COST 866
Working Group 1 – Health Effects of Green Care
Workshop, 4 - 5 December 2006, Brussels

Abstracts of Presentations and Discussion Papers

Programme

4th December 2006

Working Group 1, Holiday Inn, 8th floor, room Napoleon

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<td>Methods in researching the effects of green care on perceived health in the elderly</td>
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<td>Erik Baars, Neth</td>
<td>The development of a monitoring system for monitoring patient progress at healthcare farms</td>
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<td>John Hegarty, UK</td>
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18:30  |                  | Close of Session                                                      |
### Morning

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<td>09:00</td>
<td><strong>Conceptual Frameworks and Theoretical Models of Green Care</strong></td>
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<td>09:15</td>
<td><strong>Bjarne O. Braastad and Bente Berget</strong>, Norway:</td>
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<td><em>Theoretical frameworks for animal-assisted interventions</em></td>
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<td>09:30</td>
<td><strong>Marjolein Elings</strong>, Netherlands:</td>
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<td><em>Effect of green-care farms on quality of life of people with a psychiatric and/or drug-addict background</em></td>
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<td>09:45</td>
<td><strong>Joe Sempik</strong>, UK</td>
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<td><em>A theoretical model for the health benefits of social and therapeutic horticulture</em></td>
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<td>10:00</td>
<td><strong>Rex Haigh</strong>, UK</td>
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<td><em>Parallels between therapeutic communities and therapeutic horticulture</em></td>
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<td>Collaborative working – formation of partnerships?</td>
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<td>12:00</td>
<td>Lunch in meeting room for COST-delegates. <em>NB! Non-COST delegates must eat elsewhere.</em></td>
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### Afternoon

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<td><strong>Applying green care – lessons from practice</strong></td>
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<tr>
<td>13:15</td>
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<td><em>Therapeutic gardens for patients with depression</em></td>
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<td>13:30</td>
<td><strong>Giorgio Guerani</strong>, Italy</td>
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<td><em>Horticultural Therapy with acute psychiatric patients</em></td>
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<td>13:45</td>
<td><strong>Lavinia Rossi</strong>, Italy</td>
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<td><em>Onotherapy: a project between pet therapy and health care</em></td>
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<td>Final discussion and issues arising from the seminar</td>
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<td>16:00</td>
<td>Close of Meeting</td>
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Methods in researching the effects of green care on perceived health in the elderly

Erja Rappe PhD
Department of Applied Biology, P. O. Box 27, A-house, FIN-00014 University of Helsinki, Finland
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In research of the effects of green care on perceived health, numerous problems arise. How to do it with scientific scrutiny? How to convince the different audiences (peer scientists, health care people, economists, policy makers) who are used to trust on different kinds of evidence? How to define the concepts, such as green care, so that everyone will understand them about the same way?

The first problem is the lack of sound theoretical background on which to base the research; how to formulate the phenomena we are studying, what is the concept of knowledge to be used. How to integrate the biological base to social and cultural sciences? So far we have applied theories from other disciplines such as Kaplans’ Attention Restoration Theory or Ulrich’s stress recovery theory from environmental psychology. Now we are going to start to develop our own theories by integrating existing theories from various fields to our own results.

How to associate green care with relevant health outcomes and how to find out the ways it effects on health is a major question. The concept of health is culturally determined which makes comparisons between different countries difficult if the measures validated in different cultures are not available.

The need to show the effect is crucial when we are talking about care. When using the word effect, we assume causal relationships between independent variables. But when we are studying health, perceived health as in many studies in our field, we are dealing with human experience, individual meanings which are always connected to innate, subjective factors being not independent from the prevailing context. So, it is very difficult to develop green interventions targeted to cure certain impairments or disorders with certain effect which would convince the policy makers.

So far the valid evidence in health care has come from randomised experimental studies which have control groups. The value of subjective knowledge has been marginal in planning and developing health care systems. In my point of view, integrating both quantitative (objective) and qualitative (subjective) methods, when studying health and the factors associated with it will lead to deeper understanding of health and its determinants.

Although the associations with green care and health are difficult to study, we have to proceed. I think that we are now moving from the multidisciplinary research into interdisciplinarity, integrating theories, concepts, and methods from various fields. When we will reach the stage of transdisciplinarity, really crossing the borders of different disciplines, we may find new paradigms, new ways to understand the associations between health and environment. However, it will be achieved only by research actions including a wide range of scientists who are all interested in green environment and health.
The development of a monitoring system for monitoring patient progress at healthcare farms

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Louis Bolk Instituut, Driebergen, Hoofdstraat 24, NL-3972 LA Driebergen
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J. Hassink
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M. Elings
Wageningen University Research centre, Wageningen, The Netherlands

In 2005 four institutions, two research centers (Wageningen University Research centre & Louis Bolk Instituut) and two healthcare institutions (Arta Lievegoedgroep for psychiatric patients & Heimerstein for mentally disabled patients) decided to cooperate in a 5 years research program at the healthcare farm ‘de Hoge Born’ in Wageningen. The main goals of this program are: (1) to generate literature and experience based hypotheses on the relationship between ‘green care’ and (promotion of) health, (2) to develop a valid monitoring system to monitor individual patient progress, and (3) to empirically test the most promising hypotheses.

In the last year we have developed a monitoring system which is able to monitor individual patient progress with regard to: (1) symptoms, (2) quality of life, (3) health and disease related direct and indirect costs, (4) patient treatment satisfaction, and the need for support (only for mentally disabled patients). The monitoring system includes questionnaires and 24 hours Heart Rate Variability measurements. It uses several case-study methodologies and statistical tools to analyze the results. Patients will be monitored for one year during their treatment at the Hoge Born up till 6 months after leaving the healthcare farm. In the next 1,5 year we will scientifically validate the monitoring system and start with exploring the possibilities of offering feedback from the information produced by the monitoring system to the healthcare workers in order to improve treatment.
Inner Gardens: A case study in action research in therapeutic horticulture

Dr John Hegarty, Senior Lecturer in Psychology, Keele University, UK
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Background
Positive experience of offering a combination of art therapy and wildlife-gardening advice to sufferers of chronic illnesses over a period of three years led to the Shropshire Wildlife Trust’s (an established UK charity) wish to design a controlled study of their approach. The author assisted SWT in designing and running this, within a very limited budget. A support group for sufferers was also a partner in the study. The aims were to see:
1. Attendance / drop out for the therapy programme (because there could be no question of therapeutic effect if people did not participate fully);
2. Health status screening questionnaire changes pre-therapy, immediately post-therapy, and at 6 month follow-up (because data from published, standardised questionnaires was considered valuable);
3. Qualitative data from patients and therapists (because little data on patients’ reactions to this therapy had been obtained before);
4. To use the study as a pilot for a larger study of the therapy approach, termed “Inner Gardens” (it was hoped to obtain grant funding for a fuller study).

Method
12 sufferers of Chronic Fatigue Syndrome / Myalgic Encephalitis volunteered for the project. Medical screening ensured they met accepted clinical criteria for sufferers. Over a period of 12 months, three groups of four patients underwent a programme of art therapy and wildlife gardening activities. These were structured so that four patients began the project immediately, whilst others were waiting controls. Patients had an “intensive” therapy phase of three months, followed by a “support” (less intensive) phase, followed by three months follow-up. They completed self-report health questionnaires (SF36 and HAD), criterion-related checklists, and interviews. Therapists (art therapy and gardening therapy) completed reports. Volunteers from the 150+ members of the ME/CFS support group also completed SF36 and HAD questionnaires at comparable time points to the therapy group.
Results
Attendance was good. Only two patients dropped out, for reasons unconnected with the therapy.
Screening questionnaire data showed no overall change, since about half of the patients improved and half worsened.
Qualitative data gave a positive picture of the value of the programme to the participants. They found the meetings helpful, and valued the new skills and interests they had learned. Significant changes to their gardening enjoyment occurred.
Participants, therapists and SWT management board members expressed the view that they would not have expected any change to their underlying condition (since this, they believed was a medical one). Rather, the value of the project lay in the support and social opportunities it gave to sufferers who were often neglected by services and isolated.

Conclusions
The study provided a descriptive account of participants’ reactions to this therapy package, and data from conventional health screening questionnaires. No overall change in health status for the group as a whole was found but the combination of art therapy and wildlife gardening used in the project was greatly valued by all participants. They particularly valued the supportive and positive style of the therapists, and the opportunity to meet regularly. New gardening, art and wildlife interests were stimulated by the project. These findings suggested the value of this approach to other organisations who could offer group meetings with art and wildlife components.
"Therapeutic Communities - an interesting parallel with green health"

Yolande Hadden, Development Worker, Thames Valley Initiative, 
Yolande.Hadden@obmh.nhs.uk

Rex Haigh, Psychiatrist, Association of Therapeutic Communities, rex@haighz.net

Therapeutic communities (TCs) have been in existence for several centuries, as one of the strands of "moral treatment" in mental health care. This presentation will describe (1) an outline of their history and current working model, (2) the difficulties of research and (3) the promise for the future. In all three sections, it will draw parallels to and links with therapeutic horticulture in particular, and the shared philosophical approach in a wider sense.
Theoretical frameworks for animal-assisted interventions

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Animal-assisted interventions (AAI) for people with mental disorders or social clients may be either animal-assisted therapy (AAT), a controlled and documented goal-directed intervention involving health professionals, or animal-assisted activities (AAA), a term which is used for a less controlled service that may have a therapeutic effect, but which is not a true therapy in a strict sense.

Positive effects of AAI on humans could be achieved by a number of different mechanisms. We should not expect one single mechanism to be in operation in all types of AAI, and also not for all individuals within a specific intervention. Animals may be beneficial to humans because they are part of nature, are nice to touch and stroke, serve as a social companion, serve as a subject to care for, or animals may enhance self-efficacy when the person manages to do work related to the animals. Which effect that works may be related to the diagnoses of the patient and his/her individual characteristics and preferences.

We suggest that, on a farm, AAI may generally increase quality of life by stimulating beneficial processes of social inclusion and working skills, resulting in increased coping ability with its cognitive and emotional dimensions.

Four main theories, or certain aspects of them, might underlie these processes:

Cognitive theory. An important aspect of cognitive theory is self-efficacy, a belief in one’s ability to perform behaviours that will create an expected and desirable outcome. The single most efficient method for achieving increased self-efficacy is performance accomplishment, the successful performance of a behaviour that was once feared (Bandura, 1997). Increased self-efficacy was among the best documented effects of AAI with cows for people with psychiatric disorders (Berget, 2006).

Attachment theory. This theory describes social bonds as a further development of the most basic social bond, the attachment between mother and child (Bowlby, 1969). Attachment theory should be particularly relevant in cases where a patient or client develops a strong bond with one or a few individual animals. This also takes time to develop.

Biophilia hypothesis. Humans possess a genetically based propensity to attend to, and be attracted by, other living organisms (Wilson, 1984). However, people’s responses to animals are modified by culture and individual experience (Kruger & Serpell, 2006), and there is no clear evidence that the biophilia hypothesis could explain why humans are attracted to animals. Historically, contact with dogs, cats and also farm animals may have developed as a symbiotic relationship, favouring genes and behaviour related to positive attitudes to such animals.

Learning theory may explain reduction in anxiety and arousal during AAI (Brickel, 1985, Friedmann et al. 1991, 1995, Wilson, 1991). A pleasurable activity will be self-reinforcing and increase in frequency, while unpleasant experience may result in avoidance or the associated behaviour to be less likely to occur. Attention being diverted from pain or mental problems during an AAI session may result in a feeling of control. This important aspect of coping ability may further result in increased self-esteem, self-efficacy, and self-perception. During work with farm animals the client may experience a caring role and enhanced working skills, both adding to the coping ability.

Therapeutic gardens for patients with depressions

Dr Lis Sørensen, The Danish Association for Depression and Bipolar Disorder, Denmark
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Horticultural therapy as a method of stimulating patients suffering from depressions is not used in Denmark. With an increasing number of people suffering from stress-induced depressions and limited medical personnel, horticultural therapy needs to be promoted within the public health care system. The Danish Association for Depression and Bipolar Disorder works to draw attention to the potentials of horticultural therapy.

The presentation will focus on 1) the challenges of horticultural therapy before it becomes an accepted treatment of patients with depressions, 2) how a therapeutic garden could be established in connection to castles or larger farm settings.
HORTICULTURAL THERAPY: AN EXPERIENCE WITH ACUTE PSYCHIATRIC PATIENTS

Giorgio Guerani, Psychiatric Emergency Service, Grassi Hospital, Rome
giorgio.guerani@fastwebnet.it

For over two years G.B. Grassi Hospital’s Psychiatric Department “Paola Sarro” has been developing the horticultural therapy, in order to aside and integrate the pre-existing therapies for the care and the recovery of the psychiatric patients in their acute phase, thanks to a plant-care activity.

For this reason it has been realized, inside the hospital, a green area where the patients work together with other people in a quiet and supporting atmosphere. In the therapeutic garden the patients get in touch with the plants and they are involved in a physical activity which is not toilsome.

The aim is to offer a comfortable and relaxing environment to the patients, in order to stimulate them to action and cooperation and to improve the interaction among patients and assistance operators. In this way the patients are involved in a working team which gives them the possibility to compare with others, to share emotions and feelings, to feel responsible of his/her own job, to be satisfied of the outcomes.

The horticultural therapy has the peculiarity to offer a strong contact with living beings, the plants, which interact in a non aggressive way with the patients, stimulating their abilities in caring them.
Onotherapy: a project between pet therapy and health care. A Pilot Study.

Lavinia Rossi, Alessandro Lenzi, Francesco Di Iacovo
University of Pisa, Italy

laviniarossi@gmail.com

OBJECTIVES: To determine whether animal-assisted therapy with donkeys is effective in the rehabilitation of schizophrenic and/or psychotic patients in remission or in children affected by ADHD, autism, social phobic or anxious patients and people with mental or physical disabilities working in a social farm. In this project we suppose that donkeys could be helpful as a co-therapist in cognitive, behavioral, motor, brain damage or sensory speech impairment. DESIGN: A before-and-after study with twelve to twenty-four-month treatment period. SETTING: A furnished farm with stables for psychiatric patients and other patients enrolled. SUBJECTS: We will enroll schizophrenic or psychotic patients in remission with a poor quality of life, children with autism and other people with disabilities. INTERVENTIONS: Weekly sessions of animal-assisted therapy for a twelve-to-twenty four month period, each therapeutic session lasting about 4 hours (morning or afternoon session). MEASURES USED: Questionnaires related to the work/skills with donkeys (concerning grooming, confidence, feeding) assessed by rater and patients (self monitoring techniques). RESULTS: After the completion of the therapy significant improvement in the domestic and health activities are expected. CONCLUSIONS: We assume that Animal-assisted therapy with donkeys can be helpful in the rehabilitation of psychiatric patients with social impairment. The sessions consist on learning to take care of the donkeys and carrying out stable management tasks, in addition to short riding sessions (i.e. children); relationship and trust with the donkeys on the ground. Methods employed to record the sessions, apart from participant observation, include interviews and questionnaires. The prime objective of the study is for the riders’ experience of the therapy to be expressed in their own words. In the literature was found that participants benefited in areas ranging from increased confidence and self-concept, and that the therapy aided social stimulation and led to transferable skills being acquired. In addition, in Italy, a donkeys repopulation has been sponsored by the Government to avoid extinction, so this project could be helpful for enviroment, too.
A system for linking evidence and perceptible processes with psychic processes in order to understand and direct patient’s impulses in a meaningful way. The question I followed was: “How do we actively influence ourselves by working with plants (and animals also)”. What can be derived for working with handicapped people?

- Plants resemble qualities, which people have.
- Plants live on our planet like humans do. We find requirements, which humans and plants deserve.
- Use these qualities for patients who are severely disturbed and feel limited. It is convenient and non-threatening to use plants to talk about thoughts and feelings.
- Together you may find out, what patients and plants need.
- Nature and plants are symbols of life and examples for life in changing forms.
- People watch the process of change and may learn to follow natural processes.
- Plants are companions, who precede, accompany or follow human beings, they provide food and shelter. Security may be found with plants.

Explained is a foil for therapeutic work, which might be useful in care aspects as well.

**Horticultural activities and psychic experience**

While people are gardening in the outside – what happens in the inside? From some years gardening with psychiatric patients I draw these conceptual ideas, which are used for a kind of foil to draw personal meaning from what patients are doing. You see plant (or animal) related work at one side and potentially personal experience at the other side. This system can be applied to different tasks and gives some insight in possible personal developments and personal areas to explore. It provides a way of relating horticultural and agricultural actions to psychic activities.

The main statement is: every action has an effect on either side: on the plant’s or animal’s side and on the individual’s side, who is performing an action. Using this approach, patients may develop self-esteem and practical, social and emotional skills.

**Literature:**


Neuberger, Konrad: “Some conceptual ideas in horticultural therapy”. In: *Journal of therapeutic horticulture*, 1988


Shepard, Paul: “Phyto-resonance of the true self”. In: Francis, Lindsey, Rice (Ed.), *The healing dimensions of people plant relations, proceedings of a research symposium*. UC Davis, 1994
Conceptual and Theoretical Frameworks in Green Care; explaining the benefits of social and therapeutic horticulture and the evolution of a conceptual model

Joe Sempik, Centre for Child and Family Research, Loughborough University, UK

A model of social and therapeutic based on published literature

In our review of the literature (Sempik et al, 2003) on social and therapeutic horticulture (STH) we presented a model which summarised the processes involved in providing health and well-being as a result of either participating in STH or by experiencing the natural environment in which such activities took take place. This model was based on information from the published literature and is shown in Figure 1 below.

![Figure 1. A simple model of some of the processes, activities and outcomes of social and therapeutic horticulture as described in the literature (from Sempik et al, 2003, p. 46)](image)

At the base of the model lay the mechanisms which determined the inherent appeal of the natural environment. This provided the context for both the passive appreciation of landscape (and the garden environment) and the active participation in horticulture and gardening. Active gardening was associated with a number of outcomes, such as the development of skills, social processes and possible employment. This in turn led to acceptance, inclusion and rehabilitation. Passive appreciation of nature was associated
with tranquillity, peace and spirituality. However, all of these steps were interconnected and pointed to health and well-being at the summit of the model (see Sempik et al, 2003, pp. 47-48). What is particularly interesting about this model is its multidimensionality, although STH provides ‘health and well-being’ at the peak of the model a number of different processes are involved. Our subsequent research (and the reading of the literature) suggests that clients attend STH projects in order to fulfil a variety of different needs, for example, the need for meaningful occupation, the desire for a sense of identity, the need for social interaction and so on. Different clients may have different needs but there is also some overlap. STH projects provide a variety of processes and benefits which meet those needs, for example, they provide opportunities and the stimuli for social interaction, the opportunities and environment for meaningful occupation and purpose; and training and encouragement for clients to develop their potential and expertise and so to become ‘gardeners’ rather than patients. We can see the STH projects as delivering a mosaic of effects which address the relevant items in each individual’s ‘mosaic of needs’.

In the model shown in Figure 1, we refer very broadly to the natural environment as “innate factors – Evolutionary – Biophilia”; our reading of the literature showed that references to the natural environment, in the context of STH, appeared in many forms and were taken to provide the backdrop which facilitated the restorative experience through mechanisms such as attention restoration and recovery from stress.

**A conceptual model based on our research findings**

Results from our research (Sempik et al, 2005) suggest that the natural component of the model contains a number of broad dimensions; these recurred as themes throughout interviews with study participants.

For example, project participants gave a number of reasons for their enjoyment and appreciation of the natural environment associated with the theme of ‘being outside’. These included an escape from an inferior environment (related to the ‘being away’ component of the restorative environment), the association of open air with health, a sense of place with regard to the garden project site, fascination with nature itself and a desire to engage with natural processes by nurturing plants and a connectedness with nature or spiritual bond. These dimensions are summarised in Figure 2 and form the base layer of the new model which is shown in Figure 3 (taken from Sempik et al, 2005, p 122)
The model in Figure 3 is very similar to that shown in Figure 1, but there has been a slight change in emphasis and arrangement of the components. For example, the dimensions of 'routine' and 'relationships' have been added to the new model, and that of 'spirituality' has been subsumed into both the lowest and highest levels of the original model.
Figure 3. A summary of activities, processes and outcomes associated with social and therapeutic horticulture as observed in research findings.

To simplify the model in Figure 3 we have again hidden the multidimensionality of the ‘nature component’ (Figure 4) to produce a simplified model.
Two particular frameworks were used in discussion of the results from the study – social inclusion and employment. The framework of social inclusion was that proposed by Tania Burchardt et al (2002) which contains the dimensions of production, consumption, social interaction and political engagement. We suggested that social and therapeutic horticulture was able to address and promote social inclusion through those dimensions. For example, attending a garden project enabled participants to be productive i.e. they were engaged in meaningful and purposeful employment which had a goal, an end product and which was commissioned by the gardens’ owners or managers (so distinguishing it from ‘therapy’).

We also proposed that attending a social and therapeutic horticulture brings with it many of the latent benefits of employment (those other than income), such as the sense of...
identity and purpose, routine, structure and so on. The framework of employment has many overlaps and similarities with that of social inclusion, indeed, social inclusion is often discussed in primarily in terms of employment and income. Yet it is important to remember that the majority of those attending garden projects have no employment and no income other than benefits.

We have illustrated the links between these frameworks in the diagram below (Figure 5) and have also included reference to the social and physical environments in which the processes take place.

One additional dimension to that may be included in a definitive model of social and therapeutic horticulture (or green care) is the ‘Model of Human Occupation’ (MOHO) proposed by Gary Kielhofner (see Kielhofner, 1995). This is an important conceptual framework because it seeks to explain aspects of healthy occupation and the changes that occur as a result of illness or disability. This model is used by many occupational therapists as a framework for rehabilitation, including also that involving therapeutic horticulture. It addresses the motivation for occupation, the routine of occupational behaviour, the nature of skilled performance and the influence of environment on
occupation. These dimensions can be seen as additional ways of explaining (and exploring) the dimensions of social inclusion and employment and thereby enabling the inclusion of those with disabilities or medical or social problems. The elements of MOH proposed by Kielhofner are as follows:

- Volition, composed of *Personal causation, values, interests*, is a pattern of thoughts and feelings relating to the occupation.
- Performance Capacity, which explores both subjective and objective elements of systems which enable occupation.
- Habituation, composed of *habits* and *roles*, addresses issues relating to routines and behaviours associated with occupation.

The MOHO can be integrated into an inclusive model of green care or social and therapeutic horticulture along with the frameworks displayed in Figure 5. Such a model will seek to explain the benefits of green care, and social and therapeutic horticulture in particular, in a multidimensional way. The production of the *inclusive model* is the next task that to which we have directed our efforts.