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Centre for Program Evaluation & Melbourne Disability Institute

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Evaluating the Benefits of Therapeutic Horticulture for People with Autism - Kevin Heinze Grow Program

Community Based Research Scheme - Prepared for Kevin Heinze Grow

28 July 2020

Acknowledgments

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# Context

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**The University of Melbourne**

The University of Melbourne has over 160-years of history of leadership in research, innovation, teaching and learning. It is the highest-ranked research university in Australia. Our researchers are at the forefront of international scholarship in a diverse range of fields.

**Melbourne Disability Institute**

The Melbourne Disability Institute (MDI) is an interdisciplinary research institute that was established by the University of Melbourne in 2018 to build a collaborative, interdisciplinary and translational research program to improve the lives of people with disability. Ultimately, the MDI research program aims to capitalise on national reforms and active partnerships with the disability sector to deliver evidence for transformation. The MDI research program is centred around providing much-needed evidence for the disability sector and broader community to address the complex problems facing people with disability, their families and carers.

**Centre for Program Evaluation**

The Centre for Program Evaluation (CPE) undertakes evaluations and research projects for government departments, non-government organisations and community-based agencies across a wide range of policy and program areas but particularly in the areas of education, health, the arts, social wellbeing and the community. Staff members are skilled in the use of widely known, as well as current, emerging and innovative evaluation theory, techniques, and practice, all of which aim to enhance client and stakeholder collaboration and increase the utilisation of evaluation findings.

**Community Based Research Scheme**

This project was conducted and funded through the Melbourne Disability Institute Community-Based Research scheme. The scheme is designed to build the evidence in the disability sector, by linking community organisations to researchers at The University of Melbourne. Projects funded through the scheme include small-medium projects suggested by community-based organisations that build social capital and improve lives of people with disability, their families or carers. The community-based research scheme is intended to support research and evaluation of innovative ideas that build social capital; to share good practice; and to replicate or scale up ideas.

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List of Abbreviations

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| Abbreviation | Full text |
| ASD | Autism Spectrum Disorder |
| CPE | Centre for Program Evaluation |
| ID | Intellectual Disability |
| KHG | Kevin Heinze Grow |
| NDIS | National Disability Insurance Scheme |
| MDI | Melbourne Disability Institute |

# Report Structure

This report presents the findings and recommendations of the evaluation of the Kevin Heinze Grow program conducted by the Centre for Program Evaluation (CPE). The document is structured as follows:

**Section 1 Introduction** provides a background to the program, the purpose of the evaluation and the key evaluation questions.

**Section 2 Literature Review** provides an overview of the literature on therapeutic horticulture outcomes for participants with autism and intellectual disabilities, and best practices in the implementation of therapeutic horticulture programs.

**Section 3 Methodology** presents the rationale and design of the evaluation, the sampling, data collection, and analytical methods.

**Section 4 Results and Discussion provides a discussion of** key findings in relation to the evaluation questions and the review of the literature on the impact of therapeutic horticulture.

**Section 5 Conclusion** is an overview of key findings.

**Section 6 Recommendations** provides an overview of recommendations based on the analysis and discussion of key findings.

1. Introduction

The late Kevin Heinze was inspired by his visit to a garden for children with disabilities in England. He believed that all children should be given the opportunity to take part in gardening activities. He introduced horticulture-based therapy and recreation programs to children with a disability in Australia.

Run by the Kevin Heinze Garden Centre, the Kevin Heinze Grow program uses the peaceful environment of a garden to support social, emotional, educational and vocational goals for a range of people. This setting enables the staff to work holistically with people to meet their needs and achieve exceptional outcomes. The organisation provides a range of services including occupational therapy, counselling, speech pathology, individual and group-based skill development, accredited and non-accredited training, as well as daily workshops such as social skills, mindfulness, numeracy, literacy, music therapy and more. The organisation has two sites, one at Doncaster in Melbourne’s east (the main site) and a new site in Coburg in Melbourne’s north. Kevin Heinze Grow work with NDIS participants; people with intellectual disability and autism; children and teenagers who have experienced significant trauma; people with an acquired brain injury; people with mental health challenges or dementia; refugees and asylum seekers; schools, aged-care services, and disability providers.

The organisation has 50 staff (a mixture of part time or casual), 9 placement students, 80 volunteers, a Community of Management of 7, trainers 16, volunteers 75, and 11 key support workers. There are 66 participants spread across the two sites, although the bulk of the participants are at the Doncaster site.

The Melbourne Disability Institute (MDI) contracted the Centre for Program Evaluation (CPE) at the University of Melbourne to conduct an evaluation of the Kevin Heinze Grow program in July 2019. The evaluation examines the impact of the program on a number of stakeholders who are involved in Kevin Heinze Grow; especially participants with autism and intellectual disability. Kevin Heinze Grow will use the outcomes of this project to further improve and develop the ‘Grow’ model and the planning and implementation of their core therapeutic horticulture program across both the Doncaster and Coburg sites.

* 1. The Evaluation of the Kevin Heinze Grow Program
     1. Purpose of the Evaluation

The aim of this project is to evaluate the Kevin Heinze Grow program and its impact on a group of participants with autism and/or intellectual disability at the Doncaster site. The evaluation also examines the sustainability of the current model and provides recommendations for further improvement and development of the program.

* + 1. Key Evaluation Questions

The following evaluation questions guided initial data collection and analysis:

1. What is the evidence that the current program is viable and what changes need to be made?
2. What are the stakeholders telling us about the program offered?
3. What are the benefits to participants/families/carers?
4. Are there any unanticipated consequences of the program?
5. What are the barriers/enablers to accessing the program?
6. How can we ensure that the program is sustainable?

Following initial analysis of the data and a review of the literature on therapeutic horticulture, these questions were condensed and refined into three key evaluation questions:

1. What frameworks, philosophies and practises contribute to the delivery of the program participants with autism and intellectual disability?
2. What are the benefits and outcomes of the program for participants/families/carers?
3. Is the program sustainable, and what changes are needed to ensure this?

#### Program Theory

The evaluation is underpinned by a program logic model or outcome model, which outlines what the program will do and how it will do it. It is a visual representation of the underlying program theory, depicting the sequence of steps by which the intended outcomes will be achieved (Owen, 2006). A program logic model is developed by collecting data from stakeholders about their vision for the project, their inputs, activities and perceived outcomes, and the factors that enable or act as barriers to the program. A thorough understanding of program aims, objectives, inputs, processes, outputs and outcomes are essential to enable the evaluation team to effectively measure and describe the progress of an initiative, as well as make recommendations to support its ongoing development.

To prepare the program logic model, the research team conducted a program logic workshop with eight staff members from Kevin Heinze Grow (including three social work students) on November 19th, 2019. During this workshop, participants discussed and prioritised program outcomes, as well factors that can potentially support or hinder the success of the program. The program logic model is included in Appendix B.

1. Literature Review

Kevin Heinze Grow provided the evaluation team some of their current resources on the evidence for therapeutic horticulture, including a literature review on therapeutic horticulture and trauma written by a social work student as part of their placement, and a PhD thesis on therapeutic horticulture in Australia written by one of the Kevin Heinze Grow’s staff members. The current report and literature review aim to add to this knowledge by focusing specifically on autism and intellectual disability and relevant new evidence in relation to therapeutic horticulture.

#### Method:

Using search string strings (“horticulture therapy” or “therapeutic horticulture” or “healing garden” or “therapy”) AND (“autism” OR “ASD”) AND (“Intellectual Disability”), the following databases were searched: CINAHL Complete, ERIC, Garden, Landscape & Horticulture Index, MEDLINE, MEDLINE with Full Text, SCOPUS, PSYCinfo, JSTOR, Google Scholar. Abstracts were screened for relevance to the topic and also to avoid unnecessary repetition with provided resources.

* 1. Therapeutic Horticulture

There are various terms and definitions for horticulture-based therapies, including Therapeutic Horticulture, Horticulture Therapy, Social Horticulture, and Garden Therapy, or combined as ‘Social and Therapeutic Horticulture’, however they can all be broadly defined as the use of nature, plants, and outdoor environments and activities for various therapeutic benefits (Reed, 2015; Sempik, Rickhuss, & Beeston, 2014). For the purposes of this evaluation ‘therapeutic horticulture’ will refer to any organised therapeutic use of horticultural environments and activities. There is a long history of therapeutic use of horticulture in various forms, however many credit its modern origins to therapeutic horticulture programs for returning WWI veterans (Reed, 2015).

Therapeutic horticulture is internationally recognised and is particularly prominent across Europe and the US (Reed, 2015; Soga, Gaston, & Yamaura, 2017). Research has found it to be beneficial for both adults and children across many conditions and groups. A recent meta-analysis of 22 international case studies confirmed that “participating in gardening activities has a significant positive impact on health” and that these benefits were seen across a variety of different outcomes including “reductions in depression and anxiety symptoms, stress, mood disturbance and BMI, as well as increases in quality of life, sense of community, physical activity levels, and cognitive function” (Soga et al., 2017, p. 96). Therapeutic horticulture is often the domain of occupational therapy programs, as gardening provides meaningful activities that can be tailored to suit various disabilities and needs, and offers an environment in which to support the improvement of physical and psychosocial capacities (Sempik et al., 2014).

As discussed by Reed (2015), despite the wealth of international research, therapeutic horticulture in Australia has not had the same level of organisation and professional standing as other countries. Therapeutic horticulture in Australia is mainly conducted in small groups, with limited accreditation and limited local research. According to Reed (2015), groups providing therapeutic horticulture in Australia often lack sustainability and commonly cycle from program creation to program loss, with valuable knowledge lost in the process. A lack of coherence and collaboration across therapeutic horticulture programs was noted by O’Brien (2018), who also discussed the difficulty this creates in comparing and evaluating programs that might be quite different to one another. As such, this review will cover evidence from both Australian and global studies relevant to autism and intellectual disability, from varying programs that fall under the therapeutic horticulture banner.

* 1. Autism and Intellectual Disability

Recent figures show that in Australia there are over 200,000 people with autism, and approximately 700,000 people with an intellectual disability, both with higher prevalence rates for men than women (Australian Bureau of Statistics, 2012, 2018). The NDIS report that autism is the largest primary disability category for the NDIS (29% of active NDIS participants), closely followed by intellectual disability (27% of active NDIS participants). While the two impairment types are distinct, they can often co-occur: the report states that while most NDIS participants with autism do not have a secondary disability, around 36% do, with the most common secondary disability being intellectual disability, followed by psychosocial disability, and other sensory/speech or neurological disability (National Disability Insurance Agency, 2018).

Autism and intellectual disability are often viewed through a deficit lens in the medical model of disability, however in the social model of disability, emphasis is placed on viewing the strengths of an individual, and understanding the difference in function as a natural diversity which can, and should be accommodated for within society (Graf, 2020; Krcek, 2013). These are discussed in relation to autism and intellectual disability below.

* + 1. Autism

Historically, under the medical model of disability, autism (also known as “Autism Spectrum Disorder” or “ASD”) has been defined as a lifelong neurodevelopmental disorder in the individual, distinguished by impairment in social interaction and communication, and also by restricted or repetitive patterns of behaviour, interests or activities (American Psychiatric Association, 2013). Autism is also defined as a highly variable disorder, and given the level of variation in presentation, labels of “high functioning” and “low functioning” autism are often used to distinguish support needs for individuals (Krcek, 2013). Notably, the medical model understands autism as a ‘problem’ in the individual.

Within the social model of disability however, autism is not seen as a problem or disorder, but as a neurodivergence; a natural variation or diversity of brain function that can and should be accepted and accommodated for (Graf, 2020; Krcek, 2013). Many in the autistic community are in favour of the neurodivergent model, and are also often in favour of identity-first language (“autistic person”) in which autism is used with pride as an identifier, as opposed to person-first language (“person with autism”) which is usually the standard in medical settings (Robison, 2019). While person-first language is used by medical professionals with the intention of reducing stigma, some evidence suggests it may increase stigma. Conversely, evidence suggests that identifying with a disability may improve well-being and mental health (Cage, Di Monaco, & Newell, 2018; Gernsbacher, 2017).

The notion of functioning classification is also challenged in this model, as it has been argued that functioning labels can be damaging to autistic individuals; high functioning labels can be used to deny support when it is needed, and low functioning labels can be used to deny independence and agency. Some alternative suggestions include using “high support needs” or “low support needs”. Functioning labels can also often over-generalise and misrepresent the notion of the spectrum in “ASD” as linear, as opposed to a wide variation in function and sensitivities; e.g. an individual may be non-verbal, but excel at written work. Similarly, a trait or mannerism that might be viewed as a deficit may also be a strength depending on the lens that it is viewed through (Graf, 2020; Krcek, 2013; Robison, 2019). While many advocates in the community prefer the neurodivergent model and identity-first language, there is of course diversity of opinion within the community (Robison, 2019). As such, both identity and person first language shall be used within this report.

* + 1. Intellectual Disability

Under the medical model of disability, intellectual disability is defined by impairment in learning and general mental abilities, resulting in difficulty with personal independence and daily functioning/participation (American Psychiatric Association, 2013). However in the social model of disability, intellectual disability is defined by a combination of biological, psychological and social factors, and the amount of support, access, independence, and inclusion offered to the individual (Parchomiuk, 2013).

* 1. Therapeutic Horticulture Outcomes for Autism/Intellectual disability

Therapeutic horticulture champions client centred practice, acceptance, and building inclusive environments both in practice and design (Gaudion, Hall, Myerson, & Pellicano, 2014; Reed, 2015). Participants of therapeutic horticulture are included in the development and design of therapeutic gardens. There are many guides on creating gardens suited to various sensory sensitivities and needs (Gaudion & McGinley, 2012). Reed (2015) recommends regularly assessing gardens to ensure they are still meeting the needs of user group. The core principles of keeping the user group at the centre of the practice, including them in the development of the gardens, adapting gardens to meet sensory needs and reducing disabling elements of the environment, along with regular assessment to make sure gardens are still meeting the needs of the user group indicate that therapeutic horticulture fits neatly within the social model of disability.

Common outcomes for therapeutic horticulture found in the literature are explored below, and include but are not limited to:

* skill/employment acquisition
* improved motor skills
* increased socialisation
* reduced challenging behaviour
* self-efficacy/competence/achievement
* community building
* reduced anxiety/stress relief.
  + 1. Skill/Employment Acquisition

Intellectual disability and autism advocates share a common theme in calling for inclusion, self-determination and independence (Nonnemacher & Bambara, 2011; Ward & Meyer, 1999). Employment is one area that can assist in achieving these goals, however the majority of working-age adults with intellectual disability are not employed in the Australian labour force (39% compared to 83% of the non-disabled population), and are also less likely to be employed than people with other types of disability (Australian Bureau of Statistics, 2012). Similarly, at 34.1%, the unemployment rate for people with autism is three times higher than the average rate for people with a disability, and approximately eight times higher than for people without disability (Australian Bureau of Statistics, 2018). There are many barriers to employment for people with autism and intellectual disability, which, together with limited types of employment available, means people with autism and/or intellectual disability are more likely to be under-employed, casually employed, employed in ‘low-skill’ jobs, or employed in ‘supported employment’ (such as Australian Disability Enterprises) often for lower wages, as opposed to integrated workplaces (Dean, Shogren, Hagiwara, & Wehmeyer, 2018; Flower et al., 2019). People with intellectual disability and autism want to work however, and find multiple benefits from being involved in the workforce, including financial, social, psychological and physical benefits (Flower, Hedley, Spoor, & Dissanayake, 2019; Merrells, Buchanan, & Waters, 2019). Employers are also increasingly recognising the benefits of employing neurodivergent individuals, who often provide unique skill sets and insights that propel innovation in the workplace (Flower et al., 2019).

Many early studies into therapeutic horticulture focused on the opportunity for participants to find horticultural employment and gain relevant skills. Airhart, Willis, and Westrick (1987) developed a therapeutic horticulture greenhouse and horticultural job skills training program for high school students with intellectual disability or difficulty with socialisation, and found that while some students left the program, those that stayed demonstrated increased skill and confidence. This skill and confidence were further developed by encouraging experienced participants to assist or instruct new participants. A small case study of three autistic participants of a similar age group also found that all three participants were able to complete the target activities - planting seeds, transplanting seedlings, and re-potting larger plants – unassisted by the end of the program (Schleien, Rynders, Mustonen, Heyne, & Kaase, 1991). Schleien et al. (1991) further found that although these skills were not able to be generalised to a new environment by the participants, all three were still able to complete the activities to a similar level at a seven week follow up at the original training site, indicating skill retention for activities at the original environment. Reed (2015) confirms that therapeutic horticulture has empowering potential for learning new skills and finding employment, and that working in a horticulture environment can provide a positive work experience, greater financial independence, and confidence.

* + 1. Fine Motor Skills

People with intellectual disability may require support with hand dexterity for fine motor skills needed for daily living and vocational activities (Joy, Lee, & Park, 2020). A recent South Korean study involving 28 adult participants with intellectual disability (16 male, 12 female) who were interested in gaining horticultural skills found that participation in a therapeutic horticulture program cultivating succulents for 8 weekly sessions significantly improved hand function across three domains: grip strength, pinch force, and hand dexterity (Joy et al., 2020). Horticultural tasks such as propagation, filling pots, watering, and mixing soils requiring frequent hand engagement (including grasping and pinching actions) were thought to contribute to the improvement in function. Importantly, the authors also found that the participants were satisfied with the program, and that over 90% of participants wished to continue the program and would recommend it to others with intellectual disability (Joy et al., 2020).

* + 1. Socialisation and Communication

One of the most commonly discussed outcomes for autism and intellectual disability in therapeutic horticulture in the literature is socialization, social skills, and communication. The South Korean study by Joy et al. (2020) mentioned above also focused on social skills among adults with intellectual disability, and found that social skills, as measured by survey and observation, improved significantly over the 8-week program.

Sempik et al. (2014) conducted a larger quantitative study in the UK of 143 adult and adolescent participants, investigating the impact of therapeutic horticulture on social interaction and communication. Various diagnoses were represented in the group, with approximately 40% of the participants diagnosed with learning disability, and 7% with autism, along with other mental health, physical and cognitive conditions. Observation scores of social interaction and communication were collected daily (where possible) across two therapeutic horticulture locations run by the same provider, staffed by horticulture therapists and assisted by volunteers. Participants did various garden-based activities such as taking cuttings, planting seeds, and general garden maintenance such as sweeping and cleaning. A comparison of mean scores at various timepoints over a year revealed that at the 30 day time point there was no difference in any of the measures among any of the groups, but that scores in social interaction were significantly improved for all groups at each subsequent timepoint (compared to the participant’s commencement of the program). This effect was greatest amongst participants with a learning disability (approximately twice that of the rest of the group). Sempik et al. (2014) also investigated communication but did not find and significant differences in scores. The authors suggest, however, that this may be due to a lack of frequency in reporting for communication measures, meaning the number of observations at certain time points were low, consequently impacting the statistical power.

An earlier study of children with intellectual disability in South Korea also found that therapeutic horticulture improved social skills (Kim, Park, Song, & Son, 2012). Twelve students with intellectual disability who attended a therapeutic horticulture program comprising of both indoor and outdoor horticulture activities were compared to a control group of equal size. Teachers and parents of the children were surveyed before and after the program, and results showed a significant difference between the therapeutic horticulture group and the control group in social skills. While there was slight variation between the teachers and parents in their ratings of the social skill subscales, overall an improvement was noted across all subcategories of assertion, self-control, responsibility, and cooperation.

In each of these studies, the improvement of social skills is attributed to the group environment of therapeutic horticulture that provides genuine opportunity for cooperation and working together as a team. Participants are provided with the opportunity to develop relationships over the time that they attend the program, and share common experiences and tasks with the other participants (Joy et al., 2020; Kim et al., 2012; Sempik et al., 2014). There is also some evidence that this may be effective in improving parent-child relationships in families with autistic children. An Iranian study of 14 autistic children and their parent/s found that a therapeutic horticulture program involving activities done together and/or supervised by the parent (such as collecting wood, listening to a stream, walking on or collecting stones, watering plants) improved parent-child interaction in the experimental group (Ramshini, Hassanzadeh, Afrooz, & Hashemi Razini, 2018). Lai, Ho, Kwan, Fung, and Mak (2017) found a similar social improvement in social self-efficacy (measured by items indicating the participants ability to communicate their emotions, opinions, or needs) in a group of 12 adults with intellectual disability in Hong Kong. This improvement was found from their engagement in a 12-week therapeutic horticulture program, however they noted that this effect was not found at 12 weeks post intervention. This raises the possibility that the positive benefits of therapeutic horticulture for socialisation are limited to time within the program itself, however further confirmation is necessary as this was the only study that investigated socialization at a follow-up time point (Lai et al., 2017).

* + 1. Behaviour

Behaviour is another outcome targeted through therapeutic horticulture programs. An Italian study by Scartazza et al. (2020) investigated the impact of a biodiversity conservation therapeutic horticulture program on eight autistic adolescents/young adults on community development (discussed later) and behaviour. Participants were assessed at the beginning and end of the two-year program which ran weekly sessions. A medical team observed and assessed the participants using the Observational Rating Scale of Basic Functions (SVFB), and found improvements in areas of Intention, Interaction and Regulation. Specifically, improvements were noted for SVFB items “initiative in expressing will”, “shared action”, “reaction to another’s presence” and “behavioural unpredictability” (Scartazza et al., 2020).

The study of 28 adults with intellectual disability by Joy et al. (2020) (which looked at motor skill and socialisation, mentioned above), also investigated emotional behaviour. Observations using the ‘Emotional Behavioural Checklist’ assessed domains of impulsivity-frustration, anxiety, depression-shrinking, socialization, aggression, derealization, and self-concept. A significant reduction in mean Emotional Behavioural Checklist scores was noted at the end of the therapeutic horticulture program compared to the beginning, indicating overall improvement in emotional behaviour. Of the subcategories of the Emotional Behavioural Checklist, significant improvements were noted for impulsivity-frustration, depression-shrinking, socialization, and self-concept (Joy et al., 2020)

By comparison, a study of 24 children with autism in Taiwan found no positive impact of exposure to nature and exercise on behaviour (Han, 2014). There are however many possible explanations for this result, including the nature of the therapeutic horticulture intervention, which was not a specific therapeutic horticulture program but entailed an undefined amount of time varying in frequency in nature, doing various activities ranging from camping to walking in local parks with parents at their own convenience. The variation in activity type and exposure to nature, along with the lack of organised therapeutic horticulture group activity facilitated by a professional, might account for the negative finding in this case. Measurements of physical activity were also at risk of being imprecise, as measured by parents of the children. Han (2014) also indicate in their analysis that infrequent participation in therapeutic horticulture activities may reduce the efficacy of the activity.

* + 1. Self-efficacy, Competence, and Achievement

Reed (2015) found that engagement in therapeutic horticulture could also increase confidence and a sense of achievement for participants. Research conducted since then has provided further evidence that therapeutic horticulture can provide participants with a sense of achievement, confidence, and self-efficacy.

Lai et al. (2017) conducted a study with 12 adults with intellectual disability in Hong Kong and found improved social self-efficacy immediately after the 12-week therapeutic horticulture program (discussed above), but also found improved levels of competence measured by the Chinese Quality of Life Questionnaire - Intellectual Disabilities (CQOL-ID). The results indicated that while each of the subscales for quality of life (satisfaction, competence, and daily choice making/interpersonal relations) had increased directly post-therapeutic horticulture intervention, only the competence subscale produced a significant result. This result was found at the end of the 12 week follow-up period after the intervention had ended, indicating that feelings of competence were sustained even after involvement with the therapeutic horticulture program. Given that significant results were only found at 12-week follow-up and not immediately post-intervention, the authors suggested that feelings of competence may develop gradually over time, and are most likely attributed to the opportunities therapeutic horticulture provides for learning and utilising skills and abilities (Lai et al., 2017).

A small US study by Himmelheber, Mozolic, and Lawrence (2018) also found self-efficacy to be an emerging theme from their qualitative investigation into a therapeutic horticulture program involving a week-long camp for adolescents with intellectual disability and developmental disabilities. Self-efficacy was defined as “Campers believing in their capacity and demonstrating that capacity” (Himmelheber et al., 2018, p. 7). Observations and focus groups with staff, and parents/guardians of the participants, revealed four defining codes for the theme: Leadership, Confidence, Teamwork and Problem Solving, and Specific Praise. Leadership and confidence were closely related to each other, mainly stemming from the ability of participants to lead by example and share knowledge and skills to assist one another, also echoing findings from Airhart et al. (1987) discussed above, in which participants demonstrated leadership in skill acquisition through training fellow participants. The focus groups also discussed other types of confidence found in participants following the camp, such as identifying personal strengths in activities, communicating with adults with more ease, increased participation in class, and helping other peers. Teamwork and problem solving were also discussed as contributing to the theme of self-efficacy. Participants worked together to achieve goals, and opportunities to combine group work as well using participant’s knowledge of the plants available were presented as part of the therapeutic horticulture program, resulting in the completion of the activities driven by the participants. The authors discuss that self-efficacy appeared to also be supported by specific praise from staff; highlighting the positive actions and choices made by participants, and the positive potential of their actions (Himmelheber et al., 2018).

* + 1. Community Building

The same US study of adolescents with intellectual disability by Himmelheber et al. (2018) also reported community building as another key theme emerging from the evaluation of a therapeutic horticulture camp. In this context, the community was reported to be built among the group attending the camp through the key elements of Cultivating an atmosphere of playfulness, imagination, and Camaraderie, Positive Framing, and Flexibility & Inclusion. These were reported to build an overall “structure and environment of the camp that created a safe place for campers to experience new things and be unselfconsciously themselves” (Himmelheber et al., 2018, p. 7). The positive atmosphere and camaraderie were exemplified by remarks from stakeholders that the camp was a ‘safe place’ with ‘no judgement’, which allowed participants to get full enjoyment and participation out of the experience (p. 6). The authors also discussed that community was built through positive framing, citing the example of celebrating successes, big or small, for each participant by creating a box for them at the start of the camp, and placing achievements or highlights in the box throughout the course of the camp. The other vital feature of community building for this program was considered to be flexibility and inclusion, which allows participants to engage at their own comfort and pace. This will also be discussed later in this review as a feature of practices/strategies that support or define effective program implementation.

There is evidence that therapeutic horticulture programs can assist in community building not just within the group, but also with the broader community. Scartazza et al. (2020) (also explored above in ‘behaviour’ outcomes) discuss the community building properties of a biodiversity conservation therapeutic horticulture program for eight autistic adolescents/young adults in Italy. The participants (referred to as “Biodiversity Custodians”) were tasked with collecting, propagating and conserving landraces in the local area. Through these activities, participants interacted with the local community, especially older members of the community, for knowledge sharing about cultivation and conservation of landraces. Further, the participants were also involved in experimental horticulture tests on the plants being cultivated, creating opportunity to engage with a broader community of researchers, volunteers, and local farmers (Scartazza et al., 2020).

* + 1. Anxiety and Stress Relief

Therapeutic horticulture has been shown to reduce stress in various populations, and Flick (2012) describe the vital need for stress relief for autistic children, who may have heightened experiences of stress due to difficulty with communication, hypo- or hypersensitises, and distress or discomfort with changes in routine. Furthermore, Flick (2012) discuss that exposure to stressful environments may obstruct self-regulation and cognitive development in young children, whereas predictable and sensory-stimulating environments may counteract these effects. A garden or therapeutic horticulture program may represent such an environment and can also provide opportunities for balancing hyper-sensitivities through activities that gradually increase exposure to textures and sounds, such as touching soil, or working gradually closer to a noisy area. Hypo-sensitivities, in which an individual might seek high-impact activities, can also be catered for with safe horticultural activities such as digging (Flick, 2012).

Adults with intellectual disability also experience increased rates of anxiety, which may be assisted by therapeutic horticulture. An exploratory study by Kotozaki and Shishido (2014) sought to investigate the efficacy of therapeutic horticulture in providing psychological support for adults intellectual disability following an earthquake in Japan. Five adults with intellectual disability attended three therapeutic horticulture sessions (potting flower arrangements) run by a horticultural therapist and supported by seven volunteers. The horticultural therapist observed that the participants initially appeared reserved, however appeared to relax during the course of the program and were also able to converse with one another. Unfortunately, the results for this study were not described in detail and was also only a small exploratory study requiring further confirmation of the observed outcomes.

Reed (2015) also discussed that therapeutic horticulture can reduce stress, which may be explained by various theories, including attention restoration theory (ART), psycho-evolutionary theory (PET), and ecopsychology; which, while distinct from another, each describe some degree of the natural environment as providing the opportunity for attention to rest, and that exposure to nature is uniquely important and restorative to humans.

* 1. Practices & Strategies That Support or Define Effective Implementation
     1. Inclusive Garden Design

One key area that can support effective implementation of therapeutic horticulture programs is the garden design itself. Various resources and papers are available specifically for landscaping with autism in mind, for both children and adults (Gaudion et al., 2014; Gaudion & McGinley, 2012; Hebert, 2003). Some considerations include ensuring loud noises are avoided or obscured with planting or sounds of water, as well as considering the impact of certain medications on sensitivity to the sun and providing areas of shade or filtered light (Hebert, 2003). Other design themes that emerge involve creating safe and secure environments, providing specialised spaces (including quiet retreat areas), using appropriate plants, connecting indoor and outdoor areas, and having a clear layout of the space, including visual cues for orientation (Hebert, 2003). These principles are echoed by Gaudion and McGinley (2012), who also reiterate the theme of inclusion found throughout this review in their recommendation to design the therapeutic horticulture space in collaboration with participants. This not only allows the space to meet the specific needs of the participants involved in the program, but also ensures that the activities and opportunities in the garden are focused on meaningful and relevant activities, that play to each participants strengths and interests (Gaudion & McGinley, 2012; Reed, 2015).

* + 1. Length of Time in Program

Another key aspect of effective therapeutic horticulture program implementation is the length of time in the program. As discussed above, Sempik et al. (2014) found no significant results for any of the measures between zero and 30 days, however multiple findings were noted across multiple measures, including social interaction, at longer time points. Outcomes from the therapeutic horticulture program may also take time to develop after exposure to the program, as was the case with feelings of competency for participants in the study by Lai et al. (2017), where significant results in that domain were only seen at the 12-week follow-up, and not immediately after the intervention. Being in a therapeutic horticulture environment may not be an environment that participants are familiar with, and may be daunting at first but can become familiar and calming with time (Reed, 2015). A UK based therapeutic horticulture intervention for various groups, including young adults with autism, found that repeat visits were vital to the success of the program (O’Brien, 2018). The authors discuss that having repeated exposure to the program site allowed participants to get to know each other, built trust, and allowed participants to increase confidence by practicing and repeating activities. It was noted that some participants would have liked to have more time in the program in order to build more of a relationship with the site, and to delve deeper into the activities they were doing, either by extending the number of visits, or wanting to participate in the program again after it had finished (O’Brien, 2018). Schleien et al. (1991) also found that participants were able to retain horticulture skills learnt at the original training site, but had difficulty generalising skills to a new environment, again indicating the importance of familiarity with the environment.

* + 1. Flexibility and Inclusion

Flexibility and inclusion also emerged as an integral practice that defined effective implementation of therapeutic horticulture programs for autism and intellectual disability. Many studies indicated the that their programs were designed and implemented with the needs and abilities of participants in mind, however some explore the concept of inclusion through flexibility in further detail. O’Brien (2018) found that the therapeutic horticulture program was considered as a safe place by the participants, where staff and volunteers were non-judgemental and encouraging, and developed relationships and knowledge with the participants over time, that allowed them to adapt activities to be suited to each individual’s needs and interests.

Himmelheber et al. (2018) also discuss the importance of flexibility and inclusion as a key ingredient in the running and success of the therapeutic horticulture camp investigated in their study. A lack of strict structure was described as an enabler to having projects suited to a variety of needs and interests. Flexibility and inclusion were also discussed in terms of providing breaks and modifications for participants when needed. Examples were provided of a staff member asking a participant if they needed a break outside, which was welcomed by the participant. Another example included staff facilitating inclusion and participation by providing headphones during an activity that was initially too noisy for a participant. The adaptability of the staff and the activities appear to be vital in ensuring maximum participation during therapeutic horticulture programs, especially as needs will vary both between participants, and within the same participant, on a day-to-day or activity-by-activity basis.

* 1. Summary

From the literature reviewed here, evidence suggests that therapeutic horticulture programs provide multiple benefits for participants with intellectual disability or autism, ranging from skill acquisition to socialisation to stress relief. Socialisation in particular appeared to be a common outcome across many studies and therapeutic horticulture program types (Joy et al., 2020; Kim et al., 2012; Sempik et al., 2014). The development of horticultural skills through therapeutic horticulture programs may also provide an avenue for employment and independence for participants (Flower et al., 2019; Merrells et al., 2019; Reed, 2015; Schleien et al., 1991). Furthermore, therapeutic horticulture program implementation appears to integrate well with the principles of the social model of disability, as flexibility and inclusion both in activities and garden design emerged as noteworthy practices within programs (Himmelheber et al., 2018; O’Brien, 2018).

* + 1. Limitations

While the amount of research in therapeutic horticulture (particularly in relation to autism and intellectual disability) is growing, common limitations are found in the literature. Australian research remains underrepresented (Reed, 2015), and the majority of studies are of small cohorts, many with less than 10 participants, and only a small number include data from the participants themselves. While collecting participant data may present some challenges and may not always be possible in some cases, a large number of studies solely rely on researcher observations and/or parent, staff, and teacher surveys or interviews. Variation in the types of therapeutic horticulture programs also makes findings difficult to generalise (O’Brien, 2018; Soga et al., 2017). Studies also tend to focus on immediate and post-intervention effects, with very few investigating the impact of therapeutic horticulture longitudinally, or at a follow-up time point, which can reveal significant results for target outcomes (Lai et al., 2017).

1. Methodology
   1. Evaluation Design

This qualitative evaluation of the Kevin Heinze Grow program seeks to understand and examine participants’ experiences and perceptions of effectiveness of the program. By employing qualitative data collection methods, the evaluation aims to provide rich descriptions and understandings of the experiences of the different stakeholders involved in the program, including participants, their parents/carers, and staff employed by the program. Moreover, the analysis of their experiences and perceptions allows for the comparison of convergences and divergences in their views of the effectiveness of the program, their impact on participants, and their suggestions for improvement.

* 1. Evaluation Methods

The evaluation employs two qualitative data collection methods:

* Semi-structured interviews and focus groups with participants, parents/carers, and Kevin Heinze Grow staff. Interview guides were developed for the various groups of stakeholders. This approach allowed the evaluation team to structure the interviews/focus groups by evaluation questions, whilst keeping them open enough to allow additional responses.
* Site observations conducted by CPE evaluators.

In light of the resources available for this evaluation, data collection focused on the key stakeholders in the program, namely the participants of the Kevin Heinze Grow Program, (hereafter referred to as participants), the parents/carers and the staff (collectively referred to as stakeholders).

After discussion with members of the Kevin Heinze Grow management team, it was decided that the following groups and numbers should be interviewed:

Table 1 Evaluation Participants

|  |  |  |
| --- | --- | --- |
| Stakeholder Group | Type | Number of Participants |
| Program Participants | Individual Interview | n=6 |
| Staff (including CEO and 3 student placements) | Focus Group\* | n=13 |
| Parents/carers | Focus Group\* | n=11 |

\*One focus group was conducted for each stakeholder group

Staff members from Kevin Heinze Grow assisted in identifying participants and parents/carers who would be receptive to interviews/focus groups, which were recorded in most instances. This was to ensure that the interview process did not unnecessarily disrupt daily programs, or cause distress to participants. Further to the interviews and focus groups, general observations of the program were also conducted in order to capture information for participants who did not participate in formal interviews. It was conveyed to the groups of stakeholders that the researchers were the only people having access to these interviews. The evaluation team obtained ethics approval from the University of Melbourne prior to conducting interviews and observations.

* + 1. Data Collection

The evaluation team visited Kevin Heinze Grow on four occasions. The first to familiarise the evaluators with the program and to meet the staff and the participants. During the second visit, the evaluation team collected a variety of documents relating to the Kevin Heinze model of therapeutic horticulture; these informed the design of interview guides. Thirdly was an on-site meeting for the program logic workshop, and the last visit was to collect data from the various groups of stakeholders. The evaluation team conducted individual interviews with six participants, and two focus groups: one with staff, a second one with parents/carers. The senior evaluator conducted the interviews and facilitated the focus groups, with a research assistant providing support during these data collection activities and taking notes. All interviews and focus groups were audio-recorded (with participant consent) and professionally transcribed prior to analysis.

* + 1. Data Analysis Methods

The analysis of qualitative data followed a general inductive approach, where data collected through interviews and focus groups is condensed and thematically analysed using the evaluation questions as focus areas (Thomas, 2006). To that end, two evaluators first read the transcripts in full and highlighted transcript sections related to each of the evaluation questions. During this process, each evaluator noted key findings and relevant quotes to support each finding by stakeholder group. In a second round of analysis, the evaluators re-read the transcripts and developed emerging themes that reflected key findings and participants’ experiences and perceptions of the program. They also explored similarities and differences across each group of stakeholders and used these to describe and characterise each theme – with supporting quotes as evidence for each theme. A third evaluator provided feedback on the analytical themes after reading evaluators’ notes and reading interview transcripts. Initially, these themes were categorised under each evaluation question; however, these were further refined and collapsed into overarching themes following a review of the literature. The three overarching themes integrate interview data and key findings from the literature review, and structure the next section.

1. Results and Discussion
   1. What Frameworks, Philosophies and Practices Contribute to the Delivery of the Program for Participants with Autism and Intellectual Disability?

A strong emphasis on guiding principles and values was found at Kevin Heinze Grow, with a dedicated focus on a client-centered and strengths-based approach, in line with the social model of disability. This framework appears to impact every aspect of the program’s delivery, from hiring staff to the flexibility and inclusion of participants starting from intake and continuing through all levels of program engagement. Many of the practices described in the literature for effective therapeutic horticulture implementation were reflected in interviews and focus groups and are explored in detail below.

* + 1. Social Model of Disability and Client-Centered Practice

Autism and intellectual disability are often viewed through a deficit lens in the medical model of disability, however in the social model of disability, emphasis is placed on viewing the strengths of an individual, and understanding the difference in function as a natural diversity which can, and should be accommodated for within society (Graf, 2020; Krcek, 2013). Parents/carers were unanimous in praising the client centred approach of Kevin Heinze Grow, which, in line with the social model of disability, focused on strengths and inclusion, as opposed to other programs which they felt had not understood or prioritised their child/loved one’s experience.

*“They pick out the positives in your child, which is not always the case. People can always go straight to the negative all the time, and don't see the positive. They had [participant] down pat very quickly, didn't they? They knew exactly what his strengths were very, very quickly. That was just refreshing to us.”* (parent/carer)

This sentiment was endorsed by a number of other parents/carers in the group, and was contrasted to their experiences with other programs:

*“We'd looked at several other [non-TH] programs, and they seemed more and more like babysitting agencies.”* (parent/carer)

*“But here, when [parent/carer] and I first walked in over twelve months ago, it was just like a breath of fresh air. A totally different atmosphere.”* (parent/carer)

*“The staff, they all came out to speak to us at different stages. And just watching how they interacted with the other clients, I just knew this was the place, [for my child].”* (parent/carer)

*“They feel valued here and connected. And those are the two things everybody wants in life – to feel valued and connected, disability or no disability.”* (parent/carer)

Staff at Kevin Heinze Grow expressed that an emphasis on inclusivity and client-centeredness was deliberate and essential; the primary factor in recruiting staff is the alignment of their values. These values of inclusivity and client-centeredness are central to the program’s delivery, outcomes, sustainability and expansion (this will be discussed in later sections of the report):

*“We've put a really, really high premium on this and making sure that we get the right people and sort of thinking really carefully about people's values as the core thing.”* (staff)

Staff at Kevin Heinze Grow also indicated that the positive and strengths-focused atmosphere and values of Kevin Heinze Grow made the program an appealing workplace:

*“I work in, as an OT, at another place at a hospital and I just noticed working here, this is the first workplace where I've just never ever once heard anyone speak badly about a participant, ever. Whereas in the hospital I work at, it's constant behind the scenes, like professionals talking in a negative light about people. And I just think that's so cool about this place.”* (staff)

During the focus group, parents and carers reflected on the acceptance of disability in the community, noting that there was still a lack of understanding, services and opportunity, but that significant improvements had been made in recent years:

*“I think, sadly, there's still a long, long way to go in educating the mainstream community about people with disabilities. As you said, they can be useful and they can add value to their community.”* (parent/carer)

*“But that stigma is pretty deeply ingrained”* (parent/carer)

*“I think they are changing. Look what it was 50 years ago. Kids like this were institutionalized. Change takes a long time. It is getting there. I feel like... My son is almost 24... From the time he was a child taking him out, where people would mock, to now where you take him out. If I say, "Sorry, he's anxious." They say, "It's fine, it's fine. Don't worry. He's okay."* (parent/carer).

* + 1. Practicesthat support effective implementation

#### Inclusive garden design

Co-design with participants was not specifically discussed, however participant input is noticeable throughout the site, including the large artworks done by participants in the communal building. Parent/carers noted that the design of the garden allowed for quiet spaces, echoing the principles of garden design for autism by Gaudion and McGinley (2012) and Hebert (2003)

*“Yes, but they both get some of the same things out of the environment. It's just really welcoming. I agree with the bit about quiet spaces, because both of them have difficulties socializing. Sometimes they need to just go and do their own things. Very flexible. With the young person, the best thing is just feeling accepted for who she is.”* (parent/carer)

*“Also, (for my son) that it's quite small and quiet. He has a lot of trouble coping with noise. It's the fact here that it's generally the small group, and there's always somewhere quiet that he can go and find if he needs that quiet space.”* (parent/carer)

Other design principles that were visible at the Kevin Heinze Grow site include various shaded or covered spaces, accessible ramps, and navigation signage. Staff and parent/carers also noted that the gardening activities provided by Kevin Heinze Grow were meaningful and relevant to the participants (Gaudion & McGinley, 2012; Reed, 2015).

*“And this is where we've got the inch over other places... we've got a couple of people who really adore being outside”* (staff)

*“So [participant name] has a love of the outdoors. So this being predominantly an outdoors based area, is really, really good for him.”* (parent/carer)

*“My son loves the great outdoors. He's into buds. He loves planting here.”* (parent carer)

Interviews with participants confirmed that there were many activities they could engage in that they enjoyed. Some participants were able to experience a different activity each day and enjoyed the variety.

*“I experienced I found something different each day …I was actually bored and sitting at home and my brother and my sister said ‘[participant name], you should go and meet new people.’ And I said ‘Okay [name]’…[participant is now coming here] five days a week.”* (participant)

Participants also identified specific activities that they enjoyed at Kevin Heinze Grow, which included gardening activities, and also other activities such as cooking and art. In particular, a participant noted that their favourite things to do at Kevin Heinze Grow were “*potting up and cooking*”. Several participants talked about their enjoyment in tending the plants.

*“It's with the plants, watering, and stuff, all that stuff like what I was doing with the watering can. The seasoling (fertilizing) and stuff… A bit of cutting up. Moving plants around, re-potting them. Making them look all neat. So the whole nursery looks nice.”* (participant)

#### Length of time / familiarity with program

Studies have found that the length of time in a program can impact whether outcomes are achieved, indicating that longer time spent in therapeutic horticulture programs can be beneficial to participants (Lai et al., 2017). While some participants had recently started the program, other parents/carers indicated that their participants had been attending Kevin Heinze Grow for a number of years:

*“I think we've been associated with them for about four years.”* (parent/carer)

*“This is my sister [participant name]. She's been here since 2010.”* (parent/carer)

*“My son [participant name] has been attending for five years now.”* (parent/carer)

This represents a much longer amount of time and security for participants than the majority of therapeutic horticulture programs investigated in the literature, many of which ran for a few weeks, and almost all less than a year long. In Joy et al. (2020) study, participants wished they could continue with the program, which was not an option in that program, but is possible at Kevin Heinze Grow.

One parent/carer discussed that the familiarity of the location over time was important for their child to feel relaxed, echoing findings from O’Brien (2018). The parent/carer discussed this in relation other non-therapeutic horticulture programs where there was not a stable location.

*“A lot of other programs are run from other centres. They're off-site. Where here, most of it seems to be onsite. Where there's no timetable (in other places). They've got to be there at a certain time, and the anxiety and that sort of stuff... They rush him around to try and get him on a little bus to go somewhere, or do something, and then come back. But here, It's their place for the day. That makes them relaxed. They have their lunch, and all that sort of stuff. They're not in and out. That's the difference between here and other centres.”* (parent/carer)

Another parent/carer commented that familiarity with consistent staff in the program was also an important factor. While familiarity with the location was discussed in the literature, familiarity with staff was not covered as a factor in therapeutic horticulture programs.

*“It’s because of the consistency of the staff. Even through the school system, it's been quite difficult with support workers. It's a little bit like revolving doors sometimes. And that's difficult for my son, because he does form relationships. So the fact that the days that he comes here, he knows who's going to be helping him. It's always the familiar faces. I think, for my son in particular, it's very important. He doesn't cope well with different faces all the time.”* (parent/carer)

Another novel finding from Kevin Heinze Grow is that the benefit of familiarity appears to extend to other services and new staff brought onsite. This is not a practice mentioned in the literature

*“Yes, the fact that they're bringing OTs into the facilities here, as opposed to having to go outside of this facility. To me, with OTs, that makes it extremely convenient for the parents.”* (parent/carer)

*“And I think the integration is really helpful for [participant], as well. Because he doesn't have to leave his comfort zone, that he's established here, with some of the workers. When new OTs come in, he still has that feeling of safety.”* (parent/carer)

#### Flexibility and inclusion

Flexibility and inclusion are key tenants of the work at Kevin Heinze Grow according to staff and parents/carers of participants; beginning with flexible intake practices which individualise plans for participants, fostering acceptance and inclusion of new participants, and allowing for complex cases.

*“It can be really creative with your role and it's really flexible arrangements that can be happening, like with the participants as well. So I do a lot like intake, assessment, intake meetings, with the participants and we always try to find out their individualized goals and try to arrange the plan based on their goals and their interests and we're able to be really flexible with their arrangement, be open to change...”* (staff)

*“The whole environment here is accepting of them just how they are. This is my son's experience of any formal program; I suppose you would say. And having gone through a lot of red tape over the years, to get him into mainstream education, I found it very, very easy to get in here. Very quick. There wasn't a lot of, what I call, silly questions asked. It was just that he was accepted. It was pretty much in the door, sort of thing. And I found that a welcome change to my previous experiences.”* (parent/carer)

Participants are also actively included in the intake process. One participant talked about the easy and welcoming process of getting involved:

*“[CEO] and [staff member] was here and then I had a look around. Then at the end of the meeting then I said that I loved it.”* (Participant)

Once in the program, staff at Kevin Heinze Grow provide opportunities for participants to engage in activities that they enjoy, and at their own pace; a similar practice to Himmelheber et al. (2018)

*“The thing is it's about the clients being outside in nature. That's what it's about. Cause my big thing is I'd like them to develop the gardening skills. Some of them can't, never will. But we have one participant who goes out there and sings to her heart's content and that's fine because she's happy. She's communicating with other people. She's developing social skills. That's what it's about. And I think we do that really well. We do it really well at Peppertree [second Kevin Heinze Grow site] too.”* (staff)

Parents and carers also noted the importance of flexibility for remaining engaged with the program:

*“I've had help getting her out of the car some days. She can just lie on the couch with her dog. If that's all she does for the two hours that she's here, she's still here. And a testament to that, is the fact that this year she didn't go to school for the whole of second term, and yet she came here every single week. Sometimes the session was cut a bit short. She could only manage an hour, but she came. So I think being accepting of however people are, giving them the space when they need it.”* (parent/carer)

*“The regimentation at [other non-TH program] was a bit much for him, as well as his parents. So we didn't really enjoy that experience. We didn't think it was suitable for him… We tried to get into his brain for several months to see what he really preferred. And we came to the conclusion that he preferred coming here. I think the flexibility. And just the general environment, the outdoors…”* (parent/carer)

* 1. What are the Benefits and Outcomes of the Program for Participants, Families and Carers?

As discussed above, the inclusive and flexible nature of the program is of particular importance and benefit to the parents/carers of participants. Another parent/carer further noted that a significant benefit of the program was that it addressed a gap in available services for this cohort:

*“There seems to be a big gap as well in... between age groups, in terms of that sort of later high school, and then moving into elderly people with disabilities. There's a big gap, socially, job wise, all sorts of things. Where there isn't really anywhere. You either go to, like you were saying, like day care places. Or unfortunately places where they sit you in a corner, or they're not much different to aged care. There doesn't seem to be... There's a big gap.”* (parent/carer)

The majority of focus was on the benefits and outcomes for participants, which are discussed below.

* + 1. Program Outcomes

#### Socialisation and communication

One of the most commonly investigated outcomes for people with autism and intellectual disability in therapeutic horticulture programs is socialisation: social skills and communication. Studies by Joy et al. (2020), Sempik et al. (2014), Kim et al. (2012), and Lai et al., (2017) all found improved social skills and socialisation from engagement in therapeutic horticulture programs. Each attributed this improvement to the group activites, shared experiences, and cooperation that therapeutic horticulture provides. This was also echoed by staff at Kevin Heinze Grow:

*“Socially as well. As soon as you're outside, I think a lot of the participants would make conversation a bit easier, rather than being indoors. So it really helps, that was one of the things which I noticed. Like first off. Yeah. So it's kind of just like, offers it real rather than just being like sitting down at a table, being face-to-face. It's very intense, you know - It's much easier if you're doing something else and you can have a chat…”* (staff)

Many of the participants discussed the new friends they had made at the program, indicating a strong social aspect to Kevin Heinze Grow. One of the participants talked about how everyone at Kevin Heinze Grow gets along with each other and the fact that they care for each other. Other participants commented that they had made new friends, and appreciated the friendships and meeting new people.

One staff member also reflected on the importance of social skills for life in general, and the various ways in which participants are able to build relationships:

*“Setting up people's life skills and social skills so that they can succeed. Not just at a job… but to deal with other people and to help other people and fit in. A lot of people have social problems and I've seen a couple of little examples where somebody assisting somebody else. For example, I've made you this drink holder so you can hold your drink better. That's really nice. That's also going to help you in any situation.”* (staff)

Further, some parents/carers discussed not only the improved social skills of their child/person they care for, but improved communication as well:

*“Well my son... He was too scared to talk and wouldn't mix with people. But since he's been here, he's just opened up.”* (parent/carer)

*“My son's language has really come on. He structures his sentences. He doesn't have speech [therapy] here, but I think that's more with the amount of interaction and conversation.”* (parent/carer)

This is in contrast to Sempik et al. (2014), who did not find significant results for communication in their study, however the authors indicated that this could be explained by measurement issues.

#### Skill acquisition and employment

Early studies into therapeutic horticulture for young people with autism or intellectual disability explored the use of horticulture to learn practical skills, which could also potentially lead to employment (Airhart et al., 1987; Schleien et al., 1991). During interviews, participants identified the practical skills they are learning at Kevin Heinze Grow, discussing their enjoyment of learning and utilising skills such as identifying plants, fertilising, watering, propagating, and ‘potting-up’:

*“Yeah, like getting stuff to grow from root, get cuttings and get them to grow from roots. Stuff like that, yeah. Propagating.”* (participant)

Joy et al., (2020) found that these specific types of activities also assisted motor skill development and dexterity in a therapeutic horticulture program for adults with intellectual disability, however this was not an outcome specifically discussed in the interviews or focus groups.

One participant talked about taking the skills they learn at Kevin Heinze Grow and applying them at their own home, a finding in contrast to Schleien et al. (1991), in which participants had difficulty in generalising the skills they had learnt to a new location.

*“They helped, mostly when I go home at the end of the day, I do some (gardening) outside at my house.”* (participant)

Familiarity with the alternate location, (i.e. the participant’s home) may be an explanation for this difference, as the location in Schleien et al. (1991) was unfamiliar to the participants, unlike a home.

There are multiple psychological, social and financial benefits to be found from employment for people with autism and intellectual disability, however there is often a lack of opportunity, especially for integrated employment in the mainstream workforce (Dean et al., 2018; Flower et al., 2019; Merrells et al., 2019).Both parents/carers and participants noted that Kevin Heinze Grow was assisting in placing participants in paid work through the development of horticultural skills. The “Grow on the Go” program (an internal gardening service offering gardening services to the local community for a fee) offers participants opportunities for paid work through Kevin Heinze Grow, and another participant had found paid work at a local garden nursery.

*“Yeah, [my son is] going out to find work. And also maybe get his license. So, he's come a long way…I think they've helped him in a lot in that field, with the gardening. Being able to go out. Not work by himself, actually, but work with somebody in a garden environment. Get him out of here, and into an actual job.”* (parent/carer)

*“I think they're attempting to do that with the van [Grow on the Go gardening van]. Training some of these participants to do maintenance- So they will be affecting, so called normal people, out there. If you had 100 vans like that, then people would quickly realize that they're very useful people. Initially may not seem so useful. But they just need a little special attention, and training, and they can come out there and be part of the community.”* (parent/carer)

#### Behaviour

Behavioral outcomes are discussed in the literature for adults and adolescents with autism or intellectual disability, showing improvements in areas such as behavioural predictiability and emotional behaviour (Joy et al., 2020; Scartazza et al., 2020). One staff member reported seeing improvements in challenging behaviours (among other areas) as a result of taking time with participants:

*“I hate using this word, but with some of the, with a few of the people who've got quite significant cognitive or intellectual disabilities, when you see that growth in them. Cause no one's ever bothered, probably taking... Trying to take that time with them. I think that's significant. And we've noticed it with a few people who have just come to join us in the last few months. And it's really interesting because they work, their vocabularies increase, they've become more social, their challenging behaviors have diminished.”* (staff)

Behaviour was not often discussed within the interviews and focus groups however, focusing mainly on other outcomes. The lack of dialogue on the topic could indicate that concerns around behaviour were not common.

#### Self-efficacy, competence, and achievement

Research has found that therapeutic horticulture can increase self-efficacy, competence and feelings of achievement (Himmelheber et al., 2018; Lai et al., 2017; Reed, 2015). Lai et al. (2017) found that feelings of competence had increased in participants when measured 12 weeks after a therapeutic horticulture intervention, attributed to the affordance of opportunities to learn and utilise skills. This was also reflected in responses from staff and parents/carers at Kevin Heinze Grow. Staff discussed the responsibility and visible results inherent in caring for plants; an activity which can translate into feelings of self-efficacy and competence:

*“And so then you can sort of accept that as being something that's other than you, but something that needs a little bit of caring for... You are capable and that's good. Self-esteem improves because you can look after something else, you can move that outside your pain and whatever else is or confusion and whatever else is going on.”* (staff)

One participant talked about feeling more confident from being in the Kevin Heinze Grow program, which was also reflected in responses from parents/carers:

*“She was able to have contact around people. And she started to be confident of herself, doing whatever she was told to do. She loves the gardening.”* (parent/carer)

*“He's showing a lot more interest in things. He's doing a lot more things as well, than he's ever done.”* (parent/carer)

#### Community building

Community building can occur both within a therapeutic horticulture program, and can also extend out into the broader community (Himmelheber et al., 2018; Scartazza et al., 2020). Staff and parents commented on the community within Kevin Heinze Grow, with many comments about how participants are included and valued as genuine members of a team, often noting the difficultly in distinguishing between staff, volunteers and participants. While community building within a therapeutic horticulture program was discussed by Himmelheber et al. (2018), the level of integration between participants and staff seen at Kevin Heinze Grow, to the point of being indistinguishable, was not found in the literature.

*“I think a combination of practical work, that subtle social thing we talked about before, it's made the chap I was supporting feel, not just that it's an okay place, but he is part of a genuine team. We're all working together. He's part of that. It's not, I'm not his carer. I'm his coworker now. And so he feels valued and normal. Everyone wants to feel normal.”* (staff)

*“And I think the other good thing, is how the staff really interact with the clients all the time. Even at lunch time, you come in and sometimes you don't know who's the client and who's the staff because they're all sitting there having their lunch together. Everyone's included in the conversation, and I think that's fantastic.”* (parent/carer)

*“He does feel like it's his job. He calls it his job. "I have to go do my job." And I agree with what that lady said there, about the staff. You don't know who's [sic] clients, and you don't know who's staff.”* (parent/carer)

Himmelheber et al. (2018) discuss some of the elements that constituted community building in their therapeutic horticulture program, highlighting the role of a playful atmosphere and positive framing through the celebration of successes, no matter how big or small. These elements were also discussed by staff at Kevin Heinze Grow, reflecting on playful jokes among participants and staff, and celebrating all the successes of participants:

*“There's less of a separation between the carers and the participants. A lot more joking around. There's less of a barrier. It's a bit less professional in a lot of ways. There's bawdy jokes. Everyone has lunch together.”* (staff)

*“I really like how we celebrate really small little things. Even if it's just someone joining the rest of the group for lunch time or doing their own shoelaces.”* (staff)

Another important element in community building discussed by Himmelheber et al. (2018) is flexibility and inclusion. This is discussed in more depth as a practice for effective program implementation later in the report. However a good example of inclusion and community was illustrated by a comment from one of the parents/carers:

*“And with the young girl, again not participating in school, not participating in family activities, or social activities, or whatever. And yet she's turning up here every week. And it was initially a lot of lying on the couch, and someone just sitting with her. But now she'll bring ingredients and do cooking and interact with the other participants here. Play games or cook with them. So, she's really feeling part of the community.”* (parent/carer)

Scartazza et al. (2020) found that a therapeutic horticulture for adolescents/young adults with autism could help connect to the local community through conservation efforts. Staff at Kevin Heinze Grow also see one of the outcomes for the program as being community building beyond the program through caring for the environment and education about climate change:

*“You know with the world the way it is at the moment, with the need to address issues around climate change, the only way to do it is to increase the knowledge within the community. Most of our people are young, and yes, they're having a disability, but most of the time it's not major. But if we instruct them to care for the environment, we give them that knowledge. They go out and tell people. So it becomes that lovely way of the community... That's what I was saying, it's a community development tool… So we're building on people's capacities, but we're increasing awareness within a community about it too. So it's wonderful like that.”* (staff)

#### Anxiety and stress relief

Flick (2012) discuss the importance of stress relief for autism and indications are that therapeutic horticulture may be effective for this purpose. Parents/carers indicated that Kevin Heinze Grow was a calm environment for their participants, and one parent/carer specifically indicated that coming to Kevin Heinze Grow had reduced feelings of anxiety in their child:

*“I find that my son, his anxiety levels are not anywhere near, from being here.”* (parent/carer)

Reed (2015) discussed some of the theories that might explain the mechanism behind the relaxing qualities of the natural environment, including attention restoration theory, ecopsychology and psycho-evolutionary theory; some of which are echoed in how staff discuss the benefits and role of nature in the program:

*“And it's the physiological stuff. So, it's the sun shining on your head and you secrete serotonin, which is the rest and- it makes you happy!...It's sticking your hands in the soil and something is in there that stimulate the production of serotonin as well. So you get another burst of it. So it's all of those things. It's being able to compare what you see in nature and know that you're safe in it. There's something going back a long, long way in your evolution. Which is going, "It's green, it's all right. There might be some snakes, but just be mindful for them."* (staff)

*“It's also incredibly uncomplicated in a way. We create so many abstractions as people and that's really difficult for people with brains that work differently to comprehend. Things that are abstract or things that aren't concrete or things that... You know, word pictures or whatever. You can look at a tree and you can look at some soil and you can look at a rock and that's all there. That's just is what it is. And so it's a common point of connection that people with very different brains can all connect with and relate to without all these layers and layers of subtext and meta-analysis and all that sort of thing. It strips all that back and I think creates a much more peaceful and stress-free environment to connect.”* (staff)

* 1. Is the Program Sustainable, and What Changes are Needed to Ensure This?
     1. Staffing and Student Placements

Bringing in student placements is an explicit part of the program’s strategy for sustainability, and staff discussed the importance of making sure to have successors and advocates for the program to continue. It is common practice for Kevin Heinze Grow to hire students who have completed their placement, which has shown to be a sustainable strategy for building a pipeline of staff who share the core values of the program.

Another key element in the sustainability of the program is the emphasis on values in the recruitment process, which is designed to ensure the delivery of the program remains firmly within the ethos of the organisation while growing the number of staff:

*“Even above skills and experience. The values have to be right. If the values are not right, it's not going to work. And I think generally speaking, we've done that very well and I think that needs to continue because you don't just get this by accident, you get it by design.”* (staff)

* + 1. Funding

Staff talked about the barriers they face in delivering the program to the best possible level. Several staff members talked of their frustrations when, working with a participant, they are limited in what they can do because of funding constraints in a participant’s NDIS package, which is often not reflective of the work being done.

*It is a truly meaningful enhancement program. Which is, in my view, clearly delivering way above and beyond what we've funded for about 80% of the hours that were funded through the NDIS, which is essentially, look after this person. We're not doing that. We're providing basically a pre-vocational education, training skills.* (staff)

NDIS funding is also only allocated for the services provided for individual participants, and does not take into account the time and costs of purchasing and maintaining equipment, which often means equipment cannot be fixed.

*“It's the smallest things like the wheelbarrows all have flat tyres. Do we have the actual money to go and get [them fixed]? So it's little things like that. Because sometimes you're like, ‘I don't know if we can fix this, right now, because we don't have the funding or we don't have the time.’”* (staff)

*“I think one of the most frustrating or challenging things for me, is not being able to provide the team with what they need to do their jobs the best way they can always. And that's because through NDIS funding, after we pay for staff, they give us two percent, two percent, to pay for everything else. Rent, insurance, utilities. Yes. So there is no fat anyway. So money absolutely…”* (staff)

This also restricts the ability to upgrade interior facilities to meet the growing needs of the program. This was discussed as a point of frustration for the staff; not being able to provide the desired environment for participants and staff, especially on hot or wet days when the need for indoor space is at a premium.

* + 1. Expansion vs. Integrity of the Program

Kevin Heinze Grow also recently opened a second site in Coburg, indicating the growth of the program. The staff were very mindful of elements involved in the sustainability of this second site, and felt that any growth of the program must not come at the cost of the inclusivity and culture that has been cultivated:

*“There's sort of three aspects to it I think. The first is sustaining what our viability as an organisation full of staff because unfortunately for a charity that is always a consideration. So that's number one.*

*Number two is maintaining what most of us identify as the primary benefit and value of this organisation and our services, which is that we truly do accept people as people and accept individuality and try and work to that. So to maintain that.*

*And then as long as we can maintain that, scaling up so we can reach as many people as we possibly can while still preserving it. Because there is a point where you can no longer do that, guarantee preserving that. That is what are mindful of. And that is where we will cease to grow. Because we will never sacrifice that for the inclusivity and the culture and the feel. Because that is of primary importance. So it will be testing and seeing where that is, how we can maximise our reach, and benefit to a broader range of possible people while preserving that.”* (staff)

The tension between maintaining an agile, personalised program that is flexible and inclusive and scaling up the program to reach more people at more sites was a key issue when discussing the expansion of the program:

*“Working out how to replicate it. I'm like... my hope is that it can be shared with many people, but it's not just the model. It's... Can we make it independent of these particular people?”* (staff)

*“Because it is a subtlety about how it's applied to different populations in different areas and because all areas have got different problems. So it's how do you apply the overarching ethos but actually make it significant to people.”* (staff)

* + 1. Communicating the Model

Despite being internationally recognized, therapeutic horticulture is not formally recognized in Australia, with limited accreditation and limited local research (Reed, 2015). One of the concerns for staff was the lack of knowledge about therapeutic horticulture as an effective program within the broader community:

*“One of my big frustrations, in my role, is trying to communicate what it is that we actually do and offer to the outside world because it's worlds apart from a lot of what else is on offer. So we don't accept participants on a day program and park them in-front of television…We're providing basically a pre-vocational education, training skills as well as social skills…And we're doing it for the same funding you get to park people in a room. So explaining what it is we do and having people see and recognise the value of what these guys all do on a daily basis can be frustrating. People get it once they're here, but they don't get it if they don't come and see… It's broader, systemic sort of understanding, I think, of the horticulture and understanding of the health and wellbeing benefits of this sort of way of operating.”* (staff)

Staff also discussed the ways in which they are addressing knowledge around therapeutic horticulture in the community, by recruiting and supporting student placements for various disciplines, with the aims of providing education and spreading the word about therapeutic horticulture programs.

*“I think that one way that we systematically try and address that knowledge of therapeutic horticulture and support for it is by having a really, really, really strong student placement program across multiple disciplines. So [staff name] and I both work on that. [Staff name] coordinates a lot of the placements and I supervise a lot of the social work students that we have here. Social work, OT, mental health, community services, horticulture. These are professionals that go out into their fields of practice championing therapeutic horticulture. So it's part of our long-term strategy to get very smart, capable students to come here, become champions of this thing, go out and be successful elsewhere and say, this is a great thing to do.”* (staff)

Discussions with the staff showed overwhelming support of therapeutic horticulture as the framework for the program and endorsed the idea that the Kevin Heinze Grow model is something that can be replicated, not just for people with disability. Several staff members agreed that while there are minor risks and occupational health and safety issues with working in a garden (potting mix, etc.), they can be mitigated easily, and that the benefits of working with nature more than justify this effort. A number of staff members noted that the advantage of not for profit organisations is that they can establish a program like Kevin Heinze Grow, whereas the public sector is much less flexible.

*“So bringing it [therapeutic horticulture] into my other workplace at a hospital, it's a psychiatric hospital, and there's a lot of barriers. Getting through like risk and OHS and things like that. I mean, just even, it seems having plants, is a risk. I get "No's" every single day. So then you come in here and there's so many "Yes's". It's very different.”* (staff)

* + 1. Changes to the Program

When asked about changes needed to the program, staff mentioned that the environment could be a bit chaotic and suggested more stability would be welcome, so long as it doesn’t impact the necessary flexibility and liveliness of the program which they see as a strength. Staff members also indicated that it can be difficult to find time for general maintenance or ongoing jobs both in the garden and in the office.

*“I think one of the strengths is one of the weaknesses, which is the chaos. You wish for predictability when you don't have it. And you wish for variety when you do. Sometimes I'd like to sit down and go, "I'm going to work on this IT project for three days" but... That's not something that possibly can be changed because of the nature of things.”* (staff)

Parents appeared to be very happy with the program at Kevin Heinze Grow, and often noted the benefits of having access to a range of services. One concern was raised about the potential consequences of doing too much:

*“My only comment would be, there's an awful lot offered here. And my concern would be that they diversify too much, rather than focusing on perhaps core delivery, and doing it really, really well - They do it really, really well - But if they spread themselves out too thin, in too many areas, perhaps some of the core offerings possibly could be watered down a little bit, if they're spread too thin…”* (parent)

1. Conclusion

This evaluation sought to understand the impact of Kevin Heinze Garden Centre’s therapeutic horticulture “Grow” program for participants with autism and intellectual disability. Interviews and focus groups with participants, parent/carers, and staff indicate that the Grow program is providing outcomes consistent with those found in the therapeutic horticulture literature for these cohorts. Kevin Heinze Grow is delivering a program that supports socialisation, stress relief, behaviour support, and a sense of community, competency and achievement. The program is also teaching practical horticultural skills that participants enjoy and assisting participants in finding paid employment. The parents/carers and staff emphasised the inclusiveness and flexibility of Kevin Heinze Grow in welcoming participants; a key practice that defines effective implementation for therapeutic horticulture programs. This was clearly demonstrated by the staff often being indistinguishable from the participants in an integrated team environment – a finding that goes beyond current results in the literature. This commitment to inclusion reflects a broader philosophy of client-centred and strengths-based practice evident within Kevin Heinze Grow, which distinguishes it from other programs available for participants, and contributes to the outcomes discussed. While the flexibility of the program is integral to its success, a tension exists between the agility required to maintain that flexibility and formalising the structure of the program in order to ensure its ongoing sustainability and expansion. This is a common struggle for therapeutic horticulture programs, and well understood by staff at Kevin Heinze Grow. Funding and community understanding of therapeutic horticulture also represent barriers to the ongoing development of the program.

* 1. Limitations

Limitations found in this evaluation are common to those found in the therapeutic horticulture literature; most notably a small sample size. Due to the limited scope of the evaluation, volunteers were not present in the focus groups, and student placement experiences were not explored in full detail which could be addressed in future evaluations. A strength of this evaluation, however, was through the inclusion of participants’ perspectives of the program, which is often not found in the literature (mainly relying on parent/teacher surveys or researcher observations).

While this evaluation provides a detailed snapshot of the practices and outcomes occurring at Kevin Heinze Grow, it does not follow participants from initial placement over time, which could give stronger insight into how outcomes develop. Much of the therapeutic horticulture literature focuses on interventions that run for a limited time period, and employ a pre-post intervention comparison which is not applicable to an ongoing program such as Kevin Heinze Grow. Future evaluations could utilise longitudinal designs to capture this, employing observational and/or mixed methodologies to make a valuable contribution to the therapeutic horticulture literature.

1. Recommendations
   1. Recommendations for Practice

Kevin Heinze Grow are meeting multiple areas of best practice found in the literature for therapeutic horticulture. The following recommendations are offered to reinforce and expand these practices.

* + 1. Community Building

Throughout the evaluation it was clear that Kevin Heinze Grow has built a strong community within and surrounding the program. Staff indicated a desire to use therapeutic horticulture as a community development tool to address climate change in the broader community. Evidence from the literature shows that similar initiatives have been effective in therapeutic horticulture programs. Given the level of interest and existing momentum within Kevin Heinze Grow, one suggestion could be to lean into this mission further, and for participants to have the option to become community climate ambassadors (or similar) as an explicit component of the program.

* + 1. Length of Time in Program

Evidence from the literature indicated that positive outcomes from therapeutic horticulture are observed over time, and that familiarity with the program is key in facilitating, increasing, and reinforcing these outcomes. The evaluation found that Kevin Heinze Grow is providing a program that surpasses many of the timeframes reported in the literature, with many participants attending for multiple years and on an ongoing basis. Kevin Heinze Grow allows for long term meaningful involvement by participants and it is recommended that this practice continues.

* + 1. Participant Inclusion

Inclusive practice emerged as a key element for therapeutic horticulture programs, and Kevin Heinze Grow is delivering a program that holds inclusion at the centre of its ethos and practice. Throughout the evaluation, multiple stakeholders commented on the integration of participants and staff to the point where they were indistinguishable from each other. This is a unique aspect of Kevin Heinze Grow, and it is strongly recommended to continue. The points provided below are offered as further suggestions and examples to continue and extend the inclusive nature of the program.

* Participant involvement in garden design and program development
* Representation of disability and neurodiversity in members of staff or board
* Participant’s role in the ongoing sustainability of the program
* Formalisation of participant preferences on language and identity regarding autism (e.g. identity-first or person-first language)
  + 1. Sustainability

Sustainability is a key issue for therapeutic horticulture programs. The staff at Kevin Heinze Grow are aware of the need to make the program sustainable, and also of the tension between maintaining the integrity of the services offered as the program expands. Parents and carers noted that while having access to multiple therapy services within the program is beneficial, there was concern that the program could be stretched too thin if attempting to do too much. Funding was identified as a key issue. Kevin Heinze Grow demonstrated strategies for addressing sustainability, including a strong student placement program, a focus on education of the public on the value of therapeutic horticulture, and recruitment processes which emphasise the values of the program. The following points are offered as suggestions for furthering the sustainability of the program:

* Formalisation of the structure and activities within the program, including documentation and dissemination of knowledge, guiding principles, and practices
* Continued advocacy and education of the public, therapists and funding bodies of the program and benefits of therapeutic horticulture
* Continued exploration of various funding opportunities (e.g. Community Grants)
  1. Recommendations for Further Research/Evaluation

This evaluation focused on the impact of Kevin Heinze Grow’s therapeutic horticulture program on participants with autism and intellectual disability. Other areas of interest emerged from the findings that warrant further exploration.

* + 1. Focus on Sustainability and Expansion of Kevin Heinze Grow and Therapeutic Horticulture.

The tension between sustainability and expansion of the program while keeping the core values of flexibility and inclusion intact emerged as an important theme. Future evaluations could address the following areas:

* Tension between delivering a therapeutic horticulture program with limited funding and wanting to expand the program to other groups
* Comments from parents cautioning against the program covering too much
* Difficulty of explaining the value and benefits of program to key stakeholders
* What steps have been taken to formalise the activities and organisation at Kevin Heinze Grow for sustainability of the program (including further exploration of student placements and volunteer roles)
* Research into the recently opened second Coburg site to confirm if similar outcomes are observed there, and observe how the program functions and maintains cohesion as it expands.
* Evaluation of the “Grow on the Go” program
  + 1. Explore Participant Inclusion in Further Detail

Another significant aspect of the Kevin Heinze Grow program is the commitment to values of inclusion, acceptance, and flexibility for participants, and key elements of the program which could be investigated further. Some suggestions for further evaluation and research could include:

* Consider how the program is tailored to meet the needs of participants with autism or intellectual disability (beyond general practices discussed in this evaluation)
* Investigate the impact of inclusion, flexibility and integration on outcomes for participants
* Consider the role participants play in the sustainability of the program, and program development
* Investigate the preference and use of disability language and its effect on equality and inclusion
* Wider potential benefits of clients to the broader community including; potential services participants could offer in the community, and the benefits of contributing to a more diverse and equitable society

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# Appendices

1. Suggested Questions for Stakeholders

**Participants**

1. Tell me about your time at Kevin Heinze Grow?
2. Is it easy for you to get here?
3. What do you like best about this place?
4. Do you have special things you like to do?
5. Is there anything you don’t like about the program?
6. Tell me about the things you are learning here?
7. Have you made friends here?
8. What do you think of the staff and volunteers here?
9. Does coming to Kevin Heinze help you? (if yes, how so?)
10. What would you like to with the skills learnt here at Kevin Heinze
11. Is there anything else you would like to tell me?

**Family/carers/key support workers**

1. How long have you been involved with Kevin Heinze Grow?
2. Tell me how you found out about it?
3. Is the program easy to access?
4. Why did you choose to come to Kevin Heinze?
5. What activities does your (son/daughter/person you care for) take part in at Kevin Heinze?
6. What do you see as the benefits of the program for him/her?
7. Are there any drawbacks to the program?
8. Have you noticed any changes in your (son/daughter/person you care for) over the time he/she/person cared for) has been in the program? (what are those changes)
9. What, for you, are the positives of the program
10. What, for you, are the negatives of the program?
11. Would you like to see any changes to the program here?
12. If you didn’t come to Kevin Heinze, are there any other services available that you would use instead?
13. What are your hopes for your (son/daughter/person you care for) in terms of their future?
14. Do you think Kevin Heinze will play a role in achieving those hopes?
15. Any other comments?

**Staff**

1. What is your position here and how long have you worked here?

2. why do you want to work here? What is it about the place that you've decided you wanted to do work here?

3. what are the good things about your role here?

4. Are there things that you'd like to change in your role?

5. What is your hope for the participants here?

6. What is your ultimate hope for Kevin Heinze?

7. How are you going to sustain a program like this? How you going to replicate it?

8. Do you think Therapeutic horticulture it's an effective framework for helping the participants and how so?

9. Has your experience, having this experience with therapeutic horticulture, made you more likely to engage in or promote therapeutic horticulture? What do you see as the barriers to promoting that in general?

10. As people who are on student placements, what do you get out of being here at Kevin Heinze?

1. Program Logic – Kevin Heinze Grow

| **Inputs** |  | **Outputs** | |  | **Outcomes - Impact** | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | *Activities* | *Participation* |  | Short | Medium | Long | |
| Skills and Knowledge transfer  Participants/parents/  Carers/support workers  Teachers/instructors  Committee of Management  Community  Research  Local Government  State/Federal Gov’t  ACNC Regulations  Men’s shed  Funding  Dept of Education  Commonwealth Home Support Program (CHSP)  Philanthropic grants  donations  Govt grants  National Disability Insurance Scheme (NDIS)  Traffic Accident Commission (TAC)  Staff time, both paid and unpaid  Volunteers  Student placements (educating future generations of service providers)  Facility (plants, equipment (computers, teaching equipment, gardening tools etc.)  Learning environment  Information and resources and support  Advocates  Experience/knowledge based on experience |  | Therapeutic based programs (music, art, mindfulness, Yoga)  Nursery and Café  Vocational Training (participants, students and staff) – TAFE, Literacy, numeracy  Occupational training through therapeutic gardening  Life skill training (independent living skills)  Social activities  Social skill building  Interactions with other organisations  Occupational therapy, counselling, speech pathology  workshops  Knowledge transfer  Disability support  Mental health support  Relationships with participants, carers  Promotion of therapeutic horticulture as credible & effective  Advocacy   * Participants/   families   * Participants/ Agencies * TH | Participants with a range of disabilities especially autism  Mental health – socio-emotional  Older people  Dementia group  Refugees & asylum seekers,  Schools  Aged-care services  Disability providers  NDIS  Carers and support workers  Broader community  Children with trauma |  | Increased knowledge and skills  Have a purpose in life  Increased confidence  Increased social involvement  Improved interactions with others on day to day basis, as well as how to interact in work environment.  Formation of good/healthy daily habits  Increased speech/movement/engagement  Reduction in anxiety levels  Greater independence  Increased mental health  Increased fitness  Increased connections and friendships  Acquiring of new skills i.e. cleaning, cooking.  Job opportunities  Relationships formed  Reduction in isolation  Greater engagement within community  Reduced relational pressures on family  Reduction in family and carer stress – support network for families  Greater creativity  Increased wellbeing for family & caregivers  More relaxed and leading to ability to engage  Emotional literacy – empathy and compassion for self and others.  Knowledge of being in a supportive environment – acceptance, support for participants | Increased knowledge and skills  Increased civic participation (voting, getting a library card, etc)  Greater empowerment for individuals  Confidence in the future  Holistic approach to improving wellbeing  Greater family cohesion/functioning  Increase in confidence and self-esteem for participants/self-growth  Improved capacity of self-reflection and improved self-awareness  Improved participants social & community participation  Build support network in the community  Greater Job opportunities  Increase in coping mechanisms  Increasing networks  Opportunities to upskill or educational possibilities  Social inclusion | | A sustainable program  Maximising program reach  Replication opportunities  Job opportunities  Maximum potential reached for participants  Improved relationships for family, social and self  Recognition as the largest therapeutic horticulture provider in Australia  Wider community participation leading to lasting benefits within society  Cohesive & inspiring workspace (for staff) leads to increased wellbeing which feeds into a positive workplace culture.  Social prescribing TH  Expansion of therapeutic horticulture & inclusion in health system  Increased wellbeing and attainment of meaningful, improved quality of life  Minimisation of mental health relapses  Increased confidence, resilience and independence  Realisation of independent life & career transition  Building of a support network with a wide increased income potential community  Maximum educational attainment |

**Use nature as a supportive environment to provide experiential learning and positive personal development (especially in health, well-being, and interpersonal/social domains)**

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| **Assumptions (Around the Program)**  e.g. that employment enterprises are willing to employ people with disabilities  That there are jobs for people who need/want work  All levels of government feel that providing assistance for people with disabilities is important  Once a person develops a skill that there are jobs for them  Being in a green environment is not always good and positive!  every person can find work if they want to  Every person reaches their potential  That employment is a positive thing  **Assumptions (made by Society)**  Perception that people with disabilities are unemployable, or a risk for employment  People are in fear of people with disabilities  People with a disability are a burden on society  That people are unable to talk or advocate for themselves  That the needs of all people with disabilities are the same |  | **External Factors**  Perception of the community as to the value of the program  Therapeutic Environment  Climate Change  Food Security  Lack of knowledge in the public around therapeutic horticulture  Insular groups of “practitioners” in therapeutic horticulture  Lack of recognition/formal regulation/qualification in therapeutic horticulture, as well as lack of ties to organisations and associations |



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