Project Green Reach at Brooklyn Botanic Garden: A case study of the summer program

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Abstract

This study examined Project Green Reach (PGR), one program of the Children's Education Program at Brooklyn Botanic Garden (BBG). Located in Brooklyn, New York, USA, BBG is a public garden that has served as a model program for garden-based youth education since 1914. PGR utilizes both the indoor classroom and outdoor laboratory to engage K-8 students and teachers at Brooklyn's Title I schools in informal learning about science. Every year, PGR instructors select a small group of students into the summer program where they work in teams on garden and science projects at BBG. A case study was conducted to document PGR's summer program as a potential model for informal science youth education and to investigate the effects of PGR on inner city youth. Field observations of PGR's summer program participants and collection of program documents were conducted during the 2004 Summer Program. In 2005, phone interviews were conducted with four adult PGR Summer Program alumni and one former staff member who discussed their experiences while participating in the program and described the meaning of PGR in their lives. From the data collected and triangulated through document review, observations, and interviews, seven themes emerged: (1) PGR participants come from challenging home and school environments, (2) PGR developed academic and interdisciplinary skills, (3) Participation increased understanding of science concepts and developed gardening skills, (4) PGR fostered environmental awareness, (5) PGR supported social development and personal growth, (6) PGR was a positive life experience, and (7) BBG is culturally significant to the participants' community. From the results, it is concluded that PGR has had an impact on participants' lives, showing that PGR had positive influence on their views towards BBG, gardening, and science.

Paper text

Brooklyn Botanic Garden (BBG) developed a unique gardening program which targets disadvantaged youth and eliminates barriers, including funding and transportation, that typically prevent them from participating in such programs. Project Green Reach (PGR) is a specially-funded outreach program that utilizes hands-on, inquiry-based learning to promote science education and environmental awareness. It has been serving K-8 students and teachers at Brooklyn's Title I schools since 1990. Every year, PGR instructors select a small group of students into the summer program where they work in teams on garden and science projects at BBG.

The purpose of this case study was to investigate the long-term impacts of PGR's Summer Program (PGRSP) on its participants and to document it as a youth-gardening instructional model for public gardens. Data collection methods for this study included non-participatory field observations of 2004 PGRSP participants, collection and analysis of program documents and

records, and oral interviews of PGRSP alumni, former staff, and 2004 staff.

Table 1. Name, gender, age, cultural background, year participated in PGR, and education characteristics of alumni interview participants.

Name	Gender	Age (years)	Cultural Background	Year (& Age) participated	Education
Sasha*	Female	24	South American	1990 (age 9)	Currently attending college
Deborah	Female	24	African American	1990 (age 9)	Bachelors degree
Richard*	Male	22	Caribbean American	1991 (age 9)	Bachelors degree
Mary**	Female	22	Haitian American	1993 (age 10)	Bachelors degree
Sally	Female	---	Former PGR Instructor	1989-2000	Bachelors degree

*First generation child within family unit; Parents non-native to U.S.
** Born in another country.

Seven major themes emerged from the data about PGRSP and its participants.

PGRSP participants come from challenging home and school environments. Handwritten notes from a PGRSP instructor described several points of concern for the welfare of one child who participated in the early years of the program. The child reported not having anything to eat for breakfast most days and sleeping on comforters on the floor because her bed was broken. Field observations showed that although most of the children were active and friendly, some appeared more introverted and troubled. Alumni interviewees described growing up in or having friends who lived in housing projects and living in a neighborhood or going to school where there was drug use and violence. These examples illustrate how BBG reaches out to inner-city children, a typically underserved population in its community.

PGRSP participants developed academic and interdisciplinary skills through program participation. Not only did participants develop science and reasoning skills, but through plant-based education, they developed other skills, including writing, public speaking, artistic, and cooking. Observations found participants displayed an exhibition of their acrostic poetry, haiku, and art in their classroom. They sampled homemade pickles and jam they had made using freshly-harvested fruits and vegetables from the garden. Worksheets on family trees encouraged students to celebrate their families' heritage and learn about the geography of their country of origin. Photographs showed children writing in journals and working on arts-and-crafts projects using plant material. One alumna, Deborah, recounted her experience of journal-writing and public speaking in PGRSP and how she drew upon her experiences when she was in college. Alumnus Richard recalled visiting BBG with his mother to attend cultural events, including an African music festival. He credited BBG with bridging his love for music into his life. The use of gardening activities contributing to interdisciplinary learning is not new. Other studies have found that through gardening activities, children can learn different skills, such as art, math, history, writing, and nutrition (Lewis 2005; DeMarco, et al. 1999; Skelly & Zajicek 1998).

PGRSP participants increased their understanding of science concepts and developed gardening skills. Participants have opportunities to become young gardeners and scientists. A handwritten note from a mother whose son had participated in PGRSP expressed not only gratitude to the BBG staff for her son's opportunity to participate in the program but acknowledged the science concepts and gardening skills he learned: "[My son] really enjoy taking part in the program. He learn and understand a lots about vegetable, plant, leaves, stem, seeds, fruit, and flower. He came home and share the knowledge with the rest of the family about his day. He gain lots of experience at the garden. He recognize and value the work, it take in

harvest an garden. …It is a summer we will always remenable [remember].” Lesson plans showed the science and gardening concepts covered in class, including garden etiquette, plant parts, photosynthesis, and other botany and garden-related activities. Observations found participants working in the Children’s Garden and doing a scavenger hunt for plants and nature-related objects throughout the BBG grounds. The older children went to research facilities across the street from BBG where they dressed in white labcoats and worked on science experiments, making observations and employing the use of the scientific method. All alumni interviewees stated that although they did not currently garden, they felt skilled with the knowledge and ability to garden because of PGR and planned to garden in the future. These examples support anecdotal evidence that as a result of participation in PGR, children evolved into young science investigators and gardeners. This finding is similar to Blandford (2002) and Tims (2003) who found that children who participated in a public garden’s children’s gardening program learned about science and nature.

PGRSP fostered environmental awareness and appreciation in its participants. Hands-on, first-person experiences exploring BBG contributed to a better environmental awareness and appreciation. When asked how the program had meaning for him, Richard stated: “I enjoyed the program. It did help me grow I believe…probably moreso with my consciousness and with the things I think about and my appreciation for nature because…I do respect nature. ...And so…it’s (PGR) changed my consciousness.” A foundation report described one participant as a boy “who dreams of becoming a Marine Biologist…he relished the opportunity to participate in the PGR program.” Observations of 2004 participants found they were aware of their outdoor environment. Children were engaged in pulling weeds, examining insects, and playing in the dirt. They enjoyed harvesting cucumbers from their garden plots and tasting grapes from a nearby grapevine. Each alumni recalled observing wildlife at BBG, including fish and frogs in the Japanese Garden and flies in the Children’s Garden. These findings are similar to research which found that children who had gardening experiences while at school demonstrated an increased positive attitude towards the environment (Waliczek & Zajicek 1999; Skelly & Zajicek 1998).

PGRSP participants grew in their social development. It is implied from the findings that social-skills development was a significant aspect of learning in PGRSP. One class worksheet described staff skits held on the first day of the summer program on the “3 R’s: Respect, Responsibility, and Reliability.” These skits were followed by classroom discussion on the meaning of respect, responsibility, and reliability and how it relates to the children in the garden and their daily lives. Deborah recalled a lesson in treating plants like you should people while being taught how to tend to her garden plot. Each alumni described meeting other children as an important aspect of the program. They appreciated the opportunity to make new friends. Field observations found children working with partners on their garden plots. Older children who had more gardening experience mentored younger, more inexperienced children. An instructor’s evaluation sheet reviewing PGRSP described the value of having a small student-teacher ratio as important in working together and strengthening interpersonal relationships. This data is similar to other research which has shown how learning about plants can be adapted into life lessons about interacting with others, building self-esteem, and respecting others (Waliczek, et al. 2001; Finch 1995; Pentz & Straus 1998).

PGRSP was a positive life experience for program participants. Typed notes by a PGR staffperson described a mother’s account of how PGR had a positive effect on her daughter’s life: “…The mother said the program turned around her daughter’s life; she now loves science; whereas she had been doing very poorly in science, she now is top in her class, takes care of the principal’s plants and helps the teacher with plant information; she loves science.” Observations found participants picking vegetables they had grown in their own garden plot and proudly

showing their vegetables to each other and their instructors. This overall positive experience remained with the participants to adulthood. Alumni enthusiastically described PGRSP using the terms, "fun," "productive," "meaningful," or a "great experience." They recalled proudly showing their garden plots and artwork to their parents at Graduation Day. Each of the alumni participants indicated they would recommend and, in the case of alumna Sasha, have already recommended PGR to others in their community because of their positive experience. They also indicated they would take their own children to BBG. Former PGR staff member Sally described a discussion with a participant's mother: "It was this program that had kept her son off the streets and out of the black jackets and out of the expensive cars that she perceived that drugs would have brought to him." Sally added: "There were numbers of parents that told us that they could see such a difference in their children, the way they were able to get along with the people after the summer, because they had been taught honesty. They had been taught learning how to get along, learning how to understand people, learning how to use other people's things and not keep them but give them back. They felt they had received many lessons that are very difficult to teach in a regular public school system, and they felt that was very good for their children in learning to get along at home and learning to get along in the workplace." This finding is similar to other studies which have found that children from urban and at-risk environments respond positively to gardening activities (Rahm 2002; Tims 2003; Blandford 2002; Pentz & Straus 1998; Finch 1995).

BBG is culturally significant to the PGRSP participants' community. Observations found that participants were culturally diverse. Participants' diversity reflected the diversity of the Brooklyn community. This was observed by the researcher's daily walks through the surrounding neighborhoods with wealthy residents and nice homes on one border of BBG and a lower economic community on the other. Sally stated that "the location of BBG within the community was a major part of the success of PGR." When selecting PGRSP participants, the staff tried to select a diverse group of students since diversity was a primary focus of the program. In a foundation report, it was stated that "since the program was founded, it has consistently served a high number of students from families that have recently immigrated to the United States. The 2000 Summer Program had participants from eight different countries." These findings describe how a public garden can be a cultural institution in a community.

Conclusion

This study shows that PGRSP serves as a positive experience for youth who come from challenging home and school environments, helping them to further develop their science, gardening, interdisciplinary, and social skills. Findings also indicate that PGR is reaching its goals to work with Brooklyn's Title I schoolteachers and children to educate students about science concepts through plant-based education and foster a relationship between this traditionally underserved population and BBG. The cultural significance of BBG to the participants' Brooklyn community and how this program celebrates the cultural diversity of its participants are important factors to the success of PGR.

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Biography

Susan Conlon Morgan completed graduate studies in public horticulture at the University of Tennessee. She is the Assistant Gardening Editor for Home and Garden Television's website, www.hgtv.com. Completed study: http://etd.utk.edu/2005/ConlonSusan.pdf.