5-2013

Cultivating Well-being: Horticulture Programming's Effect on Youth's Emotional Well-being

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By

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MSW Clinical Research Paper

Presented to the Faculty of the
School of Social Work
St. Catherine University and the University of St. Thomas
St. Paul, Minnesota
in Partial fulfillment of the Requirements for the Degree of

Master of Social Work

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The Clinical Research Project is a graduation requirement for MSW students at St. Catherine University/University of St. Thomas School of Social Work in St. Paul, Minnesota and is conducted within a nine-month time frame to demonstrate facility with basic social research methods. Students must independently conceptualize a research problem, formulate a research design that is approved by a research committee and the university Institutional Review Board, implement the project, and publicly present the findings of the study. This project is neither a Master's thesis nor a dissertation.

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Abstract

Although horticulture programming has been utilized in the form of activities for various populations for centuries, much is not known about the benefits that come from participating in such activities. Over the past few decades, several research studies have begun to explore and explain the benefit of using horticulture programming for several populations with most of the research focusing on the older adult and persons with physical disabilities populations.

The purpose of the current study was to gather information on the effects horticulture programming has on the emotional well-being of the youth population. The study included a nationwide survey of horticulture youth program leaders. Within the survey, participants were asked to reflect on the youth they had worked with, and provide responses to three quantitative measures of emotional well-being, several qualitative questions to support the quantitative answers, and demographic questions to gather a better understanding of the programs included in the sample.

The findings of this study suggest that horticulture programming, on a whole, has positive impacts on the emotional well-being of youth. In particular, the findings highlight that horticulture programming enhances youths' emotional well-being through improving pride, self-worth, coping skills, confidence, care for others and increased patience.

Overall, future research to determine the extent and impact of the benefits suggested in this study would be beneficial. Future studies should aim to consider the impact of the design of the horticulture program, as well as provide a continued focus on the youth population. This study can provide a useful framework for determining populations of youth that need to be studied.

Cultivating Well-being: Horticulture Programming's Effect on Youth's Emotional Well-being

With the growing number of youths connected to electronics, youth are losing connection to the natural environment. Since 1980 it has been shown that kids ages 8 to 18 have increased their consumption of media from about 8 hours a day to nearly 11 hours per day (Gutnick, Robb, Takeuchi & Kotler, 2011). In addition to the alarming increases in time spent consuming media, there has been an overall increase in the different types of media youth are consuming (Gutnick et al., 2011). Currently, many youth go through the day with multiple media sources in their possession, such as cell phones, iPads, or smartphones with access to the Internet. Louv (2008) has described this phenomenon by coining the concept of nature-deficit disorder. Although this is not a formally designated diagnosis, it does bring to light the growing concern that as youth become more connected with various forms of media and less connected with the natural environment, there is a growing need to reconnect youth with the natural healing powers of the environment. Humans who are connected with their environments are able to flourish and experience fuller lives (Kahn, Severson & Ruckert, 2009). Because the human-environment connection can result in such positive outcomes, Louv (2008) would argue that youth should be given the opportunity to benefit from the abundant well-being benefits that connectedness to nature can offer. This understanding of the importance of staying connected to nature opens the door for using horticulture in treatment of youth by striving to help improve their lives in general.

In recent years, as people have become more and more disconnected from nature and special populations are identified with significant needs (i.e. mental health), the definition of quality care and treatment has broadened to include more than just meeting the basic needs of

the individual. In fact, the definition of quality care has started to incorporate an emphasis on individuals' biopsychosocial-spiritual needs, which often has a key environmental component (Bruce, 2006; Jaffe, 2010; Twill, Purvis & Norris, 2010; Parker, Mills, & Abbey, 2008). The biopsychosocial-spiritual approach considers a holistic health approach that encompasses, and considers, interactions of an individual's physical, cognitive, social and spiritual health. Another important piece of high quality care is creating a non-threatening rehabilitating environment. Rehabilitation through horticultural programming is a non-threatening approach that can address an extensive array of an individual's biopsychosocial-spiritual needs, such as feelings of belongingness and self-concept (Hefley, 1973; Rice, Remy & Whittlesey, 1998; Sandel, 2004).

This shift in the focus of quality care and treatment demonstrates the important connection between nature and humans experiencing a growing number of mental health concerns (NIMH, 2011). Recent statistics highlight that anxiety and depression among children (ages birth to 12) and adolescents (ages 13 to 18) are growing at an alarming rate. A little over 25 percent of adolescents struggle from anxiety and about 6 percent of those adolescents have a severe anxiety disorder (Merikangas et al., 2010). Although anxiety affects both genders, females are affected more often than males. Depression is affecting about 11 percent of children and adolescents by the time they turn the age of 18 (NIMH, 2011). With mental health problems affecting a large percentage of youth, treatment and programs need to offer engaging, innovative and holistic healing, and horticulture programs may be the key to such healing.

Horticulture programming is an innovative treatment approach being utilized to address many mental health problems. Moreover, it is gaining empirical support with various

populations. Social workers play an integral part in introducing alternative ways to treat mental health disorders, especially those that have empirical support. In addition, social workers are trained to view their work through the lens of the person and the environment, which would enable them to understand the importance of horticulture to the environment. With such an understanding, social workers may easily view horticultural programming as a viable treatment option.

Unfortunately, the incorporation of horticulture into mental health treatment may seem improbable and, the benefits of this may not seem as obvious as other empirically supported forms of mental health treatment. In an effort to address these barriers, horticulture as a modality of treatment must be further researched, especially as professionals begin to recognize and highlight the important power the environment has on mental health. Therefore, this project will provide foundational knowledge of how horticulture may be used in treatment, provide current research support for its use, and explore and expand understanding of the emotional well-being benefits for youth.

Literature Review

As a result of this increased understanding of nature and its important impact on children and adolescents, caregivers will need to continue to find programs that address individuals' biopsychosocial-spiritual needs through connection to nature. One necessary and nontraditional method that is beginning to gain attention is the use of horticulture in various treatment settings. Horticulture refers to plants, which is often viewed by people as gardening. In actuality, the definition of horticultures expands to any use of plants from drying for arts and crafts activities to cooking with them. Horticulture programs are a viable way to motivate and

improve social, emotional, and physical needs in all populations (AHTA, 2010; D'Andrea, Batavia, & Sasson, 2007-2008; Tse, 2010). Moreover, horticultural programming enhances life satisfaction and social networking, which correlates with higher quality living (Tse, 2010). Youth are faced with or challenged by many mental health struggles that result in a lower quality of living.

Horticulture Therapy vs. Horticulture Activities

Horticulture programming is traditionally implemented in two ways. First, horticulture programming can be implemented by a trained therapist who can work toward achieving therapeutic or medical goals. Trained therapists are typically in the professions of speech therapy, occupational therapy, physical therapy, and counseling. However, as the demand for this type of programming grows, many professionals are receiving specific training and certification as horticulture therapists (Wells, 1997). During horticulture programming, horticulture therapists, as well as other trained therapists, utilize plants and other horticultural items as a modality of treatment (Kim, 2003). Using horticulture as a modality of treatment involves using horticulture activities as a way to address goals on an individualized treatment plan. The second alternative to using horticulture programming is by incorporating horticulture into activities or current programming without being formally trained as a therapist or without the intention of addressing therapy or medical goals.

The key difference between the two implementation models of horticulture programming is that the first, *horticulture therapy*, is conducted by a trained and licensed therapist (LICSW, LP, SLP, etc.), and the second, *horticulture activities*, can be facilitated by a wide range of facilitators and does not require specific training or licensure. In general, the

same benefits often are achieved, but in the second alternative, individuals seem to benefit more indirectly because of the lack of focus on medical or treatment goals. To ensure success from either implementation, programs should design their work space (e.g. garden beds, indoor and outdoor work areas, greenhouses, etc.) to meet the needs of the population being served (Relf, 2005). The adapted work space will better enhance the potential benefits of horticulture programming.

The main objective of improving individuals' biopsychosocial-spiritual health involves engaging various populations in gardening-related activities, and this is shared between the two various implementation models (AHTA, 2010).

History of the Use of Horticulture in Treatment

To help put the two forms of implementation into context, it is important to consider the history of the use of horticulture to benefit people. The use of horticulture can be traced back to ancient Egyptians' writing about bringing plants indoors, and evidence of this has also been revealed in the ruins of Pompeii (Bringslimark, Hartig, & Patil, 2009). This evidence points to the fact that plants have been recognized and utilized to improve the environment in which people live for centuries.

In 1798, Dr. Benjamin Rush introduced the use of horticulture activities as a treatment method in the medical field and more recently, in 1973, the use of horticulture therapy became organized into and recognized as a professional organization (Kim, 2003). Since Dr. Rush's commitment to the use of horticulture as an avenue for treatment and the organization of the American Horticulture Therapy Association, several empirical studies have been conducted to show the numerous benefits of horticulture on the well-being of people (Bringslimark, Hartig, &

Patil, 2009). In addition, the use of horticulture activities has been studied in various population settings which share some common physical, social, and emotional well-being benefits (Bruce, 2006). More studies need to be conducted to see if and how well-being benefits vary across different populations. Overall, the utilization of plants has been consistently viewed as a vehicle to enhance holistic well-being (Goff, 2004).

Well-being Benefits of Horticulture Programming

Since Dr. Rush began to formally organize horticulture treatment based on his belief and knowledge of the treatment potential of using horticulture, several scientific research studies have examined how the use of horticulture affects the four dimensions of well-being. The four dimensions of well-being include physical, cognitive or intellectual, emotional and social. These dimensions of well-being have shaped mental health and medical treatment for various populations. The majority of this type of research has been focused on the adult population. However, with growing understanding of the numerous positive effects on adults' well-being coupled with the growing need for innovative treatment for youth, studies with the youth population are beginning to surface. Because such studies are limited at this time, the following sections will provide a brief overview of the known current well-being benefits across various populations.

Physical benefits. Across a number of populations, literature has highlighted physical benefits ranging from improvements in fine-motor to gross-motor skills (D'Andrea, Batavia, & Sasson, 2007-2008, Hefley, 1973). Fine-motor improvements often can be attributed to the use of hand-held gardening tools, planting plants, harvesting produce, and other various gardening tasks done with a person's hands. These benefits can come from both

outdoor and indoor gardening activities. In addition, gross-motor improvements often can be attributed to the increase in outdoor activity which enables more movement from individuals who might otherwise be quite sedentary (Hefley, 1973). Other physical improvements that have been found through research of horticulture programs are less fatigue, better muscle coordination and improved circulation (Bruce, 2006). It has also been found that simply incorporating living plants in indoor environments may enhance pain management (Bringslimark et al., 2009) Overall, horticulture activities positively affect physical well-being for individuals by offering a mode of exercise that is often self-paced and enjoyable (Bruce, 2006).

Cognitive benefits. Current research that has focused on the cognitive benefits of horticulture activities has been primarily related to the elderly population. Overall, the studies have found that through participating in horticulture programs there is a high likelihood that short-term memory can be stabilized in the sense that loss of recent memories is lessened (D'Andrea, et. al., 2007-2008; Travers and Demers, 2011). This is attributed to the fact that horticulture allows for stimulation of short-term memory and many opportunities for new memories to be formed. In addition, horticulture stimulates many of the human senses which aids in storing and sorting memories. In support of these findings, a study that included patients who had been diagnosed with Alzheimer's found that participation in short-term horticulture programming substantially increased cognitions and reduced agitation (Lee and Kim, 2008). Furthermore, a benefit that has been shown across generations is restored or stabilized attention (Jaffe, 2010; D'Andrea et al., 2007-2008; Travers and Demers, 2011). In addition to attention benefits, horticulture programs have been shown to improve vocabulary and communication (Hefley, 1973). Horticulture programs require learning new words, and

the learning of these words often occurs through the application of the concepts, which creates a stronger chance of retaining the new information. In addition, horticulture programs often happen in a group context where communication skills are modeled, practiced, and taught. In general, the cognitive benefits that are facilitated through the use of horticulture have a positive impact on an individual's well-being, no matter the age of the participant.

Social benefits. Social benefits tend to be closely related to the programming aspect of horticulture. Horticulture programs bring people together that may not usually socialize. This fosters increased socialization and, at times, can build new and lasting relationships amongst people living either in the same community or even those living far apart (Tse, 2010). One finding has determined that simple exposure to nature can increase an individual's ability to resolve minor personal problems which can affect relationships (Jaffe, 2010). Due to the social nature of these programs, they have also been found to create social inclusion (Diamant and Waterhouse, 2010). Social inclusion in a group allows for social benefits to take place that include mood improvement or opportunities to converse. In addition, horticulture programming also fosters social skill improvement through interaction within a group setting (Hefley, 1973). Social benefits are an extremely important piece of a person's overall well-being, as improvements in social well-being often link to improvements in other dimensions of one's health.

Emotional benefits. The emotional dimension is filled with direct and indirect benefits from horticulture. Horticulture activities often enable participants to have choice that can improve self-esteem and confidence (D'Andrea, Batavia, & Sasson, 2007-2008, Kwack, Relf, & Rudolph, 2004, Hefley, 1973). The improved self-esteem is often evident because

horticulture activities include aspects of decision making and provide opportunities to watch plant growth. The observation of plant growth from seed to bloom to death can be an extremely healing process. Although the cycle of life can hold different meanings for different populations, observing this cycle is calming, empowering and reassuring (Bruce, 2006). Possibly due to the calming, empowering and reassuring nature of horticulture programs, depression symptoms have been found to decrease (Gonzalez et al., 2010; Travers and Demers, 2011). Other emotional benefits from horticulture are that horticulture activities provide opportunities to relieve aggression in an acceptable manner, such as through physical work in a garden bed (Hefley, 1973). Horticulture programs also promote interest and enthusiasm, and provide opportunities for creativity (Hefley, 1973). Overall, emotional benefits from horticulture activities may occur in any population that participates, which is similar with the physical, cognitive and social well-being benefits.

Barriers to Using Horticulture in Treatment

Even with the known benefits of horticulture programs, obvious barriers exist to prevent the expansion of horticulture therapy or activities into treatment programs. One perceived barrier is the cost of implementing a horticulture program. It is true that horticulture programs can be very expensive to operate, just as any other form of treatment. However, horticulture programs have been done with minimal financial resources (Travers and Demers, 2011). For example, a high expense horticulture program could involve constructing and maintaining a greenhouse treatment space. However, a low cost horticulture treatment program could utilize community garden plots which are often rented at a very low rate. Equipment for horticulture programs can also be as simple as a few hand garden tools, or range to using power garden or

adaptable garden tools. Also, after the upfront cost of buying plant seeds, techniques of drying seeds can be used to keep from having to buy more. Many plants can also be propagated or split, which is a cost free method for producing more plants. Another innovative way to make horticulture programs self-sufficient is to hold plant or produce sales.

The second perceived barrier is the lack of access to green space for such programs, especially in urban settings. However, the benefits of horticulture programs can be facilitated through indoor horticulture programs, as well as outdoor programs (Bringslimark et al., 2009; Tse, 2008). Indoor activities can include plant propagation, indoor house planting, seed starting, cooking, etc. Outdoor activities can include raised bed gardening, weeding, garden plot preparation, etc. Other innovative ways around this barrier can be done by using abandoned city lots, constructing small raised garden boxes, container gardening, and utilization of the growing number of community gardens.

Overall, as with any treatment program, there are barriers, but there are solutions to overcome these barriers. Future research is needed to expand on and support the benefits that can come from horticulture programs. The purpose of this study is to further explore the emotional well-being benefits on youth participating in horticulture programming, which will help fill a gap in the current research literature. Specifically, this research intends to provide qualitative and quantitative support of how horticulture can be used in treatment to improve an individual's emotional well-being. This study will explore the following research question: what are the effects of horticulture activity based programming on the emotional well-being of youth? As many barriers, such as reduced green space, more perceived or actual danger outside of homes, and increased exposure to technology in their environment, exist to deter

youth from connecting with the environment, such youth will serve as the target population for this study.

Conceptual Framework

This research is guided by a conceptual framework that weighs heavily on the "person and the environment" classification. This classification is unique to and at the center of professional social work practice. Person and the environment provides a framework to better understand how a person copes with the interactional stressors of social functioning, environmental problems, mental health problems, and physical health problems (Hutchinson, 2008). Person in the environment framework guided this study partly because it helps relate to how damaging and healing the environment can be on and for a person. Horticulture can generally create an environment that is non-judgmental, non-threatening, and non-discriminating (Bruce, 1999).

The natural environment, which often is the place in which horticulture programs take place or, in some sense, is brought into a space where it will be utilized, provides an avenue to create healing because of the healing nature that comes with working with living things. It could be argued that at the core of human beings is a sense of connection to all living things. As time has elapsed through the years, the separation between humans and livings things for many has become greater (Gutnick, 2011). The environment youth are exposed to often do not allow for the natural benefits of horticulture due to the lack of horticulture, opportunity and interest, and general disconnect from nature.

In addition, when it comes to clinical social work practice with youth, keeping both the person and the environment in mind can be very difficult, especially with the very busy environments that youth are often surrounded by. With the incorporation of horticulture into an environment or moving youth to an area with mostly natural living things (i.e. trees, flowers,

and grass), the environment can be less chaotic. The lessened chaos can come back to the fact that humans have an innate connection to living things, especially plants and animals (Louv, 2008). In addition, changing or adapting the environment to include more natural things allows life to be less stressful. Take, for example, having a youth walk through a greenhouse filled with flowers and herbs. This simple stimulation of the senses can often be extremely calming (Bruce, 1999).

Conceptualizing this research with the framework of person in the environment fits well with the research question of exploring the emotional well-being benefits of horticulture programs because this framework has a focus on observing the interactions between the person and its environment. This observation will provide a sense of how the emotional well-being of youth is affected when horticulture is an integral part of the person's program or treatment environment.

In addition, this kind of conceptual framework shapes the way the questionnaire used to gather data for this study was developed. While designing the questionnaire, conscious effort went into examining the extent of horticulture items as a part of the environment. For example, based on the conceptual framework, it was important to consider whether or not there are observable differences in programming that takes place in an outdoor setting or indoor setting, as an indoor setting will often not be able to have as much access to horticulture items. In addition, questions that examined both adverse and positive reactions to horticulture stimulus were also considered because most likely there will be horticulture items that stimulate senses in a negative fashion or create a heightened mood instead of calming or

stabilizing mood. Gathering this kind of information is just as important as knowing how horticulture items are beneficial.

Finally, this study will gather data through the use of an online survey form that includes both qualitative and quantitative questions. The quantitative questions will include basic demographics regarding the horticulture programs and respondents, as well as have specific focus on the emotional well-being benefits of horticulture programs. The qualitative questions will allow for specific examples of how horticulture affects emotional well-being.

Lastly, through the review of horticulture research and horticulture as a modality of treatment, research has not yet been done through the lens of 'person and environment.' Therefore, this type of research lens should help reveal how interconnected a person is with their living environment and provide specific implications for mental health treatment of youth utilizing horticulture.

Methods

Design

The purpose of this study was to further explore the emotional well-being benefits on youth participating in horticulture programming. Data for this study was completed through an online survey that included a combination of quantitative, qualitative, and descriptive questions regarding the sample. The study was cross-sectional. For the purpose of this study, well-being includes a holistic view of an individual's physical, cognitive or intellectual, emotional, and social aspects of their life.

Sampling

Participants were recruited through an online Google search and through three postings in the social media venue, Facebook. The postings were on the American Horticulture Therapy Association's and the American Horticultural Society's Facebook pages. Google search terms included: youth garden, youth farm, horticulture therapy, youth horticulture programs, youth horticulture camps, and other variations of the previous words. The search identified 222 email addresses which the survey was emailed to. The email addresses were compiled from the Google search from a variety of agencies or organizations throughout the United States.

Sample

The majority of the programs emailed were in the Midwest and Eastern states. They included botanical gardens, youth farms, school garden programs, community gardens, and other various organizations that serve youth and include horticulture programming. A total of 48 participants responded to the survey with 43 of the participants fully completing the survey. Of the 43 respondents who completed the survey in its entirety 18.6% (*N*=8) identified as male

and 81.4% (*N*= 35) were female. Participants held a variety of degrees and licensures that included various levels of education and focuses that included: Master Gardeners, Licensed Independent Clinical Social Workers, landscape architect, certified arborist, master's level social workers, as well as others. In addition, respondents were involved in a range of programs that included horticulture activities. Programs included: after school gardening, head start, in school programming, urban farming, therapeutic-related, summer camps, recreational, educational focused, job training, and other various programs that specifically served youth ranging in the age from less than 5 years of age through 20 years of age. Sixty five percent of the responses involved youth programs where the ages were 6 to 15 years. Several respondents identified that their program served numerous age groups.

Furthermore, the lengths of the programs were as wide ranging as the ages served. The majority of the programs were over 15 weeks in length. Some of the programs were offered only during the spring to fall months, but a large number were year-round. One hundred percent of the programs had an outdoor component included in their program, while 55.81% of the programs took place solely in an outdoor setting, 32.56% of the programs equally took place indoors and outdoors, and 11.63% had different program settings. Finally, respondents relayed that youth were involved in the programs for numerous reasons. Reasons of involvement included: mental health needs, educational requirements or applications, general interest in horticulture, county or school referrals, court requirements, summer camps or programming, and various other reasons for involvement.

Measures

The quantitative piece of this research included three sets of questions that focused on emotional well-being. The first set of seven questions was compiled from existing research on emotional well-being of various populations (e.g. elderly, people with disabilities, people with dementia, and youth). The second set of 15 questions was an adapted version of the Sterling's Wellbeing Scale (Corcoran & Fischer, 2000). The final set of 10 questions was an adapted version of the Rosenberg Self-esteem Scale (Corcoran & Fischer, 2000). The adaptions to the last two sets of questions involved adjusting the questions to gather an observer's perspective on the effect of youth wellbeing and self-esteem rather than youths self-rating.

Qualitative data was gathered through questions to explore emotional benefits of youth, overall benefits of horticulture programs, barriers, positive impact of horticulture programs, and an opportunity for respondents to add additional comments. The purpose of the qualitative questions was to provide context, examples, and explanation for the quantitative responses.

Advantages and Limitations

The advantages of this study involved adding to the limited body of research on how horticulture programming affects the mental health of youth. Few published research articles address the effect of horticulture programming on the mental health of youth. The focus on emotional well-being is unique to the existing research. In addition, the method of this study is an advantage because it will seek to gather information from the perspective of the leader, which has rarely been attempted in previous studies.

Several limits of this study also existed. First, this study requires retrospective reflection which has potential of being less accurate. Secondly, this study does not have an experimental component, which does not allow for comparison with a control group and other types of mental health programs. Third, the study does not gather any information from the participants themselves which could result in many experiences and benefits being overlooked. Fourth, the study aimed to better understand the therapeutic effectiveness of horticulture programming, thus, a focused population of youth with mental health needs would have been more ideal. Finally, this study involved the collection of data from a small number of horticulture programs.

This study was exploratory, therefore, the information gained from this study adds to the published research. This addition to the existing body of knowledge can assist in guiding future studies in the area of horticulture programming for youth.

Protection of Human Subjects

This research study was approved through the University of St. Thomas Institutional Review Board. Informed consent was given on the first page of the online survey (see Appendix B). Informed consent was given by provided participants by moving to the first page of questions after the informed consent page. Participants had the option to discontinue the survey at any point. Data gathered from the survey was completely anonymous and no identifying information is stored with the responses.

Results

For each of the three scales, descriptive statistics that included minimum value, maximum value, mean, standard deviation, and total responses were conducted. Due to the types of questions and the way the survey was completed no further statistics were able to be conducted. The open-ended questions provided qualitative descriptions and support for results of descriptive statistics. See Appendix C for the scales and open-ended questions in their entirety.

Forty-eight respondents fully completed the emotional well-being scale. The scale included a total of seven items. Table 1 in displays the range of responses, means, and standard deviations. Figure 1 in displays the complete response breakdown. The question that prompted each of the scale items was: "Rate the following as to how much you agree horticulture programs affect youth based on your observation of youth participants that you have worked with. Horticulture programs…" Responses were on a 5-point Likert scale that included strongly disagree, disagree, neither agree nor disagree, agree, and strongly agree. The following items resulted in the highest means: create feelings of being proud (*M*=4.52, *SD*=.92), create enthusiasm (*M*=4.46, *SD*=.99), provide opportunities for creativity (*M*=4.35, *SD*=1.00), create feelings of happiness (*M*=4.35, *SD*=.91), and increase confidence (*M*=4.31, *SD*=.95). One participant described the sense of feeling proud and enthusiasm by writing, "In my experience, horticultural programming generates activities that youths enjoy, are generally enthusiastic about participating in and that they take pride in." Another respondent described the sense of pride horticulture programming creates by writing, "Horticulture programs help us discover that we can make an impact on our world and on ourselves (add beauty to our world and

improve our diet) and expand our view of the world around us. They make us see ourselves and the world in a new way; increase our positive feelings about ourselves." The item "promote personal interest" resulted in the lowest mean (*M*= 4.21, *SD*=.99). The range between the highest and lowest means of the responses was .31.

Table 1

Emotional Benefits Scale

	Min Value	Max Value	Mean	Standard Deviation	Total Responses
Create feelings of happiness.	1	5	4.35	0.91	48
Create feelings of being proud.	1	5	4.52	0.92	48
Increase socialization.	1	5	4.23	0.95	48
Increase confidence.	1	5	4.31	0.95	48
Promote personal interests.	1	5	4.21	0.99	48
Create enthusiasm.	1	5	4.46	0.99	48
Provide opportunities for creativity.	1	5	4.35	1.00	48

Note. The Emotional Well-being Questionnaire was created by pulling benefits that have been found significant in other populations that have participated in horticulture programming.

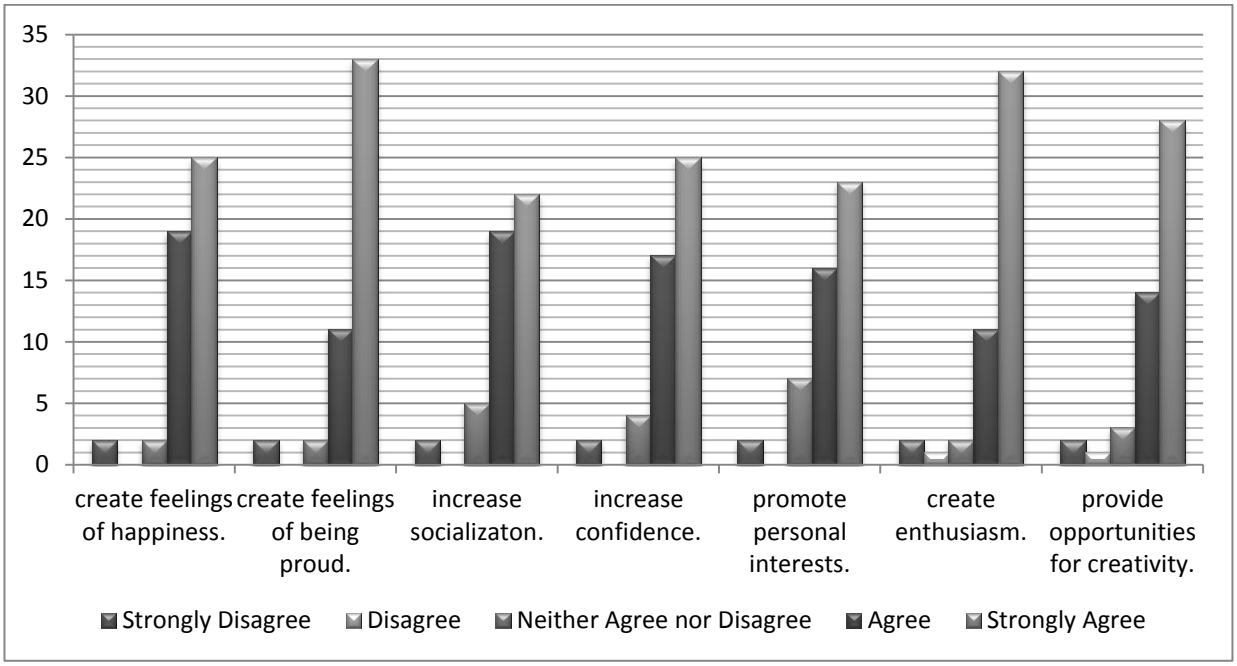

Figure 1. Emotional Well-being Questionnaire

Forty six respondents fully completed he adapted Stirling Children's Wellbeing Scale, and one additional respondent completed a majority of the scale. The scale was comprised of fifteen items. Table 2 in shows the range of responses, means, and standard deviations, and Figure 2 in displays the complete response breakdown. The question that prompted each of the scale items was: "Horticulture programming has helped the youth…" Responses were on a 5-point likert scale that included strongly disagree, disagree, neither agree nor disagree, agree, and strongly agree. On this scale, the following five items produced the highest means: feel that they are good at some things (*M*=4.45, *SD*=.62), think there are many things they can be proud of (*M*=4.21, *SD*=.72), feel calm (*M*=4.15, *SD*=.72), be in a good mood (*M*=4.15, *SD*=.75), and feel relaxed (*M*=4.09, *SD*=.72). One participant described pride and feeling good at some things by writing, "Seeing something you planted and cared for grow into something important is very gratifying." Another participant described the effect of feeling calm through writing, "There is a literal 'grounding' in mood that occurs with growing." The item "like everyone they meet" resulted in the lowest mean on the scale (*M*= 2.83, *SD*=.70). The range between the highest and lowest means of the responses is 1.62.

Table 2

Adapted "Stirling Children's Wellbeing Scale"

	Min Value	Max Value	Mean	Standard Deviation	Total Responses
Think good things will happen in their life.	3	5	3.64	0.70	47
Tell the truth.	2	5	3.15	0.47	47
Make choices easily.	2	5	3.19	0.54	47
Find lots of things fun to do.	3	5	3.89	0.67	47
Feel that they are good at something.	3	5	4.45	0.62	47
Think lots of people care about them.	2	5	3.83	0.76	47
Like everyone they meet.	1	4	2.83	0.70	47
Think there are many things they can be proud of.	3	5	4.21	0.72	47
Feel calm.	2	5	4.15	0.72	47
Be in a good mood.	3	5	4.15	0.75	47
Enjoy what each new day brings.	2	5	3.64	0.76	47
Getting on well with people...	2	5	3.55	0.69	47
Share.	3	5	3.89	0.67	46
Be cheerful about new things.	3	5	3.77	0.60	47
Feel relaxed.	2	5	4.09	0.72	46

Note. The adapted "Stirling Children's Wellbeing Scale was adapted by changed the tense of the phrases to be able to be answered from an observer's perspective which was a switch from the original form where it phrased to ask the person who was being directly affected.

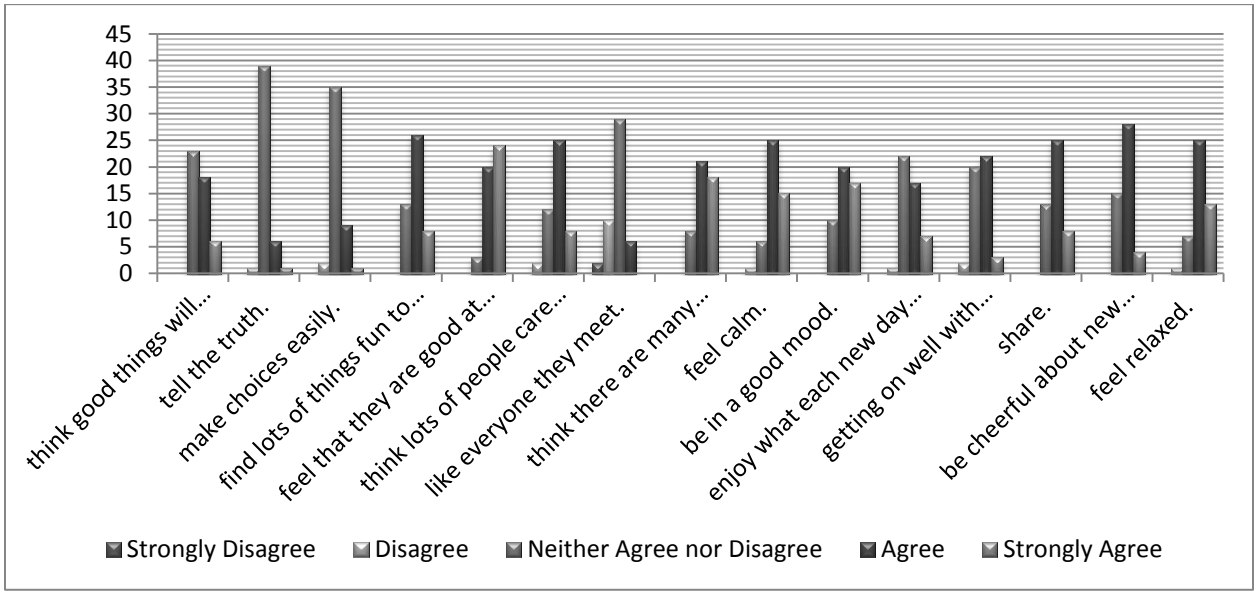

Figure 2. Adapted "Stirling Children's Wellbeing Scale"

The adapted Rosenberg Self-esteem Scale was fully completed by 43 respondents and partially completed by one additional respondent. The scale was comprised of ten items. Table 3 shows the range of responses, means, and standard deviations, while Figure 3 displays the complete response breakdown. The question that prompted each of the scale items was: "Horticulture programming helps youth…" Responses were on a 5-point likert scale that included strongly disagree, disagree, neither agree nor disagree, agree, and strongly agree. The following three items resulted in the highest means allow for something to be proud of (*M*=4.43, *SD*=.62), increase feelings of self-worth (*M*=4.25, *SD*=.58), and create a positive attitude toward self (*M*=4.23, *SD*=.65). Support for increased feelings of self-worth was described by a participant who wrote, "Youth are able to see that they can care for another living thing and see the benefits of their care." The lowest mean of the scale was related to the item "become more satisfied with their life on a whole" (*M*= 3.64, *SD*=.61). The range between the highest and lowest means of the responses is .79.

Table 3

Adapted "Rosenberg Self-esteem Scale"

	Min Value	Max Value	Mean	Standard Deviation	Total Responses
Become more satisfied with their life on a whole.	2	5	3.64	0.61	44
Lessen feelings of being no good at all.	3	5	4.07	0.62	44
Create feelings of having a number of good qualities.	3	5	4.11	0.69	44
Create feelings of being able to do things as well as most other people.	2	5	4.02	0.85	44
Allow for something to be proud of.	3	5	4.43	0.62	44
Lessen feelings of being useless.	3	5	4.14	0.63	44
Increase feelings of self-worth.	3	5	4.25	0.58	44
Increase respect for self.	2	5	4.09	0.77	44
Lessen feelings of personal failure.	3	5	4.02	0.74	43
Create a positive attitude toward self.	3	5	4.23	0.65	43

Note. The adapted "Rosenberg Self-esteem Scale was adapted by changed the tense of the phrases to be able to be answered from an observer's perspective which was a switch from the original form where it phrased to ask the person who was being directly affected.

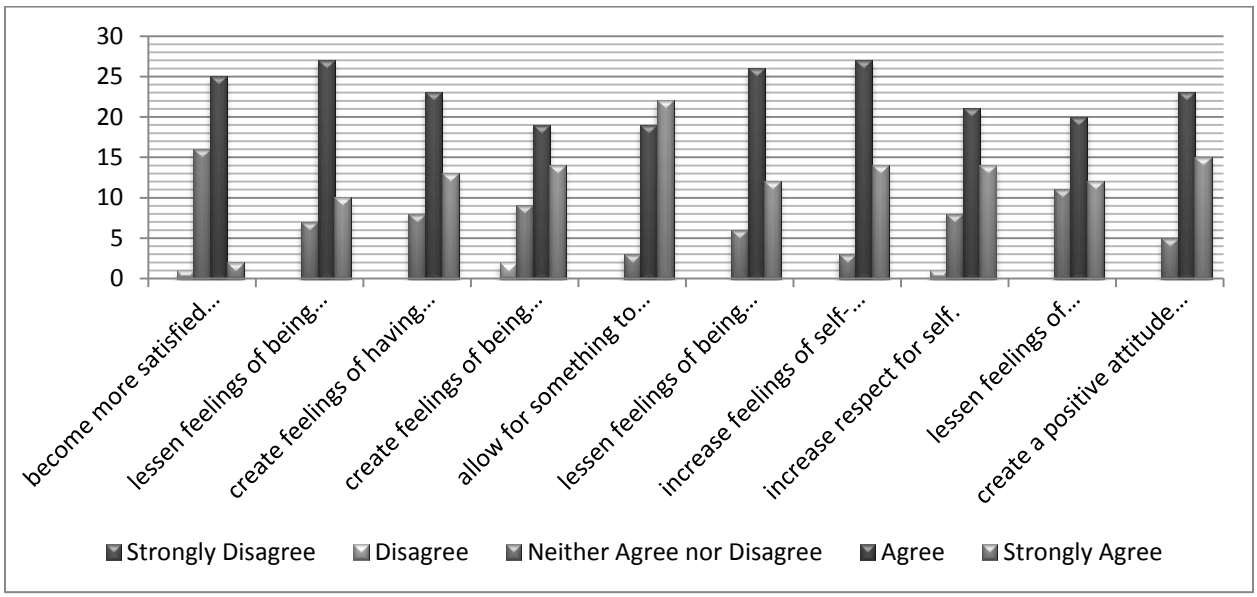

Figure 3. Adapted "Rosenberg Self-esteem Scale"

Several barriers to youth horticulture programming were identified by the respondents to the survey. One participant wrote the following five barriers,

> " 1. The program is more focused on growing crops or producing a yield than it is on working with youth. 2. The program staff are not good youth workers or do not care about youth. 3. The program itself lacks structure, goals, or other elements of quality. 4. The program is too focused on horticulture, and does not incorporate other activities for the youth, such as games, snacks, art projects, ect. The youth become bored subsequently do not enjoy the program. 5.

> Language and physical barriers also prevent youth participation in horticultural activities."

Other barriers identified in the survey included parental barriers, high cost to participate, youth not wanting to get dirty, fine motor skill challenges, too many participants, mandated participation, and haphazard or irregular programming. A respondent described the barrier of misguided program focus by stating, "Some teachers encourage this play-like behavior; others try to stick to the task at hand of cultivating plants (instead of students)." A respondent also described that barriers occur, "if the goal is simply to garden, then I think most programs will miss the mark with a majority of youth. If the goal, however, is youth development, then horticultural programs can make a greater impact." Barriers that were noted by participants occur often when the facilitators focus more on results of the horticulture production instead of the process of doing the programming.

Discussion

The present study can add to the limited amount of research on the effects of horticulture programming by supporting past findings, drawing some insight into the specific benefits of the effects of horticulture programming on the youth population, and by creating a direction for future research. The three scales overwhelmingly provide support that horticulture programming, as a whole, is positively influential on youth's emotional well-being.

The improvement of a youth's pride was a benefit consistently highlighted by respondents, as this item had the highest mean of two scales and the second highest mean of the third scale. This indicates that horticulture programming creates opportunities to improve youth's pride. This finding also supports past research with various other populations (D'Andrea, Batvia, & Sasson, 2007-2008; Hefley, 1973; Kwack, Relf, & Rudolph, 2004; Simson & Straus, 1998). Secondly, the survey results support previous research suggesting that horticulture programming creates enthusiasm and opportunities for creativity (Hefley, 1973). Thirdly, the survey results suggest that horticulture programming can be calming for youth participants, which is a finding similar to previous studies with the elderly populations and youth in juvenile corrections (Travers & Demers, 2011; Twill, Purvis, & Norris, 2010). Lastly, the findings of the survey support previous research that relates horticulture programming to improved mood which would support using horticulture programming for youth struggling with depression (Gonzales et al., 2010).

Moreover, the findings of this study add to the limited body of research by specifically focusing on the effects horticulture programming has on youth's emotional well-being, which few studies have researched. Qualitative findings suggest that horticulture programming

enhances youth's emotional well-being through improving pride, self-worth, coping skills, confidence, and care for others, and increased patience.

In addition, this study supports the possibility that horticulture programming is a viable mental health treatment option for youth. Clinical Social Workers should continue to study the effects that horticulture has on the holistic well-being of youth with mental health needs. Future studies should conduct randomized control studies to determine the strength and viability of using horticulture programs as a method of mental health treatment for youth. Further research should also consider the influence of the method in which horticulture programs are run.

Overall, this research highlighted the many emotional benefits that can result from youth participation in horticulture programming. It can be hypothesized that horticulture is a viable avenue to assist youth mental health treatment, especially for mental health disorders that have a key emotional component, such as depression.

References

AHTA. (2010). *Frequently Asked Questions*. Retrieved October 26, 2010, from American Horticultural Therapy Association: http://www.ahta.org/

Bringslimark, T., Hartig, T., & Patil, G. G. (2009). The psychological benefits of indoor plants: A critical review of the experimental literature. *Journal of Environmental Psychology, 30*, 1-12.

Bruce, H. (2006). *Gardening for the senses: Gardening as therapy.* Rio Rancho, NM: Petals & Pages.

Corcoran, K. & Fisher, J. (2000). Measures for Clinical Practice (3rd, pp. 513-611). New York, NY: The Free Press.

D'Andrea, S. J., Batavia, M., & Sasson, N. (2007-2008). Effect of horticultural therapy on preventing the decline of mental abilities of patients with Alzheimer's type dementia. *Journal of Therapeutic Horticulture, 18*, 8-17.

Diamant, E. & Waterhouse, A. (2010). Gardening and belonging: Reflections on how social and therapeutic horticulture may facilitate health, wellbeing and inclusion. *British Journal of Occupational Therapy, 73*(2), 84-88.

Gutnick, A. L., Robb, M., Takeuchi, L., & Kotler, J. (2011). *Always connected: The new digital media habits of young children.* New York, NY: Sesame Workshop and the Joan Ganz Cooney Center.

Goff, K. (2004). Senior to senior: Living lessons. *Educational Gerontology, 30*, 205-217.

Gonzalex, M., Hartig, T., Patil, G., Martinsen, E. W., & Kirkvold, M. (2010). Therapeutic horticulture in clinical depression: A prospective study of active components. *Journal of Advanced Nursing, 66*(9), 2002-2013. doi:10.111/j.1365-2648.2010.05383.x

Hefley, P. D. (1973). Horticulture: A therapeutic tool. *Journal of Rehabilitation, 39*(1), 26-29.

Hutchinson, E. (2008). *Dimensions of human environment: Person and environment.* (3rd ed.). Thousand Oaks, California: Sage Publishing, Inc.

Jaffe, E. (2010). This side of paradise: Discovering why the human mind needs nature. *Association for Psychological Science, 23*(5), 10-15.

Kahn, P. H., Severson, R. L., & Ruckert, J. H. (2009) The human relation with nature and technological nature. *Current Directions in Psychological Science, 18*(1), 37-42.

Kim, E. (2003). Horticultural therapy. *Journal of Consumer Health on the Internet, 7*(3), 71-76.

Kwack, H., Relf, P. D., & Rudolph, J. (2004). Adapting garden activities for overcoming difficulties of individuals with dementia and physical limitations. *Activitives, Adaptation & Aging, 29*(1), 1-13.

Lee, Y., & Kim, S. (2008). Effects of indoor gardening on sleep, agitation, and cognition in dementia patients-a pilot study. *International Journal of Geriatric Psychiatry, 23*, 485-489.

Louv, R. (2008). *Last child in the woods: Saving our children from nature-deficit disorder*. New York: Wichman Publishing.

Majuri, C. E. (2009). Upon reflection: A theoretical perspective for using horticultural therapy with children. *Journal of Therapeutic Horticulture, 19*, 64-67.

Merikanga, K. R., He, J., Burstein, M., Swanson, S. A., Avenevoli, S., Cui, L., Benjet, C., Georgiades, K., & Swendsen, J. (2010) *Lifetime prevalence of mental disorders in U.S. adolescents. Under Review.*

NIMH. (2011). *Children's mental health awareness: Depression in children and adolescents fact sheet*. www.nimh.nih.gov.

Parker, D., Mills, S., & Abbey, J. (2008). Effectiveness of interventions that assist caregivers to support people with dementia living in the community: A systematic review. *International Journal of Evidence Based Healthcare, 6*, 137-172.

Relf, P. D. (2005). The therapeutic values of plants. *Pediatric Rehabilitation, 8*(3), 235-237.

Rice, J. S., Remy, L. L., & Whittlesey, L. A. (1998). Substance abuse, offender rehabilitation, and horticulture therapy practice. In S. P. & M. C. Straus (Eds.), *Horticulture as therapy: Principles and practice* (257-284). New York: The Food Products Press.

Sandel, M. (2004). Therapeutic gardening in a long-term detention setting. *Journal of Juvenile Justice Services, 19* (1&2), 123-131.

Stein, L. K. (1997). Horticultural Therapy in Residential Long-Term Care: Application from Research on Health, Aging, and Institutional Life. *Horticultural Therapy and The Older Adult Population, 22*(1/2), 107-124.

Simson, S. P. & Straus, M. C. *Horticulture as therapy: Principles and practice.* Binghamton, New York: The Food Products Press.

Travers, S., & Demers, M. (2011) *Growing friendships: Using horticulture to empower individuals and build community*. Presented at the 36th Annual National Wellness Conference: Stevens Point, WI.

Tse, M. M. (2010). Therapeutic effects of an indoor gardening programme for older people living in nursing homes. *Journal of Clinical Nursing, 19*, 949-958.

Twill, S., Purvis, T., & Norris, M. (2010). *How does your garden grow?: Reflection from juvenile offenders*. Manuscript submitted for publication.

Weintraub, D., Oehlberg, K., Katz, I., & Stern, M. (2006, February). Test Characteristics of the 15-Item Geriatric Depression Scale and Hamilton Depression Rating Scale in Parkinson Disease. *Am J Geriatr Psychiatry, 14*(2), 169-175.

Wells, S. E. (1997). *Horticultural therapy and the older population.* Binghampton, NY: The Haworth Press.

Appendix A

Recruitment Email

My name is Mitchell Demers, and I am a Master of Social Work student from University of St. Thomas/ St. Catherine University in St. Paul, MN. You are receiving this email because you are a person that is or was directly involved in horticulture programming for youth. Your contact information was retrieved through an online search for this research study.

This study is intended to explore the effects of horticulture programming on the emotional well-being of youth. If you choose to take part in this study, please select the survey link below. The survey will take approximately **10-30 minutes**. Your participation is completely confidential and anonymous. The survey is intended to find support for and/or against using horticulture techniques as a mental health treatment modality. The study this email references is part of fulfilling the research aspect of my MSW degree program as well as utilizing horticulture as a treatment modality is a interest and passion of mine. **PLEASE CLICK THE LINK AT THE BOTTOM OF THE EMAIL TO COMPLETE THE BRIEF SURVEY**. Survey closing February 28th.

If you have any question regarding this survey, please email deme8946@stthomas.edu. Also if you know of someone who has been involved in a horticulture program, please help me out by forwarding this email to them. (Use this link if forwarded http://stthomassocialwork.qualtrics.com/SE/?SID=SV_7ULVatoDeMlVOnz)

I sincerely THANK YOU for your consideration of participating.

Respectfully,

Mitchell Demers

Appendix B

Informed Consent

Informed Consent for Participation in "Cultivating Well-being: Emotional Well-being Benefits of Youth through Horticulture Programming" Research Study

I am Mitchell Demers, a graduate student at the University of St. Thomas. This survey is part of a study to explore the effects of horticulture based programming on youth's emotional well-being. You will be asked to complete 4 brief pages of survey questions that include a majority of close-ended questions (multiple choice type) with some open-ended questions (fill in). It will take approximately 10-30 minutes to complete the survey.

Your participation in this research is confidential. No personally identifiable information will be connected to your responses. You will encounter no known risks or benefits as a result of completing this survey. Your decision to be in this research is voluntary. You may stop at any time with no consequences.

Please contact Mitchell Demers at deme8946@stthomas.edu with questions or concerns about this study.

By clicking FORWARD (below), you acknowledge the above information and are agreeing to informed consent.

Appendix C

Survey

Emotional Benefits Scale

Horticulture programs…

5-point Likert Scale: Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree

1. Create feelings of happiness.
2. Create feelings of being proud.
3. Increase socialization.
4. Increase confidence.
5. Promote interests.
6. Create enthusiasm.
7. Provide opportunities for creativity.

How, if at all, do you believe horticulture programming affects youth's emotions?

Adapted Stirling Children's Wellbeing Scale to be Retrospective from the Leader's Perspective (Corcoran & Fischer, 2000)

5-point Likert Scale: Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree

Horticulture Programming has helped the youth…

1. Think good things will happen in their life.
2. Tell the truth.
3. Make choices easily.
4. Find lots of things fun to do.
5. Feel that they are good at some things.
6. Think lots of people care about them.
7. Like everyone they meet.
8. Think there are many things they can be proud of.
9. Feel calm.
10. Be in a good mood.
11. Enjoy what each new day brings.
12. Getting on well with people.
13. Share.
14. Be cheerful about new things.
15. Feel relaxed.

What, if any, do you believe are the overall benefits of using horticulture programming with youth?

Adapted Rosenberg Self-esteem Scale to be Retrospective from the Leader's Perspective (Corcoran & Fischer, 2000)

5-point Likert Scale: Strongly Disagree, Disagree, Neutral, Agree, Strongly Agree

Horticulture programming helps youth…

1. Become more satisfied with their life on a whole.
2. Lessen feelings of being no good at all.
3. Create feelings of having a number of good qualities.
4. Create feelings of being able to do things as well as most other people.
5. Allow for something to be proud of.
6. Lessen feelings of being useless.
7. Increase feelings of self-worth.
8. Increase respect for self.
9. Lessen feelings of personal failure.
10. Create a positive attitude toward self.

What, if any, barriers or instances when horticulture programming is not effective for youth have you observed?

What do you believe is the most positive effect horticulture programs have on youth?

Anything else you would like to share about the emotional benefits of horticulture programming.