



12-2005

## Brooklyn Botanic Garden's Children's Gardening Program: A Survey of Alumni

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To the Graduate Council:

I am submitting herewith a thesis written by Emily Kathleen Smith entitled "Brooklyn Botanic Garden's Children's Gardening Program: A Survey of Alumni." I have examined the final electronic copy of this thesis for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Science, with a major in Plant Sciences.

Susan L. Hamilton, Major Professor

We have read this thesis and recommend its acceptance:

Mary Lewnes Albrecht, J. Mark Fly, Stephen Garton

Accepted for the Council:

Carolyn R. Hodges

Vice Provost and Dean of the Graduate School

(Original signatures are on file with official student records.)

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Accepted for the Council:

Anne Mayhew

Vice Chancellor and  
Dean of Graduate Studies

(Original signatures are on file with official student records.)

**Brooklyn Botanic Garden's  
Children's Gardening Program:  
A Survey of Alumni**

A Thesis  
Presented for the  
Master of Science  
Degree  
The University of Tennessee, Knoxville

Emily Kathleen Smith  
December 2005

## Dedication



**This thesis is dedicated to my two nieces, Dagan and Talia Shoot. Girlies, you are my inspiration and the reason why I love to work with children in the garden.**

**May you always reach for your dreams...they are closer than you think!  
Love ya muchos!**

## Acknowledgements

Wow, I finally made it! I definitely could not have done this alone, and therefore are many people in which I would like to express my sincere acknowledgement. First and foremost, I would like to thank Dr. Susan Hamilton, my major advisor, teacher and mentor. Thank you for being supportive and always encouraging me to reach for the stars. Thank you for providing me with numerous opportunities that helped prepare me for a career in public horticulture. I would also like to express my acknowledgments to the other members of my committee: Dr. J. Mark Fly, Dr. Mary Lewnes Albrecht, and Dr. Stephen Garton. Thank you for your support and enthusiasm for this thesis project. It was great to work with a committee that showed as much excitement for the research as I did. Special thanks go to Dr. Fly and Becky Stephens for their assistance in developing the survey instrument! I would 'Strongly Agree' that, together, we developed a great survey.

I would also like to express my sincere gratitude to the alumni participants of Brooklyn Botanic Garden's Children's Gardening Program. For without you, this research could not exist. Thank you for sharing your childhood experiences with me. Thank you, Marilyn Smith, for your support and commitment to this study.

I would like to express my sincere appreciation to the Plant Sciences Department. I have had a great experience as a graduate student in this department and it has been a pleasure knowing and working with each of you.

I could not have made it through this study without stopping to laugh every once in awhile. I would like to thank all of my friends, near and far, for providing endless laughter and fun over the past two years. I would like to express a special thank you to Susan Conlon, Natalia Bjorklund, James Newburn, and the UT Garden Staff for offering support, advice and a helping hand (or just a pat on the back). I have thoroughly enjoyed working with each and every one of you. The laughter that we shared is one of the memories I will cherish most

from the time I spent at UT. A big thanks goes out to Alison Stoven, Gil O'Connor, Leslie and Clint Richter, Anna Vani and Paul Porter- Thank goodness for long distance phone calls!

Finally, I would like to thank my family. To Fred and Nancy Smith, my parents, I love you and thank you so much for everything. Words cannot express how much I appreciate the ways you support and encourage me. Good news- I finally graduated, so maybe my stress levels will be a little mellower! To my sister, Sarah, thank you for helping calm me down when I thought I was going to lose it and always providing me with laughter and fun. A big hug goes to my two nieces, Dagan and Talia. Guess what, Emma is finally done with homework, let's go play!

I have had a great experience in graduate school and the lessons and experiences I gained have thoroughly prepared me for the next big adventure. Until then, in the words of my good friend, James Newburn, "Alright, we'll see ya!"

## **Abstract**

Among public gardens, Brooklyn Botanic Garden (BBG) hosts the oldest children's gardening program in the United States. Founded in 1914, the Brooklyn Botanic Garden Children's Gardening Program (BBG CGP) has succeeded in involving a steady flow of children year after year, creating an environment where children have the opportunity to interact with nature. Approximately 35,000 children have participated in the BBG CGP since its inception in 1914. A mail survey was conducted of alumni of the BBG CGP in the spring of 2005 to identify how the program has affected their adult lives. A random sample of 700 participants was selected from the BBG CGP alumni records of which there were names with current addresses. Ninety-eight alumni responded to the mail survey for a response rate of 25.6%. The survey consisted of 45 questions which were divided into five major sections: 1) Current gardening interest, 2) Involvement with public gardens, 3) Current involvement with children's gardening programs, 4) Childhood experiences in the BBG CGP, and 5) Demographic variables. Adult alumni reported they enjoyed their experiences as a child participant in BBG's CGP. Alumni also indicated the program helped in the development of various personal skills as well as increasing their self-esteem. Over 30% of alumni stated that the program helped them choose a career path, which in many cases was within the natural sciences field. Results suggest the participant's childhood development and learning skills gained from this program have played an important role in their adult lives and they regard the BBG CGP as having great value in their lives.



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# Chapter 1

## Introduction to the Study

### Focus of Study

The study's purpose was to identify if participation in a children's gardening program has an enduring impact in adulthood. A mail survey was used to determine and measure the attitudes about horticulture as a child and persistence into adulthood. The Brooklyn Botanic Garden Children's Gardening Program (BBG CGP) alumni served as the sample population for discovering the importance of children participating in youth gardening programs. Results are valuable to this and other public gardens with a focus on youth education.

### Background of Children's Gardening

To help frame this study, a brief historical analysis of children's gardens is included as well as a working description of the Brooklyn Botanic Garden Children's Gardening Program (BBG CGP). Gardens are a place for sharing knowledge and experience. Gardening is not only enjoyed by adults, but by children as well. Historically, people have recognized that gardens have more than economic value, especially for children (Bassett, 1979). The interest of connecting children to the garden is an idea which has increased over the past decade. Whether it is a vegetable garden or a school garden, the purpose of all children's gardens are the same: to help children connect to the world of plants and the natural sciences (Patterson, 1999).

With the fast pace technological advances occurring today, it is proving to be harder and harder to pull children away from the computer, television or video games and guide them to the outdoors. Many are realizing that children need a reason to explore outdoors, and often one way to do this is through various gardening activities.

Getting children involved in gardening dates back to the nineteenth century, originating in Western Europe. During this time, educators were actively promoting the incorporation of garden play areas for children. In 1837, German educator, Fredrich Frobel, coined the term "kinder garten," which means to garden with children (Shair, 1999). From here, the garden phenomenon took off throughout Western Europe. The main reasoning behind this addition to the landscape was that children, especially from urban areas, lacked significant exposure and experience with the outdoors (Shair, 1999). By 1869, Austria was requiring a garden in every school for children's physical and mental health. By 1889, both Austria and Hungary were requiring every urban school to incorporate a garden into their curricula. Eventually, over 100,000 school gardens across Europe had been developed (Shair, 1999).

Established in 1891, the first school garden in the United States was created in Boston (Trelstad, 1997). Due to the industrialized revolution faced by the United States, school gardens appeared in many cities and manufacturing towns. It was during this time when the United States Garden Army, which was primarily responsible for engaging hundreds of children through schools in the process of growing food for the army was formed (Trelstad, 1997). With the help of the children, the army farmed more than 600,000 public acres.

In 1914, Brooklyn Botanic Garden (BBG) was the first public garden to introduce a garden dedicated to children (Shair, 1999). The focus of this garden, even today, is to develop agricultural skills among urban youth. By the 1960s, increased industrialization brought increased interest in public, community and school gardens. By the mid 1990's, children's gardens were found across the nation (Shair, 1999). Today, there are more children's gardens than ever in schools, public gardens and communities. Each children's garden has its own emphasis and purpose and can be defined in many ways: it can be a small green space; a garden with play features; it can be a space with small-scale

features; a natural area for children to cultivate, grow and learn (Shair, 1999). Most often, children's gardens are each uniquely fun, exciting and creative.

The Brooklyn Botanic Garden Children's Gardening Program (BBG CGP), which served as the focus of this study, has been successfully incorporating children in the gardening program since 1914 (Maclin and Hyland, 1999). Miss Ellen Eddy Shaw founded the program, which was the first Children's Gardening Program incorporated into a public garden in the United States. Today, this program remains a prototype for gardening with children throughout the world. To date, more than 35,000 children have participated in the BBG CGP (Maclin and Hyland, 1999) with approximately 800 children participating on a yearly basis. Different children participate year after year, cultivating the same  $\frac{3}{4}$ -acre patch each season. Miss Shaw's vision is still applied today, "Not only would children learn horticulture and botany by direct experiences, but they would also learn to share, to respect others rights and property, to work within a team, as well as the rewards of labor" (Stone, 1984). Today, children experience this sense of teamwork through participating during various garden seasons. A spring session runs on Saturdays from the beginning of April to the end of June; two summer sessions run three days a week in July and August; and a fall session meets on Saturdays in September and October (Maclin and Hyland, 1999).

## **Significance**

This research is an extension of a qualitative study which focused on the experiences of six alumni participants of the Brooklyn Botanic Garden's Children's Gardening Program (BBG CGP) (Tims, 2003). This research not only adds to the literature focusing on youth and gardening, but also by describing the impact of a children's gardening program. A main goal included in most public garden missions is to enhance the educational experience of the garden visitor. By documenting the experiences of past participants in the BBG CGP, the impact

and value of implementing youth outdoor programs in a garden setting will be determined. This documentation enables public garden administrators to enhance the children gardening programs they offer.

The information obtained from alumni participants is an important factor in the continuation of youth outdoor programs. If the experience as a child participant in the BBG CGP has shown influence on the awareness and participation in environmental activities, we can provide support for encouraging and supporting these programs in the future. In addition, the findings of this study provide support to keep and implement children's gardening programs and continue to encourage hands-on learning in an outdoor environment.

## **Research Questions and Objectives**

This study has two primary objectives.

1. To determine how adult alumni of BBG's CGP interpret and make meaning of their childhood experiences in the CGP.
2. To determine how adult alumni of BBG's CGP perceive their experiences in the program to influence their adult lives, if at all.

Based on the above objectives, the primary research questions are listed below:

### **Alumni Characteristics**

1. What are the descriptive characteristics of the former participants in BBG's CGP (Q41-45)?

### **Current interest in garden-related activities**

1. What percentage of alumni participants continue to participate in garden-related activities as an adult (Q1-13)?
2. What are the motivations (benefits) for gardening as an adult for former participants in BBG's CGP (Q4,10,13)?

### **Current interest in public gardens**

1. To what extent are alumni participants of BBG's CGP involved public gardens, more specifically Brooklyn Botanic Garden in their adult lives, if at all (Q10, 13)?



2. What are the motivations (benefits) for being involved in public gardens as an adult (Q13)?

### Current involvement with children's gardening programs

1. To what extent do participants in BBG's CGP support children's gardening programs (Q 14-18)?

### Childhood experiences in BBG's CGP

1. What was the nature and extent of participants involvement in BBG's CGP (Q21-22)?
2. To what extent did participants have positive memories of their participation in BBG's CGP (Q 23-25)?
3. What percentage of participants in BBG's CGP increased their knowledge and skills in horticulture (Q26)?
4. What percentage of participants gained self-esteem through their participation in BBG's CGP (Q 27-28)?
5. To what extent did participants develop social skills through their participation in BBG's CGP (Q29-30)?
6. Did participants develop friendships through participation in BBG's CGP (Q30-31)?
7. What percentage of participants learned about environmental issues through their participation in BBG's CGP (Q32)?
8. To what extent did participants learn personal skills through their participation in BBG's CGP (Q36)?
9. What percentage of participants learn to appreciate nature through their participation in BBG's CGP (Q33)?
10. What percentage of participants developed cultural awareness through their participation in BBG's CGP (Q34)?
11. What percentage of participants career choices were affected by their participation in BBG's CGP (Q35)?

12. What percentage of participants career skills were affected by their participation in BBG's CGP (Q37)?

13. What percentage of participants' recreational activities as an adult were affected by their participation in BBG's CGP (Q38)?

14. What factors contributed to the success of BBG's CGP (Q39)?

# Chapter 2

## Literature Review

### Introduction

This study focused on youth gardening programs, but the broader spectrum of youth outdoor experiences was included in framing this study. This study examined the impact of participation in a children's gardening program on its adult alumni. Various factors focused around social, psychological and educational variables were examined. Due to limited research specifically focusing on adult recollections of their childhood experiences in a children's gardening program, literature of early-life outdoor experiences was included in the discussion. The development of attitudes towards the environment, the recollection of early-life events and the importance of experiencing the outdoors at an early age were discussed.

This study also focused on the aspects in which younger audiences are connected to gardens. Included in this discussion are importance of connecting children with gardens, effectiveness of a children's garden program and the importance of incorporating a children's garden in both a public garden as well as an elementary school setting.

In summary, this chapter is organized into sections which review literature related to the importance of children's gardens, incorporating children's gardens into a public garden, incorporating a children's garden in a school curricula, early-life outdoor experiences, recollection and memory of early-life events and research on early-life outdoor experiences.

### Youth Gardening

Whether it be within a public garden or a school garden, the idea of children's gardening programming is partly responsible for introducing science and the environment into the minds of children. The central idea behind a

children's gardening program is to connect the child to the world of plants and the surrounding environment (Shair, 1999).

Numerous research findings have found early exposure to environmental concepts may help children develop positive attitudes and a solid knowledge base with respect to the plant sciences (Kahtz, 1995; Waliczek & Zajicek, 1999; Tims, 2003). In order to be successful at making an impact, children's gardens must stay focused on the needs of children (Lownds, 2000). Research has indicated that hands-on activities and inquiry-based learning allows children to discover their surroundings for themselves (Waliczek and Zajicek, 1999; Skelly and Zajicek, 1998). For example, successful children's gardening programs give children the responsibility for all garden aspects. Allowing children to get their hands dirty promotes learning and fun in the same experience (Blandford, 2002). Another important aspect when working with children is paying attention to their needs. Michigan State 4-H Children's Garden provides special child-sized seating for special events (Lownds, 2000). The BBG CGP has students working with child-size garden tools (Maclin and Hyland, 1999).

Not only does incorporating children into the garden promote positive environmental attitudes, but it also allows the child to learn in an outdoor environment (Waliczek and Zajicek, 1999; Skelly and Zajicek, 1998). Various research studies have been conducted focusing on incorporating children's gardens in a public garden setting as well as a school setting. With youth gardening becoming more popular, educators are rediscovering the importance and effectiveness of incorporating gardening with youth education.

### **Youth Gardening in Public Gardens**

With the research occurring on the benefits of gardening with children, it is no surprise that public gardens are actively pursuing younger audiences by incorporating children's gardens and activities into their operations. The strategy taken by public gardens is to offer activities and programs which appeal to

younger audiences. The mission statement of most public gardens' includes the goal of enhancing the educational experience of its garden visitors. Catherine Eberbach, Director of Exhibitions at the New York Botanic Garden, states, "Children and families were underrepresented in public gardens until we (public gardens and administrators) realized they were an important audience" (Mattern, 1999). Eberbach continues to state, "It also became clear that we could reach and keep this audience by using interactive exhibits and landscapes through which kids have the freedom to explore on their own" (Mattern, 1999).

Research has shown that a student's first exposure to a public garden often occurs during a school trip (Pitman-Gelles, 1981). Students come for a tour or participation in a class. As stated previously, early exposure to environmental concepts may help children develop positive attitudes and a solid knowledge base with respect to the plant sciences. Research also supports that many attitudes are established by the time student reaches high school (Jaus, 1984; Linsky, 1971). Because of these findings, public gardens are realizing the importance of communicating to young audiences; particularly elementary and middle-school aged youth.

A study conducted at Missouri Botanical Garden focused on the impact of environmental education classes on attitude and knowledge change of elementary children (Kahtz, 1995). Two classes, focusing on environmental education, were evaluated. Results indicate that the courses did not significantly change the student's attitudes toward interacting with the environment. However, from this study, Kahtz states, "it is evident that field trip activities of this type can influence the development of children's attitudes and increase the acquisition of knowledge" (1995). This study also suggests that children learn more in a non-formal setting than in a traditional classroom setting (Kahtz, 1995).

Not only are public gardens reaching out to younger audiences through educational programming, but also through youth gardening programs. A study

completed in 2003 documented how six alumni participants of the Brooklyn Botanic Garden Children's Gardening Program (BBG CGP) described and made meaning of their experiences as a child participant in the gardening program (Tims, 2003). A qualitative approach was taken to analyze the impact this program had on its adult alumni. Half of the participants were interviewed in person, while the others were interviewed using the telephone. During the research, participants expressed how aspects of the CGP impacted their adult lives (Tims, 2003). Three major themes emerged from this study: 1) childhood development, 2) impact on adulthood, and 3) the meaning of the Children's Gardening Program and the Brooklyn Botanic Garden. Participants acknowledged the learning experiences they had in BBG CGP continued to have an impact during their adult lives. Participants also recognized how they continued to use the knowledge they obtained in the program as a child in their adulthood such as cooking and gardening. Perhaps the most exciting aspect of this study was the fact that participants recalled activities and events from their experiences in the BBG CGP as a child as many as seventy years after their participation in the program.

## **Youth Gardening in Schools**

Teaching children about gardening and the environment is a concern of horticulture educators as well as elementary educators. There are many research studies which support opportunities that promote teacher's understanding of school gardening and it's adaptation into the curriculum (DeMarco, Relf and McDaniel, 1999). Researchers suggest that early exposure to environmental concepts may help children develop positive attitudes and a solid knowledge base with respect to the plant sciences (Kahtz, 1995).

In 1996, a national school garden survey was sent out to 322 elementary schools that had received a Youth Gardening Grant from the National Gardening Association (DeMarco, et. al, 1999). It is important to note that the teachers

surveyed all had experiences with school gardening programs. The survey found 60.6% of the educators who incorporated school gardening into their curriculum reported school gardening was a successful teaching tool for enhancing student learning (DeMarco, et. al, 1999). One important outcome from this research is that for a teacher to be willing to make the commitment of time and energy to school gardening, he or she must recognize that gardening is a valuable teaching tool that will enhance the education of students (DeMarco, et. al, 1999).

Past research also indicates that children who participate in numerous outdoor activities have more positive environmental attitudes compared to children with fewer environmental experiences (Waliczek and Zajceck, 1999). Project GREEN (Garden Resources for Environmental Education NOW), a school garden program, was integrated into the curriculum of seven elementary and junior-high schools in Kansas and Texas. Skelly and Zajicek (1998) state that students participating in the Project GREEN program had more positive attitudes than those students who did not participate. This study supports the notion that environmental education has a greater impact on younger students. Results show that second grade students in the study had stronger positive environmental attitudes than the fourth grade participants (Skelly and Zajicek, 1998).

This study supports other findings that children who participate in numerous outdoor activities have more positive environmental attitudes compared to children with fewer outdoor experiences (Jaus, 1982; Bradley, 1997). According to Waliczek and Zajicek (1999), students involved in the outdoor activity of school gardening had more positive environmental attitudes after gardening. This research helps communicate the importance of using the garden to teach environmental concepts to youth.

A study conducted by Harvey (1989) focused on "the relationship between children's experiences with vegetation and their environmental attitudes and knowledge." It examined the impacts of the landscape upon children at twenty-

one middle schools in England. In this study, having an experience with vegetation at the school as well as contact in past experiences was measured. Results indicate that students coming from strongly vegetated school grounds had a higher knowledge for botany than schools with little to no vegetation. Perhaps the most important aspect of this study is that past and present experiences with vegetation make a small, but significant contribution to the child's development of botanical knowledge (Harvey, 1989).

Research on a children's garden in Illinois supports the notion that early exposure to environmental concepts help children develop positive environmental attitudes (Midden & Chambers, 2000). This particular study focused on a garden installed in a children's pre-school facility. The research was completed during four phases. Phase one consisted of written observations of the interaction of pre-school children (ages 3 to 6) with garden activities. Phase two consisted of 10 to 15 minute interviews with the children. During this phase, children were also asked to draw a picture of the garden. Phase three was a questionnaire completed by the teachers. Finally, phase four included a garden journal which was completed by the children and teachers. The goal was to determine if the garden was effective in increasing the child's knowledge of the garden ecosystem (Midden & Chambers, 2000). Once again, the results indicated the garden serves as an effective teaching tool for younger children.

## **Outdoor Experiences**

Numerous studies have also proved that children who participate in numerous outdoor activities have more positive environmental attitudes compared to children with fewer environmental experiences (Waliczek & Zajicek, 1999; Skelly & Zajicek, 1998). What is limited in the literature is the long-term retention of these positive environmental attitudes adapted as a child.

A study done by Jaus (1982) focused on the development and retention of environmental attitudes on elementary school children. The study focused on



students in two, third grade classes. One class was provided with two hours of environmental education and the other class was not and thus was used as a control group. Both classes were pre and post-tested using a questionnaire focusing on environmental attitudes. Results from the study support that minimal instruction in environmental education is effective in producing positive attitudes towards the environment. Research also suggests that these attitudes are retained over time (Jaus, 1982).

A study by Tanner (1980) studied recollections of significant life experiences in adults which were informed about conservation and who played an active role in conservation. Tanner defines the outdoors as having an interaction with rural, natural, or other fairly pristine habitats (1980). Of the 35 respondents, 9 listed the outdoors as the primary influence. It also found that a majority of these outdoor experiences occurred during childhood. Tanner concludes his research stating, "Youthful experience of outdoors and relatively pristine environments emerges as a dominant influence in these lives" (1980, p. 23). His research also suggests the importance of early-life outdoor experiences in the development of environmental attitudes. Seventy-eight percent of Tanner's respondents rated these early-life outdoor experiences as the most important factor in influencing their environmental awareness.

## **Recollection and Memory**

This study is examining adult recollections of childhood experiences in the Brooklyn Botanic Garden Children's Gardening Program (BBG CGP). To properly frame this study, an examination of recollection and memory literature was reviewed. Adult recollections of childhood memories are centered on autobiographical memory. These autobiographical memories form from predictions we make about our behaviors (Neisser, 1982). Neisser (1982) states that our memory of past experiences is a central element in our identity, and also leaves us with limited knowledge. When dealing with recollections of

childhood landscapes, most researchers believe, "Early childhood relations with outer landscape seem to affect how one perceives, values and structures one's world view and stance (p. 30) and that the return to childhood landscapes teaches us how settings of the past affect our current environmental values" (Cooper-Marcus 1978). The concept of recollection allows us to examine reasons why we remember certain events. Sebba (1991) has found that there is a connection between the quality of the child's experience and the way it is engraved in adult recollections.

A study conducted in 1991 (Sebba) focused on children's relation to the environment from actual and retrospective points of view. The findings suggest that almost all adults identify the most significant place in their childhood with the outdoors. This study also indicated that there is a connection between the quality of the child's experience and the way it is engraved in adult recollections (Sebba, 1991). Sebba states, "An experience in which the child is actively involved, with his body, his senses, his awareness, is likely to be etched in his memory for a long time" (1991).

Research has also been conducted linking the stored memories to the satisfaction of the experience (Chawla, 1998; Sebba, 1991; Tanner, 1980). To determine why people engage in leisure through water and forest, the Theory of Satisfaction was adopted by Driver (Russell, 1996). Driver suggests that people engage in such activities for the experience and to share the experience with others (1996). Within the same focus, the study conducted by Tanner (1980) suggests that the individuals have vivid images of outdoor experiences.

In this study, participants were asked to identify those experiences which influenced their current interests (Tanner, 1980). Of the 35 participants which described the outdoors, 9 participants suggested influences came from outdoor-oriented youth groups, a school environmental program, or their parents' love of nature (Tanner, 1980). A majority of influences happened during childhood moments. Tanner (1980) states, "Seventy-five percent of our children are

growing up in urban and suburban environments, most of them apparently quite removed from the world of nature.” This reason alone states why it is important to continue to incorporate youth with the outdoors.

One problem with research focusing on adult recollections is accuracy. One of the common issues dealing with accuracy is the individuals’ tendency to only recall pleasant moments. Amato (1991) suggests that recollections can be altered depending on the mood adopted by the individual. For example, if a child had a bad experience in the garden, this negative attitude could resurface with each time spent in a garden throughout adulthood. Despite these factors, research has supported the fact that recollections can be quite accurate (Chawla, 1998). Chawla (1998) suggests certain steps to secure accurate adult recollections:

1. Allow the individual to recall their personal account at their own pace.
2. Use words, or possibly images, which are related to the events.
3. Use questions that allow for unconstrained recall focusing on the general facts about major periods of their lives.

Despite problem areas, adult recollections are a valuable tool for studying the impact of the outdoors to a child. For this study, adult recollections are required to determine the impacts of the Brooklyn Botanic Garden’s Children’s Gardening Program (BBG CGP).

## **Chapter Summary**

The central idea behind a children’s gardening program is to connect children to the world of plants and the environment (Patterson, 1999). The future of children’s gardening is an ever-growing occurrence. The American Horticulture Society (AHS) is committed to youth gardening. To keep this phenomenon growing, AHS offers an annual National Forum for Youth Gardening (Patterson, 1999). Since 1993, AHS brings administrators, educators and

horticulturists together to keep inspiring children to learn and create in a gardening environment.

Little is known about the impact and behavioral influences that a children's gardening program has upon its adult alumni. Literature suggests children who experienced gardening activities through either a school gardening program or a children's gardening program at a public garden, have positive behaviors towards the environment. The literature lacks studies focusing on environmental attitudes held by adult alumni of children's gardening programs.

# Chapter 3

## Methods

### Participants

The population for this survey was limited to adult alumni of Brooklyn Botanic Garden's Children's Gardening Program (BBG CGP). Requirements for selected participants were they had to be of eighteen or older in age and attended the program for at least one year. Study participants were randomly selected from Brooklyn Botanic Garden's alumni records. Staff of BBG's CGP update these records according to alumni who request interest to attend the annual alumni reunion.

### Instrumentation

A survey titled "Brooklyn Botanic Garden's Children's Gardening Program: A Survey of Alumni" was developed by the researcher at the University of Tennessee in collaboration with Brooklyn Botanic Garden, and can be found in Appendix B. The survey consisted of 45 questions and was divided into five major sections. Survey sections consisted of: current interest in gardening; current involvement with public gardens; association with children's gardening programs; childhood experiences in BBG's CGP; and socio-demographics. The survey was printed on 8 1/2 x 14 white paper and presented in booklet format (Appendix B).

The survey questions were based on a qualitative study titled, "Brooklyn Botanic Garden's Children's Gardening Program: Its meaning and impact on adult alumni" (Tims, 2003). The study presented three major themes, which were childhood development and learning experience, BBG's CGP impact on adulthood, and the meaning of the CGP and BBG. The study served as an outline for formulating questions for this study's survey. All of the survey

questions were either nominal or ordinal (Likert-type) in scale except those questions that asking for respondents' comments.

## Sampling Procedures

The estimate population of alumni is 3,541 participants. For this study, the researcher is assuming a 95% confidence rate with a +/- 5% margin error. This means that we assumed that 95 out of 100 samples were of the true population value. Listed below are the calculations and assumptions for the total number of surveys that were sent out. To complete these calculations, the following assumptions were made. An estimate of 20% was made stating the percent ineligible and that an estimate of 40% would not respond. Finally an estimate of 5% was made of how many people would respond illegibly or incompletely.

1. Estimate how many people are ineligible- 20%  
80% are eligible
2. Estimate of how many participants will not respond- 40%  
60% are eligible to respond
3. Estimate how many people will respond illegibly or incompletely- 5%  
95% will respond correctly

### Calculations

347

divided by .95

=365

divided by .55

=664

### Assumptions

Number of completed at 95% confidence level with an accuracy of 5 +/- and a 50/50 split

Estimated number of eligible respondents

Estimated raw response rate

divided by .95  
=700

Estimated rate of correct/complete surveys  
Total number of surveys sent out

## **Implementation**

The Brooklyn Botanic Garden Children's Gardening Program (BBG CGP) survey was implemented during spring 2005. As stated previously, the survey was sent to 700 alumni participants of BBG's CGP. These 700 participants were randomly selected using SPSS from the alumni list provided by Brooklyn Botanic Garden. Consent for participation in the survey was indicated by returning the completed survey. To encourage high response rates, the researcher followed a modification of the Dillman method for survey mailings (Dillman, 1978; Salant and Dillman, 1994). On February 24, 2005, a pre-notification letter was mailed to all 700 respondents, notifying participants why and how they were selected for this study (Appendix B-1). The survey packet, which included the survey instrument (Appendix B-2), a cover letter (Appendix B-3) explaining the survey in detail, and an addressed business reply envelope for survey return was mailed to all respondents in the sample on March 3, 2005. A post-card reminder was mailed to the participants on March 17, 2005, reminding those who have not yet responded and thanking those respondents who have returned their completed survey (Appendix B-4). The final mailing, April 12, 2005, consisted of a second mailing of the survey packet, along with a revised cover letter (Appendix B-5), to all participants who had not yet returned the survey up to this date.

Of the 700 surveys mailed out, 298 were returned as undeliverable. Out of the 402 eligible surveys, 98 surveys were returned, for a 25.6% response rate. The results presented in this research are based on past participants of BBG's CGP that were 18 years or older and participated in the program for at least one season and responded to the survey.

## **Data Analysis**

Results from these surveys were entered into and analyzed using SPSS 12.0 for Windows (SPSS, 2004). Descriptive statistics were performed on the response variables, including means, medians, modes, standard deviations, minimum and maximum values, and frequency distributions. Qualitative information was divided into consistent themes, based on the frequency in which they were reported.



# Chapter 4

## Results

This chapter was written with the intention of being published in a horticulture research journal. My primary contributions to this paper include (1) selection of the topic, (2) identification of the study areas and research questions, (3) development and implementation of the survey instrument, (4) survey sampling and analysis, (5) gathering and interpretation of literature, (5) combining the contributions into a single paper, and (6) most of the writing.

### Abstract

Among public gardens, Brooklyn Botanic Garden (BBG) hosts the oldest children's gardening program in the United States. Founded in 1914, the Brooklyn Botanic Garden Children's Gardening Program (BBG CGP) has succeeded in involving a steady flow of children year after year, creating an environment where children have the opportunity to interact with nature. Approximately 35,000 children have participated in the BBG CGP since its inception in 1914. A mail survey was conducted of alumni of the BBG CGP in the spring of 2005 to identify how the program has affected their adult lives. A random sample of 700 participants was selected from the BBG CGP alumni records of which there were names with current addresses. Ninety-eight alumni responded to the mail survey for a response rate of 25.6%. The survey consisted of 45 questions which were divided into five major sections: 1) Current gardening interest, 2) Involvement with public gardens, 3) Current involvement with children's gardening programs, 4) Childhood experiences in the BBG CGP, and 5) Demographic variables. Adult alumni reported they enjoyed their experiences as a child participant in BBG's CGP. Alumni also indicated the program helped in the development of various personal skills as well as increasing their self-esteem. Over 30% of alumni stated that the program helped them choose a career path, which in many cases was within the natural sciences field. Results suggest the participant's childhood development and

learning skills gained from this program have played an important role in their adult lives and they regard the BBG CGP as having great value in their lives.

## **Introduction**

Gardens are a place for sharing knowledge and experience and gardening is enjoyed by adults and children. Historically, people have recognized gardens have more than economic value, especially for children (Bassett, 1979). The interest of connecting children to gardens has been developing over the past decade. Among public gardens, Brooklyn Botanic Garden (BBG) hosts the oldest children's gardening program in the United States. Founded in 1914, the Brooklyn Botanic Garden Children's Gardening Program (BBG CGP) has succeeded in involving a steady flow of children year after year, creating an environment where children have the opportunity to interact with nature. The objectives of this study were to investigate the possible benefits adult alumni gain from participation in BBG's CGP and how the program has impacted their adult lives, if at all.

## **Materials and Methods**

### **Instrumentation**

A survey titled "Brooklyn Botanic Garden's Children's Gardening Program: A Survey of Alumni" was developed by the researcher at the University of Tennessee in collaboration with Brooklyn Botanic Garden (Appendix B). The survey consisted of 45 questions and was divided into five major sections: current interest in gardening; current involvement with public gardens; association with children's gardening programs; childhood experiences in BBG's CGP; and socio-demographics. The survey questions were based on findings from a qualitative study titled, "Brooklyn Botanic Garden's Children's Gardening Program: Its meaning and impact on adult alumni" (Tims, 2003)

## **Implementation**

The population for this survey was adult alumni, ages 18 to 101, of Brooklyn Botanic Garden's Children's Gardening Program (BBG CGP). Study participants were randomly selected from BBG's alumni records. The survey was implemented during Spring 2005. A random sample of 700 alumni was chosen from the alumni database provided by BBG. Consent for participation was indicated by returning the completed survey. A modified version of the Dillman method was followed for the order of survey mailings (Dillman, 1978; Salant and Dillman, 1994). Alumni participants first received a pre-letter notifying them of the upcoming research in which they were selected to participate. Following the pre-letter, the survey packet was mailed. This packet consisted of a cover letter, the survey instrument and a business reply envelope for return. A post-card reminder was mailed out to the entire sample approximately two weeks after the survey packet was mailed. Following the post card reminder, a final packet was mailed to the respondents which had not yet returned a completed survey. Of the 700 surveys mailed out, 298 were returned as undeliverable. Out of the 402 eligible surveys, 98 surveys were returned between March 2005 and May 2005, for a response rate of 25.6%.

## **Data Analysis**

The data were analyzed using the Statistical Package for the Social Sciences (SPSS, 2004). Descriptive statistics were performed on the response variables to summarize the experiences of alumni of Brooklyn Botanic Garden's Children's Gardening Program. Analysis of qualitative responses summarized the experiences of alumni (Hatch, 2002).

## **Results**

The results for this research are presented in the following sections as a research question with its corresponding results.

## What are the descriptive characteristics of the former participants in BBG's CGP?

Of the ninety-eight alumni that responded, 69% were female and 31% were male (Figure 1). Within the demographic information, ethnicity of alumni was recorded (Figure 2). The largest percentages of ethnic backgrounds were white, comprising 79% of the survey respondents. The next largest alumni group were African American, at 9%. Native Americans made up 3 percent of BBG's CGP alumni followed by Asian (2%) and Hispanic (1%).

As a whole, the ages of participants ranged from 18 years of age to 101 years of age. Only the alumni who were 18 years or older were eligible for participation in this survey, so 18 was the minimum age included in the study. A majority (45%) of alumni were between the ages of 40 and 59 with 28% between 18 and 39, 20% between 60 and 79, and fewer percent (7%) were between the ages of 80 and 101 years of age (Figure 3). Alumni from BBG's CGP are highly educated, with a majority of alumni (83%) having received college degrees or higher. Only 4% of those alumni surveyed did not complete high school (Figure 4).

## What percentage of alumni participants continue to participate in garden-related activities as an adult?

Alumni participants were asked if they have a current interest in gardening. Eighty percent (80%) stated they did in fact have a current interest in gardening (n=97) (Figure 5). Of the participants who stated they did have a current interest in gardening, 77% garden as an adult (n=78) (Figure 6). Of the alumni that garden as an adult (n=78), 85% grow flowers, 70% grow annuals, 77% grow perennials, 50% grow vegetables, 20% grow fruits and 57% grow herbs (Figure 7). When asked, "To what extent did your participation in BBG's CGP lead to your current interest in gardening", a majority (55%) stated that past participation "Very much" played a significant role in their current interest in

gardening (Figure 8). Respondents were given five choices, ranging from “Not at all” coded as “1” to “Very much” coded as “5”.

### What are the motivations (benefits) for gardening as an adult for former participants in BBG’s CGP?

The survey asked alumni who garden (77%) questions to determine what benefits they receive from gardening as an adult (Figure 9). In response to this question, “Gardening is a benefit because...” all alumni felt gardening allowed them to create beauty (100%) (n=76). A high percentage of alumni reported they garden to “relax” (98%). However, “it improves the appearance of my home” (92%), “it improves my mental health” (89%), and “it provides physical exercise” (88%) were also mentioned as very important benefits of gardening. This finding is similar to other research showing that people garden to receive benefits such as human well-being and social connections (Hamilton, 2001; Patel, 1991; Waliczek et al., 1996).

### What are the motivations (benefits) for being involved in public gardens as an adult?

Survey participants were asked if they had a current interest in public gardens. The majority (78%) of alumni stated that they did in fact have a current interest in public gardens (n=96) (Figure 10). When asked in an open-ended question, “Why do you visit public gardens”, a majority of alumni stated they visit because of the beauty and tranquility of the gardens. Alumni also stated they enjoyed visiting public gardens to learn about plants, gather ideas for their own garden, and to enjoy the changing of the seasons.

When asked to indicate ways they are involved with public gardens, 89% of alumni who have a current interest in public gardens, stated they did visit public gardens on a regular basis (n=74) (Figure 11). Of the alumni who are involved with public gardens, only 20% are members of a public garden other than Brooklyn Botanic Garden, 12% volunteer at public gardens, 28% make

financial donations, and 27% participate in workshops offered at public gardens. A little over three-quarters of the alumni (78%) indicated childhood participation in BBG's CGP did lead to their current interest in public gardens as an adult (n=75) (Figure 12).

### To what extent are alumni participants of BBG's CGP involved with Brooklyn Botanic Garden in their adult lives?

Alumni were asked if and how they were involved with Brooklyn Botanic Gardens as an adult (Figure 13). Thirty-eight percent (38%) of the alumni reported they visit BBG on a regular basis and 23% are members. These percentages are more significant considering the alumni sample resides across the United States from New York to California. Alumni reported 15% hear about BBG current events through others, 14% use the BBG website, 8% attend workshops, 3% volunteer at BBG, and 2% make financial donations. Many of the alumni made a special note they visit most often during the annual alumni reunions, which are held annually at the gardens.

### What was the nature and extent of participants' involvement in BBG's CGP?

Alumni participants were asked how they became involved in the program (BBG CGP) (Figure 14). Possible responses were "parent", "relative", "friend", "teacher", and "community member." The bulk of alumni (71%) were involved because of a parent. Alumni also recalled they got involved through relatives (15%), friends (21%), teachers (8%), and community members (5%).

### To what extent did participants have positive memories of their participation in BBG's CGP?

Alumni respondents were asked, "To what extent did you enjoy your experiences as a child in BBG's Children's Gardening Program, if at all". Respondents were given five choices, ranging from "Not at all" coded as "1" to

“Very much” coded as “5”. Alumni overwhelmingly reported that they “very much” enjoyed their experiences (86%) (Figure 15).

Respondents were also given the opportunity to include their favorite memories of BBG’s CGP. Their favorite memories were categorized into five major themes: 1) Harvesting and bringing home produce (57%); 2) Learning in the children’s garden (56%); 3) Friendships (25%); 4) Winning Awards (17%); and 5) BBG’s City Green Space (16%). Alumni overwhelmingly stated that harvesting and bringing home produce was by far their most favorite memory of the program. When asked for their favorite memory, an alumni participant stated, “Coming home with two huge brown paper bags filled with vegetables and seeing my mother smile and reach for the bags with great joy. This was during the depression and I was one of seven children.”

The second theme was learning in the children’s garden. Alumni mentioned that they enjoyed the garden work, learning about plants, as well as watching their plants grow from seed to harvest. One alumnus recalled, “The lasting lessons were how to plant seeds, the stages of plant growth, and how to plan.” Another alumnus mentioned, “We started off with tiny seeds and I still remember the excitement of my first radishes coming up.” It is estimated that over 2 million radishes have been harvested in the children’s garden since it’s opening in 1914 (Brooklyn Botanic Garden, 2004).

Friendships made during the program were also a cherished aspect of the program. Many of the participants recalled making close friends in the CGP and how this was one of their most treasured memories. One alumni participant recalled that, “The friendships I made with fellow gardeners is one of the memories I cherish most. Hard work was easier when you did it with a friend.”

The fourth theme mentioned by alumni was winning awards. CGP participants won awards, including medals and ribbons, for their hard work in the garden. Participants recalled winning, “3<sup>rd</sup> place in the sunflower contest”, as well as “getting a star stake for having a weed free garden plot”. Many of the

alumni mentioned that they cherished these awards and still had kept them since their participation. An alumnus mentioned, "I remember each award level achieved and what they were for. I still have all the ribbons and medals. As a result of these awards, I was always eager to learn more and more."

The final theme of favorite memories was how participants enjoyed escaping the city and enjoying their time in BBG. An alumnus recalled that, "I was a city kid. There was nothing green within three blocks of where I lived. When I worked in the children's garden, I was in a different world." Another alumnus stated, "For a kid who was living on the 22<sup>nd</sup> floor of Section 8 housing, the BBG program opened my mind to the wonder of nature."

Other memories mentioned by alumni included, weighing their harvest, using garden tools, BBG's CGP staff members, feeling like an important part of BBG, and being able to travel to the garden on their own. Alumni were also asked to comment on their least favorite memories of the program. Many of the other comments were personal and many alumni recalled their least favorite memory as being "going home at the end of the program." There were no other consistent themes identified.

### What percentage of participants in BBG's CGP increased their knowledge and skills in horticulture?

Alumni were asked to recall horticulture knowledge learned in BBG's CGP. BBG CGP is unique because children participate year after year, cultivating the same  $\frac{3}{4}$ -acre patch each season. The program runs year round, allowing the students to learn from seed to harvest. Alumni reported learning a great deal of horticulture knowledge as child participants. Responses ranged from "Strongly Disagree" coded as "1" to "Strongly Agree" coded as "5". When asked about the horticulture skills they learned about in the program, 97% of alumni both strongly agreed and agreed they learned most about weeding. Alumni also indicated that they learned a great deal about "preparing a planting bed" (92%),



“watering” (96%), and “harvesting” (95%) (Figure 16). Alumni also remembered they learned about basic gardening skills such as planning a garden plot (88%), transplanting (85%), garden tools (83%), and mulching (75%). One alumnus responded, “People always ask me how I know so much about gardening! My foundation comes from the BBG CGP. Probably, my passion for gardening comes from that also.”

### What percentage of participants gained self-esteem through their participation in BBG’s CGP?

The survey asked alumni “To what extent did your participation in BBG’s CGP improve your self-esteem, if at all?” In this survey, self-esteem was defined as belief and pride in one’s self, as well as gaining a sense of self-worth. Respondents were given five choices, ranging from “Not at all” coded as “1” to “Very much” coded as “5”. Thirty-five percent (35%) of alumni surveyed identified the program “Very Much” improved their self-esteem (n=97) (Figure 17). Many participants felt strongly about the program and how it helped them gain self-esteem. One alumnus recalled the program allowed them to have, “a pride in what one was doing and seeing the results. I lived in a bad area and the garden was my salvation.”

A follow-up question was asked to see how the program increased their self-esteem (n=87) (Figure 18). Responses ranged from “Strongly Disagree” coded as “1” to “Strongly Agree” coded as “5”. Participants were allowed to have their own plot in the program as well as to choose the plants they grew in their plot. This allowed the child participant to feel ownership for what they created. Of the alumni who did gain self-esteem, 97% strongly agreed and agreed they gained by “feeling proud to see *my* plants grow” (accomplishment). Additionally, alumni strongly agreed and agreed they gained self-esteem by “making friends” (78%), “being acknowledged for their efforts” (acknowledgement) (91%), and by “feeling special just to be involved”

(involvement) (85%). These findings support the results of a previous qualitative study of BBG's CGP which found participants gained self-esteem for the same reasons (Tims, 2003).

An "other" category for this question allowed alumni to include comments in an open-ended response. Respondents noted other ways in which they gained self-esteem in the program and these responses were grouped into four themes. The first theme that alumni recalled was "taking pride in something of their own." Participants mentioned how good it made them feel to know that they designed, planted and cared for their own garden plot. The second theme mentioned was "providing food for their families." Also one alumnus recalled that, "I felt quite independent planning my own garden and seeing it through harvest. It was a special feeling, being able to contribute to family meals." Many participants came from large families and it was rewarding for them to make a contribution.

The third theme was "winning awards" in the program for their gardening skills. Child participants in the program receive special awards for their garden plots, such as medals, ribbons and special stakes that are placed in their garden plots. One alumni stated they gained self-esteem in the program when, "Stars were placed on wooden stakes on my garden plot on awards day." Many alumni noted that these awards were special to them and many still have the awards. An alumni recalled, "I won the coveted 'Butler cup award' in 1965, and still remember how good that made me feel."

The last theme that helped participants gain self-esteem was by "serving as houseboy." Serving as houseboy for the season was a big responsibility and an honor for a child in the program. For participants selected to serve as houseboy, this meant you had extra chores to do and you were responsible for handing out and putting up the garden tools. Many alumni mentioned this was their first job.

## To what extent did participants develop social skills through their participation in BBG's CGP?

The survey asked alumni if they felt they gained social skills as a result of their participation in the program. Participants in BBG's CGP are brought together with children and adults from all around the Brooklyn area. In BBG's CGP, the children often have to work with a partner as well as the adult leaders of the program. When asked about social skills, a majority of alumni felt that they "learned to cooperate with adults" (90%). In addition, alumni also felt that they "learned to work with others" (88%), "learned how to cooperate with children" (83%), "learned to work in teams" (87%), and "learned from others' ideas" (85%) (Figure 19).

Children in the program are brought together in one central place, BBG, and have to work together throughout the program. They are different ages and come from different ethnic backgrounds. Historically, gardens have been thought to be good for developing social skills and interpersonal relations of children (Montessori, 1912). As mentioned previously, participants had the chance to meet children from all over Brooklyn and the surrounding areas. One alumnus noted, "My mother enrolled me to give me a chance to be with other children, as I was very shy. The program helped me learn to work with other children." Alumni stated they developed social skills in the program by "meeting children from other neighborhoods" (75%). Alumni also mentioned how they met kids from other cultural backgrounds while in the program (67%). In summary, the BBG's CGP provides the opportunity for the children to foster friendships with others from diverse backgrounds.

## Did participants develop friendships through participation in BBG's CGP?

Research has indicated that outdoor programs, such as BBG's CGP, can increase socialization among children (Henneberry and Robertson, 1983).

When asked about friendships made at BBG's CGP, alumni responded that 48% did in fact make friends in the program (Figure 20). Alumni also mentioned that many of the friendships made in the program as a child still remained strong into their adult lives (31%). Alumni also commented they often joined the program with friends and also mentioned they enjoyed meeting up with old garden friends at the annual alumni reunions, which are hosted by BBG. One alumnus recalled, "My best friend and I joined the program together. Twenty-five years later, we are still close, and keep in touch with other friends we made at the garden. The reunions are fantastic!" Several alumni stated that the reunions allow them to "meet old friends again and swap stories of those garden days and catch up on current activities with each other." This finding is similar to findings of a qualitative study by Tims (2003) and Blandford (2002) which found that participants in BBG's CGP developed long-lasting friendships as well as strengthened other social skills while participating in the program.

### What percentage of participants learned about environmental issues through their participation in BBG's CGP?

One aspect of BBG's program is to teach children about environmental issues. Alumni respondents were asked about environmental issues learned in the program and how to act in an environmentally responsible way (Figure 21). Responses ranged from "Strongly Disagree" coded as "1" to "Strongly Agree" coded as "5". The largest percentage of alumni stated they "learned about the importance of a clean environment" (62% "Agree" and "Strongly Agree"). However, "learned not to litter" (58%), "learned to make compost" (54%), and "learned how to recycle" (42%) were also mentioned as ways alumni learned to be environmentally responsible while participating in the program.

An "other" section allowed alumni to comment on other ways they learned about the environment from BBG's CGP. One alumnus remarked, "I learned that gardens are an important part of our environment. They bring beauty to any

area and provide a place for people to learn about nature.” Within the children’s garden, participants are exposed to numerous activities and lessons which help them learn more about nature. One alumnus stated he still remembers the signs which were hung in the gardens. One stated “He is happiest who hath power to gather wisdom from a flower.” The other sign recalled stated, “Let no one say and to your shame that here was beauty till you came.” These comments relate to research by Clark (1977) that gardening provides students with opportunities to interact with nature on a personal level while developing qualities such as individual (environmental) responsibility and empathy towards living things. Other research on school gardening programs has also indicated that hands-on activities and inquiry-based learning allows children to discover their surroundings for themselves (Waliczek and Zajicek, 1999; Skelly and Zajicek, 1998).

### To what extent did participants develop personal skills through their participation in BBG’s CGP?

Besides gaining horticulture skills in the program, participants also had the opportunity to gain personal skills meaning independence, responsibility, patience, etc. The survey determined the alumni’s level of agreement or disagreement with various personal development skills which they might have obtained during their experiences in the program. Responses ranged from “Strongly Disagree” coded as “1” to “Strongly Agree” coded as “5”. Most alumni agreed and strongly agreed that they learned to appreciate exploring nature (91%). Alumni also felt they “learned responsibility” (83%), “learned how to complete tasks in an orderly manner” (81%), “learned to be patient” (78%), “learned to make decisions” (73%), “experienced a sense of freedom playing in the dirt” (72%), “gained self-discipline” (71%), and “gained independence” (69%) (n=94) (Figure 22). Not surprisingly, these are values that the program founder, Miss Ellen Eddy Shaw envisioned as outcomes ninety-years ago when

the CGP first began. This finding supports qualitative research done on BBG's CGP by Tims (2003) and Blandford (2002) which also found that through participation in the CGP, participants developed various dimensions of their "personal" self.

### What percentage of participants' learned to appreciate nature through their participation in BBG's CGP?

A majority of alumni stated that BBG's CGP fostered their appreciation for gardening. The freedom of allowing each participant to explore the outdoors has also allowed participants to learn to appreciate nature through their exploration experiences. When asked, "To what extent did your participation in BBG's CGP increase your appreciation for nature," respondents were given five choices, ranging from "Not at all" coded as "1" to "Very much" coded as "5". Sixty-two percent (62%) stated their appreciation "Very much" increased upon their participation in BBG's CGP (Figure 23). This information relates to research on school gardening programs which indicated gardening activities, accompanied by educational lessons, positively influenced children's environmental attitudes (Waliczek and Zajicek, 1999).

### What percentage of participants career choices were affected by their participation in BBG's CGP?

In response to the question, "Do you feel your participation in BBG's CGP had an influence on your career choice," almost one-third (32%) felt the experience they gained through BBG's CGP helped them choose their career (n=88) (Figure 24). Careers influenced ranged from a horticulturist to a park ranger to a caterer to a teacher.

CGP alumni credit various aspects of the program for helping choose their career. Several chose a career in the food sciences. One alumnus stated, "I ended up studying food science and post harvest physiology, and ended up working in the produce industry. I am currently responsible for the food safety

programs at a packaged salad company. When people ask me how a city girl wound up working in the salad industry, I always tell them my interests started with my participation in BBG's CGP." Another alumni working in the food industry stated, "My gardening experience helped me appreciate farmers, who are important to me as a caterer, in the sense they help me have the freshest and most flavorful produce."

Several alumni are involved in the horticulture industry. One alumni mentioned, "I went on to college and studied horticulture and landscape architecture. I use the design skills, environmental awareness and scale/proportion lessons I learned at BBG everyday." Several (17) alumni surveyed are involved as landscape designers, in management positions at public gardens and also as park rangers at various National Parks across the United States. This is similar to research by Tanner (1980), Cooper-Marcus (1978), and Tims (2003) which have all indicated that children's outdoor experiences are important in the long-term development of children because they impact career choices.

**What percentage of participants career skills were affected by their participation in BBG's CGP?**

Along with asking the alumni about career choices, the survey also asked if participants increased their career skills in the program. Not quite the majority (44%) stated the program did in fact increase their career skills (Figure 25).

One alumnus recalled, "I learned the value of visual arts. I now illustrate commercially, and my first published illustration was the children's garden cookbook which was compiled during my time in the program." Other alumni remarked how the program helped them in school with several subjects. "I was ahead of other students who took courses in horticulture and the plant sciences. My teachers were always asking me where my essentials came from, only one place- BBG." Another alumnus recalled various skills obtained in the program,

“By improving my sense of responsibility, encouraging my curiosity about science and nature, and teaching me the importance of teamwork.”

### What factors contributed to the success of BBG’s CGP?

The survey allowed the alumni to note the components they felt made the CGP a success. Responses ranged from “Strongly Disagree” coded as “1” to “Strongly Agree” coded as “5”. Of the 92 alumni who responded to this question, a majority (94%) agreed and strongly agreed that “The staff was a crucial component to success and seemed to enjoy their job” (Figure 26). Eighty-nine percent (89%) stated “The CGP staff treated me with respect,” 95% felt that “The CGP staff supported my participation in various activities.” One alumnus recalled, “The success of the program was largely due to the adult leaders. Miss Shaw made every child feel very important.” The importance of the staff was indicated by the ability of alumni to recall the names of their CGP teachers.

Alumni also recalled the success of BBG’s CGP came from the high standards in the program. One alumni recalls, “If your tools weren’t clean enough, they made you clean them again until you got it right!” Alumni also commented on the opportunities for advancement; “as you grew older, you were allowed to learn more and take on more responsibility.” Alumni also felt the success of the program was because staff strived to make the most for every child and encouraged friendships and teamwork in every experience in the CGP. Research by Alexander, et. al. (1995) has indicated that gardening can provide an environment in which students can learn to work with peers, teachers, parents, and volunteers while growing plants and discovering the relationships between people, plants and nature.

### **Discussion and Recommendations**

Brooklyn Botanic Garden’s Children’s Gardening Program has been successfully incorporating children in the garden since 1914 (Maclin and Hyland,



1999). Results from this study suggest that Brooklyn Botanic Garden's Children's Gardening Program does have a strong impact on its participants throughout their adult lives. Respondents of all ages were able to recall experiences during their participation in the CGP in detail, which suggests the program did in fact leave a lasting impression. This research further indicates the vision of BBG's CGP founder, Miss Ellen Eddy Shaw, is being realized. In 1914, she stated, "Not only would children learn horticulture and botany by direct experiences, but they would also learn to share, to respect others rights and property, to work within a team, as well as the rewards of labor" (Stone, 1984). This study found that most alumni of the CGP achieved these learning objectives identified by Miss Shaw.

From these results, it is suggested that children who participate in the CGP will most likely garden as adults and most will have interest in and will engage in public gardens. This indicated the value of children's gardening programs in building our future gardening population as well as one which supports public gardens.

The alumni of the CGP feel positive about their experiences in the program specifically harvesting and taking home produce, learning horticulture, making friends, winning awards, and being engaged in a 'green space.' This indicates some of the most important elements of a children's gardening program to its participants and identifies the key aspects of a gardening program that administrators, managers, and teachers need to ensure are experienced by participants.

Results from this study imply that participants in a children's gardening program also do learn key gardening concepts especially weeding, bed preparation, watering, and harvesting. This indicates what gardening concepts participants actually learn through hands-on gardening programs. It also demonstrates the key concepts learned are those which are taught through

experiential activities and these activities should be integrated into children's gardening programs.

Results from this study indicate that participants of a CGP may gain self-esteem and personal and social skills in addition to learning gardening skills. Participants learn to be more independent, make decisions, responsibility, and practice patience. Socially, they gained in their ability to cooperate with adults and other children, to work in teams, and to accept others' ideas. Self-esteem is also bolstered through participants gardening success, making friends, and awards and recognition. This shows that children's gardening programs can build positive personal characteristics in participants and benefits gained are more than participants learning gardening knowledge and skills. This information can be important to parents who seek meaningful learning experiences and activities for their children as well as for public garden administrators who seek to market and advertise beneficial aspects of their programs.

It is further concluded children's gardening programs are an effective way to heighten participant's environmental awareness, especially concerning recycling, composting, littering, and the elements of a healthy environment. Many schools and public gardens desire to instill an environmental awareness in their patrons and this suggests CGP's can be an effective means to do so.

For some participants, children's gardening programs can be influential in their career choices. The experiences and activities in children's gardening programs can help participants identify career interests and in some cases lead individuals to select a career related to horticulture or the environment. This adds value to the role that children's gardening programs can play in participant's lives as well as to the role they can play in building the work force in environmental and horticultural professions.

In addition to participants feeling positive about their experiences in the CGP, participants felt there were key components of the CGP which made it

successful. These components ranged from the staff and how they made each child feel special, the programs high standards, opportunities to advance within the program, and the encouragement of friendships and teamwork. These items clearly show the important aspects of a CGP to its participants and the need to ensure that all of these elements are being met and accomplished within children's gardening programs. As schools and public gardens offer children's gardening programs, they need to design and implement these elements.

Results from this survey document the long term value and impact of a public garden's children's gardening program. Currently, there are a number of research studies focusing on children's gardening within schools. This research along with others (Tims, 2003; Blandford, 2002), is beginning to focus on identifying the impacts and value of having a children's gardening program within a public garden setting. A main goal included in most public garden missions is to enhance the educational experience of the garden visitor. By documenting the experiences of alumni participants of BBG's CGP, the information from this survey provides public garden professionals an overview of a meaningful children's gardening program. This research may also be helpful to public garden professionals by highlighting the importance of reaching out to a young audience. This research helps identify the importance of offering programs and activities geared to the younger audience. Adult alumni of BBG's CGP have fond memories of their childhood experience in the program and they regard this experience as having great value in their adult lives. As one alumnus stated, "A seed once sown never dies."

## List of References

## References

- Alexander, J., M.W. North, and D. Herdren. 1995. Master gardener classroom garden project: An evaluation of the benefits to children. *Children's Environment Quarterly*, 12(2): 256-263.
- Amato, R. R. 1991. Psychological distress and recall of childhood family Characteristics. *Journal of Marriage and the Family*, 53: 1011-1019.
- Basset, T. J. 1979. Vacant Lot Cultivation: Community Gardening in America. *Landscape*, 25 (2), 1-8.
- Blandford, M. 2002. The Brooklyn Botanic Garden's Children's Gardening Program: A Case Study. M.S. Thesis, The University of Tennessee, Knoxville.
- Bradley, J., J. Zajicek, and T. Waliczek. 1997. School Gardening: Improving Environmental attitudes of children through hands-on learning. *Journal of Environmental Horticulture*, 17(4), 180-184.
- Brooklyn Botanic Garden. 2004. <<http://www.bbg.org>>.
- Chawla, L. 1998. Research methods to investigate significant life experiences: Review and recommendations. *Environmental Education Research*, 4(4), 338-397.
- Clark, M. M. 1977. The learning process: Why youth gardening. In: B. Shalucha (ed.). *The long view ahead: Civic garden centers serving people, plants, ...plants, people*. Natl. Civic Garden Ctr., Inc., Ind. Univ. public., Bloomington.
- Cooper-Marcus, C. 1998. Remembrance of landscapes past. *Landscape*, 22(3).
- DeMarco, L., D. Relf and A. McDaniel. 1999. Integrating Gardening into the Elementary School Curriculum. *HortTechnology*, 9(2), 276-281.
- Dillman, D.A. 1978. *Mail and telephone surveys: The total design method*. Wiley Intersci. Publ., New York.
- Harvey, M. R. 1989. Children's experiences with vegetation. *Children's Environment Quarterly*, 8(1), 36-43.

- Hatch, A. 2002. *Doing Qualitative Research in Education Settings*. Albany, NY: SUNY Press.
- Henneberry, J. and P. Robertson. 1983. Fun in the sun: An outdoor program in a health care setting. *Children's Health Care* 12(1): 37-41.
- Jaus, H. 1982. The effect of environmental education instruction on children's Attitudes in elementary school students. *Science Education*, 66 (5), 690-692.
- Kahtz, A. 1995. Impact of Environmental Education Classes at Missouri Botanical Garden on Attitude and Knowledge Change of Elementary School Children. *HortTechnology*, 5 (4), 338-340.
- Lownds, N. 2000. Millenium Focus: Children's gardening. *American Gardener*, 79(2), 19-25.
- Linsky, R. 1971. Educational strategies for an environmental ethic. *Science Teacher*, 38(1), 16-18.
- Maclin, T. and Hyland, B. 1999. The Children's Garden at Brookly Botanic Garden: A Lasting Harvest. *Public Garden*, 14(3), 12-14.
- Mattern, V. 1999. Reinventing the Children's Garden. *Public Garden*, 14 (3), 3-7.
- Midden, K. and J. Chambers. 2000. An evaluation of a children's garden in developing a greater sensitivity to the environment in preschool children. *HortTechnology*, 10(2), 385-390.
- Montessori, M. 1912. *The Montessori method*. Schocken, New York.
- Neisser, U. 1982. Memory: What are the important questions? In U. Neisser (Ed.) *Memory Observed- Remembering in natural contexts* (pp. 3-19). San Fransisco: Freeman.
- Patel, I.C. 1991. Gardening's socioeconomic impacts: Community gardening in an urban setting. *J. Ext.* 29:7-8.
- Patterson, M. 1999. Cultivating Children's Gardens. *Public Garden*, 14(3), 25.
- Pitman-Gelles, B. 1981. *Museums, magic and children*. Assn. Science Technology Center, Washington, D.C.

- Russell, R. V. 1996. *Pastimes: The Context of Contemporary Leisure*. Dubuque, Iowa: Brown and Benchmark Publishers.
- Salant, P., D.A. Dillman. 1994. How to conduct your own survey. Wiley Intersci. Publ., New York.
- Sebba, R. 1991. The landscapes of childhood: The reflection of childhood's environment in adult memories and in children's attitudes. *Environment and Behavior*, 23(4), 395-422.
- Shair, G. 1999. A History of Children's Gardens. *Public Garden*, 14 (3), 9-11.
- Skelly, S., and J. Zajicek. 1998. The effect of an interdisciplinary garden program on the environmental attitudes of elementary school students. *HortTechnology* 8(4), 579-583.
- Statistical Package for Social Science (SPSS). 2004. SPSS 13.0 for Windows. Prentice Hall, Upper Saddle, N.J.
- Stone, D. M. 1984. Children's Gardening at BBG. *Gardening with Children*, 40 (3), 6-10.
- Tanner, T. 1980. Significant life experiences: A new research area in environmental education. *J. Environ. Ed.* 4(4): 399-417.
- Tims, J. 2003. The Brooklyn Botanic Garden Children's Gardening Program: Its meaning and impact on adult alumni. M.S. Thesis, The University of Tennessee, Knoxville.
- Trelstad, B. 1997. Little Machines in Their Gardens: A History of School Gardens in America, 1891 to 1920. *Landscape Journal*, 16(2), 161-173.
- Waliczek, T.M., R.H. Mattson, and J.M. Zajicek. 1996. Psychological benefits of community gardening. *J. Environmental Horticulture*, 14: 204-209.
- Waliczek, T.M. and J.M. Zajicek. 1999. School gardening: Improving environmental attitudes of children through hands-on learning. *J. Environmental Horticulture*, 17(4): 180-184.

## **Appendices**



## **Appendix A- Figures**

## **Notes on Appendix A-**

The figures in this appendix, the following abbreviation are used:

BBG- Brooklyn Botanic Garden

CGP- Children's Gardening Program

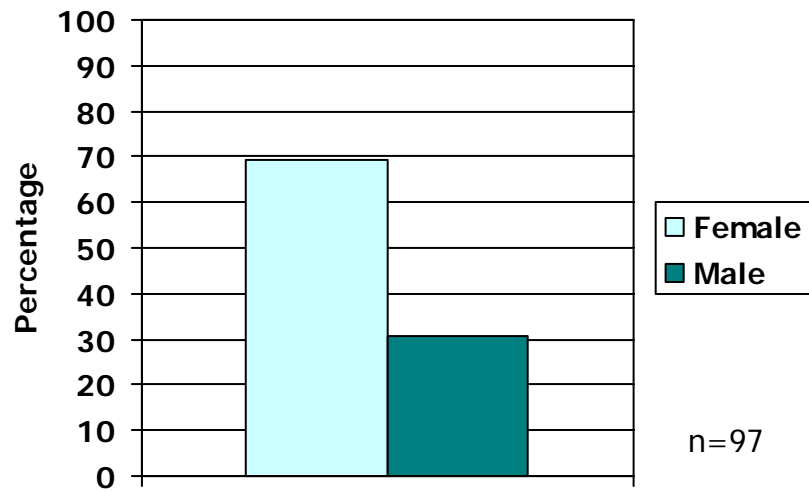


Figure 1: Gender of Survey Respondents (Q-41)

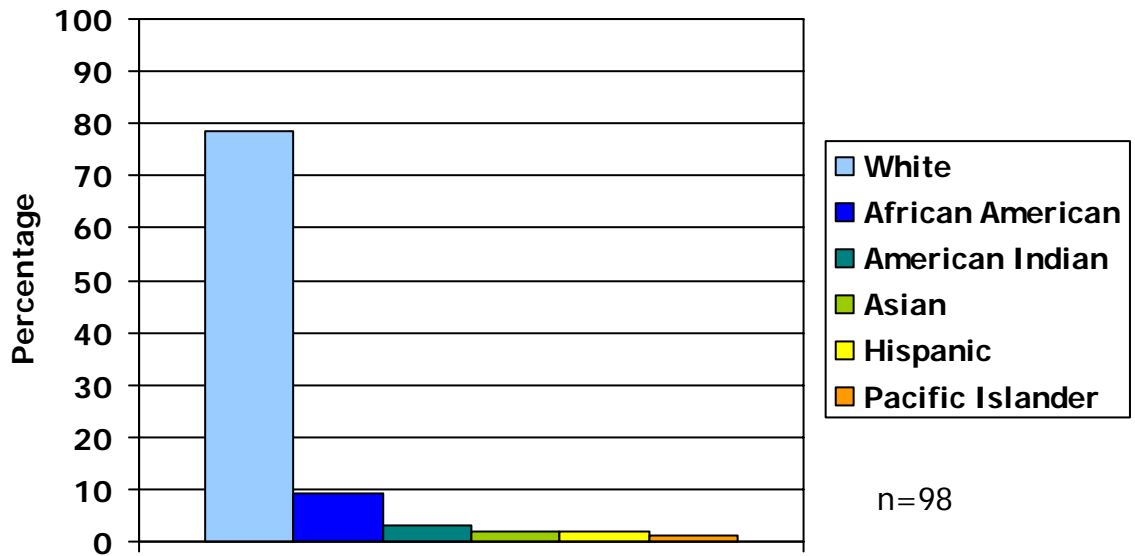


Figure 2: Ethnicity of Survey Respondents (Q-44)

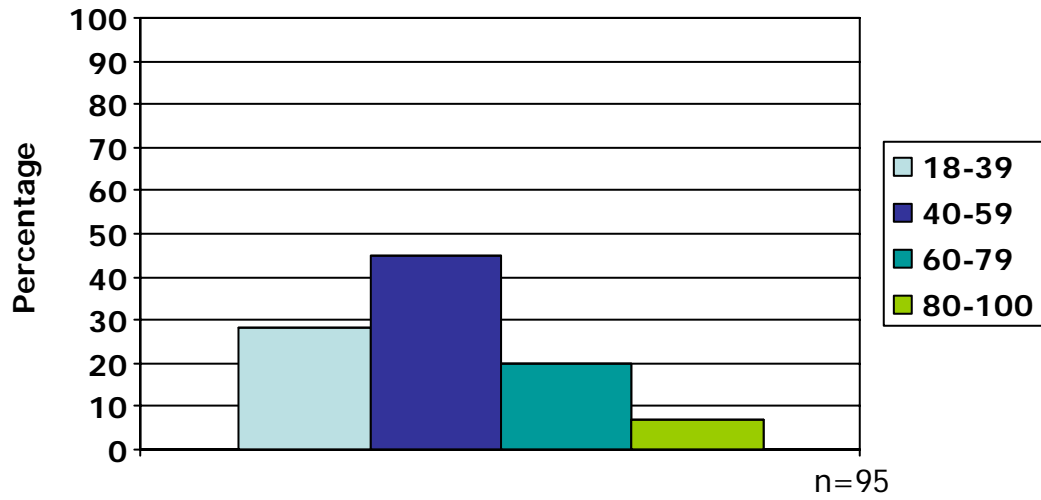


Figure 3: Age Range of Survey Respondents (Q-43)

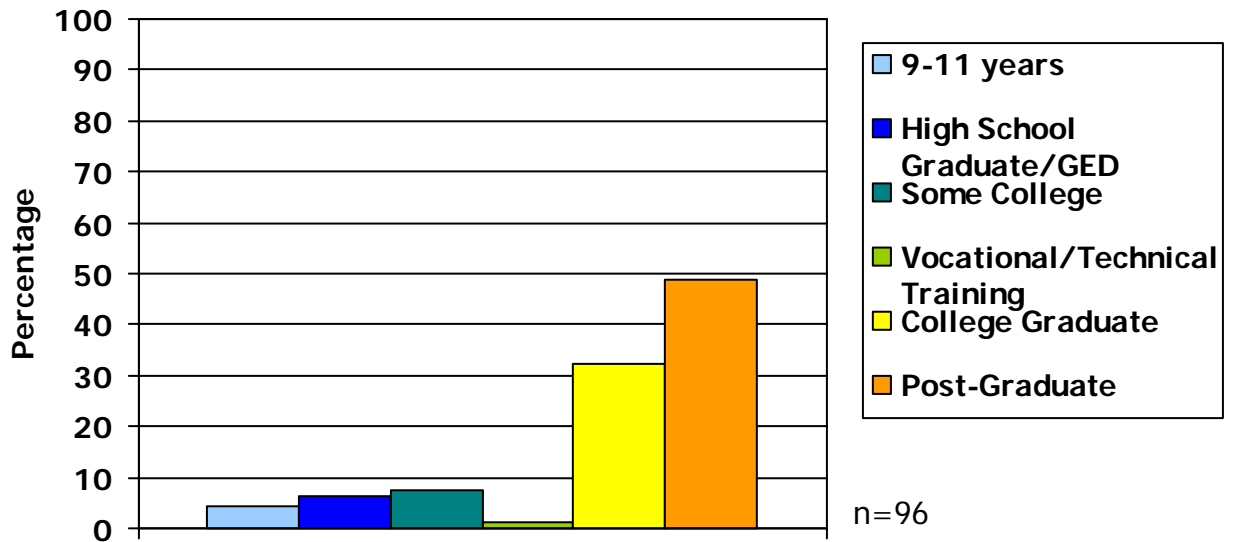
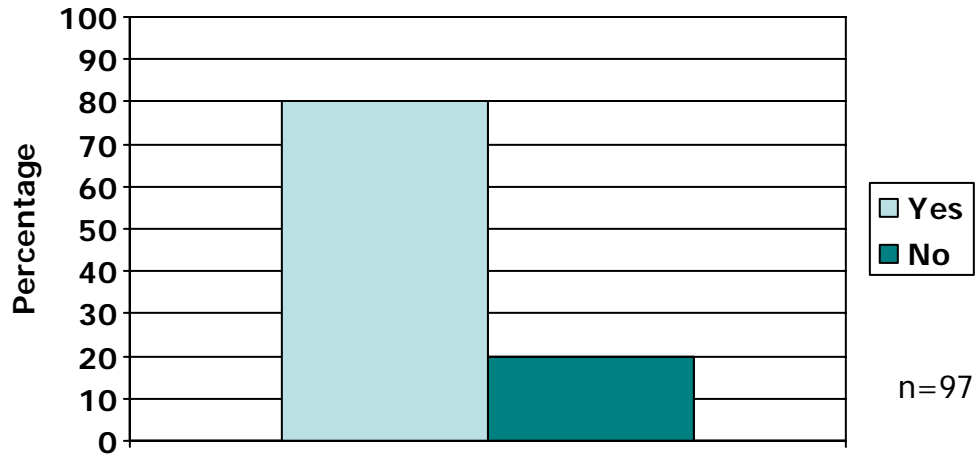
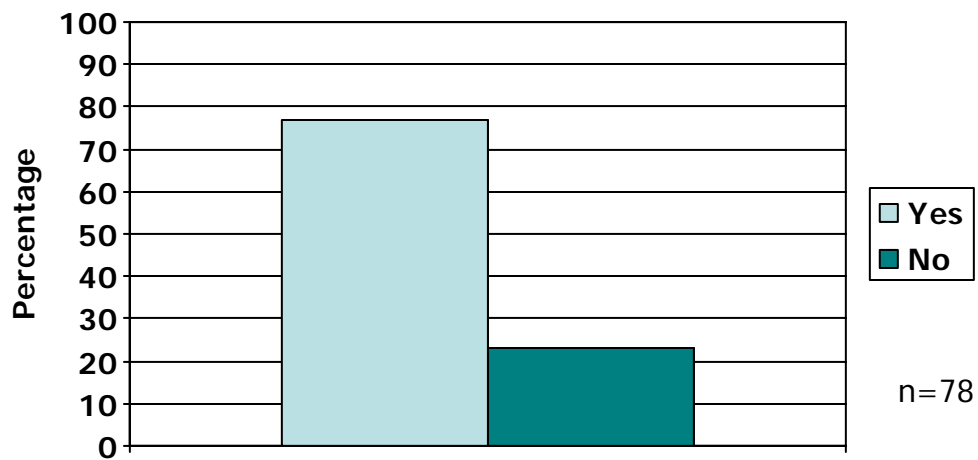


Figure 4: Education Level of Survey Respondents (Q-42)

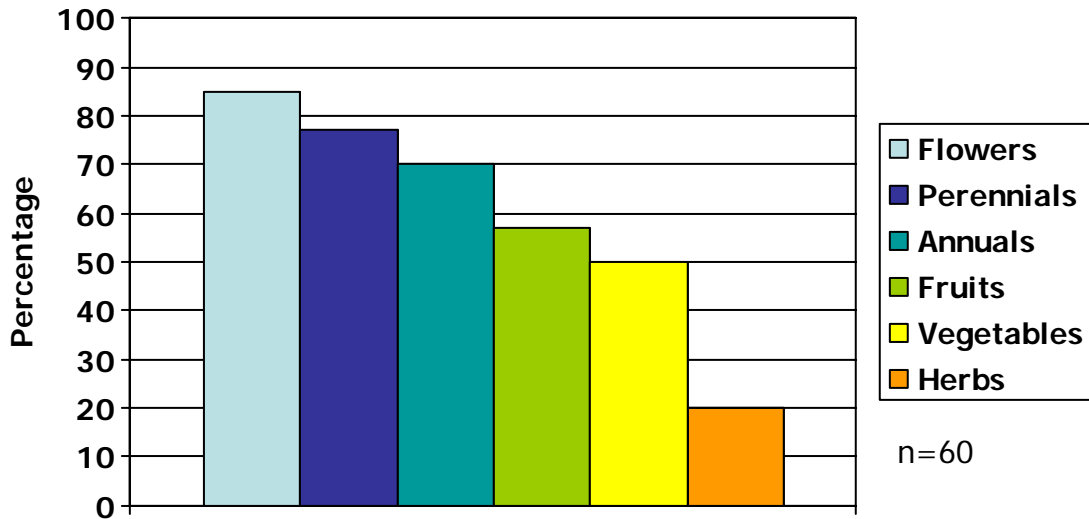


**Figure 5: Current Interest in Gardening (Q-1)**



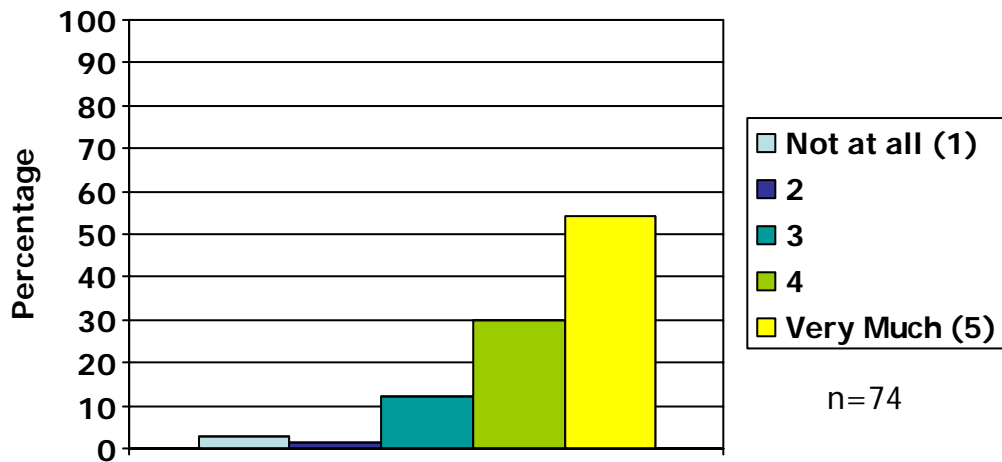
**Figure 6: Do you garden? (Q-2)**

(Note: Percent of those who have an interest in gardening.)



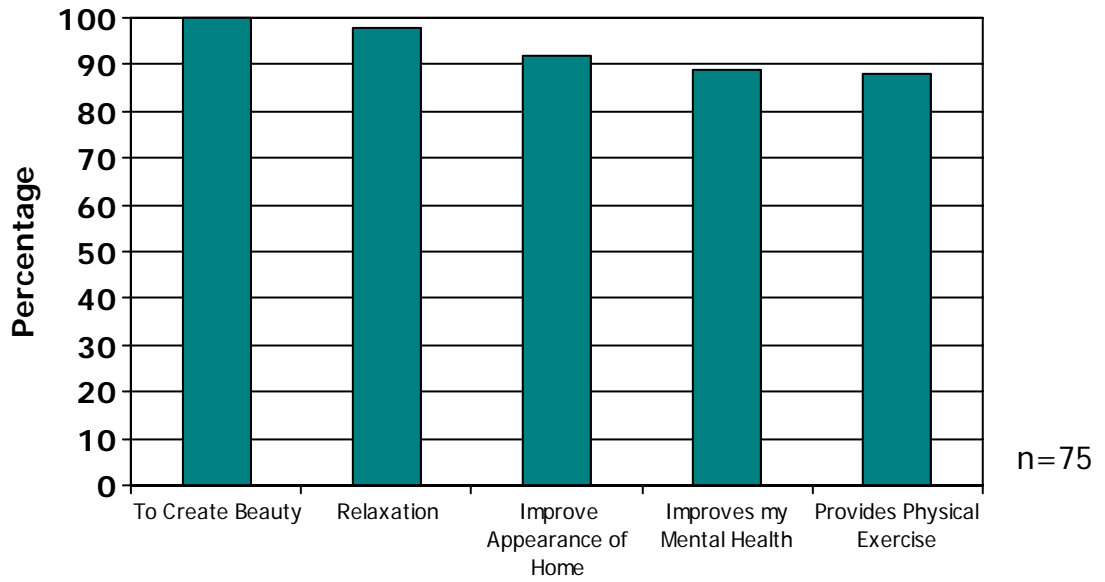
**Figure 7: Types of plants grown by survey participants (Q-3)**

(Note: Percent of those who garden.)



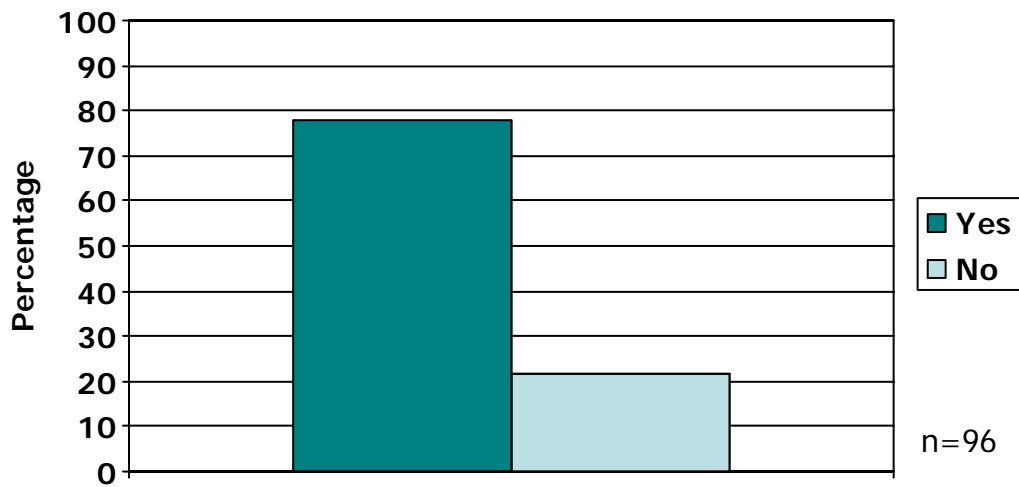
**Figure 8: Extent participation in BBG's CGP led to current interest in gardening for survey participants (Q-5)**

(Note: Percent of those who have an interest in gardening.)

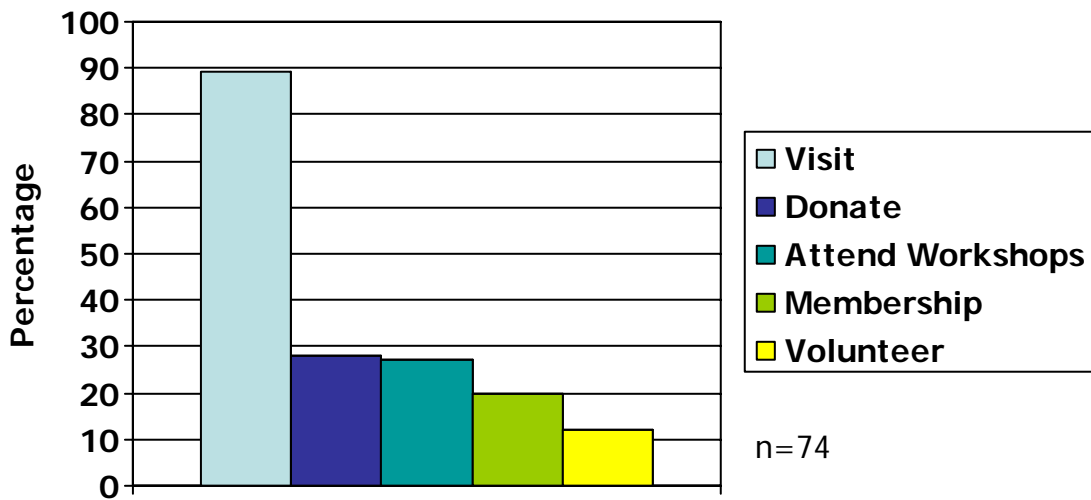


**Figure 9: Benefits survey participants received from gardening as an adult (Q-4)**

(Note: Percent of those who garden; Positive Responses: Strongly Agree and Agree.)

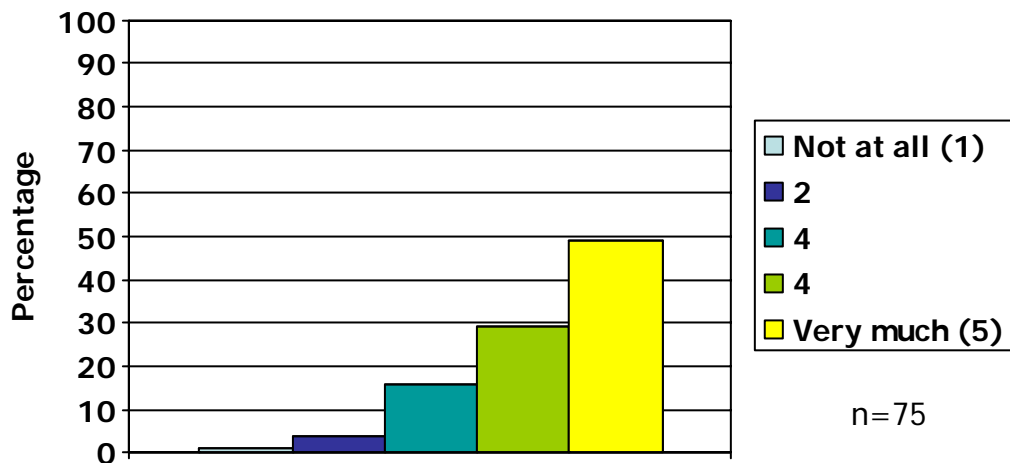


**Figure 10: Survey participant's interest in public gardens (Q-7)**



**Figure 11: Extent survey participants are involved with public gardens (Q-10)**

(Note: Percent of those interested in public gardens.)



**Figure 12: Extent participants in BBG's CGP led to current interest in public gardens (Q-12)**

(Note: Percent of those interested in public gardens.)



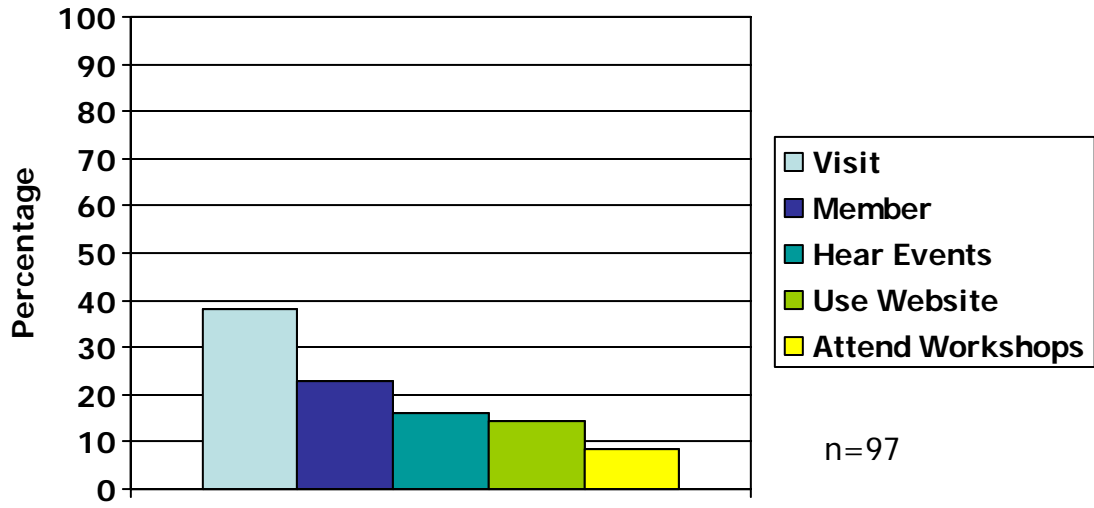


Figure 13: Extent alumni participants are involved with BBG (Q-13)

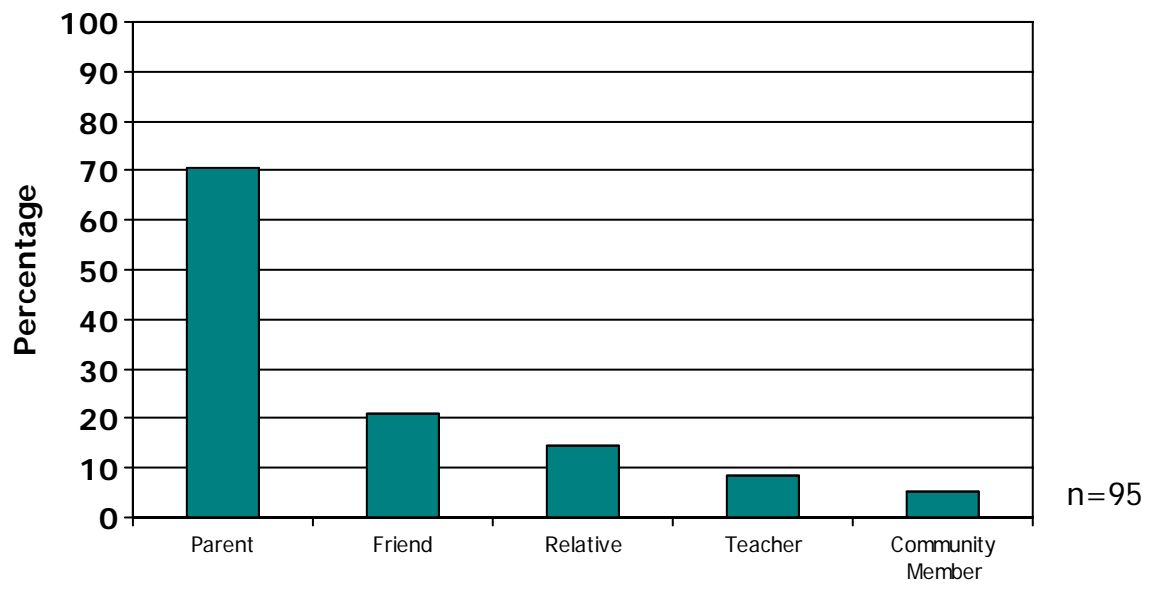


Figure 14: How survey participants became involved with BBG's CGP (Q-21)

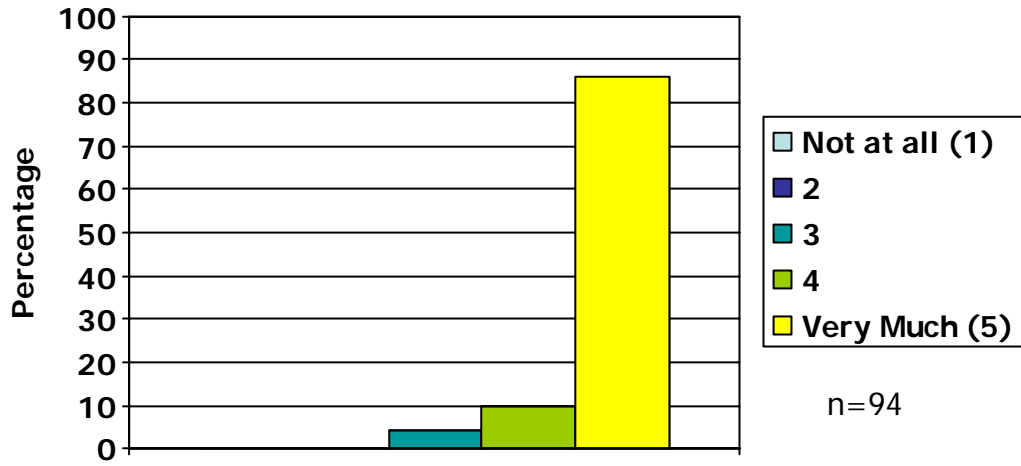


Figure 15: Extent survey participants enjoyed their experiences in BBG's CGP H(Q-23)

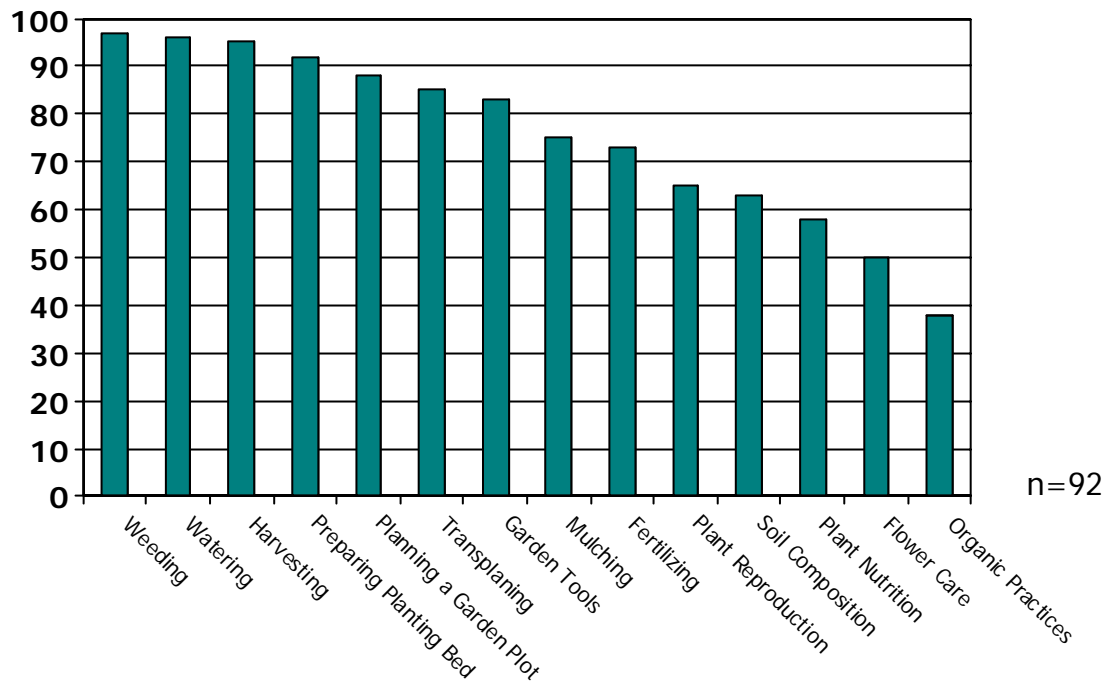


Figure 16: Extent of horticulture skills gained in BBG's CGP (Q-26)

(Note: Positive Responses -Strongly Agree and Agree)

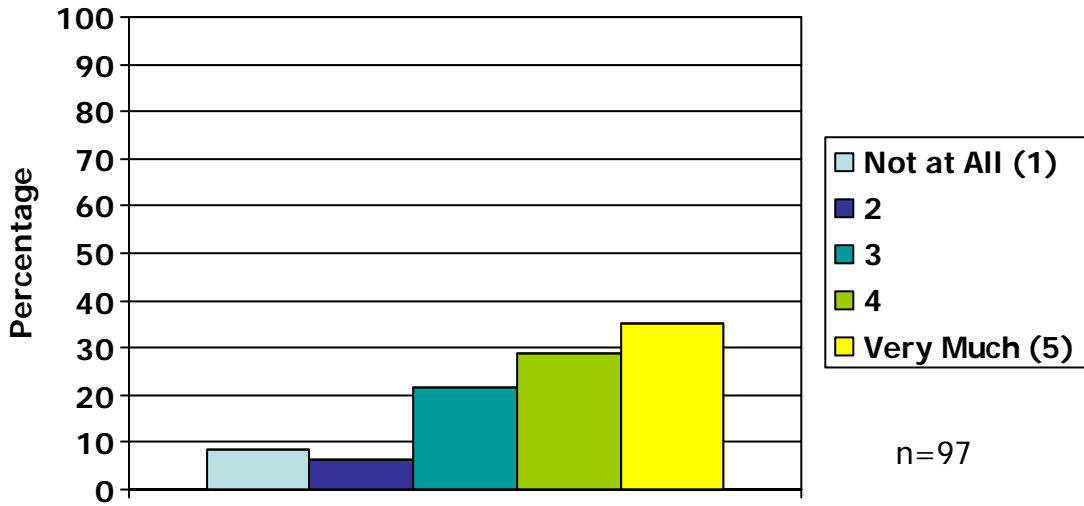


Figure 17: Extent survey participants gained self-esteem in BBG's CGP (Q-27)

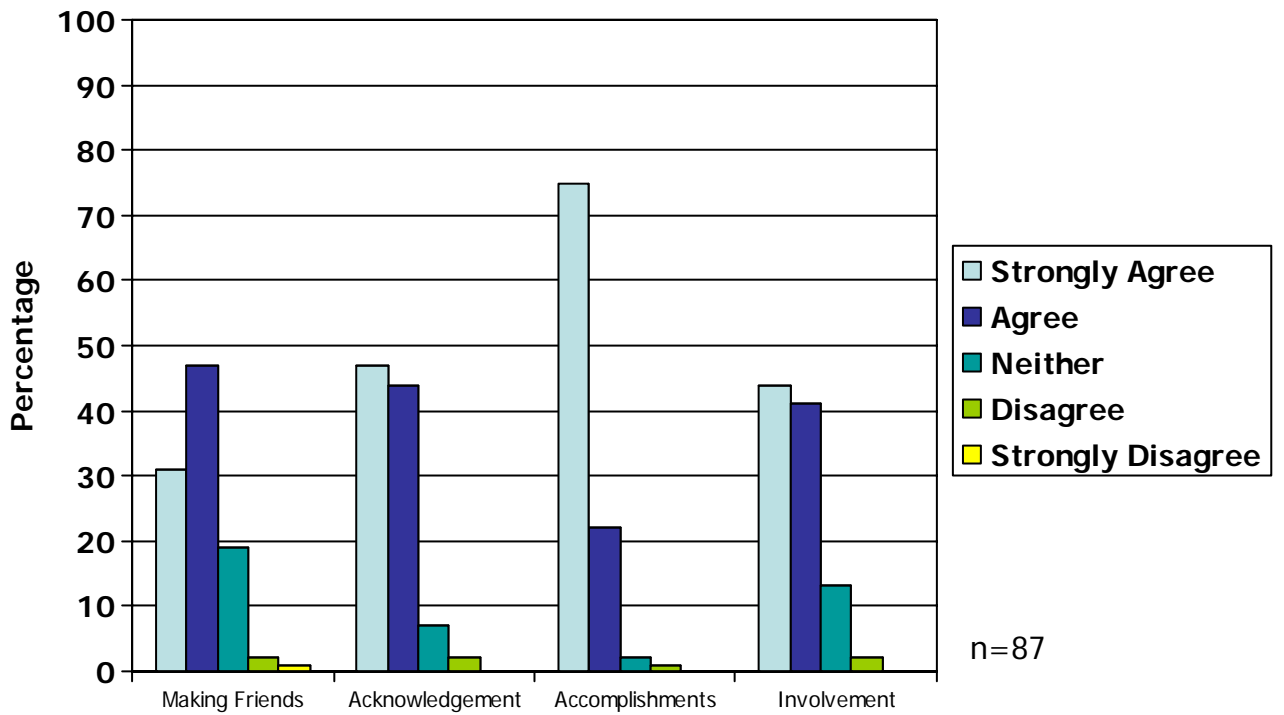


Figure 18: Ways survey participants gained self-esteem in BBG's CGP (Q-28)

(Note: Percent of those who gained self-esteem)

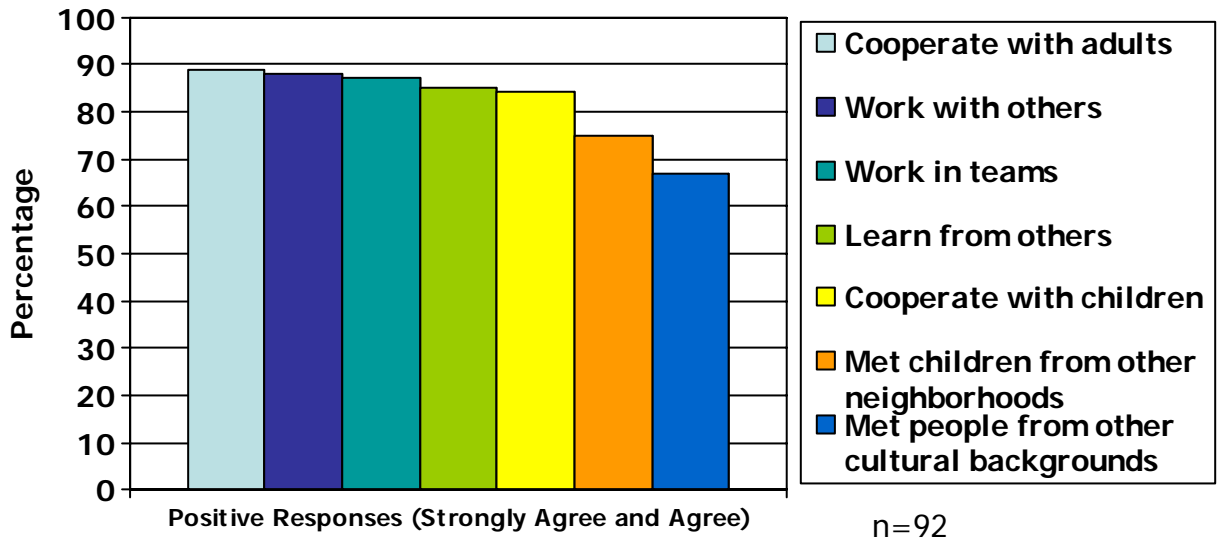


Figure 19: Social skills gained by survey participants (Q-29)

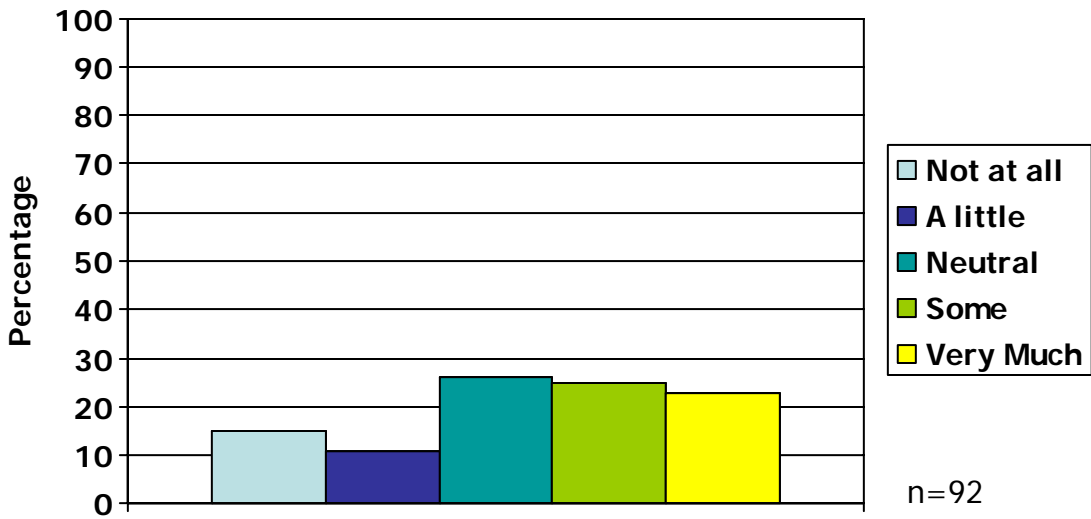


Figure 20: Extent survey participants made friends in BBG's CGP (Q-30)

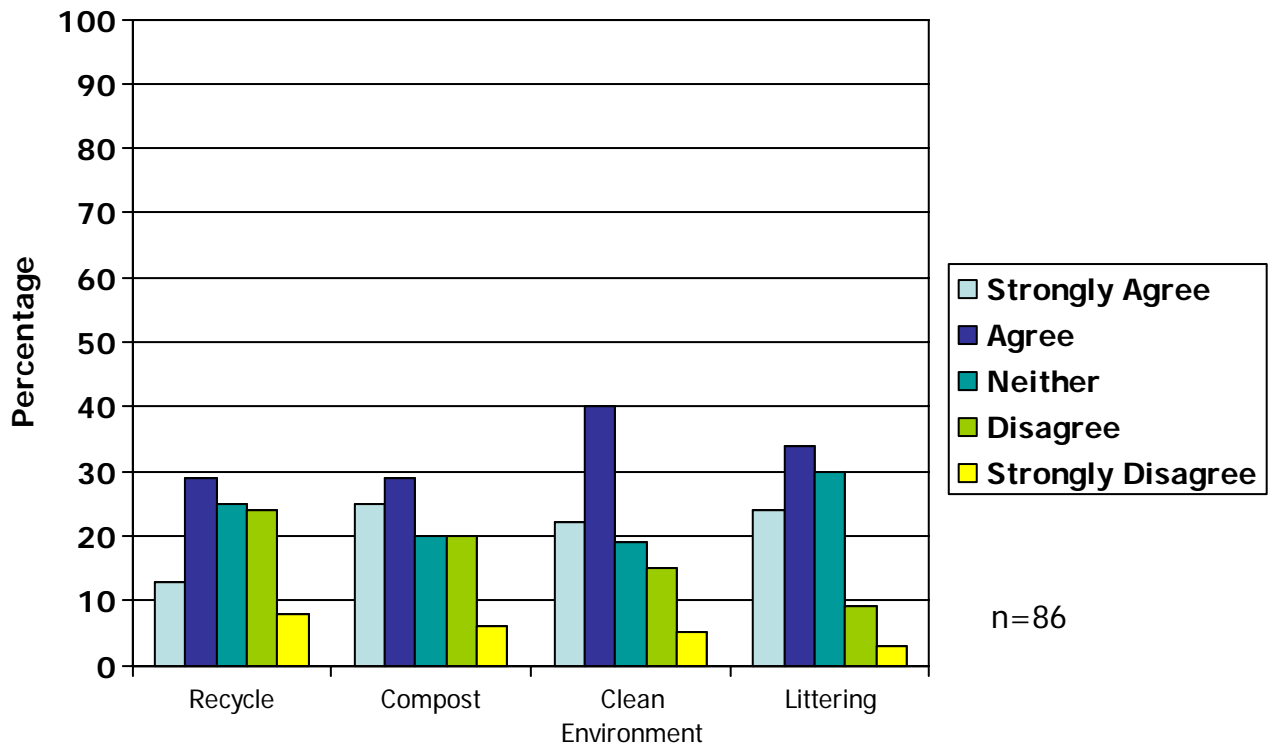


Figure 21: Extent survey participants learned about environmental issues in BBG's CGP (Q-32)

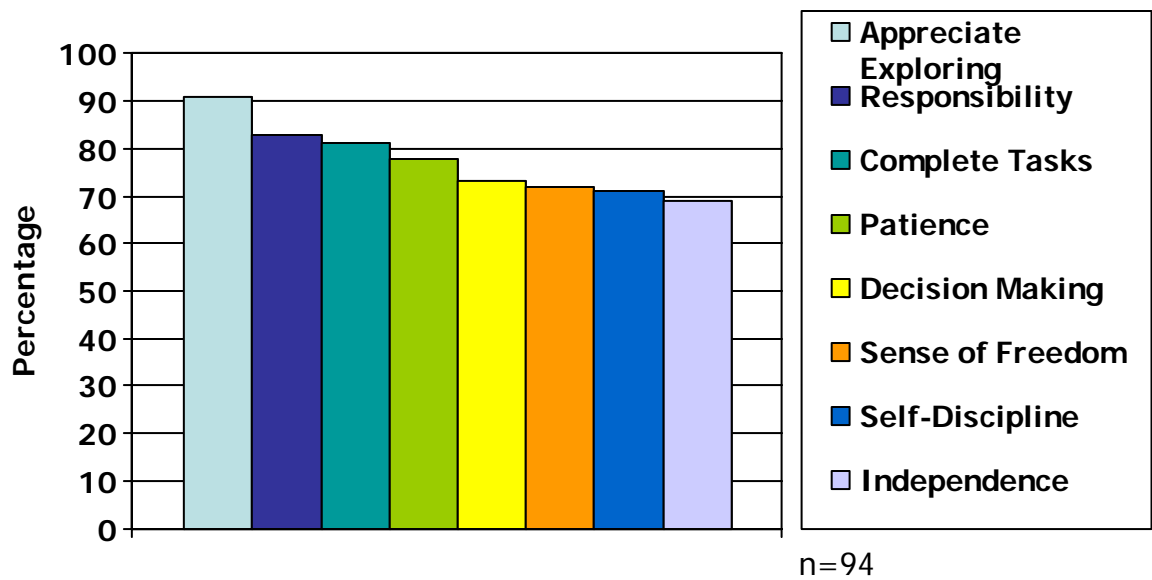


Figure 22: Personal skills developed by survey participants in BBG's CGP (Q-36)

(Note: Positive Responses -Strongly Agree and Agree.)

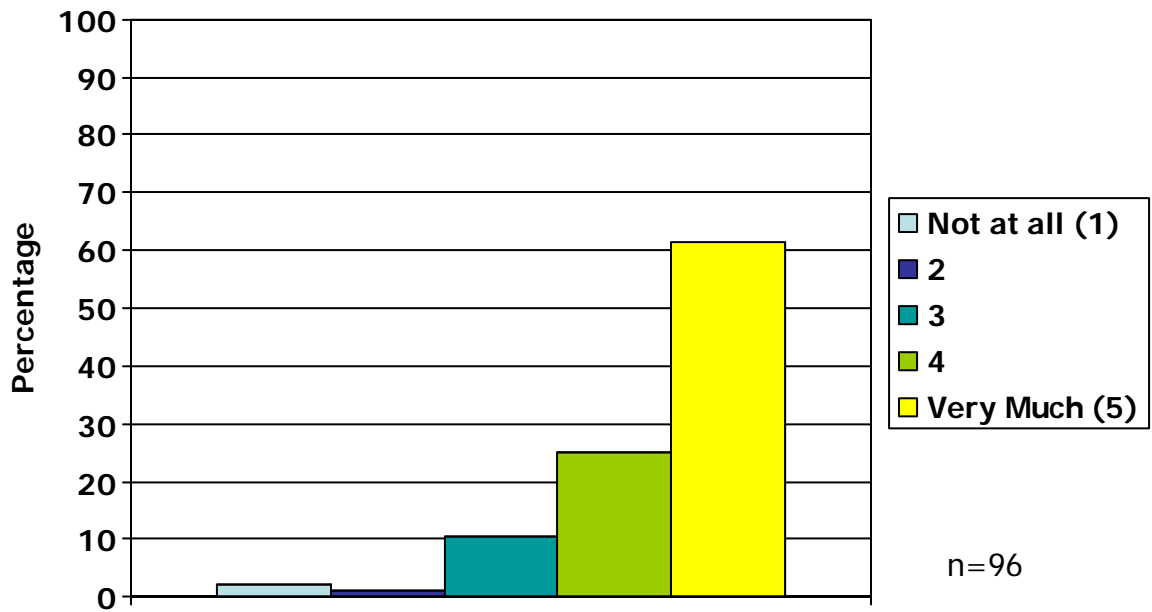


Figure 23: Extent participants increased their appreciation for nature in BBG's CGP (Q-33)

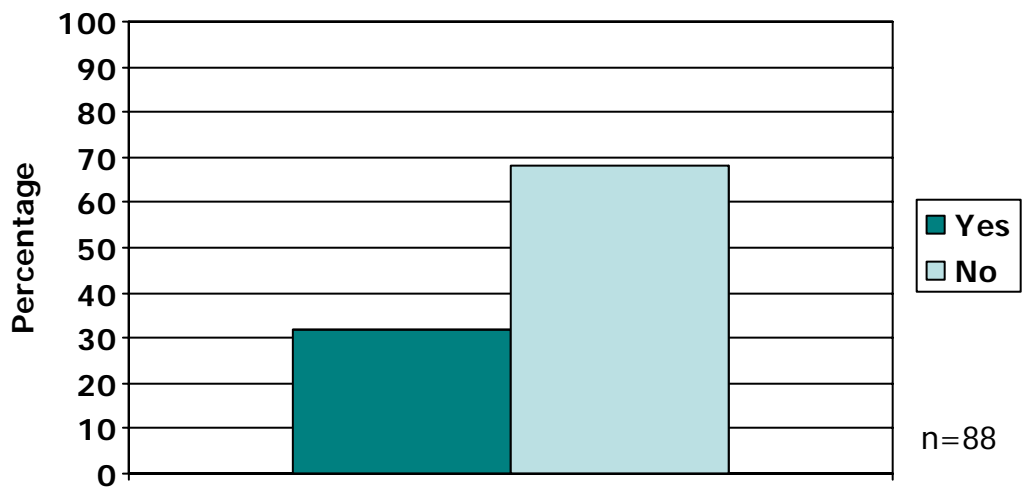


Figure 24: BBG's CGP influence on survey participants career choices (Q-35)

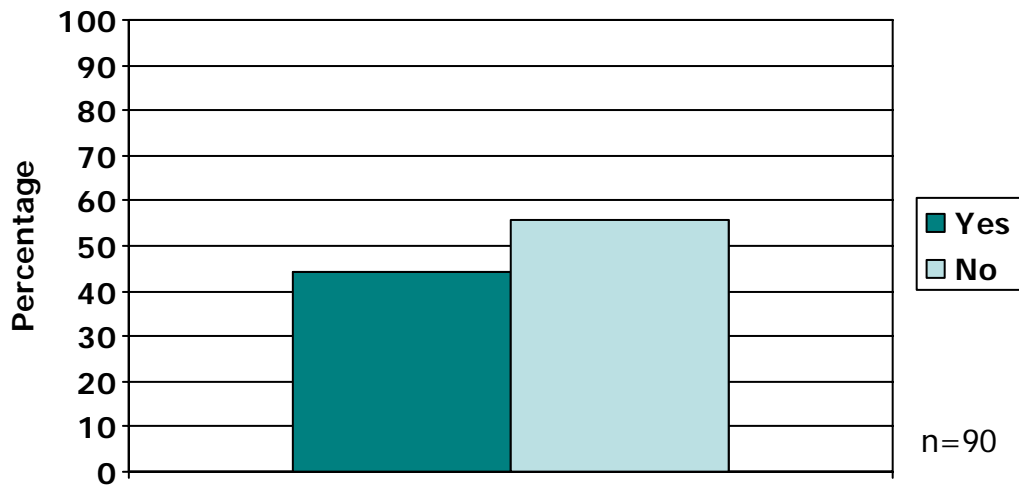


Figure 25: Extent BBG's CGP influenced survey participants career skills (Q-37)

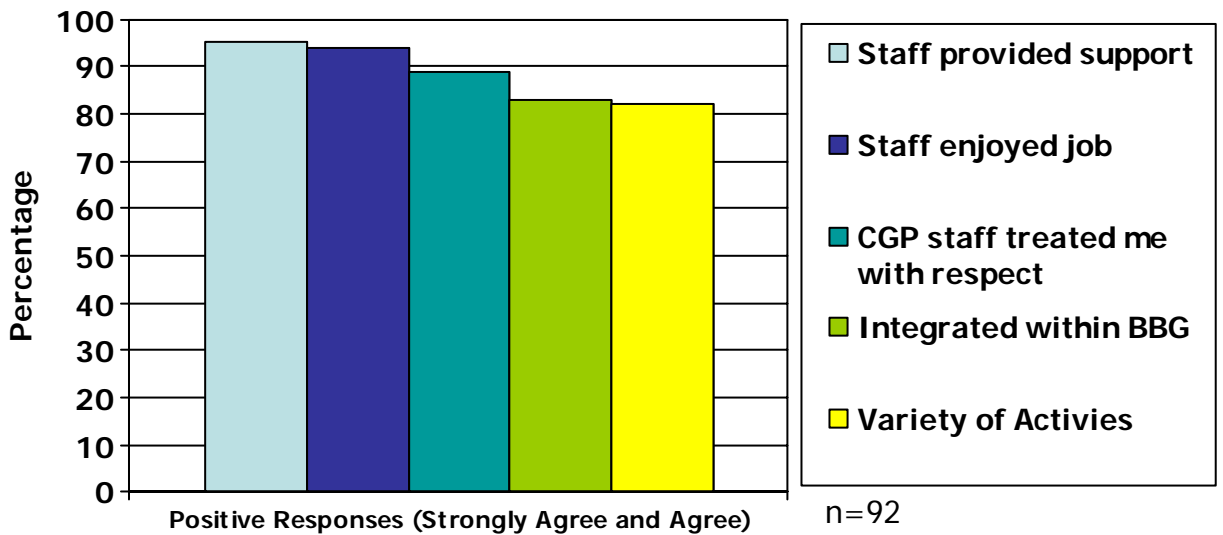


Figure 26: Successful components of BBG's CGP (Q-39)

## **Appendix B- Survey Instrument**



## Notes on Appendix B-

The figures in this appendix, the following abbreviation are used:

BBG- Brooklyn Botanic Garden

CGP- Children's Gardening Program

B-1: Survey Pre-letter

# BrooklynBotanicGarden

Children's Garden Research Project  
University of Tennessee  
252 Ellington Plant Sciences  
2431 Joe Johnson Drive  
Knoxville, TN 37996-4561

February 23, 2005

Mr. Joe Gardener  
123 5<sup>th</sup> Street  
Columbus, OH 43212

Dear Mr. Gardener:

Within the next few days, you will receive in the mail, a request to complete a brief survey for Brooklyn Botanic Garden related to their Children's Gardening Program.

As an alumnus of this program, your participation is extremely important to this study. The study is focusing on experiences of adult alumni of Brooklyn Botanic Garden's Children's Gardening Program in an effort to learn about the importance and long-term impacts of participating in a children's gardening program.

This research is being conducted in a joint effort by Brooklyn Botanic Garden and the University of Tennessee. Once you receive the survey, we would greatly appreciate you taking the few minutes necessary to complete and return it.

Thank you in advance for your participation and help.

Sincerely,

Marilyn Smith  
Director of Children's Education  
Brooklyn Botanic Garden

Emily K. Smith  
Survey Project Director  
University of Tennessee

# Brooklyn Botanic Garden's Children's Gardening Program



## A Survey of Alumni



BrooklynBotanicGarden

## Brooklyn Botanic Garden's Children's Gardening Program: A Survey of Alumni Participants

The purpose of this survey is to obtain information about your experiences as a child participant in Brooklyn Botanic Garden's Children's Gardening Program (BBG CGP). We assure you that all your answers will be kept completely confidential and will not be associated with your name. Please answer the following questions based on your experiences. For each question, mark your responses with an "X" in the boxes provided or write in your answer where appropriate.

We greatly appreciate you taking the few minutes necessary  
to complete and return your survey.

### 1. Do you have a current interest in gardening?

- Yes
- No → Skip to Q-7

### 2. Do you garden?

(By garden, we mean having an area or containers where you cultivate flowers, vegetables, herbs, or fruit.)

- Yes
- No → Skip to Q-4

### 3. What do you grow in your garden? (Please mark all that apply)

- |  |                                  |
|--|----------------------------------|
| <input type="checkbox"/> Annuals               | <input type="checkbox"/> Fruits  |
| <input type="checkbox"/> Perennials            | <input type="checkbox"/> Herbs   |
| <input type="checkbox"/> Vegetables            | <input type="checkbox"/> Flowers |
| <input type="checkbox"/> Other (specify) _____ |                                  |

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**4. We would like to see what BENEFITS you receive from gardening as an adult.**

(Please indicate your level of agreement or disagreement for the following statements by placing an ☒ in the appropriate box.)

Gardening is a benefit because...	Strongly Disagree	Disagree	Neither Disagree nor Agree	Agree	Strongly Agree	Do not Know
it allows me to socialize with my family and/or friends.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I feel relaxed in the garden.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
it improves my mental health.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I feel safe in the garden.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I learn about plants.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
it improves the appearance of my home.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I enjoy working with my hands.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
it provides physical exercise.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I enjoy creating beauty.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I enjoy being creative.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I can produce and harvest my own food.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I can produce and harvest my own cut flowers.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Other (specify):** \_\_\_\_\_  
 \_\_\_\_\_

**5. To what extent did your participation in BBG's Children's Gardening Program lead to your current interest in gardening, if at all?**

(Please mark your answer with an ☒ in the appropriate box)

<b>Not at All</b>		<b>Very Much</b>		
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

6. Are you a member of any gardening related organizations? (Please list)

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

The next set of questions deal with YOUR INVOLVEMENT WITH PUBLIC GARDENS.  
By public gardens, we mean a botanical garden, arboretum or other public garden areas.

7. Do you have an interest in public gardens?

- Yes
- No → Skip to Q-13

8. Approximately how many times did you visit public gardens within the last twelve months, if at all?

\_\_\_\_\_ # of visits

9. Are you currently a member of a public garden other than BBG?

- Yes (specify):
1. \_\_\_\_\_
  2. \_\_\_\_\_
  3. \_\_\_\_\_
- No

10. There are many ways in which an individual can be involved in a public garden. Please indicate ways you are involved, if at all.

(Please mark all that apply)

- I visit public gardens.
- I volunteer at a public garden.
- I make monetary donations to a garden.
- I attend educational workshops at a garden.
- I participate through membership privileges.
- I am not involved with a public garden at this time.
- Other (specify): \_\_\_\_\_
- \_\_\_\_\_

**11. Why do you visit public gardens?**

(If you do not visit public gardens, please skip to Q-12.)

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**12. To what extent did your participation in Brooklyn Botanic Garden's Children's Gardening Program lead to your current interest in public gardens, if at all?**

(Please mark your answer with an  in the appropriate box)

<b>Not at All</b>					<b>Very Much</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

**13. What is your current level of involvement with BBG, if any?**

(Please mark all that apply)

- Member
- Use website
- Attend educational workshops
- Visit on a regular basis
- Hear about current events at BBG through others
- No involvement
- Other (specify) \_\_\_\_\_

We would like to know your CURRENT involvement with children's gardening programs. Please mark the answer that best fits your response.

**14. Are you currently involved with a children's gardening program?**

- Yes
- No → Skip to Q-18

15. Are you involved as a ...? (Please mark all that apply)

- |  |   |
|--|---|
| <input type="checkbox"/> Parent                | <input type="checkbox"/> Volunteer          |
| <input type="checkbox"/> Teacher               | <input type="checkbox"/> Paid staff         |
| <input type="checkbox"/> Relative              | <input type="checkbox"/> Community gardener |
| <input type="checkbox"/> Group leader          |   |
| <input type="checkbox"/> Other (specify) _____ |   |

16. In what way are you involved? Please explain what you do.

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17. How **IMPORTANT** was your participation in Brooklyn Botanic Garden's Children's Gardening Program to your decision to work with children in gardening as an adult, if at all?

- |                          |                          |                          |                          |                          |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Not at All               |                          |                          |                          | Very                     |
| 1                        | 2                        | 3                        | 4                        | 5                        |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

18. Have you encouraged other children to get involved in the Children's Gardening Program at BBG?

- Yes  
 No

The following questions are about your CHILDHOOD EXPERIENCES in Brooklyn Botanic Garden's Children's Gardening Program (BBG CGP).

19. How many years did you participate in BBG's CGP?

\_\_\_\_\_ Years

20. How old were you when you **FIRST** participated in the program?

Age \_\_\_\_\_



**21. How did you get involved with BBG's Children's Gardening Program?**  
(Please mark all that apply)

- Parent
- Friend
- Relative
- Teacher
- Community member
- Other (please specify) \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**22. What types of plants did you grow in your garden plot at BBG?**  
(Please mark all that apply)

- Flowers
- Vegetables
- Fruits
- Herbs
- Other (please specify) \_\_\_\_\_
- Do not remember

**23. To what extent did you ENJOY your experiences as a child in BBG's Children's Gardening Program, if at all?**

- |                          |                          |                          |                          |                          |                  |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|------------------|
| <b>Not at All</b>        |                          |                          |                          |                          | <b>Very Much</b> |
| <b>1</b>                 | <b>2</b>                 | <b>3</b>                 | <b>4</b>                 | <b>5</b>                 |                  |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |                  |

**24. In the space below, please describe your favorite memories of this program.** (Please attach additional pages if needed)

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**25. What were your least favorite memories of this program?**  
(Please attach additional pages if needed)

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26. The following statements are about **HORTICULTURE KNOWLEDGE** and **SKILLS** taught in BBG's Children's Gardening Program. (Please indicate your level of agreement or disagreement with the following statements.)

I learned about....	Strongly Disagree	Disagree	Neither Disagree nor Agree	Agree	Strongly Agree	Do not know
weeding a garden plot.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
mulching a garden plot.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
getting a planting bed ready.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
transplanting.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
watering a garden plot.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
fertilizing a garden plot.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
planning a garden plot.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
organic practices.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
producing and harvesting vegetables.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
pinching and deadheading flowers.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
plant nutrition.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
soil composition.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
plant reproduction.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I learned how to care for my garden tools.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

The next set of statements deal with self-esteem. By self-esteem, we mean to believe and have pride in one's self, as well as gaining a sense of self-worth. (Please mark your answer with an ☑ in the appropriate box.)

**27. To what extent did your participation in BBG's CGP improve your self-esteem, if at all?**

Not at All Very Much  
 1      2      3      4      5  
           

**If Not at All → Skip to Q-29.**

**28. How did you gain self-esteem from participation in BBG's CGP?**  
 (Please indicate your level of agreement or disagreement with the following statements.)

I gained self esteem in this program by...	Strongly Disagree	Disagree	Neither Disagree nor Agree	Agree	Strongly Agree	Do not know
making friends.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
being acknowledged for my efforts.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
feeling proud to see my plants grow.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
feeling special just to be involved.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Other ways you gained self-esteem:** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**29. The following statements deal with your CHILDHOOD PARTICIPATION in Brooklyn Botanic Garden's Children's Gardening Program (BBG CGP). (Please indicate your level of agreement or disagreement with the following statements.)**

Through participation in the program...	Strongly Disagree	Disagree	Neither Disagree nor Agree	Agree	Strongly Agree	Do not know
I learned to work with others.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I learned how to cooperate with children.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I learned to cooperate with adults.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I learned to work in teams.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I learned from others' ideas.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I met children from other neighborhoods.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I met people from other cultural backgrounds.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**30. To what extent did you make friends with other children in BBG's Children's Gardening Program?**

<b>Not at All</b>				<b>Very Much</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**If Not at All → Skip to Q-32.**

**31. Are you still friends with any of the CGP participants?**

Yes (please explain): \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

No

32. The Children’s Gardening Program at BBG provides participants the opportunity to learn about **ENVIRONMENTAL ISSUES**. (Please indicate your level of agreement or disagreement with the following statements.)

Through participation in the program...	Strongly Disagree	Disagree	Neither Disagree nor Agree	Agree	Strongly Agree	Do not know
I learned how to recycle.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I learned how to make compost.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I learned the importance of a clean environment.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I learned not to litter.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Please describe what else you learned about ENVIRONMENTAL ISSUES below:

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33. To what extent did your participation in BBG’s Children’s Gardening Program

**INCREASE YOUR APPRECIATION FOR NATURE, if at all?**

(Please mark your answer with an  in the appropriate box)

Not at All			Very Much	
1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

34. To what extent did you **GROW IN CULTURAL AWARENESS** by participating in the CGP, if at all?

(Please mark your answer with an  in the appropriate box)

Not at All			Very Much	
1	2	3	4	5
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**35. Do you feel your participation in BBG's CGP had an influence on your career choice?**

Yes (please explain): \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

No

**36. The next statements deal with PERSONAL DEVELOPMENT related to your participation in BBG's Children's Gardening Program. (Please indicate your level of agreement or disagreement with the following statements.)**

Through participation in the program...	Strongly Disagree	Disagree	Neither Disagree nor Agree	Agree	Strongly Agree	Do not Know
I gained independence in the program.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I learned to appreciate exploring nature.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I experienced a sense of freedom playing in the dirt.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I learned to make decisions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I gained self-discipline.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I learned how to be patient.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I learned how to complete tasks in an orderly manner.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
I learned responsibility.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**37. Do you feel your participation in BBG's CGP enhanced your career skills?**

Yes (please explain): \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

No

**38. Which of the following do you have more of an interest in as a result of your participation in BBG's Children's Gardening Program?**  
(Please mark all that apply)

<input type="checkbox"/> Gardening	<input type="checkbox"/> Hiking
<input type="checkbox"/> Cooking	<input type="checkbox"/> Camping
<input type="checkbox"/> Community Gardening	<input type="checkbox"/> Photography
<input type="checkbox"/> Art	<input type="checkbox"/> Appreciation of Nature
<input type="checkbox"/> Bird Watching	<input type="checkbox"/> Traveling
<input type="checkbox"/> Other (specify): _____	
_____	
_____	
_____	

No



**39. There are many aspects to Brooklyn Botanic Garden's Children's Gardening Program. What components of the CGP do you believe were important to making it FUNCTION? (Please indicate your level of agreement or disagreement with the following statements.)**

	Strongly Disagree	Disagree	Neither Disagree nor Agree	Agree	Strongly Agree	Do not Know
The CGP staff seemed to enjoy their job.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The CGP staff treated me with respect.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The CGP staff supported my participation in the activities.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
There was a variety of activities.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
The program was integrated within Brooklyn Botanic Garden.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Are there other components important to the functioning of this program?**

If yes, please list or explain:

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**40. How could BBG's Children's Gardening Program be improved?**

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Finally, we would like to ask a few questions about you for research purposes only. Your responses will remain confidential and are for statistical purposes only. Your responses will not be associated with your name.

**41. What is your gender?**

- Female
- Male

**42. What is the highest level of school you completed?**

- 8 years or less
- 9-11 years
- High School Graduate/ GED
- Some College
- Vocational/ Technical Training
- College Graduate
- Post-Graduate

**43. In what year were you born? \_\_\_\_\_**

**44. What race or races do you consider yourself to be?**

- White
- Black or African American
- American Indian or Alaska Native
- Asian
- Native Hawaiian or other Pacific Islander
- Spanish, Hispanic or Latino
- Other (specify) \_\_\_\_\_

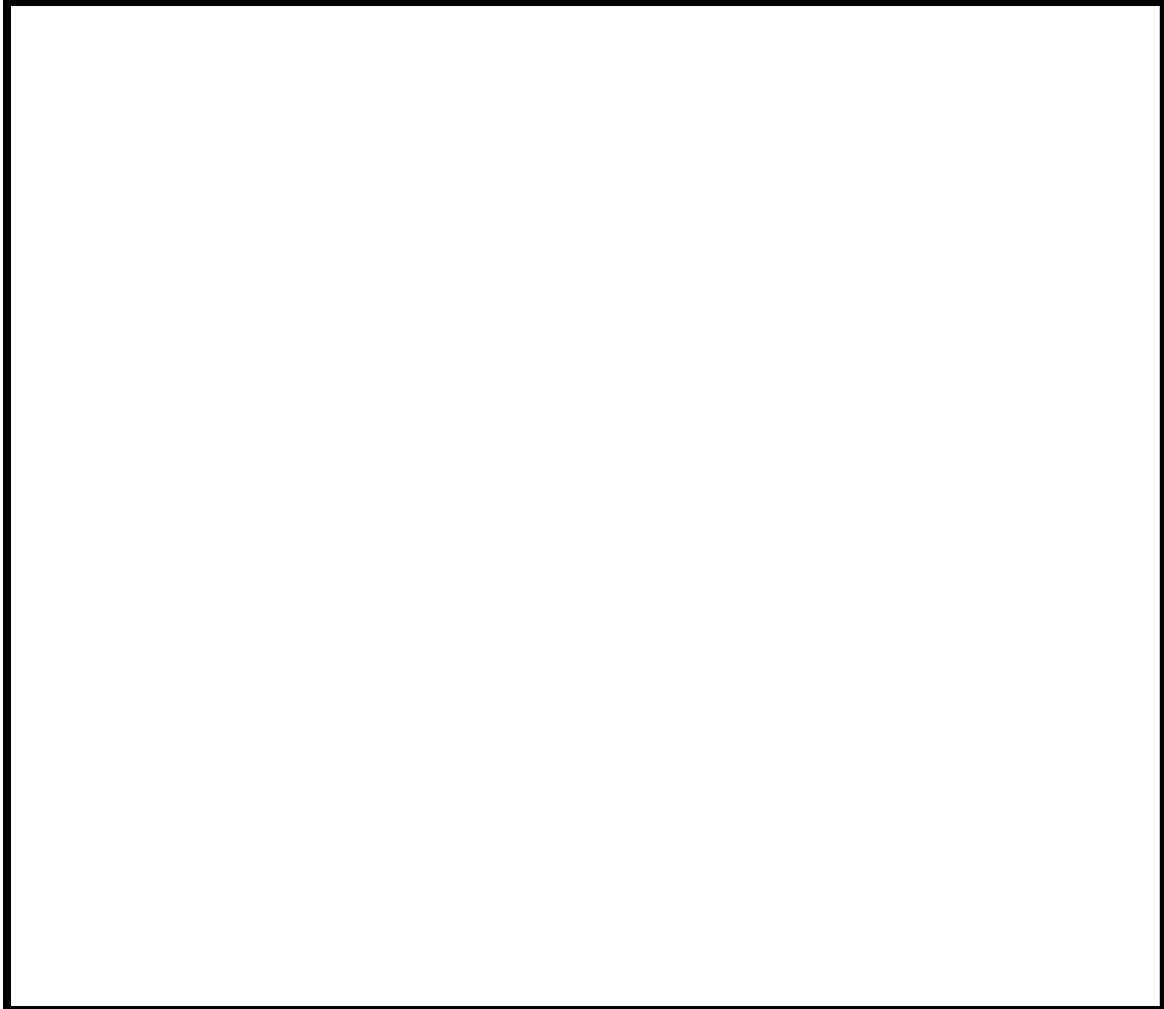
**45. What is your current occupation?**

- |  |  |
|--|--|
| <input type="checkbox"/> Business Owner        | <input type="checkbox"/> Professional              |
| <input type="checkbox"/> Retired               | <input type="checkbox"/> Craftsman/ Tradesman      |
| <input type="checkbox"/> Permanently disabled  | <input type="checkbox"/> Clerical or office worker |
| <input type="checkbox"/> Homemaker             | <input type="checkbox"/> Student                   |
| <input type="checkbox"/> Military Service      |  |
| <input type="checkbox"/> Other (specify) _____ |  |

**Thank you for your help and participation in this survey!**

Please use this additional space for any comments that you have about this particular survey, or your experiences in the program.

Comments are greatly appreciated!



When you have completed this survey, please fold in half and return in the enclosed envelope. Please note that the return of this survey will constitute your informed consent to participate in this study. If you would like to receive a copy of the survey results, please check here .

**Thank you again for taking the time to answer these questions!**

## B-3: Survey Cover Letter

# BrooklynBotanicGarden

Children's Garden Research Project  
University of Tennessee  
252 Ellington Plant Sciences  
2431 Joe Johnson Drive  
Knoxville, TN 37996-4561

March 2, 2005

Dear [insert name here]:

We are writing to ask for your participation in a survey of alumni participants of Brooklyn Botanic Garden's Children's Gardening Program. A joint effort by Brooklyn Botanic Garden and the University of Tennessee, this study is part of an effort to learn the long term impacts from participation in BBG's Children's Gardening Program.

We understand that you are an alumnus of Brooklyn Botanic Garden's Children's Gardening Program. We are conducting a random sample of alumni participants from this program to ask about your current gardening participation, what your experiences were like in this program, and how, if at all, your participation has impacted your adult life.

Results from the survey will be used to help Brooklyn Botanic Garden and other public gardens in the continuation of children's gardening programs. By discovering the impact of participation in these programs, valuable research information will benefit Brooklyn Botanic Garden's Children's Gardening Program as well as similar programs located throughout the country.

Your answers are completely confidential and will be released only as summaries in which no individual's answers can be identified. This survey is completely voluntary. However, you can help us very much by taking a few minutes to share your experiences and opinions about Brooklyn Botanic Garden's Children's Gardening Program. If for some reason you prefer not to respond, please let us know by returning the blank survey in the enclosed self-addressed stamped envelope.

If you have any questions or comments about this study, we would be happy to talk with you. Please contact Emily Smith, Survey Project Director, by phone at 865-974-8835, or email at [esmith27@utk.edu](mailto:esmith27@utk.edu).

Thank you very much for helping with this important study.

Sincerely,

Marilyn Smith  
Director of Children's Education  
Brooklyn Botanic Garden

Emily K. Smith  
Survey Project Director  
University of Tennessee

## B-4: Post-card Reminder

Last week, a survey seeking opinions about your participation in Brooklyn Botanic Garden Children's Gardening Program was mailed to you. Your name was randomly selected from the alumni records of this program.

If you have already completed and returned the survey to us, please accept our sincere thanks. If not, please do so today. We are especially grateful for your help because it is only by asking people like you to share your experiences that we can truly understand the impact and meaning of a children's gardening program.

If you did not receive a survey, or if it was misplaced, please contact Emily Smith by phone at (865) 974-8835 or email at [esmith27@utk.edu](mailto:esmith27@utk.edu) and we will get you another copy.

Marilyn Smith  
Director of Children's Education  
Brooklyn Botanic Garden

Emily Smith  
UT Survey Project Director

B-5: Post-letter

# BrooklynBotanicGarden

Children's Garden Research Project  
University of Tennessee  
252 Ellington Plant Sciences  
2431 Joe Johnson Drive  
Knoxville, TN 37996-4561

April 7, 2005

Mr. Joe Gardener  
123 5<sup>th</sup> Street  
Columbus, OH 43212

Dear Mr. Gardener:

About four weeks ago, we wrote to you seeking your opinions about your past participation in Brooklyn Botanic Garden's Children's Gardening Program. As of today, we have not received your completed survey. We realize that you may not have had time to complete it. However, we would genuinely appreciate hearing from you.

The comments of alumni who have already responded included a wide variety of memories they have recalled about the program. We believe the results are going to be very useful for the continuation of the Children's Gardening Program at Brooklyn Botanic Garden as well as similar programs throughout the country. We are writing to you again because the study's usefulness depends on our receiving a survey from each respondent.

Your name was drawn through a random sampling process in which every alumni participant on the Brooklyn Botanic Garden alumni records had an equal chance of being selected. Protecting the confidentiality of people's answers is very important to us. In order for information from the study to be truly representative, it is essential that each person in the sample return their survey.

We hope that you will fill out and return the survey soon, but if for any reason you prefer not to answer it, please let us know by returning a note or the blank survey in the enclosed stamped envelope. We would be happy to answer any questions you have about this study. Please contact Emily Smith, Survey Project Director, by phone at 865-974-8835, or email at [esmith27@utk.edu](mailto:esmith27@utk.edu).

Sincerely,

Marilyn Smith  
Director of Children's Education  
Brooklyn Botanic Garden

Emily K. Smith  
Survey Project Director  
University of Tennessee

## Vita

Emily K. Smith was born in the small town of Windsor, Illinois, “the Land of Lincoln” on April 16, 1980. Growing up on a grain farm, Emily found her love for the outdoors at an early age. Discovering her green thumb at an early age, Emily quickly became very involved in the local 4-H club, where she gained interest in the plant sciences and art. Upon high school graduation, Emily attended Southern Illinois University Carbondale majoring in Landscape Design. In May 2002, Smith received her B.S. degree. During her undergraduate career, Smith completed two horticulture internships at Missouri Botanical Garden and Callaway Gardens, which lead to her current interest in Public Horticulture.

In August 2003, Emily began graduate school at the University of Tennessee in the Department of Plant Sciences. During her graduate career, Emily focused on developing skills in public horticulture. In December 2005, Emily graduated with her M.S. degree in Plant Sciences. She now lives in Omaha, Nebraska working as a Garden Educator at Lauritzen Gardens.