The therapeutic benefits of horticulture in a mental health service

Sue Parkinson,[1] Claire Lowe[2] and Therese Vecsey[3]

Key words:
Horticulture, mental health, volition.

Introduction: The use of horticulture in mental health settings is widespread. Moreover, its effectiveness is supported by a body of qualitative evidence.

Aims: The investigators in this research study sought to determine those aspects of their horticultural projects that conferred the greatest therapeutic benefit to their clients. They used outcome measures to rate the responses of participants, paying particular attention to the participants' expressed motivation.

Method: Qualitative and quantitative methods were used to evaluate six horticultural projects. Ten participants were interviewed, using an adapted version of the Work Environment Impact Scale (WEIS) to rate factors that supported their motivation. Fifty participants were assessed, using the Volitional Questionnaire (VQ) to observe and rate the extent of their motivation.

Findings: The therapeutic value of horticulture arose from a complex interplay of personal factors, including gender-based preferences, individual interests and social needs.

Conclusion: The benefits of engaging in horticultural activity are not automatic. The external environment provides challenges, which can be graded by the facilitators to maximise the therapeutic benefit.

Introduction

In 2006, a national charity for social and therapeutic horticulture, Thrive, was hoping to inspire the 'first ever pieces of quantitative research' regarding the benefits of horticulture for mental health (Garner 2006, p6). Coincidentally, the charity became aware that occupational therapists in Derbyshire mental health services were using outcome measures based on the Model of Human Occupation (MOHO) (Kielhofner 2008). This led to a representative from Thrive approaching the service to discuss the possibility of occupational therapists researching the benefits of horticulture using quantitative methods. The occupational therapists learned that although horticulture was acknowledged as having many therapeutic benefits, such as social contact (Fieldhouse 2003, Sempik and Aldridge 2006) and physical exercise (Birch 2005, Sempik et al 2005), clinical research had apparently been qualitative in nature (Sempik et al 2003).

It was agreed that the occupational therapists would conduct a small-scale investigation without any material support from Thrive, other than support to write a research protocol. A steering group was duly formed, chaired by the first author. Its membership changed over the course of the study, but included occupational therapists and occupational therapy support workers from each of the horticultural projects being studied.

Context

It is anticipated that health services will be based on the best available evidence (Department of Health [DH] 2009a), an expectation that obliges professionals to contribute to their knowledge base (Kielhofner 2006) and increases the

[1] Practice Development Adviser for Occupational Therapists, Derbyshire Healthcare NHS Foundation Trust, Chesterfield, Derbyshire.
[2] Occupational Therapist, Derbyshire Healthcare NHS Foundation Trust, Hartington Unit, Chesterfield, Derbyshire.
[3] Head Occupational Therapist, Derbyshire Healthcare NHS Foundation Trust, Radbourne Unit, Derby, Derbyshire.

Corresponding author: Sue Parkinson, Practice Development Adviser for Occupational Therapists, Derbyshire Healthcare NHS Foundation Trust, 39 Ardsley Road, Chesterfield, Derbyshire S40 4DG.
Email: sueparkinson@nhs.net

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emphasis on research (Duncan 2009). Mental health occupational therapists have prioritised research into the effectiveness of occupations (College of Occupational Therapists [COT] 2007) and horticulture would benefit from such scrutiny. There is limited quantitative evidence for its effectiveness (Aldridge and Sempik 2002) and it is widely used in mental health settings (Birch 2005, Fieldhouse and Sempik 2007), with approximately 200,000 clients attending social and therapeutic horticulture projects each week (Sempik and Aldridge 2006). This interest is mirrored in the wider community, which recognises the health benefits of the natural environment (Natural England 2009) and endorses the value of Green Gyms (BTCV 2008).

Although horticulture is recognised as a vehicle for social inclusion (Fieldhouse 2003, Diamant and Waterhouse 2010), much of the relevant literature refers to 'green space' in general (Groenewegen et al 2006, Greenspace Scotland 2008, Commission for Architecture and the Built Environment [CABE] 2010), 'open spaces' (Sugiyama et al 2009) or 'the natural environment' (Natural England 2009). Either implicitly or explicitly, many studies draw on seminal works concerning 'biophilia' – an innate affinity between nature and humanity (Kellert and Wilson 1993) – and the restorative effect of nature (Kaplan 1995). Findings indicate that the pleasantness and safety of open spaces are linked to life satisfaction (Sugiyama et al 2009), physical and mental health and longevity (Groenewegen et al 2006) and that green spaces may even have a part to play in 'easing racial tensions by bringing diverse groups together' (CABE 2010, p40). However, a critical literature review (Greenspace Scotland 2008) states that many studies are based on self-reported data or designs that correlate information rather than proving cause and effect, or have such a specific focus that the results may not be transferable.

The need for further research into the value of horticulture comes at a time when the National Health Service in England is entering 'perhaps the toughest financial climate it has ever known' (DH 2009b, p2), in which both quality and productivity must be increased. Clinical governance has long endeavoured to match quality with efficiency (DH 1997), and mounting pressure for fiscal accountability (Law et al 2005) has served to reinforce this duty by demanding that all therapeutic claims be substantiated. This is never more so than in an era of health care reform (DH 2010), in which health services can be offered by a range of providers (HM Government 2011) and measurable health care outcomes are required (DH 2010, 2011).

Hypothesis

It was hypothesised that participants would demonstrate the greatest motivation when the conditions in the horticultural projects conferred the greatest therapeutic benefit.

The steering group noted that many of the clients referred to their services experienced reduced levels of motivation. They also recognised that one of the 10 essential capabilities for practitioners (DH 2004) is to promote recovery and that this can be linked to motivational change. Fisher (2008) described four phases of recovery, namely 'connecting', 'restoration of hope', 'expressing of feelings and dreams' and 'planning one's future' (p130). These concepts are reflected in MOHO theory, which uses the term 'volition' (Kielhofner 2008) to describe 'motivation for occupation' (Parkinson et al 2006). MOHO theory explains how volition is connected to cultural and personal circumstances, how hope is a key feature of personal causation, how our values and interests shape our feelings and dreams and that all these factors ultimately lead to the goals that we set ourselves for the future.

The steering group considered that it would be possible to determine the aspects of horticulture that were most beneficial to mental health by:

- Asking participants to rate the factors that supported their motivation to engage in horticultural projects
- Observing and rating the extent of participants' motivation when engaging in these projects.

They were able to draw upon MOHO theory to assist them in this task because the model describes how a person's volition can be understood by asking appropriate questions and by observing the person's actions (Kielhofner 2008). For example, one might pose the question 'Is anything interfering with the person's feeling of pleasure and satisfaction in performance?' or 'What things are most important to this person?' (Kielhofner 2008, pp206-207). One might also observe, for instance, whether a person shows curiosity, preferences or pride (de las Heras et al 2007).

Aims and objectives

The steering group aimed to increase quality and productivity (DH 2010) by asking the following questions to maximise their understanding of the therapeutic benefits of horticulture:

- Are some aspects of the horticultural environments currently available to mental health service users perceived as more supportive than others?
- Can any of the variables associated with participation in horticultural activities be linked with higher levels of motivation?

In addition, the group set themselves two objectives:

- To examine evidence regarding the effectiveness of treatment projects and the value of partnership working (DH 2004)
- To use valid and reliable outcome measurement (Law et al 2005).

To this end, the research would use data from the MOHO assessments that their services commonly employed. In an attempt not to duplicate any research elsewhere, an enquiry was emailed to the MOHO electronic discussion forum asking whether any similar research projects had been undertaken. None were identified, although responses confirmed that MOHO assessments were being used successfully to evaluate horticultural projects in occupational therapy practice.

Table 1. Items adapted from the Work Environment Impact Scale to explore the therapeutic benefits of horticulture

	Items	Intended meaning
Personal factors	■ Meaningfulness of gardening	■ Appeal of gardening tasks, previous interest in gardening
	■ Appeal of gardening project	■ Perceived ambience of project, quality and effectiveness of therapy
Occupational demands	■ Time demands	■ Workload in relation to time available and impact on life outside the project
	■ Task demands	■ Physical/cognitive/emotional demands and opportunities
	■ Rewards	■ Tangible rewards, such as gardening produce, horticultural qualifications
Social environment	■ Co-worker interaction	■ Group dynamics, opportunities for teamwork
	■ Social opportunities	■ Opportunities to develop social contacts outside the group
	■ Supervisor interaction	■ Relationship with facilitators, availability of guidance and feedback
	■ Work role standards	■ Expectations for excellence and commitment
	■ Work role style	■ Opportunities for autonomy, decision making, choice
Physical environment	■ Sensory qualities	■ Tactile, visual, auditory, olfactory, gustatory experiences
	■ Physical space	■ Impact of location and physical arrangements including aesthetics
	■ Properties of objects	■ Availability and condition of tools, pride in using tools
	■ Physical amenities	■ Access to water, toilets, and disabled access

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Method

The research captured *qualitative* data using:

- Interviews with service users based on the Work Environment Impact Scale (WEIS) (Moore-Corner et al 1998).

It captured *quantitative* data using rating scales to rate:

- The interview responses by service users
- Structured observations by occupational therapy staff of service users' expressed motivation in horticultural sessions, using the Volitional Questionnaire (VQ) (de las Heras et al 2007).

Measurement tools

The WEIS 'is a semi-structured interview and rating scale designed to gather information on how individuals … experience their work environments' (Kielhofner 2008, p283). Research regarding its construct validity and the internal consistency suggest that it can be used appropriately in mental health settings (Corner et al 1997). The WEIS has 17 items and the steering group was concerned to reduce these in order to speed up the interview process for service users. They risked sacrificing validity by combining a number of closely related items to form a total of 14 items (Table 1).

Occupational therapists in each project approached the service users who attended regularly to invite participation in the study, and to gain consent, before arranging for an occupational therapist from one of the other projects to conduct the interview. Interviews were recorded using audiotapes to ensure an accurate account; if the participant preferred that audiotaping was not used, written notes were made. The interviewees were then invited to rate the various components of the project according to whether they 'strongly supported', 'supported', 'interfered' or 'strongly interfered' with their motivation to participate in the horticultural project.

Training in the use of the VQ was organised by the steering group and the observational assessments were conducted by a wider group of occupational therapy staff between May 2008 and October 2009. The VQ is administered by observing participants as they engage in everyday tasks and rating how their motivation is expressed through their actions (Kielhofner 2008). Fourteen discrete actions are included in the assessment, ranging from actions that are necessary for *exploration*, such as 'shows curiosity' and 'initiates actions', to those that indicate *competency*, such as 'stays engaged' and 'shows pride', to those that demonstrate a higher level of *achievement*, such as 'seeks additional responsibilities' and 'seeks challenges' (de las Heras et al 2007). Research has shown that the VQ validly measures the construct of volition, raters use the VQ in a consistent manner and the VQ is able to distinguish different levels of expressed motivation (Li and Kielhofner 2004), leading MOHO theorists to postulate that individuals move through a volitional continuum conceptualised by the three stages: exploration, competency and achievement (de la Heras et al 2003) (Table 2).

Table 2. Levels of volitional development identified using the Volitional Questionnaire

Exploration level	■ Client has a desire to engage in the environment for pleasure and enjoyment, and to make discoveries in low risk situations
Competency level	■ Client has a drive to interact actively and influence the environment, practise skills and meet performance standards
Achievement level	■ Client strives to increase his or her capacity to do a challenging task and to have successful performance outcomes

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All the participants experienced mental health difficulties and might, therefore, be expected to exhibit lower levels of motivation than the general population. The researchers were particularly interested in exploring the capacity of horticultural activities to elicit higher levels of motivation.

Accordingly, for each VQ completed, it was agreed that the researchers would record the key aspects of the horticultural activity that the participants engaged in. A list of possible variables was collated by drawing on themes described in available literature and applying the principles of activity analysis. For example, the importance of physical exercise was noted (Sempik et al 2003, 2005, Birch 2005) and so the steering group sought to capture the degree of physical effort required for the activity being observed. The list was then shared with a group of service users known to members of the steering group due to their active involvement with the local planning group where the community allotment project was situated. Once their comments were included, the list was as follows:

- *Personal factors*, that is, the client's age, gender and ethnicity as well as his or her interest in gardening
- *Occupational demands*, that is, the focus of horticultural activity (for example, cultivating flowers, cultivating vegetables, general maintenance, using produce for cooking or craftwork), the opportunity to use specialist tools and the degree of physical effort involved
- *The physical environment*, that is, where the activity takes place (indoors or outdoors) and the impact of the weather when outdoors
- *The social environment*, that is, whether the activity is conducted on a 1:1 basis or in a group.

These were incorporated into a record sheet that the steering group designed (Table 3).

Table 3. Sample details from sheet used in conjunction with the Volitional Questionnaire to record horticultural sessions and participant involvement

Volition

Interest in gardening (tick one)

☐ Previously active gardener, no future plans
☐ Currently active gardener (outside the session) or not active but interested in pursuing gardening
☐ Not active and no plans to pursue, but enjoys session
☐ Ambivalent re gardening but persuaded to join in or interested in observing/being in the garden only

Occupational form

Main engagement in activity (tick one)

☐ Cultivating flowers
☐ Cultivating vegetables
} for example, sowing, planting, weeding, watering, staking, pruning

☐ General maintenance, for example, sweeping, building, composting
☐ Use of produce, for example, cooking, seasonal crafts

Ethics

The steering group developed a research protocol, in which it was reasoned that interview procedures and observational assessments form an established part of therapeutic practice and benefit service users by clarifying their needs and interests. It was also explained that occupational therapy staff would use their clinical reasoning to consider whether service users were able to tolerate participation in the in-depth interviews and the research process, and that the informed consent of participants would be required for their data to be analysed. Moreover, the interviews would not be conducted by occupational therapists working in same service as the interviewee, and interviewees would be offered the opportunity to check the ratings and transcripts. The protocol received ethical approval from the Trust's Research Committee and the Local Research and Ethics Committee.

Sample

Population: Clients aged 18-65 years, who had been referred to a range of horticultural projects (Table 4) by occupational therapists within the organisation.

Inclusion and exclusion criteria: Occupational therapists identified clients for interviews who had attended at least three horticulture sessions; could concentrate for an hour; were likely to tolerate a formal interview procedure without any negative impact on their mental health; and gave their informed consent. Meanwhile, data from observational assessments were included if the participants consented for these to be analysed for the purpose of the research study.

Recruitment: Posters were displayed at the projects, giving reasons for conducting the research and listing the names of occupational therapists to contact if service users wanted to find out more. The steering group sought to recruit the optimum number of 12 interviewees (Guest et al 2006).

Table 4. Services contributing to the research project

Community allotment	■ In partnership with Adult Education services
Conservation scheme	■ In partnership with Countryside Rangers
Four hospital garden projects	■ Facilitated by occupational therapy staff in a psychiatric intensive care unit, two acute hospitals and a rehabilitation unit

Data analysis

One limitation of this study stems from a lack of experience in formal analytical methods on the part of those involved.

The ratings recorded using the WEIS and the VQ were converted into their equivalent numerical scores (Table 5). Data were entered on to an Excel database to calculate mean ratings. The authors examined the results and plotted them in charts to identify possible trends. Having identified the key results, they studied the content of the interview transcripts and identified statements that were associated with the results. The statements were collated and the authors reflected upon their meaning to assist their interpretation of the results. An iterative process was followed, allowing the conclusions to be refined over time.

Table 5. Assessment rating scales and numerical scores

Work Environment Impact Scale	Strongly supports	= 4
	Supports	= 3
	Interferes	= 2
	Strongly interferes	= 1
Volitional Questionnaire	Spontaneous	= 4
	Involved	= 3
	Hesitant	= 2
	Passive	= 1

Findings

Ten interviews were completed: four at a community allotment, three at a conservation scheme and three at hospital garden projects. Their ratings indicated that all the sites were viewed as 'strongly supportive' or 'supportive'. All but two interviewees were male and the majority of the participants who consented to have their observational assessment data submitted were also male (Table 6). In total, 40 service users consented for the observational data to be analysed and 50 VQs were completed. All the observational assessments took place in the hospital garden projects, where occupational therapy staff had been trained in the use of the VQ. Aspirations to conduct observational assessments at other sites were not realised owing to staffing changes that affected capacity adversely.

Findings from interviews

The key findings from analysing the data gathered at interview were as follows:

- The highest mean ratings using the WEIS (where the maximum possible rating was 4) were given for 'appeal of gardening project', 'supervisor interaction' and 'work role standards' (all 3.8), followed by 'properties of objects' (3.7). The lowest were given for 'social opportunities' (3.0), 'physical space' (3.0), 'sensory qualities' (3.1) and 'rewards' (3.1) (Fig. 1).
- When the items were grouped according to their common factors, personal factors led to the highest mean rating (3.7), with factors relating to the social environment achieving the next highest (3.5) and factors relating to occupational demands and the physical environment both achieving a lower mean rating (3.3 and 3.25).

Findings from observational assessments

As described above, the items in the VQ are ranged on a continuum from those that require least motivation to those that require most motivation (Table 2). The highest ratings using the observational assessment (where the maximum rating was also 4) were for those items that require lower levels of motivation (2.7). Conversely, the lowest mean ratings were for those items that require higher levels of motivation (2.4). These results fit the expected pattern and indicate that the VQ was used in a valid way.

Variations between participants were most evident when comparing mean scores for the four items linked to higher levels of motivation:

1. 'Pursues activity to completion/accomplishment'
2. 'Invests additional energy/emotion/responsibility'
3. 'Seeks additional responsibilities'
4. 'Seeks challenges'.

When these items were grouped together, the mean scores were as follows (Table 7):

- Women expressed higher levels of volition than men (2.8/2.2)
- Participants who described themselves as being gardeners (having current interest) or interested in gardening in the future were more likely to display higher levels of volition (2.8) than those who had gardened in the past (2.5), had no plans to garden (2.3) or were ambivalent about gardening (1.8)
- A higher level of volition was evident when participants were using produce (2.9) or growing vegetables (2.8) compared with general maintenance (2.4) or growing flowers (2.3), and also when the gardening took place indoors (2.8) rather than outdoors or in the greenhouse (2.4)
- There were slight or no variations in expressed volition when other factors were taken into account (for example, age of participants, ethnic origin, weather conditions, degree of effort, use of tools or social group). It should be noted, however, that the sample group was relatively small and some subdivisions were underrepresented so comparisons could not be made.

Table 6. Distribution of participants rated using the Volitional Questionnaire

Gender	
Female	n = 17
Male	n = 33
Age	
20-30 years	n = 15
31-50 years	n = 14
51-70 years	n = 17
70 years+	n = 4
Ethnic origin	
White British	n = 43
Mixed white and black British	n = 7
Interest in gardening	
Current interest	n = 15
Past interest	n = 8
No plans	n = 21
Ambivalent	n = 6
Focus of activity	
Use of produce	n = 5
Vegetable cultivation	n = 8
Maintenance	n = 9
Flower cultivation	n = 28
Use of tools	
Power tools	n = 0
Sharp tools	n = 11
Basic tools	n = 32
No tools	n = 7
Degree of effort	
Strenuous work	n = 4
Light work	n = 46
Observation only	n = 0
Physical environment	
Indoors	n = 9
In greenhouse	n = 3
Outdoors	n = 38
Weather if outside	
Ideal	n = 25
Satisfactory	n = 12
Unsatisfactory	n = 1
Social group	
1:1	n = 9
Closed group	n = 3
Open group	n = 38

Fig. 1. Mean scores for items assessed at interview using the Work Environment Impact Scale (maximum score = 4).

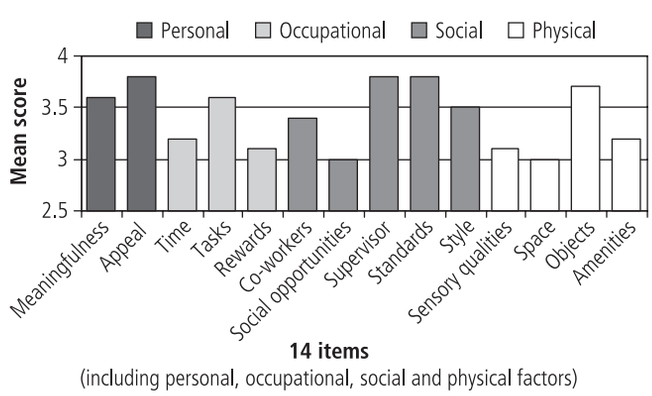

Table 7. Mean scores of 'achievement level' items assessed by observation using the Volitional Questionnaire (maximum score = 4)

Gender	**Use of tools**
Female 2.8	Power tools ..... –
Male 2.2	Sharp tools 2.6
Age	Basic tools 2.4
20-30 years 2.4	None 2.5
31-50 years 2.6	**Degree of effort**
51 years+ 2.4	Strenuous work 2.6
Ethnic origin	Light work 2.4
White British 2.4	Observation only ..... –
Mixed white and black British 2.4	**Physical environment**
Interest in gardening	Indoors 2.8
Current interest 2.8	In greenhouse or outdoors 2.4
Past interest 2.5	**Weather if outside**
No plans 2.3	Ideal 2.4
Ambivalent 1.8	Satisfactory or unsatisfactory 2.4
Focus of activity	**Social group**
Use of produce 2.9	1:1 ..... 2.6
Vegetable cultivation 2.8	Closed or open group 2.4
Maintenance 2.4	
Flower cultivation 2.3	

Discussion

Duncan stated that 'developing research in practice is not simple' (2009, p267) and Bannigan recognised the challenge of maximising limited resources (COT 2007). Indeed, some writers have expressed doubt as to whether the most robust research methods are realistic in social and therapeutic horticultural settings, given the expense and the time involved (Sempik et al 2003).

In this study, despite substantial interest from clinicians at the outset, the timescale meant that there were staffing and service changes to contend with, as well as many other competing pressures. In addition, the rigorous process of obtaining consent to analyse data (albeit using assessments in common practice) is likely to have had an impact on the number of participants recruited. Service users were not approached if there was any concern that the process would cause distress or confusion, but twice the invitation to participate in the study may have influenced the service users' decision to disengage from the project. The investigators also experienced difficulties recruiting female interviewees because very few were attending any of the projects on a regular basis.

Future research would be improved if participants were recruited from a more diverse population, and the research could also be extended if the VQ were used pre-therapy and post-therapy to demonstrate whether horticulture is able to increase a person's volition over a period of time.

Gender influences

The prevalence of male participants has been noted in other horticultural reports (Sempik and Aldridge 2006, BTCV 2008). Unruh et al (2000) studied three female participants and speculated whether men would 'raise different issues' when reflecting on their gardening experiences (p76); however, no studies are known to have investigated this idea (Sempik et al 2003). In this study, there was a sense that men placed a higher value on physical activity and using tools than women, and that women valued the nurturing and sensory qualities of gardening more than men:

> We not only nurture the plants, they nurture us as well – ♀1.

> I love any sort of wildlife, I really do – ♀2.

> I love getting into a sweat and working myself – ♂2.

> It highers [sic] my mood when I've done something physical – ♂6.

The small number interviewed means that this supposition is unsubstantiated.

The female participants were seen to demonstrate higher levels of volition than their male counterparts, possibly because social differences in the genders might lead women to communicate higher levels of volition than men. Certainly, there is a body of research examining gender differences in the non-verbal communication of emotion (Hall et al 2000) and gender differences are known to exist regarding preferences related to social factors, competition and risk (Crosen and Gneezy 2009), with women expressing stronger emotions about outcomes than men (Eriksson and Simpson 2010). In addition, perhaps the women who chose to engage in the horticultural projects, where the majority of participants were men, were those with higher than average volition or those who particularly enjoyed male environments:

> I like being in the men's company because I'm a bit of a tomboy – ♀2.

Moreover, the authors considered that there might be fewer therapy options for men in their service provision, leading to some men participating in horticultural projects despite not being particularly interested:

> I've never been greatly into gardening – ♂5.

Either way, the predominance of male participants suggests that horticulture has an important role to play in providing a male-oriented pursuit in therapeutic settings.

Personal appeal

The results of the interviews and the observational assessments confirm that the benefits of horticulture are directly linked to the interest of the individual, irrespective of gender. 'Appeal of gardening project' was the most supportive item identified using the WEIS, and current interest in gardening was the best predictor of higher levels of volition. This finding matches the long-held belief of occupational therapists that activities are not meaningful per se, but rely instead on individuals and social groups to invest them with meaning and purpose (Creek 2003). Such professional reasoning is now receiving political support due to recognition that participation in meaningful activity is associated with good mental health (DH 2011).

Growing food is an activity that is recognised as having cultural importance and this may account for the fact that 'cultivating vegetables' and 'using produce' (for example, in cooking) resulted in higher levels of volition than 'cultivating flowers' or 'general maintenance'. Certainly, Sempik et al (2003) found the importance of growing food to be a central theme in literature about the benefits of social and therapeutic horticulture, but further research and a more detailed analysis of the activity's constituent elements will be necessary to understand the exact relationship between growing food and volition. It may be that activities using produce (for example, cooking vegetables or flowercraft) involve more steps or stages and, therefore, demand greater levels of skill and increased volition than general maintenance. What is clear, however, is that horticultural projects offer service users the opportunity to make their own much-valued choices.

Other than participants at the allotment sharing a common interest in growing vegetables, most interviewees expressed very different interests and needs. It is worth noting, however, that all of these interests could be accommodated in a horticultural setting, whether they involved preferences for digging or light work, an interest in learning new things or just keeping things looking neat. Indeed, participants described the meaningfulness of gardening in many ways:

> I've always liked being outside – ♀3.

> I find it relaxing – ♂4.

> It's aesthetically sort of pleasing – ♀2.

In addition, there were multiple statements expressing the view that:

> It's always different – ♂2.

There was also evidence that the participants valued taking part in the project more than the end results. An interviewee at the conservation project stated:

> We don't produce anything … other than a sense of wellbeing and that's more valuable than anything. I can go and buy carrots, I can't buy [wellbeing] – ♂2.

Social benefits

Occupational therapy recognises the value of engaging in occupations that meet a balance of physical, mental, spiritual and social needs (Wilcock 2006). This study confirms the findings of other reports that horticulture has much to offer, including opportunities for physical exercise, being close to nature and teamwork (variously reported by Birch 2005, Sempik at al 2005, Sempik and Aldridge 2006, BTCV 2008). It also suggests that the social value of horticulture in designated mental health projects may outweigh the perceived value of the physical environment or the demands of the occupation itself.

Interviewees were more likely to describe occupational and physical items with comments that the authors deemed as being non-committal, as well as some comments that were mostly positive but subject to certain qualifications (Table 8). Meanwhile, personal and social items were more likely to be described using comments that the authors deemed wholly positive, as well as comments that were mostly positive but subject to certain qualifications. The exception to this was the item related to social opportunities outside the group, which received one of the lowest mean ratings. This might be because mental health groups are, by their very nature, not as socially inclusive as individualised support in public settings (Bates and Seddon 2008); this issue is discussed in more detail in the next section, regarding the importance of grading activities.

Interviewees became more effusive when discussing the impact of the project's social environment on their recovery, highlighting the benefits of social interaction (Strong 1998). One marvelled at how an older gentleman had an opportunity to share his experience, another described how it was easier to talk with people when working on a shared task, and a third spoke warmly of the project supervisors:

> They're all brilliant, absolutely top lads – ♂2.

This is not to say that participants did not express any reservations. Some talked about the difficulties they experienced socialising and many recognised that group dynamics needed careful facilitation; however, they all appreciated the importance of planning and structuring the sessions to achieve the right balance. Their comments strengthen the assertions that abound in mental health and occupational therapy literature: that good leadership is essential in any therapy group (Finlay 1993); that establishing a therapeutic relationship is crucial (Stickley and Freshwater 2008); and that therapeutic use of self is generally regarded as the key determinant of the outcome of occupational therapy (Taylor 2008).

Opportunities to grade challenges

'Sensory qualities' received one of the lowest mean scores and participants frequently called the investigator's attention to sensory aspects that reduced their perception of the therapeutic value. They described how pollution could be distressing, how pollen exacerbated their hayfever, or how beautiful landscapes had the potential to evoke difficult memories or make them feel even less 'connected' to their everyday realities. This may appear to contradict the idea that contact with the natural environment enhances wellbeing, but it should be remembered that the majority of interviewees still described the 'physical environment' and 'sensory qualities' as being supportive, albeit not as strongly supportive as social factors. In addition, although the majority of interviewees made reference to the fact that outdoor environments are susceptible to inclement weather conditions and can be associated with poorer access to amenities (for example, toilets, kitchens and comfortable seating), many of them insisted that this was not a major drawback:

> You can't be having carpeted portacabins on an allotment – ♂6.

> It's the people that are more important – ♂2.

Table 8. Sample comments by interviewees linked to items with higher, middle and lower ratings

Items with higher ratings received more positive comments	
Appeal of gardening project	■ 'I really do believe that it has saved me' – ♂[2] ■ 'I grew into a different person' – ♀[1]
Supervisor interaction	■ 'The staff have the sensitivity to see how you are' – ♂[4] ■ 'He's got such a reassuring, quiet, peaceful manner about him' – ♂[5]
Work role standards	■ 'It's "doing the best you can" – the ethos' – ♂[1] ■ 'It's part of my treatment … and it's working for me … you know' – ♂[5]
Properties of objects	■ 'I do love the … um … practising with tools, I enjoy' – ♂[1] ■ 'There are plenty of tools to go around'– ♂[6]
Items with middle ratings received more qualified comments	
Meaningfulness of gardening	■ 'It's the exercise does me good. I feel a bit better afterwards' – ♂[8] ■ 'I'm not a real gardener' – ♂[2]
Time demands	■ 'There's always more to do but it isn't stressful' – ♀[1] ■ 'It depends on how you are feeling' – ♂[4]
Task demands	■ 'It's always different' – ♂[2] ■ 'You have to really want to do it … else it becomes tedious' – ♂[5]
Co-worker interaction	■ 'You get used to a little group and then it can change' – ♂[5] ■ 'It does take me a long time to get to know people' – ♂[6]
Work role style	■ 'I need someone to guide me' – ♀[1] ■ 'I like to be a bit more single-minded sometimes' – ♂[3]
Physical amenities	■ 'You know that there's not going to be any amenities when you're taking on that role of doing conservation work' – ♀[2]
Items with lower ratings received more noncommittal comments	
Rewards	■ 'I've never really expected a reward, you know, coz doing the job is a reward to me' – ♂[2]
Social opportunities	■ 'I haven't met anyone outside of the group yet' – ♂[3] ■ 'When I bump into them … I say hello to them and that' – ♂[7]
Sensory qualities	■ 'I don't like going out on wet days' – ♂[4] ■ 'I haven't got a very good sense of smell' – ♂[1]
Physical space	■ 'There's no grass, and it's small, cramped' – ♀[1] ■ 'It doesn't matter where I am' – ♀[2]

Interestingly, when examining the results of the observational assessments, higher rates of volition were revealed when the gardening projects were indoors. This might link back to the previous finding about the high importance placed on social factors within the group, in that indoor environments offer closer working conditions with increased opportunities for closer social interaction with co-workers and supervisors. Contact is viewed positively according to COT (2007) findings, and interviewees in this study confirmed that they valued interaction with supervisors and the standards and expectations set by them. It should be acknowledged, however, that the possibility of researcher bias cannot be excluded and that participants may have wanted to please the researchers.

The term 'supervisors' is used by the WEIS and so has been used throughout this article, but occupational therapists may be more comfortable with the term 'facilitators' which implies less of a power imbalance. Whichever term is used, the finding that participants value interaction with those responsible for organising the projects appears to contrast with findings from previous studies that horticultural projects support social inclusion (Fieldhouse 2003, Diamant and Waterhouse 2010). The authors would assert, however, that valued facilitation is not incompatible with socially inclusive practice. Social inclusion may be viewed on a continuum from service provision in mental health settings to group provision in community settings to individualised support in public settings (Bates and Seddon 2008). All settings have positives and negatives for service users (Bates and Seddon 2008) and this study was completed within the first two settings. Horticulture provides a vehicle for moving between all three settings, but the importance of fostering reciprocal and de-stigmatising relationships in all settings should not go unmentioned.

Similarly, the finding that indoor environments were associated with higher levels of volition than outdoor environments need not lead to the conclusion that the former are more therapeutic than the latter. Once more it should be stressed that the assessments of volition were based on observations of service users who were starting out on their recovery journeys. Reintroducing people to the outside world in the local community is an essential component of socially inclusive practice (Bates and Seddon 2008), and the therapeutic process requires a graded continuum of challenge to allow positive risks to be negotiated (Felton and Stacey 2008). This is a process that horticultural projects can assist, because they provide so many opportunities for grading activities:

> It gives you a sense of accomplishment … erm … a return to the ordinary – ♂[3].

> It's learning to be with people again, because I haven't been for such a long time – ♀[2].

Finally, it should be remembered that occupational therapy in mental health services is designed to meet the full range of service users' needs on the recovery continuum, by working with those who have low motivation (de las Heras

et al 2003) as well as those who have developed a clearer sense of meaning and purpose. This means that reduced volition may be the *cause* of a person being referred to a horticultural project rather than being the *effect* of the horticultural project on the person. The advantage of horticulture as a therapeutic medium is that it encompasses a range of activities, from those requiring high levels of skill and volition (for example, garden design) to basic tasks that can be undertaken by those who lack confidence in their abilities (for example, watering plants). This study demonstrates that even those who were 'ambivalent about gardening' were able to engage in the horticultural projects:

> I was a bit apprehensive … but it's been very beneficial … you know … I've come and felt comfortable – ♂[5].

Conclusion

Horticulture has many intrinsic attributes that individuals experience as being therapeutic (for example, providing opportunities for physical exercise and enhanced sensory experiences); however, each person's appreciation of horticulture is unique. In this study, although mental health service users often appreciated the natural environment and enjoyed the horticultural tasks themselves, their involvement was more likely to be determined by personal factors, such as gender, and their level of interest in pursuing horticulture. Horticulture was found to present participants with challenges and their continued participation in mental health service projects was supported by skilled facilitation.

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Conflict of interest: None declared.

Key findings

- Each person's experience of horticulture is unique.
- Social benefits are evident in mental health horticultural projects.
- The challenge afforded by horticulture can be enhanced by skilled facilitation.

What the study has added

Quantitative data support a qualitative analysis of horticultural projects in mental health practice, using standardised measures to rate the perspectives of service users and observations of their expressed volition.

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Book reviews

OCCUPATIONAL THERAPY AND LIFE COURSE DEVELOPMENT: A WORK BOOK FOR PROFESSIONAL PRACTICE. *Ruth Wright and Leonie Sugarman. Wiley-Blackman, 2009. £26.99. 208 pp. ISBN 978-0-470-02545-1*

'Life course development' is a multidisciplinary framework for the study of a person's life within structural, social and cultural contexts. This book considers this perspective and its use within occupational therapy intervention. It is described as an 'interactive text' which is intended to encourage readers to 'reflect actively and to think critically' about their work as health and social care professionals. The book is designed around a learning framework, which requires readers to consider their personal learning styles and to build on them through a series of learning tasks. Many of these tasks relate to a case study, which is set out in the first chapter of the book.

The second chapter outlines life course theory, using the case study to look at and evaluate the effect of roles and life stages in client-centred practice. Subsequent chapters consider clients in the context of their world, their values and perspective on life and the effect this may have on the way they respond to change. This middle section of the book also encourages occupational therapists to look at and learn from their own life experience and to reflect on what they bring to practice.

The final two chapters continue the theme about professional development and reflect on how the life course framework can be used constructively to identify our own personal needs, strengths and motivation, and to improve our effectiveness as therapists. This section also deals with the use of self within the therapeutic relationship: I found this particularly clear and useful.

I would recommend this book to occupational therapists at any stage of their career and life course. It applies a constructive framework that affirms beliefs and philosophy which have been long held and applied in occupational therapy practice and brings something new to our practice and professional development.

Jan Worledge,
Professional Affairs Officer,
Professional Enquiry Line,
College of Occupational Therapists, and
Independent Practitioner.