>
</tr>
<tr>
<td>I think it is a great benefit for people, I think it allows people to be connected to living things, and it allows people to create something to perhaps grow their own food or just to enjoy the garden (In.18)</td>
</tr>
</tbody>
</table>
Although there is a vocational purpose to such programs, the approach of the informants was that working in a vocational horticulture program has a HBT outcome when it meets the needs of the participant, either in terms of being better prepared for work or being employed. The most frequent reference was to HBT vocational programs in disability services. Informants found that when participants achieved an employment outcome there was a noticeable increase in self-esteem and a reduction of the stress associated with unemployment. One informant was the training manager at a large commercial plant nursery. He was responsible for training and preparing young people with disabilities for work. During 15 years observing his group, he considered that work related horticulture facilitated a therapeutic outcome:

*I think there is gardening that is not really therapeutic but I think sometimes when you are doing it as work that it does go over to that therapeutic benefit.* (In.14)

This was further explained by another trainer, who was working with horticultural based programs for people with disabilities in a country nursery environment. He found that the nature of the work, growing plants, had a moderating effect on the behaviour of some trainees. Aggressive, repetitive or disability syndrome driven behaviour was “often moderated” and a general level of “calmness” prevailed (In.15). According to Informant 18, participants of such programs also exhibited greater levels of “confidence with their skills”. This increased level of confidence was described as the result of “empowering” previously disempowered people through horticultural activities. According to Informant 18, such increased individual confidence provides greater chances of successful employment outcomes.

HBT work tasks gave people who were often socially isolated the opportunity of interacting with others and achieving a positive outcome together. HBT programs for people with disabilities often engaged participants in potting plants. As well as giving people an increased level of physical and mental health and wellbeing, this activity gave the participants a chance to “display more confidence in their abilities” and to interact with others (In.23)
Work was also a feature of some drug and alcohol rehabilitation and recovery programs. The nature of drug and alcohol addiction means that many of the people involved in these programs have never previously been exposed to horticulture in any practical form. The consideration of healing through horticulture is quite alien to those in recovery, according to Informant 1. Nevertheless, once people were engaged in the program, they experienced a higher level of perceived self-worth associated with working in the garden and growing plants. Informant 1 spoke of his work with people with addictions and considered:

*There is no doubt at all that they learn to trust, they pick up skills, definitely achieve that through working in a horticulture setting.* (In.1)

A current horticulture educator recalled providing vocational training in labour market programs in the 1980s. In these programs, young people who were unemployed would undertake horticulture training and work experience to bridge their gap to employment. He recalled that the participants were often:

.....*in a hard place when they started some of those labour market programs. So I think that was therapeutic, that was therapeutic horticulture. It was never called that but I think it was.* (In.2)

Vocational training programs have the potential to move a person out of welfare dependence and into the workforce while giving a person a greater control over their lives. In the examples provided, the participants have been identified as having significant barriers to employment, including disability and drug and alcohol dependency. Informants found that not only did horticulture-based work provide opportunities to develop skills; it also provided a calm and relaxing environment that moderated negative behaviour and allowed the participant to become a more confident person.

6.2.5. Community Gardens as HBT providers

Community gardens are a popular choice of activity for many people. People without private gardens and those living in high density high-rise
accommodation may have access to a garden through community gardening. However, community gardening it is not confined to these groups.

Cultivating Communities, with 21 sites and 800 individual garden plots, is the leading community gardens network in Victoria. The former CEO of this network, one of the study’s informants, identified a number of reasons that give these gardens an increasing level of popularity. She said that one of the main functions of the community garden network program is to provide access to community gardens for residents of public housing estates in metropolitan Melbourne.

According to this informant, the gardens now provide gardening opportunities for a very diverse group of participants comprising “thirty different nationalities and forty different languages”. One of these gardens was close to where Informant 18 lived and he spoke of the value of community gardens to migrant and refugee groups:

.....there was one in Richmond “Happy New Life Community Garden” which they named because it was their new life and they only have a little plot and they just love it. (In.18)

The use of community gardens by a broad cross-section of the community suggests that many of the benefits attributed to community gardens are those often ascribed to HBT. The former CEO of a major community garden organisation (Informant 21) had this to say:

I see that there are the mental health benefits of being involved in gardening and also the social inclusion. I know it’s a bit of jargon but the ability to interact with people in a setting of the garden makes that garden a vehicle for a range of great outcomes. (In.21)

According to Informant 21, this was important because refugees or displaced persons make up a large portion of people making use of community gardens in Victoria, particularly those in the inner urban areas. Community gardens were not only seen as areas of food production but important vehicles for social inclusion and provided “widespread social and health benefits”. Through interaction with the gardens, those who are often isolated within the larger community can maintain important cultural and social connections. As a
community garden member, Informant 18 made the comments in Table 12 below.

Table 14

<table>
<thead>
<tr>
<th>Comments on the role of community gardens</th>
</tr>
</thead>
<tbody>
<tr>
<td>It is a way for them to just hold on to their culture</td>
</tr>
<tr>
<td>15 years on the waiting list so they have not had a garden; they have been in a flat, so it is inspiring for people to have that little bit of land back</td>
</tr>
<tr>
<td>.....they often have a bit of land and that is already a communal setting. I think there is a few that do it but they could become community hubs for that sort of thing and horticultural therapy could easily be a part of that</td>
</tr>
</tbody>
</table>

The value of a community garden as a meeting place was reported by several informants. In these places it is accepted “that people are all different” (In.21) and the community garden setting may offer a neutral environment which alleviates stress:

"......some people who might feel stressed can actually feel that it is a relief when they are interacting with people in a neutral setting and that is a benefit to them. (In.21)"

Informant 21 and Informant I8 shared the view that community gardens provided an opportunity for people to be involved in their own food production, and that the importance of culture and food origin for many people cannot be overlooked. For Informant 21 this meant providing:

"......some choice for people who have particular cultural preferences so they might be able to grow something they cannot find in a shop."

Informant 18 had the view that community gardens had much to offer such as:

".... putting kids into contact with nature and understanding the cycle of food production and all of the other elements that go into seasonable growth (In.18)"

and

"I think it allows people to be connected to living things, and it allows people to create something to perhaps grow their own food or just to enjoy the garden (In.18)"

Community gardens were seen as providers of positive emotional outcomes. Informant 21 said she was looking into aspects of neurochemistry to further understand the phenomenon. She believed that HBT released
“chemical wellbeing in the brain” that was a “natural antidepressant” and that this: “might lead to an increase in production just by relaxing if an environment was conducive to relaxation”.

Relating to her conversations with community gardeners, Informant 21 discovered that many had experienced trauma and stress as refugees or displaced persons, while for others, the trauma was the result of domestic violence. For these groups and individuals the community garden was a sanctuary, as suggested by Informant 21:

The benefit might be for somebody who is in a small flat and what is happening in that environment. It could be domestic violence or a range of issues. They are actually going to that garden to escape. Just the fact of being able to do something in that garden means it is a retreat from something that is stressful. (In.21)

According to Informant 21, many community gardeners in the inner-urban network were moving from hostile, dangerous or economically poor conditions into more stable and secure accommodation. She considered that for some, the output of the garden was less important than the activity itself. She found that participation:

......is a really important thing and it does not matter too much what they are growing it is the fact that they are just contacting with earth. (In.21)

Informant 9 supported this view when she said it was not just the freedom to be in a garden but it is also about the “intrinsic value of being able to just have contact with soil” (In.9).
Informant 21 noted that many people in rural and regional areas were “both interested and deeply affected” by natural events such as drought (In.21). On top of this they were more directly affected than city residents by weather events that impacted on food and water availability. She said that they were “daunted and overwhelmed by the enormity of what is being said about climate change”. Often experiencing “drought and crop failures”, the impact on people living in rural areas was personally and financially direct (In.21). Because of the size and scope of the problems, people initially felt that “they could not do anything; they could not take that on (climate change) because it was just too big a stress” (In.21). At that time the role of community gardens in rural and regional communities was to provide something that was positive that could be used to:

....not just to grow food but to counter the effects of climate change and drought in their community. (In.21)

Although there was “massive groundswell of interest in growing their own food” (In.21) there was equal interest in changing the environment and overcoming a huge sense of helplessness. She states that people are “seeking out that interaction and regaining the sense of community as well” (In.21). Instead of trying to take on the complexities of large environmental issues such as climate change, people in rural communities:

......are wanting to feel like it is a contribution they can make, people are understanding the importance of food grown locally now that means it is fresher it is seasonal or it has not got the food miles, it has not got the environmental impacts.(In.21)

Looking at the informant responses, a community garden could be described as a social place in a natural environment where HBT occurs as a consequence of participation.

6.3. The perceived benefits most frequently reported

Informants reported many perceived benefits that were common across all subjects. Listing the benefits most frequently referred to in each informant
interview and combining these as sum totals provided a guide to the perceived benefits. For example “physical improvement” was referred to less than “enjoyment” across all interviews while “reduce stress/calm was the most frequently mentioned. Figure 4 shows the nine most often reported benefits perceived by the informants.

Figure 4. Reported frequencies of perceived benefits.

The most often reported was the perceived benefit of stress reduction/calming. This is not unexpected as the reduction of stress related to nature contact is well documented. An increase in social interaction was also widely reported as was perception that HBT moderated behaviour. These benefits were also reported in the literature. An unexpected outcome was that wellbeing and improved mental and physical health were not as prominent. A sense of achievement, enjoyment and increased confidence were also widely reported. This was an unexpected outcome and not widely reported in the literature.

6.4. A summary of the benefits of HBT

This section has presented the benefits of HBT as perceived by the informants. Perceived benefits were identified across all program categories, some more frequently than others.
Closely resembling Verra, Angst, Beck, Lehmann, Briosi, Schneiter and Aeschlimann’s (2012) experience in rehabilitation, a key informant stated that the benefits may include an improvement in patients’ physical health, can foster patient confidence, boost self-esteem and increase wellbeing. He also presented HBT as a helpful intervention in patient recovery because it reduces stress in a clinical environment. This could relate to the “being away” affect described by Kaplan and Kaplan (1989). This may be particularly important when the place the person getting is away from is a clinical environment. This could also apply in a drug and alcohol recovery program where getting away may reduce the feeling of incarceration. In this case the key informant described the main benefits of HBT as an increase in self-worth, improvement in confidence, and an increase in social inclusion. These are comparable to the outcomes Währborg, Peterson and Grahn, (2014) reported as benefits of HBT in similar programs.

The informants in disability provision found that negative behaviour is reduced, people are calmer and there is an increase in social interaction and communication. A similar result was reported for children in school and community based programs while an alternative health provider found that his treatment program was enhanced by HBT. Stigsdotter and Grahn (2002), Kaplan and Kaplan (1998) and others suggest that these results may be the influence of natural environments on human behaviour and wellbeing.

In vocational programs, HBT helped people to develop skills because it was a calm and relaxing environment. This moderated negative behaviour and allowed the participant to become a more confident person. This should not be surprising when value of HBT in vocational HBT dates back to PTSD in 1917 (Smith & Pear, 1917) and has been widely applied ever since (Van Atta, Roby & Roby, 1980; Sempik et al., 2003).

Chase (2000) and Santa Barbara (2004) presented a case for trauma recovery gardens that also serve as cultural rehabilitation centres. In this study the key informant in community gardening provided evidence to support this view when she found that along with the much reported benefits of relaxation and social interaction, gardens also reduced the effects of trauma and were a vehicle for cultural connectedness.
The reported results of key informant interviews and focus groups have been presented in Chapters 4, 5 and 6. However, one practitioner with over 30 years of experience was excluded. In the next section this practitioner, the author of this study, provides his reflection on the results before moving on to the discussion.
Chapter 7. A personal reflection of HBT.

7.1. Introduction
In this chapter some of the key themes of the results are presented from my perspective; I have been a HBT practitioner for over 30 years. This reflection is included to provide a personal perspective on the key findings of the study based on my personal experience of HBT. Much of what I have experienced has similarities to other past and present practitioners.

7.2. The reliance on the individual
My first experience of HBT was in 1982 when I commenced employment at a disability service in rural Victoria. In a similar way to some of the informants in this study, my initial role was to facilitate gardening activities. It is evident to me now that this program had the characteristics of HBT. The terms such as horticultural therapy, garden therapy or any other description of HBT, were not used during my six years at the centre even though there were activities which could be reasonably classified as HBT.

My experience of being the individual responsible for HBT programs occurred over many years in different settings. Most of this was working with small groups in large disability services. These services were generally resource poor and the garden program was cost effective. As the staff member who worked in the garden it was my responsibility to run all aspects of the program. I have also worked in two larger HBT programs, one for adults with disability in a country based disability service and a second was at a rehabilitation program in the city of Melbourne. Neither is still operating.

Over the past 30 years I have come across many horticulture based programs that should have been called HBT. From memory, all of these programs were initiated by one individual. Some were supported by more than one person but all started through the enthusiasm of a single person. Most of those that I recall remained a single person program.

7.3 Definition and terminology
Although I could have identified myself as a horticultural therapist in most of my work I did not come across this term until recent times. I have also worked alone when working in HBT type programs. During this time I have identified myself in terms of my employment rather than a HBT practitioner. I
have been a gardener, support worker, a teacher, a trainer and a manager. I am yet to describe myself as a horticultural therapist.

After over 30 years of working in various disability, aged care and employment programs where horticulture was often the feature, my first recollection of hearing the terms relating to therapeutic horticulture was in the mid-2000s. My professional experience of staff, volunteers and participants engaged in horticulture programs that have a therapeutic value is that they rarely use the terms associated with HBT such as horticultural therapy.

7.4. Environmentalism

The influence of environmentalism was obvious in the 1980s when I was first introduced to elements of HBT. At that time there was great interest in the environment and activism. This increased as people became interested in things like alternative building methods such as mud brick construction. I worked in the disability sector and assisted with building sensory gardens and recycling and sustainability programs. Working in gardens as part of a disability program was very common but seemed to go out of popularity in the 1990s. Over the past few years an interest in therapeutic horticulture seems to have returned. This appears to be related to a general increase in awareness of global environmental issues such as concerns over climate change.

7.5. Knowledge, information and recognition

During the 2006 Horticultural Therapy Conference in Melbourne a number of the Australian presenters spoke of the lack of local knowledge. This was the initial motive for commencing this study on HBT in Victoria.

The availability of information about any form of HBT was not an issue during my early involvement with therapeutic horticulture because I was not aware of any form of HBT. Once I identified HBT and once I was responsible for managing a HBT facility (KHGC) the need for information became greater. Like most other informants in this study I found little and relied on information available on the internet.

Knowledge retention within KHGC has relied on oral history with little information passing from one generation to the next. It was shown in this study that it was common for each new person or group starting a HBT
program that they had to rely on their own interpretation of HBT. I found that this also applied to established programs such as those at KHGC.

7.6. Benefits and social inclusion

The empowerment of others was not a conscious requirement for any of the early programs I delivered. It was however, an unexpected but valuable outcome for many adults and children in garden based programs I provided.

This was particularly evident in two programs; one based in schools, and the other delivering vocational training. The school based program was much like those described in this study, working with children who were not achieving academically or who had behavioural issues. These children were provided with time in the garden as an alternative to class work.

I found that the classroom issues were not evident in the garden and my job was relatively easy. Repeating a theme that has been presented frequently in this study, these projects were very empowering for participating children. Behavioural issues and concentration levels improved while there was an increase in social interaction with the group and with the rest of the school population.

I have also delivered vocational training for young people with disabilities in many different places and under different conditions. Sometimes this was in a horticultural environment; other times it was not. In most cases the young people I worked with were those with social and emotional disorders on top of a significant intellectual disability. My experience would suggest that using horticulture based tasks makes vocational training more effective and has the capacity to moderate behaviours of concern. Growing plants is a very good way to demonstrate many vocational skills and the product is tangible. This was equally effective with people with mental illness and ABI.

7.7. Funding and resources

Being the executive officer of KHGC has allowed me to explore the issues relating to HBT funding. In Victoria the level of HBT funding could be described as minimal. KHGC receives some funding from local government to deliver community programs but the majority of funds come through program fees and philanthropic donations. When questioned about accessing funding
through State government, the response from the various government ministers was consistent; the work at KHGC was valued but it did not fit within any departmental funding profile. Even with the evidence of this study, and the numerous international examples, there has been no real increase in recognition. As a consequence of this, in 2014 I wrote to State and Federal Health Ministers and major health services to inform them of the value of HBT. Ten letters were sent and I received one reply, from the Federal Minister of Health, he agreed that exercise was good for people’s health, but there was no recognition of HBT or its health potential. There are also benefits to being independent of governments. KHGC is not dependent on government funds and therefore not susceptible to the budgetary constraints that have occurred in recent times. It also gives KHGC the capacity to “do its own thing” rather than being obligated to provide government preferred programs and services. As a self governed charity it also releases KHGC from the excessive compliance reporting that often requires extensive reporting. As a consequence we are currently creating new income streams through training, HBT design and environment projects.

With HBT not recognised in Victoria/Australia, trying to access funds and resources has been my key role for 8 years. This has meant that KHGC has had to alter its profile from a disability and aged care centre to be more health focused. This has required a different set of resources, in particular human resources. Though attrition all KHGC staff have been replaced over the past 8 years. KHGC now employs 2 fulltime and 6 part time staff. All are tertiary qualified and come from a range of disciplines. This means that KHGC has been able to diversify its business and provide new services. Although it has been difficult being the only independent permanent full time HBT service in Australia, KHGC is doing quite well and hopefully will continue to influence others into the future.

7.8. Influencing others

It has been my role as the Executive Officer at KHGC to use the information that has come to light during the course of this study to help promote and develop HBT in Victoria. I recently spoke at a launch of a community garden where my presentation was on nearby nature and the
importance of gardening for health. This was met with considerable interest and a follow up story on local television. I have presented this message many times, as have other KHGC staff members, to hundreds of audiences over the past few years. This has included presentations to community organisations, garden clubs, community health centres, mental health organisations and others. In July 2013 I presented at the Chronic Illness Alliance seminar where I was able to put forward the case for the inclusion of HBT in a range of health settings. From this a number of invitations came forward to train staff and to provide information on how to develop healing gardens in specific health settings. This included a community health organisation and two major hospitals. During this time I have also worked with several aged care organisations, a dementia facility, two mental health organisations, three community health centres and the largest rehabilitation organisation in Victoria.

Of equal importance to community awareness is the ongoing strategy to influence the health sector through student placements, including placements for over 400 OT students. Most recently four OT students were on placement from the Australian Catholic University (ACU). From this came an invitation to address all current OT students at ACU on the value of HBT. Along with influencing others, this study has also influenced KHGC to the point where the organisation is now directing its future towards a model similar to the Social and Therapeutic Horticulture (STH) model that is widely available in the UK. This will be highlighted when the organisation completes its Strategic Plan and re-launches as Kevin Heinze GROW (Gardening for Recreation, Occupation and Wellbeing) this spring (2014). After that the next step will be to establish a new practitioner based HBT organisation.

7.9. Chapter summary

Many of the findings of this study have been part of my experience of HBT in community, educational and health environments. Although I entered this study with an expectation that the data would fully describe HBT in Victoria it has convinced me that there is still much to learn. Like my personal experiences, the experiences of the informants show most would agree there is a benefit to using HBT for a range of conditions and circumstances. My
experience also supports the participants of this study who found numerous facilitating and inhibiting factors and issues that may determine the success or otherwise of HBT in Victoria. As we move forward, the information and knowledge provided by this study is being used to further develop and promote HBT in Victoria.
Chapter 8. Discussion

8.1. Introduction

The aim of this study was to identify the current status of HBT in Victoria, and how it evolved and developed. I found that the application of HBT in health, community and education systems is diverse, generally informal and largely based on the efforts of individuals. Reported benefits were comparable, and for the most part similar, to those in other countries but there were also differences. Empowerment was frequently used to describe a positive HBT outcome. The lack of a professional consistency and structure in Victoria means that HBT as a health and wellbeing intervention is yet to be fully realised. This chapter will synthesise the key findings and discuss their implications for practice and further research.

8.2. The current position of HBT in Victoria/Australia.

Rayner (2006) described HBT in Victoria/Australia as lacking in sophistication. This study suggests that Rayner may not have been commenting on the sophistication of individual programs and their outcomes, but rather the lack of HBT organisation and structure. It was not so much that these deficits were present, this was somewhat expected, but rather the extent and range of deficits and the effect this had on the development of HBT in Victoria/Australia. While there are some outstanding individual programs HBT is not consistent or organised. Deficits in organisation and structure (s.5.2.3) range from the lack of common language to the need for professional credibility. One of the key difficulties encountered from the beginning of this study was the lack of information and definitions (s.5.2.4). This was a problem shared by most informants in this study; even the former CEO of the HTAV lamented that HBT information “was not widely available” (s.5.2.4). Most informants in this study stated that as emerging practitioners they were not aware of HBT information being available. A consequence of this was that it was common that emerging practitioners’ essentially relied on their own background and experience, with HBT knowledge levels varying from extensive to little or no knowledge.

However, “making it up as you went along”, as Informant 30 describes her introduction to HBT, is not consistent with international practice and not
desirable for Victorian/Australian practice. Practitioners such as Diane Relf and others have developed, and have continued to refine, sophisticated models for various forms of HBT (Relf & Dorn, 1997; Sempik, Aldridge & Becker, 2002; Relf, 2006). However, these models were not referred to by any practitioners in this study. What was found is that many emerging practitioners in Victoria had no understanding of HBT even though it was well documented internationally. I found that even those with some knowledge of HBT still relied on their own perceptions of a HBT program. During the course of this study I have found that the available information both local and international was more likely to be about an existing or past program rather than how to establish and provide a new program. In Victoria/Australia there is no manual for HBT and without connections to other practitioners, collegial support and access to working examples, new practitioners did “make it up” using whatever HBT knowledge that they had acquired (s.5.1.1).

What was remarkable was how this knowledge was applied. Even with little or no information about HBT each practitioner had the confidence to provide a program on what they thought a HBT program might look like. This sometimes meant failure, but often led to the establishment of successful and innovative programs. A complication of this was that, when emerging practitioners relied on their personal knowledge, it isolated them from the international language of HBT (s.5.1.1). I believe that this has had a deep and remaining impact on the development of HBT in Victoria/Australia and has resulted in a lost opportunity to provide practitioners with a common identity. A consistent message from past and present practitioners was that to “struggle around activities” is typical of new HBT programs in Victoria (s.5.2.4). This paints a picture of dedication and, to some extent, desperation.

There is no doubt that HBT in Victoria/Australia has been dominated by a pattern of emergence, development, activity and cessation. Dotted throughout this study of HBT in Victoria are the remarks from informants saying that the most likely reason for a HBT program to stop was the exit of the practitioner. It was disappointing to hear comments such as, “if I stopped or left it would just turn to weeds”; (s.5.2.1) “if I stopped having an interest in it, it would stop” (s.5.2.1) and “I’m the lynch pin” (s.5.2.1). This is an extremely important link because reliance on a single practitioner for ongoing program
sustainability highlights a very tenuous relationship. The international literature indicates that this is not consistent with HBT in other countries and regions where practitioners are most likely to be members of a HBT organisation or working through a health care system (Gerlack-Spriggs & Wilson, 2002; Rusk, 2012; Währborg, Peterson & Grahn, 2014; Burton, 2014).

Figure 5. A recurrent pattern of HBT programs in Victoria

Figure 5 depicts a pattern of emergence and cessation reported by many informants. This pattern can be the result of practitioners leaving a HBT program to start another program at a different location or simply moving on to a different position. Another result can be that the HBT program stops for some time until another person with an interest in HBT re-introduces the program. More frequently, the HBT program is abandoned and lost to those who once participated. The timeline of key events depicted in Table 1 (s.2.8.1) illustrates this pattern of emergence and cessation. For HBT to have a future in Victoria/Australia this pattern needs to cease. To be sustainable there is an immediate need to have ways and means for new HBT programs to be established and to ensure that they are not dependent on the ongoing commitment of an individual. Recommendations are made latter in this chapter.
Also of concern was that when a key person left the HBT program they took any acquired skills and information with them. I found that almost all knowledge remained with the individual. This has made knowledge development and sharing a difficult proposition, allowing the cycle of ignorance to continue. This is demonstrated by the scarcity of local literature, reports and historical evidence. This unfortunate situation may be avoided if there was more contact between past, current and emerging practitioners. At this point there are only the most basic of informal networks and practitioners are most likely to make contact through word of mouth. However, what was also identified was that practitioners were not just separated by inconsistency of language; they were also isolated by lack of structure and organisation of HBT in Victoria/Australia (Rayner, 2006).

8.3. Program and organisational structure and the need for reform

Even though eight years have passed since Rayner (2006) reported on the state of HBT in Australia, this study has found that nothing much has changed. HBT is still largely dominated by individuals and there remains a lack of appropriate structures, little organisation and no formal education. The available information shows that HBT has been widely available in Victoria/Australia for over 30 years but it has never been unified (Smith, 1985). Several studies reported that there were hundreds of HBT programs and thousands of participants in Victoria; however, these studies did not describe the content, structure or quality of the programs (Smith, 1985; Aldous, 2000). Therefore it was important for this study to identify how programs worked and the amount of time practitioners allocated to them. What was found was that the institutions and settings referred to by Rayner (2006) were not specific to HBT but rather they were the community, education and public health settings where HBT occurred. This study has shown this could be anywhere from a church yard to a hospital. The activity levels in these groups were found to be quite low, between one and three hours each week (s.4.3.1).

The structure of HBT in Victoria was perfectly summed up by one informant who said that programs “are a bit casual, there is no real model, there is not much common to them, it is fragmented with everyone doing
things their own way” (s.5.2.6). While this seems to be a negative factor, it has also meant that the development of HBT has not been restricted by convention, which may explain why practice is so diverse. Paradoxically, it is perhaps this diversity of practice, the willingness to try HBT in many different settings, which has helped HBT to survive.

Despite the informality of practice participant cohorts and types of programs in Victoria were remarkably similar to those found internationally. What was different was that other countries and regions most often worked through a referral process, usually through a health system (Gerlach-Spriggs & Wilson, 2002; Sempik, 2007; Kirk, Karpf & Carman, 2010; Mitrione, 2012; Adevi & Lieberg, 2012). This was not so in Victoria where in the absence of a system, the practitioner usually did everything from the intake to the assessment process. It was also found that these processes would most likely be informal and not recorded. This is clearly different to that shown in studies by Chambers (2009), Toyoda (2012) and Park, Son and Cho (2014) where it is reported that in most other countries and regions, HBT would be delivered with the expectation of planned client outcomes and formal assessments. Relf’s model (Figure 1, p.22) illustrates the expectation that the “trained professional” would provide “measurable outcomes” as a result of a horticultural therapy program (Relf, 2006).

In this study it was clear that in Victoria/Australia the expectations were far less formal. Most practitioners expected a positive outcome but this was seldom planned or assessed. While it was clear that outcome measurements were far less formal than in international programs, Victorian based practitioners consider their work no less effective. However, without a systematic approach to assessing the effectiveness of a HBT program and recording the results of these assessments, the success or otherwise of the program is simply based on the practitioner’s opinion. I do not believe this is adequate for evidence- based practice and is unlikely to be accepted by health services as a measurable outcome. Until HBT programs in Victoria/Australia start with a goal, establish treatment plans and provide evidenced based measurable outcomes, there is little hope of gaining acceptance within the health sectors.
Identified, measurable and reportable outcomes are an indicator of the gulf between the professional standing of Victorian/Australian practitioners and those in comparable countries and regions where HBT is practised. Many informants said that they were disappointed and frustrated when their work was not acknowledged as therapeutic but rather a recreational distraction. I found that there is a strong desire by all informants in this study, to have HBT become more professional, to develop specific education opportunities and not have therapeutic horticulture confused with casual or domestic gardening (s.7.3.1; s.7.3.3). Practitioners want to be professional and to be recognised as such.

This could be achieved if there was a central entity to administer and promote HBT to a standard where health and community organisations have confidence in a practitioner’s ability to plan, deliver and assess program delivery. This study has shown that at present there are no typical HBT programs in Victoria but rather each practitioner provides their own interpretation of HBT (s.5.2.3). This lack of a uniform approach cannot continue and HBT in Victoria must start to look towards international HBT where national associations and organisations such as the AHTA (USA), Thrive and ASTHP (UK), KHTA, (Korea), JHTA, (Japan) and CHTA, (Canada) provide consistency within their own areas of HBT delivery. It is through these organisations that practitioners are represented, standards are set, and knowledge is retained, shared and improved through research (Relf, 2006; Abramsson & Tenngart, 2006; Chambers, 2009; Freeman, Dickinson, Porter & van Heezik, 2012). In these countries and regions HBT has recognition and practitioners are generally accepted as members of the health fraternity (Relf, 2005; Millet, 2009; Freeman, Dickinson, Porter & van Heezik, 2012).

In contrast to this, there is an organisational and structural void for those interested in HBT in Victoria/Australia. It could be said that the leadership role for HBT in Victoria should be taken up by the HTAV. However, it was found in this study that as a small volunteer based organisation, the HTAV had little influence on HBT in Victoria. The HTAV has struggled from year to year and information provided by the organisation was said to be old and dated (s.4.1.2.4; s.4.3.4).
The impact of this is that the Victorian/Australian health and government sectors will not have confidence in HBT practitioners without formal qualifications or standards of practice. To remedy this, I believe that HBT needs to develop, mature and have an accreditation method that is acceptable to both government and health sectors. It is essential for the stability of HBT in Victoria/ Australia that it is integrated with the existing health systems. This cannot be achieved until HBT is clearly defined and practice is structured and consistent so that practitioners, funding bodies and health officials are aware of where it sits within health or community systems. To encourage the uptake of HBT in these systems standards for HBT must have similar robustness to existing therapies such as OT, MT and AT. This is not just a necessity in Victoria; there is a pressing need for a national HBT organisation.

8.4. The benefits of HBT as perceived by those involved

There are strong links between ART (Kaplan & Kaplan, 1989) and SRT (Ulrich et al., 1991) and HBT. Although most of the informants in this study had little knowledge of the theoretical underpinnings of HBT, all believed it was beneficial to the health and/or wellbeing of the participants. The benefits they have presented also support this claim. When the informants in this study spoke of HBT reducing stress or being calming, it was usually without reference to any theory, but rather this view came from their personal experience and observations (s.6.6.1; s.6.1.3; s.6.2; s.6.5).

Informants reported a broad range of benefits that were often comparable to those in countries where HBT is more advanced. The much reported benefits of calmness and stress reduction were the most often reported benefit in this study. International researchers such as Gerlach-Spriggs et al. (1998), Aldridge and Becker (2005), Ulrich (2006), Hartig and Cooper-Marcus (2006) and others had all reported that HBT in its various forms had stress reducing qualities. What is different is that informants in this study stated that this result largely came from their own observations and they held few pre-conceived expectations of the benefits. For them it was a discovery when they found that HBT provided calmness, inner-healing, positive self-reflection, relaxation and improved self-confidence.
One consistent and powerful benefit reported across all HBT programs was empowerment. When informants referred to empowerment and children, it was found that it was usually in the context of raising confidence levels, giving children greater control of the environment they occupied, providing a sense of achievement and increasing social connectivity. This was particularly important for children who were underperforming at school. From the results of this study, I think most schools would have many reasons to include students in a school garden program. The benefits of nature alone would be reason enough to engage children in school gardens (Sempik & Aldridge, 2005; Bowker & Tearle, 2007).

When informants spoke about HBT being empowering it was usually linked to circumstances in which HBT was provided. In this study HBT was often used to assist individuals who were disempowered, so it is no great surprise to see people in these groups achieving a sense of empowerment. However, before this study there was little known evidence in Victoria/Australia between HBT and the importance it has for people participating in drug and alcohol programs, mental health programs and programs for people with a disability. This study has found that in some cases HBT was the core activity that has helped people recover or to be socially engaged with other people. While this study has provided some evidence of the effectiveness of HBT in helping the most disadvantaged, there needs to be far more local research to emphasis the benefits of HBT in a range of settings.

Nature is the most powerful influence on Earth, therefore interacting with nature but not being overwhelmed by its presence may provide this sense of empowerment (Wilson, 1984; Tidball, 2012). This reflects much of what Iwarsson (1997), Ottosson (2001) and Sempik et al. (2003) said about nature having a powerful influence on human emotion, this study found that HBT also assisted people in crisis to recover (s.6.1.3; s.4.2.2.1; s.4.3.1.2). Achieving this sense of empowerment was particularly important for those who were emotionally disengaged or at risk of self-harm (s.6.1.2; s.6.1.5). Informants said that when those in such volatile emotional situations participated in HBT, it often provided an alternative to negative behaviour and enabled a nurturing role that was life-affirming (s.6.1.2). This needs to be
considered in the context of the limited sample in this study, but it is very similar to what Toyoda (2012, p.57) reported when he found that one of the benefits of being engaged in HBT is a “recovery of self-affirmation, (useful sense of self)”.

While Toyoda (2012) spoke of self-affirmation, this study has described people being more positive about life and experiencing an alternative to a previously destructive lifestyle (s.6.1.2). Informants working with people in drug and alcohol recovery, alternative health and mental health programs found that HBT not only reduced patient stress (which might be expected), it also took the focus off the person and provided an opportunity for them to get away from negativity to a more positive view of the world (6.1.2). The aspect of self-reflection as part of HBT has not been widely explored but does fit with various nature based theories. ART, SRT and the earlier work by Harold Searles (1960) all have aspects of taking the person away, physically and/or mentally, from their current situation. There is ample of evidence to show that once a person is in or around a natural environment they are more likely to be able to naturally relax. This study links the ability to naturally relax to the capability to be more able to deal with the immediate or long-term issues people are facing.

During this study the term empowerment was used so frequently I thought that informants may be using it because they had no better term to use. Parkinson, Lowe and Vecsey (2011) found when horticulture was introduced into mental health programs they described this as social engagement, informants in this study described this as empowering. In previous studies, Bardach (1975) and Leith (2006) worked with people with disabilities and described the outcomes for their HBT participants in terms of accomplishments, in this study informants considered this as personal empowerment. To clarify this, Page and Czuba (1999, p.1) described empowerment in this context as a “social process that helps people gain control over their lives”. This is very different to an accomplishment, it far more personal and profound. For those in the groups described above, empowerment is extremely important because they are the ones who are most likely to have their lives controlled by others. The “others” in this case may be family, non-government organisations, including healthcare agencies,
or government, each of whom should have an interest in supporting empowerment and reducing dependency. Therefore I feel the term empowerment is appropriate in the context of this study.

Like Berg, Winsum-Westra, de Vries and Van Dillon (2010) this study also found that being engaged in practical HBT activities gave people an opportunity to move and function on a purposeful physical and cognitive level. This study also found that as well as assisting patients in recovery programs to recuperate from accidents, the physical activities provided by HBT were also very empowering for people with cognitive and neurological disorders (s.6.1.4). In some cases this sense of empowerment enabled patients to re-engage with aspects of their life that they once thought that they had lost forever. Those that had been dependent on others for long periods of time during their recovery found positiveness in a HBT activity.

Much of this study examined the value of the physical aspects HBT activities have on the health and wellbeing of people with dementia, ABI, autism and intellectual disabilities. The important outcome of this inquiry was that HBT gave these groups the opportunity to engage in physical work from which they were often excluded because of their cognitive capacity (s.6.1.3; s.6.1.4). The positive outcomes for people with neurological conditions were particularly important because they were the group most likely to have lost skills they once had. Through HBT people with dementia or ABI were able to demonstrate newly acquired skills or rekindle memories related to past skills (Sifton, 2004). The high level of stress prevalent in this group was also observed to be moderated by HBT. Informants also reported a positive shift in the sense of self-worth of HBT participants with intellectual disabilities when the outcomes were valued by their peers and their communities (s.6.1.3). This is an example of Social Role Valorisation (SRV) popularised by academics such as Wolfensberger (1991), Osburn (1998) and Cocks (2001) where an action by an individual or group is given value by the society in which they reside.

There was some consistency when both past and present teachers reported that HBT can offer a useful, effective intervention when often there are no other options (s.6.2.1). These informants found some children were not suited to the regimented confines of a classroom. Others had disorders or
disabilities that made learning difficult. It was these groups that were most likely represented in school based HBT. Like most other HBT practitioners in this study, teachers said that they set up their program without reference to others. However, even though teachers worked alone in their HBT program, most outcomes were remarkably similar among school groups. Along with an often reported calming effect, teachers said that children in HBT programs often increased their social skills, were able to interact more positively with their peers and previously socially isolated students developed the respect of other students. This could be said to be SRV within a school community. There were no reports that the students in HBT groups were subject to any negative behaviour such as bullying, but rather they were involved in activities other students found interesting. This generated curiosity from the peer group which transferred to a reduction in social isolation (s.6.2.1).

When describing these outcomes, the term ‘empowerment’ was also often used by teacher practitioners. Children who were experiencing disengagement from education, poor academic performance, low self-esteem or some form of disability were said to improve their position by engaging in HBT (s.6.2.1; s.6.2.2). This is similar to what Bowker and Tearle (2007) found in their study of garden-based projects in schools. Practical outcomes such as food produced in a vegetable garden, or the building of a pond for frogs, were empowering for students. Informants said this type of activity enhanced the status of marginalised children and gave a sense of achievement, self-worth and dignity through the development of practical skills and improved social skills. Teachers also said that children who may have been disruptive in the classroom were generally compliant and well behaved in a HBT program; here the demands of class activity are replaced with a non-demanding space where learning can occur in nature (Cheng & Munroe, 2010).

There is potential for greater use of HBT programs in schools. The purpose and success of HBT should be more widely publicised though the education system and the uptake of programs should be encouraged. The Stephanie Alexander Kitchen Garden program goes a long way towards achieving this goal but garden based activities should be considered an essential part of the curriculum for all children as a learning tool and as a practical social and emotional intervention.
Through this study I have found that HBT achieves very positive outcomes across many different groups and sectors of the community. People with disabilities, dementia, mental health disorders, disengaged children and many others can benefit from HBT. It is little wonder then that HBT in its various forms is increasingly being used throughout the world as a valuable asset in clinical and community health. Not only is HBT an asset in health, but it also supports the social and emotional wellbeing of a broad section of the community. If the range of barriers presented in this study can be overcome many more people could have access to the safe, effective and cost efficient benefits provided by HBT. What is essential is that local practitioners start using the international language of HBT and start linking their experiences with theoretical perspectives. Everybody needs to be on the same page, speaking the same language and presenting the outcomes and benefits in the same professional manner.

8.5. The immediate need: where to from here.

This study presents HBT in Victoria/Australian differently from Smith (1985), Aldous (2000) and Rayner (2006). I do not believe it lacks sophistication; in some cases it is innovative and equal to international practice. However, it does lack structure, organisation and connectivity. Because of the lack of connectivity, skills and knowledge transfer do not occur or occur only haphazardly. What is also very apparent is that HBT is still not widely used or understood by health or community services in Victoria/Australia. There is no doubt that this disadvantages many Australians who could benefit from the cost effective and holistic benefits provided by HBT. Therefore, it is prudent for me to make some suggestions for immediate consideration.

It may be difficult to establish a HBT organisation that supports the interests of practitioners without the foundation of suitable education standards for membership. Equally, it would be difficult to establish education programs for a largely unknown health intervention but these things are essential for HBT to develop in Australia. Therefore, I believe that the most effective way to initiate change is to establish a network of current practitioners to build an organisation that can quickly and effectively overcome
these obstacles. The members will then be able to set an interim education standard, which would need to include both horticulture and social sciences.

The establishment of an organisation of HBT practitioners is essential as it will initiate the long term goal to have a recognised and professional HBT model, but there is current need as well. This is to develop a working structure suitable for Victoria/Australia that can be implemented, tested and refined to suit all of the applications presented in this study. This will require broad goals and specific expectations of a HBT program. In other words, rather than each HBT practitioner making up a program, a template or set of templates for programs should be developed. Because Victoria/Australia more closely fits the description of social and therapeutic horticulture than clinical HBT, it may be best to follow the UK model developed by the Society for Horticultural Therapy (Thrive) or the newly formed practitioner based organisation, ASTHP (s.2.6).

The need to be able to mount a convincing case for HBT in Victoria/Australia makes it necessary to have a way of measuring HBT program outcomes. This could be adapted from current measurement tools used in other therapies (such as OT) or through the development of a specific tool for HBT. The current use of HBT in a range of health and community settings needs to be explored further. This will give clear and specific examples of the benefits of HBT to be published in a range of health related journals. This evidence can then be used to convince the health and community sectors that HBT is a valuable and cost effective intervention. In the short term I recommend that the health and social benefits provided by HBT should be presented to health, education and community providers based on the evidence provided in this study. Without this the people of Victoria/Australia will continue to be largely without the health and wellbeing benefits of HBT, including the important aspects of life-affirmation and empowerment so strongly presented in this study.

It was shown in this study that HBT is deliverable in remarkably different places, from specialist facilities to concrete courtyards (s.4.2.2; s.6.2.2). Kaplan and Kaplan (1989) used the term ‘nearby nature ‘to describe such places and in this study it included parks, gardens, schools, rehabilitation gardens and community areas. With the vast expanses and
places available in Victoria/Australia there is no physical reason not to have HBT readily available.
Chapter 9. Conclusions and recommendations

This study has explored the origins, development and benefits of horticulture as a therapy in Victoria/Australia. With little information available, the recruitment of informants for this study required an opportunistic approach. However, a selective sample was also needed to give the opportunity for broad responses that were representative of the many different aspects of HBT in Victoria. The diversity of HBT in Victoria/Australia required the exploration of practices such as horticultural therapy along with those that could be described as peripheral, such as vocational horticulture and community gardening. Informants in this study reported that HBT occurs in a range of environments in city, suburban, country locations and in backyards, health facilities, rehabilitation centres, parks, disability services and purpose built HBT centres. The common theme was that the person initiating the HBT program identified the health and wellbeing values of engaging people in a natural setting.

I found that the State of Victoria is very active in terms of HBT in Australia. However, local literature was scarce, with only a few contributors providing references to the past or present practice. With information scarce, a range of formal and informal sources were used. Information gathered through practitioner interviews and key informants was the principal source of new knowledge. The evidence from this study shows that HBT is mostly dependent on the enthusiasm of individuals who advocated for the use of HBT in a range of health and community applications. The use of HBT has provided a broad range of therapeutic outcomes that are safe, accessible and beneficial across many different target groups for many years.

There is great potential for HBT to contribute to the health and wellbeing of many more people in Victoria/Australia. This can only be achieved by convincing the government, health and community service providers, and the public, of the value of HBT. It is also clear that the profile of HBT is not as advanced in Victoria/Australia as it is in countries with a similar economic, health and social structure. Advancing the profile of HBT is a systemic need.
This study has shown that the reliance on individuals to carry the burden of all aspects of HBT is not practical, sustainable or desirable. The development of an HBT organisational structure that integrates with current health and community systems, along with the formation of a representative organisation to support HBT practitioners, were presented as the most pressing needs in Victoria/Australia. Stronger local networks need to be created to assist those working with HBT and those seeking HBT. Networks would also assist to reduce the isolation of practitioners, provide opportunities to share knowledge and give basic collegial support. It is suggested that a network of providers be established immediately and that this group forms the embryonic stage of developing a national HBT body.

Overall I believe that this study has provided the first real comprehensive picture of past and present HBT in Victoria and an indication of what is occurring throughout Australia. The role of HBT has been identified, acknowledging its limitations and revealing its benefits and potential. This is a foundation on which HBT can grow in credibility and status, gaining support and acknowledgment as occurs in many other countries. I have highlighted that HBT is a valuable health and social resource and it needs structured organisation and recognition to reach the potential shown in this study.

When HBT is formally recognised, I believe it will be able to be applied to enhance human health and assist in preventing serious medical conditions such as stress, anxiety and depression. Along with this, HBT will be available to empower those who are traditionally disempowered such as those with disabilities, mental health disorders and those in recovery or rehabilitation. Most importantly, when HBT is widely available, I believe it has the potential to contribute to the health and well-being of all Australians.
References


2011. Available:  
http://www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/4102.0Chapter5202008


althttp://www.acpmh.unimelb.edu.au/trauma/ptsd.html


http://query.nytimes.com/gst/fullpage.html?res=9C00E7DE1430F932A05756C0A9659C8B63


http://www.dailymail.co.uk/sciencetech/article-565207/Modern-technology-changing-way-brains-work-says-neuroscientist.html

http://www.thrive.org.uk/about-thrive-social.asp


http://www.macaulester.edu/psychology/whathap/ubnrp/audition/site/history%20of%20music%20therapy.htm


Horticulture Therapy Association of Victoria Inc. 1997, Starting a Horticultural Therapy Program. p.3.


Kevin Heinze Garden Centre Inc. 1999. *A Dream Bears Fruit, an anecdotal history of the Kevin Heinze Garden Centre*. Doncaster.


http://www.menningerclinic.com/about/early-history.htm#KarlMenninger

http://www.menningerclinic.com/about/Menninger-mission.htm


http://www.asla.org/ppn/Article.aspx?id=25302


Park, S., H. 2006. Randomised clinical trials evaluating the therapeutic influences of ornamental indoor plants in hospital rooms on health outcomes of patients recovering from surgery. Kansas State University, Manhattan, Kansas.


http://cmsuat.itc.griffith.edu.au/__data/assets/pdf_file/0004/340834/1_rubino.pdf


http://www.commonwealthfund.org/publications/publications_show.htm?doc_id=559715#areaCitation


http://www.spartacus.schoolnet.co.uk/FWWmental.htm


USA


## Appendices

### Appendix 1 – Coding groups according to category or function

<table>
<thead>
<tr>
<th>Core Category - People</th>
<th>Secondary Code Key</th>
</tr>
</thead>
<tbody>
<tr>
<td>Key person or enabler</td>
<td>KP/E</td>
</tr>
<tr>
<td>Connection to nature</td>
<td>CN</td>
</tr>
<tr>
<td>Community</td>
<td>C</td>
</tr>
<tr>
<td>Target Groups</td>
<td>TG</td>
</tr>
<tr>
<td>Government</td>
<td>G</td>
</tr>
<tr>
<td>Research</td>
<td>R</td>
</tr>
<tr>
<td>Health sector</td>
<td>HS</td>
</tr>
<tr>
<td>Role</td>
<td>Ro</td>
</tr>
<tr>
<td>Family Connection</td>
<td>Fc</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Core Category - Programs</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Connection to nature</td>
<td>CN</td>
</tr>
<tr>
<td>Barriers</td>
<td>Ba</td>
</tr>
<tr>
<td>Benefits</td>
<td>Be</td>
</tr>
<tr>
<td>Success factors</td>
<td>SF</td>
</tr>
<tr>
<td>Variation</td>
<td>V</td>
</tr>
<tr>
<td>Definition</td>
<td>D</td>
</tr>
<tr>
<td>Community</td>
<td>C</td>
</tr>
<tr>
<td>Education or training</td>
<td>ET</td>
</tr>
<tr>
<td>Pathways to HBT</td>
<td>PW</td>
</tr>
<tr>
<td>Government</td>
<td>G</td>
</tr>
<tr>
<td>Opportunities</td>
<td>O</td>
</tr>
<tr>
<td>Links to other sectors – health sector</td>
<td>L</td>
</tr>
<tr>
<td>Inter-disciplinary support</td>
<td>IDS</td>
</tr>
<tr>
<td>Social</td>
<td>S</td>
</tr>
<tr>
<td>Age Related</td>
<td>AR</td>
</tr>
<tr>
<td>Methods</td>
<td>M</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Core Category - History</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Past</td>
<td>Pa</td>
</tr>
<tr>
<td>Present</td>
<td>Pr</td>
</tr>
<tr>
<td>Future</td>
<td>F</td>
</tr>
<tr>
<td>Pathways to HBT</td>
<td>PW</td>
</tr>
<tr>
<td>Government</td>
<td>G</td>
</tr>
<tr>
<td>Research</td>
<td>R</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Core Category - Motivation</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Family</td>
<td>F</td>
</tr>
<tr>
<td>Work</td>
<td>W</td>
</tr>
<tr>
<td>Research</td>
<td>R</td>
</tr>
<tr>
<td>Volunteer</td>
<td>V</td>
</tr>
<tr>
<td>Education or training</td>
<td>ET</td>
</tr>
</tbody>
</table>
Appendix 2 - Plain Language Statement and consent form

DEAKIN UNIVERSITY
PLAIN LANGUAGE STATEMENT AND CONSENT FORMS

TO: Participants – Past and Present Practitioners

Plain Language Statement

Date: 16/05/2008

Full Project Title: The origins, development and perceived effectiveness of horticulture-based therapy programs in Victoria

Principal Researchers: Associate Professor Mardie Townsend & Dr Claire Henderson-Wilson

Student Researcher: Mr Christopher Reed

This Plain Language Statement and Consent Form is 5 pages long. Please make sure you have all the pages.

1. Your Consent

You are invited to take part in this research project.

This Plain Language Statement contains detailed information about the research project. Its purpose is to explain to you as openly and clearly as possible all the procedures involved in this project so that you can make a fully informed decision whether you are going to participate.

Please read this Plain Language Statement carefully. Feel free to ask questions about any information in the document.

Once you understand what the project is about and if you agree to take part in it, you will be asked to sign the Consent Form. By signing the Consent Form, you indicate that you understand the information and that you give your consent to participate in the research project.

You will be given a copy of the Plain Language Statement and Consent Form to keep as a record.

2. Purpose and Background

The purpose of this project is to identify the scope and nature of past, present and emerging horticulture-based therapy programs in Victoria and the impact on the mental, physical and general health and wellbeing of participants who are or have been part of such programs.
This is a student project and contributes to the Doctor of Philosophy degree.

A total of 20 people will participate in this part of the project.

Previous experience has shown that horticulture based therapy can have a positive effect on people. A number of past and recent studies indicate a positive link between the wellbeing of people and their contact with nature. These studies have shown improvement in the health of hospital patients, stress reduction, less use of medication and a general improvement in the quality of life when people engage in or have access to horticulture, gardens and natural environments. The purpose of the study is to investigate the origins, development and perceived effectiveness of selected horticulture based therapy programs in a number of health and community settings.

You are invited to participate in this research project because of your unique position as a past or current practitioner or a person who has specific information about horticulture based therapy that can inform the study.

The results of this research may be used to help researcher Christopher Reed to obtain a Doctor of Philosophy degree.

3. Funding

This research is totally funded by Deakin University.

4. Procedures

Participation in this project will involve about an hour of your time. You will be contacted and invited to either a face-to-face or telephone interview whichever you feel is most appropriate for your circumstances.

You will be asked a series of open ended questions designed to provide opportunities for you to give your perceptions and experiences of horticulture based therapy. You will be encouraged to be informative and open in this discussion.

Sample questions:

*How would you describe the outcome of a structured horticulture based program for the majority of participants?*

*How would you describe the community perception of horticulture based therapy in Victoria?*

The information provided by past and present practitioners will give a picture of past and contemporary programs and the results of this practice, taking into account the practices’ given context and the different levels of involvement.

It is intended that the information you provide and your experience of horticulture based therapy will be published identifying you as a past or current practitioner or a person with knowledge of horticulture based therapy. Please take this into account when considering consent.

The project will be conducted to Deakin University Higher Degree by Research academic requirements.

5. Possible Benefits.
Possible benefits include identifying those interventions that provide better outcomes for those engaged in horticulture based therapy (HBT). There may also be an opportunity to determine the most effective way for HBT to be implemented. The study will identify those programs contributing to better health and wellbeing outcomes for participants. We cannot guarantee or promise that you will receive any benefits from this project.

6. Possible Risks

There are minimal risks involved in this project. The information published will only be what you have provided during the interview and have agreed to be published.

If you feel uncomfortable with the questioning, the questions or the person asking the questions you can end your participation at any time. If you feel you do not wish to continue for any other reason you can end participation at any time.

7. Privacy, Confidentiality and Disclosure of Information

All data collected will be stored on a password and fingerprint access protected computer file or password protected USB drive.

Once completed all project data will be stored in a locked cabinet according to Deakin University protocol for the storage of records, documents and data for a minimum of six years after which the data and any related material will be destroyed.

8. Results of Project

A summary of the results will be provided to you on request.

9. Participation is Voluntary

Participation in any research project is voluntary. If you do not wish to take part you are not obliged to. If you decide to take part and later change your mind, you are free to withdraw from the project at any time. If you decide to withdraw from the project at any time any information relating to your involvement will be destroyed. Your decision whether to take part or not to take part, or to take part and then withdraw, will not affect your relationship with Deakin University.

Before you make your decision, a member of the research team will be available to answer any questions you have about the research project. You can ask for any information you want. Sign the Consent Form only after you have had a chance to ask your questions and have received satisfactory answers.

If you decide to withdraw from this project, please notify a member of the research team or complete and return the Revocation of Consent Form attached.

10. Ethical Guidelines

This project will be carried out according to the National Statement on Ethical Conduct in Human Research (2007) produced by the National Health and Medical Research Council of Australia. This statement has been developed to protect the interests of people who agree to participate in human research studies.
The ethics aspects of this research project have been approved by the Human Research Ethics Committee of Deakin University.

11. Complaints

If you have any complaints about any aspect of the project, the way it is being conducted or any questions about your rights as a participant, then you may contact: Secretary HEAG-H, Dean’s Office, Faculty of Health, Medicine, Nursing and Behavioural Sciences, 221 Burwood Hwy, Burwood, Vic. 3125, Telephone: (03) 9251 7174, email hbs.research@deakin.edu.au

Please quote project number EC00213 -2008.

12. Reimbursement for your costs

You will not be paid for your participation in this project.

13. Further Information, Queries or Any Problems

If you require further information, wish to withdraw your participation or if you have any problems concerning this project, you can contact the principal researcher.

The principal researcher responsible for this project is:

A/Prof Mardie Townsend
Faculty: Health, Medicine, Nursing and Behavioural Science
School: Health and Social Development
TEL: 03 9251 7278
Email: mardie.townsend@deakin.edu.au
TO: Participants – Past and Present Practitioners

Consent Form

Date: 16/05/2008

Full Project Title:
The origins, development and perceived effectiveness of horticulture-based therapy programs in Victoria

I have read, or have had read to me and I understand the attached Plain Language Statement.

I freely agree to participate in this project according to the conditions in the Plain Language Statement.

I have been given a copy of the Plain Language Statement and Consent Form to keep.

I agree that

1. I / MAY / MAY NOT be named in research publications or other publicity without prior agreement.

2. I / DO / DO NOT require an opportunity to check the factual accuracy of the research findings related to me as a participant before the thesis is submitted for examination.

3. I / EXPECT / DO NOT EXPECT to receive a copy of the research findings or publications.

Participant’s Name (printed) ……………………………………………………………………

Signature ……………………………………………………… Date …………………………. 
Revocation of Consent Form

(To be used for participants who wish to withdraw from the project)

Date: 16/05/2005

Full Project Title: The origins, development and perceived effectiveness of horticulture-based therapy programs in Victoria

I hereby wish to WITHDRAW my consent to participate in the above research project and understand that such withdrawal WILL NOT jeopardise my relationship with Deakin University.

Participant’s Name (printed) ……………………………………………………………………………………

Signature …………………………………………………………………………… Date …………………

Please mail or fax this form to:

Please return to:  
A/Prof. Mardie Townsend  
Deakin University  
221 Burwood Hwy.  
Burwood, 3125  
TEL: 03 9251 7278  
Fax: 03 9251 7450
Appendix 3 – Interview Questions: Past and Present Practitioners

Prompt Questions for Past and Present Practitioners

1. How would you describe your role in structured horticulture based activities in Victoria?
2. How would you describe the participants involved in these activities?
3. Which specific groups, schools, or disability organisations did/do these participants belong to?
4. What year/s did the program/s operate?
5. To your knowledge is the program still operating?
6. If so in what ways do/did you contribute to the continuation of the program?
7. If not what do you believe caused the program to cease?
8. Thinking about your experience, how would you describe the disposition of the majority of participants immediately after horticulture based activity?
9. If you have been in a position to observe participants in a horticulture program over an extended period, how would you describe any changes in behaviour, self-esteem or abilities during this time?
10. Horticulture activities may affect people differently. What, if any, differences have you experienced within groups or between individuals?
11. How would you describe the outcome of a structured horticulture based program for the majority of participants?
12. Some individuals display certain behaviour traits. Based on your experience how would you describe the effect of structured horticulture activities on behaviour?
13. How would you describe the community perception of horticulture based therapy in Victoria?
14. How would you describe the value of horticulture as a therapy for the community in general?
15. How would you describe the written material about horticulture based therapy programs in Victoria?
16. How would you describe the purpose of a structured horticulture based program?
17. How would you describe the structure of most horticulture based programs in Victoria?
18. How would you describe horticulture based therapy training in Victoria?
19. How would you describe the support provided by government for horticulture based therapy programs?
20. Thinking about your experience, what would you say was the most interesting or significant outcome of a horticulture based program?
21. Based on your experience, what would assist the development of structured horticulture based programs in Victoria.
22. How would you describe the challenges facing horticulture therapy in Victoria?
23. How would you describe access to funding to be able to run horticulture based therapy in Victoria?
24. Have you worked in other structured horticulture based programs? (repeat relevant questions)
Appendix 4 – Focus Group Questions for Occupational Therapy Students

Prompt Questions for Occupational Therapy Student Focus Group

1. What year did you commence your occupational therapy studies?
2. How would you describe your future role as an Occupational Therapist in Victoria?
3. As an OT student could you describe any reference to horticulture based therapy during your course of study?
4. From your experience could you describe any connection between Occupational Therapy, healing and gardens?
5. As a practicing OT where would you expect client groups to come from, referrals?
6. Thinking about your placement experience, have you witnessed any changes in disposition or behaviour of participants due to garden based activity?
7. If you have been in a position to observe participants in any other garden type program over an extended period what if any benefits have you observed?
8. In general how would you describe the influence of the garden, outlook or environment on people?
9. Some individuals display certain emotional traits. Based on your overall experience how would you describe the effect of the garden/environment on emotional behaviour?
10. From your perception as an occupational therapy student how would you describe horticulture based therapy in Victoria?
11. How would you describe the value of a garden environment for the community in general?
12. How might you use a structured garden based program as a practicing OT?
13. How would you describe horticulture based therapy training in Victoria?
14. Thinking about your placement experience, what would you say was the most interesting or significant outcome for an individual during your placement?
15. As an OT student how do you see the development of structured nature or garden based programs in Victoria?
16. Describe horticulture based therapy programs you are aware of in Victoria.
17. Referring to the previous question, describe how you became aware of these programs, if any?
Appendix 5 – Interview Prompt Questions for New or Emerging Practitioners

1. Could you describe your education history?
2. Could you describe your employment history and how it might relate to horticulture based therapy?
3. Horticulture Based Therapy is practiced in many different ways. Could you tell me about your experience of HBT to date?
4. If you were to set up a horticulture therapy program could you describe your target groups?
5. From your understanding what would you expect as an outcome of a HBT program?
6. Describe the support you believe you might receive from government.
7. Could you describe any research or general information about horticulture as a therapy you have read?
8. There are many therapies in use; could you describe any that may complement a horticulture based therapy program?
9. From your experience could you describe your perceptions of the value of horticulture based therapy?
10. What would you see as a possible barrier to the success of a horticulture based therapy program?
11. From your perspective where in the community would you consider providing a HBT program?
12. What from your experience would assist the development of HBT?
13. What from your experience what would be the most significant barrier to the success of a HBT program?
14. Where would you expect to get funding for a HBT program?
Appendix 6 – Questions for Key Informant: OT Practitioner

Questions for Occupational Therapist

Questions presented here are based on the responses provided by the occupational therapy (Masters) students focus group. The intention is to investigate why students responded the way they did in the focus group.

- What is your occupational therapy background & how many years have you been an OT practitioner?
- Could you describe your OT training? Do you think it differs from current training?
- Describe the type of work you believe the OT’s might undertake (these days) when they have completed their training.
- None of the students in the focus group had ever heard of the connection between horticulture and OT. Do you think there is a reason for this?
- OT students who attended KHGC were generally quite surprised that this was an OT placement why do you think they were surprised?
- Students have a strong sense that the clinical OT approach is the right approach and it provides the therapeutic outcome required. What is your view?
- The students once they have attended Royal Talbot Rehabilitation Centre and witnessed the clinical use of horticulture in rehabilitation saw the potential for OT; why do you think that is?
- Students largely see horticulture/gardening, even in planned therapeutic settings like KHGC, as a social diversion rather than a therapy. Why do you think they have this view?
- Students referred to gardening as a meaningful activity and as such they would support a person’s interest in gardening as a therapy. Why?
- A lot of the responses provided by the focus group referred to “in a clinical setting”. Why?
- Horticulture Based Therapy was once a part of OT in Australia. Do you think there is a place for HBT in OT or should it be best developed as a separate discipline?
- Most students stated that they would prefer to work in a clinical setting such as a hospital or rehabilitation rather than in a community setting, comment.
- There was a strong sense that the focus group now had an understanding of HBT in a clinical setting but there was also a sense that few (if any) would ever use horticulture in their practice. From your perspective what is the reason for this?
Appendix 7 Analysis by data “chunks” using the “comments” tool.

Community C

In 19W.
19. I also get an amazing amount of Italian children where Nona have got a massive vegetable patch and they’re so enthused in it or it could be kids where mum and dad are starting a patch or doing things (p.1)
19. there’s a real buzz around the school environment let alone visitor’s coming in and we’ve had other schools come and look at our work to see if they could mimic it at their own schools (p.3)

Comment –In. 19 commented on the influence of parents and grandparents on the children. Some of this is a cultural expectation, that children from an Italian background are influence by that culture to be involved in garden activities. The school community takes pride in the work they do and exhibit this to visitors to the school.

in.13H.
13. So our programs are quite varied in the way they do that so it goes from our one end of the spectrum with our corporate social responsibility programs in getting them out into the park in terms of our research there some of them haven’t used a park for 12 months (p.1)
13. Yeah and I do think its connected to our (unclear) and to let their mind explore not just to be taught, in think there’s a lot to answer for in terms of our lifestyle and the way we are living in such closed, it’s about the whole change in the way we live p.4)

Comment In.13 - The corporate community is one target for the program 13 provides. This is marketed as corporate social responsibility. There is a greater need to allow ourselves to explore and our minds to explore, to get out into a natural environment and not live such closed lives.

10.nil
14. Nil

In 7M.
7. Some of them are HACC (Home And Community Care) funded groups, some of them are programs run by organisations like EACH (Eastern Access Community Health) some are programs run through Scope, did you mention special schools? (p.1)
7. Oh, special schools, who else? Day centres, did I mention the individuals who come with their own case planners and people who contact the Centre off their own

Comment In.7 - The whole of community approach is part of the program that 7 runs.
Appendix 8 – Permissions to use diagrams

1. Diane Relf

From: Diane Relf [pdrelf@vt.edu]
Sent: Saturday, 26 May 2012 11:38 PM
To: CHRISTOPHER REED
Subject: Re: Diagrams for PhD study

Chris

You have my permission to use the figures you have requested as well as anything else I have written or designed as long as it is properly cited.

Diane

2. Thrive

From: info@thrive.org.uk [info@thrive.org.uk]
Sent: Friday, 1 June 2012 6:46 PM
To: CHRISTOPHER REED
Subject: RE: Research (Thrive enquiry)

Dear Chris

Thank you for your enquiry, you may use the image from our website, providing you say somewhere or next to the picture it is from Thrive.

If you have any further questions please let me know.

Kind regards

Kathryn Powell
Information Officer
Tel: 0118 988 5688
www.thrive.org.uk
www.carryongardening.org.uk