Bonsai: “a life in balance”. The therapeutic benefits of growing bonsai trees.

Introduction

According to Wichrowski et al. (2005) horticultural therapy is a process in which gardening activities, plants, and closeness to nature present opportunity for therapy and rehabilitation programs. One form of horticulture not widely considered as a form of therapy is that of creating bonsai trees. Few research studies exist currently. However, Ochiai et al. (2017) investigated whether viewing bonsai afforded self-induced mental relaxation amongst a group of male patients with spinal cord injury. The participants reported feeling significantly more comfortable, relaxed, and natural when viewing bonsai compared with a control condition. POMS scores for vigour were significantly higher when viewing bonsai, and scores for global ‘total mood disturbance’, ‘tension-anxiety’, ‘depression’, ‘anger-hostility’, and ‘fatigue’ were significantly lower when viewing bonsai. Using the same protocol Song et al. (2018) explored the therapeutic effects of bonsai for elderly people (aged 64-91 years) and demonstrated that viewing bonsai similarly induced physiological and psychological relaxation. Other studies have explored subjective experiences of creating bonsai. Hermann and Edwards (2021) demonstrated that for 255 skilled bonsai practitioners their practice provided meaningful healing qualities and promoted integral health (e.g., ecological, spiritual, and emotional awareness). Also, creativity, resilience, adaptability, and social, physical, and personal health improved. Hermann (2021), using bonsai lessons as a form of group therapy for 15 traumatised youths, demonstrated positive shifts in mental states. Creating bonsai represented positive metaphors for life, for “new beginnings” and “growing strong with it” (i.e., the bonsai) (p. 83). Working on bonsai during therapy enabled the youths to speak about their troubles without feeling judged which helped them to move past traumatic experiences.

Therefore, bonsai appears to offer participatory (e.g., pruning) and ornamental (e.g., viewing) therapeutic effects (e.g., improving mood state, flow states, physical and mental relaxation, enhanced quality of life) in formal recovery and rehabilitation contexts. However, research evidence remains sparse. Consequently, the current study sought to explore: 1) why and how people began bonsai as a hobby and/or profession, 2) whether bonsai provided therapeutic qualities, and 3) the experiences of caring for bonsai amongst amateur and professional growers.

Method

Researcher's involvement

Prior to beginning this study I had been growing, and caring for, bonsai trees for eight years during which I had experienced very mixed success, had quickly amassed a relatively large number of bonsai, and had increasingly recognised a number of therapeutic benefits (particularly with respect to my experiences with anxiety). As a bonsai society member I discovered that such experiences were common and, during a particular casual discussion (regarding work-related stress) with some fellow society members, the possibility of a research study began to formulate in my mind. I was keen to 'capture' peoples' experiences, the passion, the dedication, the companionship, and the direct therapeutic benefits – things I had witnessed time and again. Above all else, bonsai seemed to be intricately rooted in many people's lives – as it had become in my life – as a form of 'therapy' for stress (amongst other things).

As a member of an academic sport science department I was unsure how a proposed study would be received but, based on what I repeatedly heard and observed within the bonsai community, I was convinced that this study was needed. I had a growing 'informal content analysis' of people's stories, anecdotes, and experiences circulating in my head, and this analysis became the basis for creating some broad questions which I hoped would give people scope to share stories about their life with bonsai. There were very few published studies at that time and these didn't seem to capture what I was hearing and observing from the community (e.g. at bonsai society/club events, at annual shows), so there was plenty of scope for further research. And so I pressed ahead with the study using a survey (based on what I had heard and observed) which I believed would be the best method for capturing stories from the worldwide bonsai community.

Having collected the data I realised that I was analysing peoples' experiences whilst wearing two 'hats'; one 'hat' as a psychologist, and another 'hat' as a forest therapist (I'm certified with the ANFT and FTHub). I was 'seeing' common therapeutic benefits which could be explained via psychological mechanisms, and I was also 'seeing' therapeutic benefits as discussed within the forest therapy community and research literature. The combination of these two 'hats' became a comfortable blend which seemed to give some unique perspectives on life with bonsai and, indeed, on life itself. This blend of 'hats' also created a sense of acceptance and authenticity within me - I haven't quite

figured out yet what this means for me. But one participant had stated that bonsai is “a life in balance”, and as I write this paper my life has rarely seemed as balanced as it does right now.

Participants

254 bonsai clubs/societies/groups based in the UK, USA, Canada, South America, Australia, and New Zealand were contacted to determine interest in participating in the study. 161 amateur bonsai artists (ABA) subsequently participated. Of these participants, 155 divulged demographic data (UK: *n* = 108; USA: *n* = 33; Canada: *n* = 9; Mexico: *n* = 1; Australia: *n* = 3; New Zealand: *n* = 1). 28 described themselves as female and 127 as male. Years spent working with bonsai ranged from 1-62 years (*m* = 20.8 years). 117 participants divulged their age: (18-30 years: *n* = 6 / 30-40 years: *n* = 6 / 40-50 years: *n* = 16 / 50-60 years: *n* = 20 / 60-70 years: *n* = 43 / 70-80 years: *n* = 22 / 80-90 years; *n* = 4). Additionally, 11 professional bonsai artists (PBA) participated of which 9 divulged demographic data (UK: *n* = 4 / USA: *n* = 5), all described themselves as male (aged: 30-40 years: *n* = 2 / 40-50 years: *n* = 5 / 50-60 years: *n* = 1 / 60-70 years: *n* = 1). Years spent working with bonsai ranged from 30-61 years (*m* = 35.2 years).

Survey Instrument

A survey was constructed, using Qualtrics (Qualtrics, Provo, UT) online survey software, to gain breadth of response via convenience/opportunistic sampling and comprised demographic questions including age, country of residence, and years spent creating bonsai. A second section comprised six open-ended questions which focused on participants’ experiences and the therapeutic possibilities of creating bonsai. Examples of questions are: a) Please describe how, and why, you got into doing bonsai? b) Please describe some of your best 'successes/failures' in bonsai e.g. what were you working on/trying to do, why, what happened, how long did it take, what was the outcome, how did you feel throughout the process? c) What is your opinion on the following statement?: 'Bonsai is a form of therapy', and d) What have you gained personally from doing bonsai? These questions were based upon existing literature (e.g., Hermann & Edwards, 2021; Hermann, 2021), the author’s personal experiences of working with bonsai, and from discussions with fellow society members.

Procedure

Following receipt of institutional ethical approval, contacts for bonsai clubs/societies/groups worldwide were sent a that outlined the research, the potential risks of participation and corresponding safeguards, an invitation to participate, and a URL (which also contained a further URL to the research briefing) to the online survey for distribution to members. Each participant was deemed to have given consent by way of their completion of the survey.

Data Analysis

A thematic analysis was conducted using guidelines provided by Braun and Clarke (2013). Initially all open-ended responses per question were retrieved from Qualtrics, and reviewed by the author. Following Braun and Clarke (2006), the first step in analysis involved reading all survey responses to gain a 'feel' for the data and to create a list of key words that indicated preliminary themes. Following Patton (2014), and Braun and Clarke (2006), five further steps were involved in data analysis: a) generation of initial codes (subtheme), b) searching for themes, c) reviewing themes, d) defining and naming themes, and e) constructing a report. Analysis involved an iterative process of moving between the complete transcript, paragraphs, and sentences (within and between each participant) to construct emerging themes in detail (Braun & Clarke, 2006).

Results and Discussion

Nine major themes emerged from the analysis and are presented below together with representative verbatim quotes: 1) how I got into bonsai, 2) a bonsai is for life, 3) an authentic life through bonsai, 4) a personal medicine, 5) patience, 6) quiet enjoyment, 7) people connections, 8) nature connections, and 9) one of the family.

How I got into bonsai

Most participants described humble beginnings and often they had entered the world of bonsai with mixed success:

> "As a child I found a small black and white photo of a Japanese Bonsai in one of my father's gardening books fascinating. My wife then gave me a tree as a present in about 1986" (ABA).

> "My initial foray into Bonsai was probably about 10 years ago when I was given a garden centre 'indoor' Chinese elm. This took several months to die entirely due to inappropriate care although I was unaware of this at the time" (ABA).

Other participants had inherited bonsai, had grown them from seed out of curiosity, been inspired by friends and/or by attending a bonsai show, or had begun the hobby to spend time with family members also involved in the hobby. Some were interested in Japanese culture, and described foreign travels and how this led to them becoming involved in bonsai. There had also been admiration of the fictional movie character 'Mr Miyagi' (i.e., 'The Karate Kid', 1984):

> "My first exposure to them was through the original Karate Kid movie!! The image of the serene master patiently attending to these staggeringly beautiful, almost other worldly trees, was very powerful" (PBA).

The ethereal, and symbolic, aspects of bonsai appealed to many participants. As Doyle et al. (2019) stated, bonsai draw people to them due to their sense of mystery, metaphor, and awe. Regardless of how participants had begun the hobby, bonsai had rapidly become a consuming activity. For some, however, the discovery of bonsai was a "slow-burn" (ABA):

155 "My partner bought me one after I'd spent years looking at trees in garden centres. I
156 was worried about looking after one, but she was fed up with me constantly looking at
157 them, so bought me one and said here you go get on with it" (ABA).

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159 Other participants considered that they were part of creating, and sustaining, a family
160 legacy:

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162 "My mother-in-law took great pleasure in growing little trees in pots - even made her
163 own pots, she gave me some of these trees and that got me started" (ABA).

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165 Doyle et al. (2019) suggested that bonsai reflect familial history, and contributing to
166 this history was considered as "something big" (ABA). Therefore, there was a range of early
167 'beginnings' in bonsai. However, for all participants, bonsai had rapidly become a consuming,
168 and lifelong, activity.

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170 ***A bonsai is for life***

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172 All participants had developed meaningful long-term relationships with bonsai (this
173 was reflected in the number of bonsai cared for, the daily care of bonsai, and years spent caring
174 for bonsai):

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176 "Bonsai is very important to me. I work with my trees daily. I have about 150 at various
177 stages of development. Some I have been working on from 20+ years" (ABA).

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179 "I acquired a Black Pine 30 years ago and 2 years ago it was finally put into a bonsai
180 pot. It's slowly becoming a lovely bonsai" (ABA).

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There was an 'addictive quality' to bonsai, and most participants had amassed large numbers of bonsai which often required a daily commitment of 2+ hours care (e.g., watering, styling, pruning, viewing, combatting pests and diseases, building stands and shelters). However, some spent considerably more time regardless of the season. The fondness for their bonsai extended to handing over care whilst on vacation or business trips. However, there was a great responsibility in doing so: "Don't trust many people to care for them in my absence" (ABA). When not present with their bonsai time was often spent thinking about them, and planning the next stage/s of development – this was motivating and perceived as a mutual journey: "I look forward to living another ten years to watch it take more shape" (ABA).

Bonsai also provided opportunity for associated hobbies (e.g., making bonsai pots, attending shows, authoring books, teaching others), therefore opportunity to broaden horizons, which deepened understanding of bonsai. For some, bonsai had become a professional venture:

> "I was in Japan on holiday longing for nature in a concrete heavy city, and when I visited a Japanese bonsai nursery in Tokyo my journey into Bonsai began. I started going to a weekend school and I later started a full time six year apprenticeship at that nursery" (PBA).

> "My father asked me when I was unhappy at my last corporate job 'If money wasn't an issue and you could do anything you want what would you do?' I told him collect trees and do bonsai for a living. He replied, 'then that's what you should do'. So I did" (PBA).

> "On a day off I went to explore the sub-alpine region of a local mountain. Up at 10,000ft I bumped into a Forest Ranger and he showed me the oldest living tree, a Bristlecone Pine. I was amazed seeing a 4,000 year old tree. That was in 1981. I discovered a small bonsai retail store and they were selling a magazine called 'Bonsai Today', I subscribed, and I went back to school and became a Horticulturist and Arborist" (PBA).

Bonsai had become a 'calling in life', and the participants had become lifelong custodians of miniature trees (sometimes "ancient magnificent trees"; PBA). However, for

some this responsibility had become burdensome against other commitments (e.g., family, career, club/society role/s), and they had regretfully reduced their collection: "When one becomes proficient it is easy to end up with too many specimens and a chore attitude can return due to having to look after large numbers" (ABA). Yet, the allure of bonsai remained: "There is an emotional attachment to the trees that is hard to explain. You become a caretaker as the trees can live a very long time" (ABA). Another participant described bonsai as: "My life" (ABA). Therefore, bonsai had become deeply embedded in participants' lives, there was a deep sense of respect and responsibility toward bonsai, and most had experienced deep changes in how they lived their lives.

An authentic life through bonsai

For many participants bonsai had facilitated opportunity to become, and live as, their 'true self' based on a set of values informed by routine, respect, and duty of care:

> "I completed a full apprenticeship in Japan and gained recognition from my peers, it took around six long years and I felt absolutely every emotion under the sun. The outcome was that I grew incredibly as a person and was able to pursue bonsai as a career" (PBA).

> "Lifelong purpose, a value system that is based on respect for living things and an understanding of what commitment and dedication is all about" (ABA).

The care required by bonsai and the physical and emotional closeness and observation when providing this care had created great respect for bonsai – which had many things to 'teach' their custodians including the virtues needed to overcome adversity: "Respect...for nature and the conditions in adversity that make us strong and unique" (ABA). Caring for bonsai appeared to instil a fresh sense of morality. Nartova-Bochaver and Muhortova (2020) demonstrated that moral motives are connected with a positive attitude toward flora, and that an individual's ecological world view embodies the moral qualities of that person. However,

the authors concluded that natural and social identities are not necessarily harmonised, and that "respect for nature does not mean respect for the social reality" (p. 2028). However, it seemed that natural (ecological) and social identities had become harmonised and bonsai had become a 'measure' of morality:

> "Understanding the trees tells me a lot about the people that are working with them. This insight does help to figure out if to trust or not some people" (ABA).

> "For me, if you give trees attention, and give them what they need and want, they won't let you down. Unlike people" (ABA).

Bonsai had instilled a set of ethical, moral, and ideological values, and structure to life guided by what had become meaningful in life. This set of values centred upon the act of care-giving:

> "Every relationship between a human and another living creature is a constant ongoing connection. Bonsai are forcing us to understand the needs of a fragile living creature that doesn't either speak, move or interact. In the case of bonsai, the life of the trees depends upon the actions of the caretaker" (PBA).

The skills and qualities needed to create bonsai were considered a reflection of a person's essence. Some participants offered a philosophical perspective on their relationship with bonsai and life in general. One profoundly attributed "Everything I have now" to bonsai:

> "Emotional stability, the insight into life that I was looking for as a young man, a reason to get out of bed in the morning. Appreciation of my place in the universe. Understanding that I will die. Being part of the process is more important than the final result" (ABA).

> "Can't explain the whole thing, there is so much to tell. Friendships. Memories. Nature connection. Bonsai is mindfulness. Impermanence – keeping things in perspective, being in the moment, appreciation of life" (ABA).

For some participants bonsai presented a humbling response to early-life existential nihilistic angst. A deep appreciation of the value of life had emerged alongside an awareness, and acceptance, of their own impermanence - this provided a sense of peace, calm, and preparedness for life and to engage with life. Others drew comparison between their life-cycle and that of bonsai, and the impermanence of seasons, and therefore depicted bonsai as a metaphor for life: "Each tree has its own 'story' and symbolises this 'story' e.g. battered by wind, clinging to a cliff-face etc" (ABA). Consequently, bonsai presented messages about creation, growth, balance, harmony, and thriving. Doyle et al. (2019) suggested that a deep focus on bonsai affords an understanding of how the custodian is like the tree, and "the ways that we are too pruned, and wired by life" (p. 107). Similarly, Hermann and Edwards (2021) illustrated that bonsai presented narrative metaphors that were effective in revealing and increasing understanding, and acceptance of, self and traumatic personal experiences. Furthermore, Mansourian (2021) stated that bonsai "helps give a visceral experience of the passage of time", and a sense of purpose in times of "chaotic nothingness" (p. 22). It also seemed that a greater sense of self-congruence emerged as a result of creating bonsai: "We can learn a lot about ourself from the practise of the art" (ABA). Bonsai also presented a spiritual journey: "It is a constant source of spiritual renewal" (ABA). Another stated: "It combines art, the Japanese aesthetic, science, and spirituality" (PBA).

Overall, many participants observed life relative to bonsai and as their experience and knowledge had grown so had their self-understanding. Nguyen (2007) stated that bonsai is a way of living, and a "form of art that spiritually connects the crafter of the bonsai and the bonsai itself with nature" (p. 30). Contact with the world of trees (including bonsai) changes people, it affects their identity (Garner, 2004; Mansourian, 2021). "From a Western perspective, bonsai falls between many cracks. It is neither purely art, nor horticulture; neither craft nor science" (Warren, 2014, p.9). Moreover, bonsai provides meaning in life (Warren, 2014). Therefore, bonsai seemed to have become all of these things including the essence of who they were: "To me, bonsai on many levels is life in balance. Bonsai is a large portion of who I have become and who I am" (ABA).

A personal medicine

Doyle et al. (2019) stated that bonsai have "therapeutic relevance for those who engage in the art to other aspects of their lives" (p. 109). Growing, and developing bonsai, is an activity which incorporates creativity and art which has a positive impact on mental health and wellbeing (Hermann & Edwards, 2021). Nguyen (2007) suggested that as people learn to follow the "flow of life" their creativity is afforded opportunity to emerge (p. 31). This positions bonsai as a potential personal medicine which Deegan (2005) described as nonpharmaceutical (self-care) strategies that afford meaning and purpose in life. When asked whether bonsai provided a form of 'personal therapy' the responses were unequivocally positive:

> "Like many activities, it deeply involves the participant. It has helped to save my sanity at times" (PBA).

> "Bonsai is an incredible practice that bridges emotions and it has been the saviour for me and many others" (PBA).

> "They (*i.e. bonsai*) have offered huge solace when other parts of my life were dark and threatening. I cannot think of life without my trees and will grow them until I am no longer able to do so" (ABA).

> "Whilst suffering major depression and then a stroke I needed something to calm my mind and occupy myself in a relaxing way. I had always admired bonsais and had an interest in them and this led the way to my taking up bonsai" (ABA).

Bonsai seemed to be the 'go-to' choice of 'therapy' during times of difficulty, and participants mentioned many health-related difficulties that bonsai had helped them to live with:

> "I had an addiction problem for many years and find that I no longer feel the need having found Bonsai" (ABA).

> "It has helped to distract me from daily pressures and deflects me from grief related anxiety" (ABA).

> "After treatment for cancer, I suffered from short term memory loss/forgetfulness, poor attention span and chemotherapy induced peripheral neuropathy. The neuropathy left me with a burning sensation in my hands and feet, plus struggling to walk or stand without pain. My physiotherapist suggested I took up a new hobby to help with my memory issues. When I told her I was interested in bonsai she thought that would be a good hobby for me to take part in as it also helps stimulate the damaged nerves in my fingers" (ABA).

> "I have a friend in the hobby who just received a diagnosis of cancer and whose first reaction was to go out and spend some time with their trees. It does require focus so it can distract from other concerns and give the brain something of a break" (ABA).

Bonsai provided an engrossing past-time which seemed to offer many therapeutic benefits, so much so that one participant described how they had integrated bonsai into their work as a horticultural therapist:

> "I had an existing interest in horticulture. When I was exposed to the art of bonsai, I became fascinated and began with my collection. Now, as a registered horticultural

therapist I also use it as a therapeutic tool with my patients during horticultural therapy sessions" (ABA).

Many participants specifically described bonsai as a distractor from work-related stressors and as a source of "respite" (ABA):

"My job has a fairly high level of stress. I went to the doctor for suspected heart issues that turned out to be stress related. Since taking up bonsai my symptoms have nearly disappeared" (ABA).

"Until I retired I owned a small business, which involved long hours and a lot of stress. My first port of call after a hard day was my bonsai bench and a pair of bonsai scissors. The simple act of assessing and styling my trees in short but intense sessions I found incredibly relaxing" (ABA).

Therefore, bonsai was a preferred method for coping with daily hassles, work-related stressors, times of crisis, and life-threatening illness. The participants' bonsai were an ever-present source of mindfulness, creative decision-making, and disassociation from illness and stressors. Previous researchers have recommended bonsai as a form of mindfulness practice (e.g., Toll & Orabone, 2016). Interestingly, for the current participants, different tasks (e.g., pruning) afforded higher levels of positive impact, and some tasks were described as "not remotely relaxing" (e.g., "working on a difficult root system"), but nevertheless were satisfying once completed (ABA). Overall, bonsai provided an avenue of escape, security and comfort, and there was a deep sense of gratitude emerging within participants' stories.

Patience

Many participants simply replied "patience" (ABA) when asked whether, and how, developing bonsai was therapeutic. There also seemed to be suggestion that the development/improvement of patience coincided with other beneficial changes:

> "Perspective, increased patience, peacefulness, knowledge of horticulture generally as well as the art of bonsai, new friends/colleagues, self-awareness and self-acceptance" (ABA).

> "Patience, joy, wonder, friends, solace, tree skills, experimentation. A better life" (PBA).

Schnitker (2012) defined patience as the "propensity of a person to wait calmly in the face of frustration, adversity, or suffering" (p. 263). Consequently, patience is considered to be a desirable trait and character strength related positively to flourishing, wellbeing, and coping (Schnitker & Emmons, 2007). Schnitker et al. (2017) argued that the manifestation of patience depends on both behavioural (i.e., waiting) and emotional (i.e., low arousal positive affect and absence of high arousal negative affect) components – these components were frequently evident within participants' responses. For example, the art and craft of bonsai demanded that the participants: "Wait calmly for the trees to grow and develop, to appreciate working with nature not against it" (ABA).

Several participants also mentioned the 'pace of life':

> "Bonsai is about us trying to re-create what mother nature does naturally, in miniature. Mother nature works at a very slow pace by comparison to how we in the world live our lives, wanting to do/be/have/get to all at breakneck speed. Bonsai gives everyone who chooses to pursue this fabulous pastime/hobby the chance to slow down" (ABA).

413 'Pace of life' has been defined as the "relative rapidity or density of experiences,
414 meanings, perceptions and activities" (Werner et al., 1985, p. 14). Modern societies experience
415 an accelerated pace of life, and time-pressure (Keinan et al., 2019) which has been linked to
416 increased stress levels (Melnikov et al., 2020), decreased life satisfaction and wellbeing (Cotton
417 et al., 2002; Levine & Norenzayan, 1999), and unhealthy work-life balance (Levine & Bartlett,
418 1984). Pace of life is related to patience (Levine, 1997), and one participant reflected on how
419 bonsai helped them to resist a fast-paced modern way of life:

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421 "Bonsai gives me a means to be creative and make in my opinion beautiful art. I now
422 have many trees in my collection and can tell you the history of each one. I know it can
423 take a while when you start out on this bonsai journey but how satisfying it can be in
424 this world where everything is wanted now instead of being aware of the seasons and
425 how nature works" (ABA).

426

427 Schnitker (2012) argued that patience helps buffer against negative emotions, and
428 enables more adaptive coping, particularly in difficult situations. Such self-regulation, and
429 cognitive and behavioural adaptation, seemed to be necessary determinants of successfully
430 creating bonsai: "I also learned how to stop being impatient. This is a very good hobby to be
431 involved with as it teaches you patience, reminds you that routine is necessary" (ABA). This
432 participant referred to overcoming their need for instant gratification and maintaining a
433 necessary sense of order in their life. Patience allows people to cope more adaptively with daily
434 frustrations (i.e., "daily hassles patience") and life hardships (i.e., "life hardships patience")
435 (Schnitker, 2012, p. 264), and is "presently engaged and forward-looking" (Schnitker et al.,
436 2020, p. 301). Doyle et al. (2019) suggested that bonsai artists often draw upon their inner
437 qualities and incorporate these into their work. Thus, a bonsai reflects the history of the artist
438 – including their level of patience. Many participants described their 'worst failure' as a lack
439 of patience - often to the detriment of their bonsai. However, it seemed that bonsai helped
440 'teach' participants how to overcome impatience and frustration, whilst also reminding that
441 routine is important in life. Therefore, the learning (and reinforcing) of patience seemed linked
442 to the slowness of developing bonsai and the maintenance tasks that often required a
443 combination of deep concentration, reflection, and careful execution of fine motor skills.

444

Quiet enjoyment

Many participants described experiencing a sense of calm, serenity, and meditative absorption whilst working (usually alone) with bonsai. One PBA stated: “It is totally absorbing. I believe it quickly puts one in a flow state". A number of ‘flow-like’ characteristics were described by other participants including an unconscious passing of time: “When they need work done I can spend hours and not realise it” (ABA). DelSesto (2019) suggested that plant-human interactions (in a garden) might expose people to ‘new durations of time’ (p. 207). Another participant, who described having had a difficult working-life, said:

> “I have retired recently, 35 years I worked and although it was a good job it was very stressful and a hard life. When I got home I would go out and water the trees, my wife would say don't be long dinner is nearly ready. I would be out there for ages and she would come round to get me because I would be out there for hours. Time just slips away when you have bonsai” (ABA).

Working with bonsai often induced a mind free from unwanted intrusions which one participant described as: “A state of intense stillness” (PBA). Doyle et al. (2019) suggested that as bonsai artists gain knowledge, and understanding, they experience shifts from an analytical focus into a “feeling-sense” wherein relaxation, reflection, contemplation, and energisation are awakened – an unconscious shift of attention from head to heart, a “gateway to one’s inner being” and a state of meditation (p. 107). This state of mind, and altered perception of time, enabled participants to “shut out the rest of the world” (ABA):

> “I love the quiet time I spend on pruning and styling. I'm in my own little world” (ABA).

> “Many hours of QUIET pleasure and contemplation” (ABA).

Bonsai enabled participants to nurture inner tranquillity and to create a deep sense of emotional restoration. Nguyen (2007) and Mansourian (2021) suggested that crafting, and caring for, bonsai is meditative. Indeed, the maintenance tasks, and processes of designing a bonsai, often required a prolonged, narrowed, and enjoyed ('healthy') focus of attention and noticing of detail:

> "They make me happy to look at them. I notice details, shape, colours, the shades of green now in the spring make me happy" (ABA).

> "I think without my interest in bonsai I would not be as well and focussed as if I didn't do bonsai" (ABA).

According to Kaplan and Kaplan (1989) being in natural environments, even for brief moments, can help restore directed attention and concentration and offset 'attention fatigue'. Kaplan (1995) also suggested that this restorative effect is characterised by people reporting that they "lost track of time" or "forgot" what they were thinking about (p. 170). It seemed that creating bonsai provided adequate exposure to a natural environment which afforded a restorative impact. The sense of quietness and tranquillity was evident in all participants' responses and, for some, was something that had previously been missing in their lives. The bonsai-custodian relationship focused on achieving an elusive outcome; some participants mentioned that a bonsai is never 'finished' as it continually needs care, maintenance, and redesign. Consequently, there was frequent immersion in this restorative environment. Mansourian (2021) demonstrated that immersion in the art and nurturing of bonsai, and not the outcome, was most important to participants. According to Doyle et al. (2019) bonsai artists are constantly challenged to "expose and celebrate" the tree's essence, and to "appreciate the latent potential in the tree". This involves the artist using their learnt technical skills, and also their "feeling-sense" (p. 104). Thus, satisfaction in performing routine maintenance tasks (including observation and reflection) was equally important (if not more important) than achieving a 'finished' bonsai. Certainly, bonsai afforded quiet time, in an intimate personal space.

People connections

All participants were members of a bonsai club/society/group and the importance of this social aspect was evident:

> "One of the biggest factors or motivators for me to continue with bonsai has been through joining a local club. Having a group of individuals with a shared passion/common interest has been crucial in remaining active and interested in bonsai" (ABA).

> "Bonsai folk in the main are very nice and friendly, helpful people who are only too willing to share experience and advice" (ABA).

Whilst bonsai afforded much needed quiet enjoyment, ironically, this quiet enjoyment seemed to present a somewhat isolated endeavour often with participants working alone, intensely, for long hours: "I prefer working on my trees in private and find it very relaxing to focus on an individual tree" (ABA). Social connection was a crucial counter to isolation, and membership of a club/society/group led to opportunities relating to, and beyond, bonsai: "Met some interesting people. Plenty of hints and tips, nice cakes, laughter" (ABA). Often participants would travel together to exhibitions which offered opportunity for further involvement (e.g., helping set up displays and demonstrations, discussion with PBA's, sightseeing). Bonsai appealed to a diverse demographic, and it was the 'lighter' personal side of life that often connected people: "The community is full of interesting and sometimes eccentric people" (ABA). "We have an amazing group here, some of the kindest, funniest and smartest people I've ever been around" (ABA).

There was an appreciation of like-minded people, for their diverse characteristics and qualities, so much so that one participant commented: "The friendships through the hobby became more important than the trees" (ABA). These friendships afforded a strong sense of community and belonging, and also helped personal growth - one participant mentioned that joining a club had improved their: "Confidence in talking to people" (ABA). Another

participant appreciated the growing sense of comfort with other people that had emerged since joining a club:

> "A sense of belonging to a community of like-minded people, this is especially important for me having had social anxiety all my life, being accepted, feeling part of something" (ABA).

However, for a few participants bonsai provided opportunity to avoid contact with other people: "It's just my nature as a misanthrope to direct my energy towards non-human life" (ABA). Overall, bonsai provided opportunity to create a balanced sense of connection with other people (when needed).

Nature connections

Working with bonsai helps develop an awareness of the resonance between nature, wild trees, and bonsai (Doyle et al., 2019). Indeed, many participants described how their ability to notice, and observe, had improved, and this improvement also extended beyond the world of bonsai to a greater understanding and appreciation for nature:

> "A greater respect for nature. I no longer have what is called 'tree blindness', as in I now see the different types of vegetation as I move through the world" (ABA).

> "Bonsai teaches you to notice details. It brings something natural to eye level. Bonsai trains you to notice detail and enjoy how special such ordinary things are. It also showed me how trees/plants are fascinating creatures" (ABA).

> "A greater appreciation for trees and stones when hiking in nature. Once involved in bonsai your focus on trees in the natural environment is significantly enhanced. Drives or walks have never been the same since I started this hobby" (ABA).

It seemed that participants were actively noticing (i.e., Langer, 1989) and, as such, living authentically in the moment (i.e., Carson & Langer, 2006). For many participants there had been a move from an anthropocentric position to holding a much greater respect and value for the other-than-human-world:

> "I feel very strongly that the activity of bonsai can help people relate more to the natural world as well as see and appreciate the aesthetic beauty in nature" (ABA).

> "Overall my appreciation of trees as a whole has grown beyond measure. I marvel at some which are among the largest and oldest living things on the planet" (ABA).

There was a deep sense of appreciation, thankfulness, and admiration for nature; and an increased appreciation for 'one's place in the universe'. One PBA commented that bonsai had given them: "An eye to SEE nature as it really is, a way to communicate with nature". Bonsai, it seemed, provided a means of connecting not only with nature but with "something larger than ourselves" (Doyle et al., 2019, p. 109). Other researchers have also noted the sense of "awe and wonder of nature" derived from growing bonsai (Mansourian, 2021, p. 18). Awe is considered a complex emotion, and as the feeling of being in the presence of something vast that transcends current understanding of the world (Keltner & Haidt, 2003). Recent research (e.g., Shiota et al., Kuo, 2015; Liu et al., 2023) indicates that awe facilitates nature connection and considerable benefits to wellbeing. Therefore, creating bonsai afforded nature connection and the associated benefits.

One of the family

A strong attachment between the participants and their bonsai was evident to the extent that some considered bonsai as a family member:

> "Other than my children, they are what l think about...there isn't a day that goes by that l don't think about them, what they need, or how I can improve them" (ABA).

> "My trees are just as much a part of my life as my family, my friends" (ABA).

> "There is a commitment as with a child. They need certain things at certain times to remain healthy and develop their full beauty" (PBA).

The participants often described a lifelong emotional attachment to bonsai, and spoke of bonsai possessing human qualities frequently ascribed to close family members (e.g., the capacity to nurture, comfort, and provide emotional security). According to DelSesto (2019) plants respond to care and, through providing care, people can become attached (emotionally) to plants. Early conceptions of attachment related to human interpersonal relationships. Bowlby (1969) described attachment as "lasting psychological connectedness between human beings" (p. 194), and was particularly interested in understanding interpersonal connection, and the anxiety and distress that children experience when separated from primary caregivers. Separation anxiety has frequently been discussed in relation to pet ownership, and research suggests that human- and animal-related separation anxiety are strongly correlated (Dowsett et al., 2020). For some participants there was a tangible sense of anxiety linked to the prospect of being separated from their bonsai, and one participant described their anxiety on leaving their bonsai whilst on holiday:

> "I felt compelled to check on the weather my trees were experiencing every day I was away. On my return even before I took my suitcase from the car, I went to check on my trees and spent the next 45 minutes watering, moving them into the sun and generally fussing over them" (ABA).

Other participants likened bonsai to a pet: “I find it’s a bit like looking after a pet, you have to feed and water it and maintain it to keep it in good health” (ABA):

> “It's a strange relationship really, I'm very protective of them, and delight in seeing them progress, knowing what I've done has partly led to this. I feel very strongly about my trees, not the same as for my partner or dog! But the trees are up there certainly in relation to other things in the garden and in fact in my life!” (ABA).

> “My trees are much like my dog who is dependent on me for nourishment as well as grooming etc. In fact my dog is usually nearby when I'm doing bonsai” (ABA).

This sentiment was also illustrated by Mansourian (2018). Similarly, as with pet dogs, some of the current participants described having a deep form of communication with bonsai that defied an exact explanation: “The art of bonsai is not only artistic and horticultural, it’s communicating at a subliminal level with these living plants” (PBA). This was a relationship largely based on “listening” to a bonsai (ABA) – understanding its needs by observing its ‘behaviours’ over time. Yet, there was more to this relationship than ‘listening’ and one PBA stated: “As they cannot communicate with us to care for them we must empathise, be compassionate, place the trees needs above ours”. Several participants mentioned keeping photographic albums, and detailed records, of their developing bonsai. Whilst this photography was intended to aid the design, and development, of bonsai there also seemed to be a sentimental undertone to this.

Inevitably the role of custodian included the loss of bonsai: “The death of a tree is painful, but a reminder of the non-permanence of life” (PBA). Other participants also described the loss of bonsai and, for some, the sense of grief was akin to a family “bereavement” (ABA):

> “To lose a bonsai to poor care or accident or theft is very upsetting after all the time one spends. They are almost like children” (ABA).

> "I've had dogs my whole life. It was no different than when your dog dies" (PBA).

> "It was a bit like the death of a friend" (ABA).

Therefore, many participants expressed a sense of lingering helplessness, loss, and grief when a bonsai died: "To watch powerlessly as the tree gradually weakened over a period of 2-3 years and then eventually died was both frustrating and upsetting" (ABA). For some there was also a deep sense of anger, and guilt, if a bonsai had died due to (often unintentional) neglect and a lack of patience – which caused one participant to abandon the hobby for many years. In such cases it was felt that not only had the artist let the bonsai down, but they had also let themself down: "The only failure in bonsai is when you fail yourself because you didn't do your best to help develop a tree at the best" (ABA). Others commented:

> "Thinking I was so good that I could get away with something outside horticultural common sense always came back to bite me. Always felt stupid when I did something like that" (ABA).

> "The worst failure was losing some expensive material this past year at my nursery. The trees were several hundreds of years old, and they died due to an unchecked fungal issue while I was away on a teaching tour. It was a terrible experience, not so much for the monetary loss but rather for the loss of such old trees" (PBA).

Another PBA had experienced a similar unforeseeable 'attack' on a special ancient bonsai:

> "The cause was found to be a pine borer (*i.e., insect*) which girdled the tree under the bark. The loss resulted from my failure to take preventative action to protect the tree

675 from this rare but natural pest. It was a bit like the death of a friend. Like elderly people,
676 elderly trees require a certain amount of protective care" (PBA).

677

678 However, even in death it seemed that bonsai had things to 'teach' – this time, regarding
679 responsibility, and learning from life's 'ups and downs':

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681 "The death of any tree is an unfortunate part of the process of bonsai and it hurts to
682 know that you have been directly responsible. I have lost several important trees and
683 ones which I have been working on for many years. It is a painful experience but one
684 which invariably leads to a greater insight into bonsai as a practice and life itself"
685 (PBA).

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687 One participant also described a further source of tree-related bereavement – yet they
688 were similarly able to rationalise this loss: "When I've had trees stolen, the learning that has
689 taken place with those trees far exceeds the loss" (PBA). Therefore, bonsai were valued highly
690 as 'one of the family hierarchy', akin to a child or pet, and were mourned when lost. As such
691 bonsai 'offered' further important life lessons for their custodians including the importance of
692 appreciating life, staying grounded, and the importance of attachment. Indeed, such attachment
693 (to plants) is important to the maintenance of psychological well-being (Nartova-Bochaver &
694 Muhortova, 2019).

695

696 **General Discussion**

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698 The current study supports and extends existing literature by illustrating: why and how
699 people began bonsai as a hobby/profession, and that the creation of bonsai afforded a number
700 of therapeutic (personal medicine) benefits including experiences of success and failure with
701 bonsai. Whilst not possible to infer causal relationships the following general discussion
702 focuses on particularly salient (and under-researched) mechanisms through which wellbeing
703 was enhanced.

Joseph (2019) argued that humans strive to become more authentic, and that leading an authentic life permits people to follow their passion more closely, and to discover their inherent abilities and strengths. Therefore, authenticity is considered as part of healthy psychological functioning (Smallenbroek et al., 2017) and as a form of eudaimonic wellbeing (Smallenbroek et al., 2017; Joseph, 2019). Yet, the conditions that lead to experiences of authenticity have been under-researched (Seligman & Csikszentmihalyi, 2000). However, Smallenbroek et al. (2017) found a relationship between acting in accordance with one's values and experiencing authenticity. Many participants in the current study described how bonsai afforded opportunity to create authenticity, meaning, and purpose in life. Bonsai had helped create a set of values (counter to an anthropocentric perspective) informed by the duty of care necessary for the wellbeing of bonsai. It also seemed that natural (ecological) and social identities had become harmonised, and bonsai had become a 'measure' by which personal morality might be judged in a meaningful way.

Interestingly, some participants mentioned impermanence of life/bonsai/seasons in relation to a greater appreciation of life. Martin et al. (2004) argued that an acknowledgement of the impermanence of existence (catalysed by near-death experiences) can represent a "wake-up call" which leads to greater self-congruence and authenticity (p. 431). Martin et al. (2004) also argued that acknowledgment of impermanence might lead to positive outcomes (e.g., a decreased fear of death, unforeseen opportunities, greater attention given to one's uniqueness, less pressure to conform to cultural standards, and experiencing feelings of freedom and forgiveness). Furthermore, there is greater engagement in life and, in essence, adoption of a new worldview. Only two current participants mentioned near-death experiences, and how bonsai had helped them (and/or others) cope in those circumstances, therefore caution must be used again in inferring causal links. However, the majority of participants were aged 60+ years, and so it is feasible that they were increasingly aware of their inevitable demise – often prompted by the loss of bonsai, and/or the passing of seasons. Yet, it was evident that this awareness had led to personal positive growth. Indeed, Yalom (1980) argued that such growth might be facilitated in non-threatening environments.

The majority of participants mentioned patience as a quality facilitated by bonsai, and as a quality needed to care for bonsai. Mansourian (2021) also identified patience as a necessary quality for bonsai and suggested that patience, combined with passion, helps to develop a new identity for the bonsai artist. Patience during life hardship has been linked to improved regulation of sadness (Shubert et al., 2022), coping better with daily frustrations, life

satisfaction, happiness, affect, and interpersonal interaction (Schnitker, 2012). In turn, this self-regulation enhances commitment, effort toward goal attainment, and achievement satisfaction (Schnitker et al., 2020). It was evident that participants often experienced an altered sense of time, and deep absorption, when working with bonsai. Glickson (2001) suggested that situations which encourage absorption, and engagement of attention, will decrease time estimates and consequently increase patience. Garnefski and Kraaj (2007) argued that patience is derived from cognitive reappraisal – this was evident when participants described their 'worst failures' with bonsai and how these had frequently become learning opportunities.

Miller et al. (2001) used the term 'quiet enjoyment' in reference to subjective experiences of time spent in National Parks. In particular, 'quiet enjoyment' referred to experiences of quietude, peacefulness, tranquillity, and serenity afforded by natural environments. It also links to the more "ethereal concepts of landscape setting and character, and attitudes of mind such as spiritual refreshment" (Pearlman et al., 1999, p. 59). Many of the participants had used such words to describe their experiences with bonsai. Moreover, a variety of mindful 'flow-like' characteristics were experienced by participants when working with bonsai including an altered (unconscious) passing of time, a deep sense of meditative absorption, and a state of intense quiet/silence and stillness. Bonsai therefore seemed to provide respite from daily stressors similar to that provided by natural/wilderness environments. According to Attention Restoration Theory (ART) (Kaplan, 1995) mental fatigue and concentration can be improved by time spent in, or observing, nature. Therefore, natural environments can be restorative. Basu et al. (2019) argued that 'soft fascination' requires little effort and also permits mental space for reflection – consequently 'internal noise' can be resolved and reflection can be achieved. Subsequently, future attentional demands are reduced, and recovery from mental fatigue requires less effort. Basu et al. (2019) also suggested that everyday activities might afford opportunity for soft fascination. Furthermore, Korpela (1991) concluded that 'favourite places' are related to deeper levels of restorative experience. As such, bonsai appeared to help create an environment wherein all restorative components (i.e., Kaplan, 1992), and soft fascination (i.e., Basu et al., 2019) were afforded in a favourite place (i.e., Korpela, 1991). Bonsai afforded a sense of quiet enjoyment, rest and respite, and time for reflection. Other research, for example Burns (2012), has also highlighted the important restorative impact of the silence often found in natural environments – and that seemed to apply equally to bonsai.

All participants described having a strong connection with their bonsai, and in many cases this connection extended to nature, wild trees and plants. Hermann and Edwards (2021) also noted that participants had a profound awareness of, and respect and love for, nature. The current participants' connection to bonsai and nature also extended to an increased awareness of, and alignment with, the seasons. Giri (2019) argued that humans can interact in harmony with the rhythms of the earth – indeed, this ability seemed inherent to providing care for bonsai. Kuo (2015) proposed a number of nature connection mechanisms (e.g., exposure to natural sights and sounds, mycobacterium vaccae, phytoncides, negative ions) which are feasibly associated with the frequent physical contact with bonsai. The intimate sense of connection also seemed linked to the experiencing of awe - which can be considered as a type of altered state of consciousness (i.e., self-transcendent experience; STE) marked by decreased self-salience and increased feelings of connectedness (Yaden et al., 2017). Shiota et al. (2007) illustrated that nature can elicit a sense of awe, and that a sense of awe can be related to "complexity of detail" (p. 945). For the current participants, bonsai presented a rare opportunity to closely notice 'detail' in nature. Furthermore, many participants described experiencing a sense of awe when working with bonsai. Rudd et al. (2012) demonstrated that awe, compared to happiness, is associated with the perception that time is plentiful and expansive. Additionally, awe is associated with greater life satisfaction and appreciating the 'here and now'. Indeed, many of the participants commented on how bonsai afforded a preferable pace of life and an immersion in the present moment. Therefore, it might be concluded that bonsai presented an opportunity for STEs, mindfulness, and flow-like states.

Conclusion

The current research sought to explore: 1) why and how people began bonsai as a hobby and/or profession, 2) whether bonsai provided therapeutic qualities, and 3) the experiences of caring for bonsai amongst amateur and professional bonsai growers. The participants' responses highlighted a number of reasons for beginning bonsai, only a few of which initially related to therapeutic benefits – generally, participants had begun bonsai due to curiosity, being gifted a bonsai, or having been intrigued by cultural depictions of bonsai. However, the research identified a number of previously unexplored ways in which bonsai offered meaningful therapeutic benefits. For example, it might be concluded that close connection to bonsai afforded greater authenticity, self-congruence, self-understanding, and opportunity to develop a new sense of moral self. Bonsai also afforded development of a personal quality (i.e., patience), positive states (e.g., awe), cognitive restoration (e.g., soft fascination), nature

connections, and interpersonal connections, which offered considerable benefits to wellbeing. Further research should therefore, in particular, explore bonsai as an STE, and how this helps people reconcile their sense of self (especially during times of ill-health and crisis). Further research might also explore bonsai and nature connection, awe, and experiences of patience with the aim of developing interventions targeted toward encouraging each of these.

The therapeutic benefits identified were common regardless of experience with bonsai and level of practise (i.e., amateur or professional). However, while there was a considerable number of participants it must be acknowledged that this study only included English-speaking participants. Bonsai conventions (i.e., style, design, horticultural practises, culture, terminology, tradition), species grown, and weather patterns differ around the world. Therefore, it is likely that differences in therapeutic benefits might be found dependent upon these factors; hence, transferability of findings might be questioned. Consequently further research might seek to explore therapeutic benefits amongst non-English-speaking population groups and in countries such as Japan and China (where the practise of bonsai originated). Furthermore, according to Patton (2002) 'conveniently' selecting participants might threaten a loss of information-rich stories - although this did not appear to be the case. Indeed, many participants were seemingly generous with their time and wrote lengthy responses to the survey questions. Also, survey data might be 'contaminated' by self-reporting biases (Patton, 2002, 2014). However, when asked to describe their 'worst failures in bonsai' many participants (including professional artists) gave detailed stories regarding, for example, poor horticultural practises. Thus, in general, there seemed to be a genuine desire to share and learn from one another in the bonsai community. It must also be acknowledged that the survey was distributed via society/club representatives and consequently a possible unequal distribution, and opportunity to participate, occurred thereafter.

Overall, this study has contributed much with regards to how a specialised form of horticultural practise might enhance wellbeing. This ancient form of art and science surely deserves a greater focus from researchers and practitioners alike.

Acknowledgements

The author would like to express his sincerest gratitude to all participants who kindly gave their time to complete the survey.

Appendix

As a member of a bonsai club/society you are being invited to take part in a research study being conducted at the University of Hertfordshire. The study is focusing on:

1) how and why people began growing and developing bonsai trees/landscapes etc, 2) personal gains from growing bonsai trees, and 3) whether, and how, growing bonsai trees might be a form of therapy.

Please take your time to answer the following questions:

Q1 How long have you been 'doing' bonsai?

Q2 Which of the following best describes you?

- Amateur bonsai artist.
- Professional bonsai artist.

Q3 Please describe how, and why, you got into doing bonsai.

Q4 Please describe your relationship with / to your bonsai (e.g. time, commitment, importance).

Q5 Please describe some of your best 'successes' in bonsai e.g. what were you working on/trying to do, why, what happened, how long did it take, what was the outcome, how did you feel throughout the process?

Q6 Please describe some of your worst 'failures' in bonsai e.g. what were you working on/trying to do, why, what happened, how long did it take, what was the outcome, how did you feel throughout the process?

Q7 What is your opinion on the following statement?: 'Bonsai is a form of art therapy'.

Q8 What have you gained personally from doing bonsai?

Q9 Would you like to add anything else?

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