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Participatory Approaches to Program Development and Engaging Youth in Research: The Case of an Inter-Generational Urban Community Gardening Program

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Participatory Approaches to Program Development and Engaging Youth in Research: The Case of an Inter-Generational Urban Community Gardening Program

Abstract

We applied participatory models of program development and research in an inter-generational program whose goal was for youth to document ethnic gardening practices in urban community gardens. Outcomes for educators included professional development and the opportunity to expand their programs to urban audiences, whereas youth learned about gardening, developed positive relationships with elders, and enhanced their academic skills. Developing relationships with youth was an important outcome for gardeners. Through examining what motivates various participants and how they benefit, we may be able to enhance our understanding of how best to work with educators to design a youth participatory research program.

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Introduction

Recently, scholars have called for more participatory approaches to Extension, citing failures of what is perceived as the top-down, one-size-fits-all technology-transfer model (Ison & Russell, 1999). Critics claim that participatory approaches are especially crucial in programs that require holistic approaches rather than changing a single technology at a time (e.g., sustainable agriculture) and where environmental and socio-economic conditions vary widely among sites (Roling & Wagemakers, 1998). In addition, participatory approaches have proven useful in developing educational programs in new subject areas and in working with educators from a diversity of formal and non-formal settings, each with its unique mission and audiences (Krasny & Lee, 2002; Lopez, et al., 1999).

The formation of learning communities is one approach to participatory program development in Extension. Such a community might involve university faculty introducing educators to research-based tools and ideas, and educators then designing and piloting individual programs to meet local needs using their newly developed skills and knowledge. The educators then share the results of their local "experiments," thus furthering our understanding of educational practices (Krasny & Lee, 2002; Roling & Wagemakers, 1998).

For example, through the Explorations from an Aerial Perspective program, Cornell faculty trained county 4-H and other educators in aerial photography and topographic map interpretation, and each educator then designed a local project in which youth conducted a land use investigation using the airphoto and map tools. The resulting program manual includes examples of local programs designed by the educator and youth groups (Barnaba, Krasny, Kasperek, Hoskins, & Hope, 2000).

An evaluation of Explorations from an Aerial Perspective revealed that the program employed an

participatory approach to overall program development and that several of the educators developed local programs having many elements of Participatory Action Research (Mordock & Krasny, 2001). These elements included:

- Working with youth to develop research questions,
- Engaging local adults in the subsequent investigations to answer those questions, and
- Conducting an activity to benefit their community based on the results of their research.

Participatory Action Research and several other forms of participatory research, including Participatory Rural Appraisal, were originally developed for use in international settings. The methods attempt to break down the barriers between outside researchers and economically and socially disadvantaged community members, through engaging the two groups in collaboratively identifying and investigating a local problem with the ultimate goal of taking action to improve local conditions (Chambers 1999; Gaventa, 1988). Methods used in Participatory Rural Appraisal include:

- Engaging community members in drawing maps of local resources,
- Diagramming inputs and outputs of a farm relative to the surrounding community,
- Interviewing knowledgeable individuals while walking along a transect of sites in the community, and
- Developing a community action plan (Chambers, 1999; Freudenberger, 1999).

In 2000, Cornell University and Cornell Cooperative Extension-NYC received funding from the USDA Northeast Sustainable Agriculture Research and Education program to initiate Garden Mosaics, a program through which county Extension and community center educators adapted participatory research tools for use in an inter-generational urban education program (Krasny, Doyle, & Najarian, 2001). The primary goal of the program was for youth to conduct Participatory Rural Appraisal research to document planting practices of ethnic minorities and recent immigrants in urban community gardens and to take an action to benefit the gardens based on their research results. In addition to the educational benefits of youth learning to conduct research, we hoped to use the results of the youth projects to begin developing a database of community gardening practices that would be useful to city planners, community garden activists, and scientists working in urban settings.

Thus, the Garden Mosaics program used participatory approaches at two levels:

- Educators developed and shared means to implement the program; and
- Youth used Participatory Rural Appraisal methods.

It should be noted that there was relatively little participation by adults and youth in determining the overall program and research goals. Much of the initial direction came from the Cornell University and NYC Cooperative Extension program leaders; educators from other cities were invited to help develop the program after the overall focus had been determined.

Because participatory programs demand significant time and often a change in attitudes toward education (Ljung & Gibbon, 2000), it is important to understand what motivates participants, how they benefit, and the challenges they face. Furthermore, programs that engage youth in participatory research often have educational, youth development, and research objectives, and the various participants may have different understandings about the program goals, all of which should be taken into account in program development.

This article discusses the motivations, conceptions of the program, challenges faced in program implementation, and outcomes for participants in Garden Mosaics. The results are then interpreted in light of participatory program development and engaging youth in participatory research. More information about the Garden Mosaics activities and how the educators adapted them to meet local needs can be found in Doyle (2001) and Doyle and Krasny (2003).

Garden Mosaics

We first trained community educators in six U.S. cities (Allentown and Philadelphia in Pennsylvania; Baltimore, Maryland; and New York City, Buffalo, and Rochester in New York) in Participatory Rural Appraisal approaches and tools, including:

- Participatory mapping,
- Interviewing,
- Venn diagrams,
- Historical timelines,
- Seasonal calendars, and
- Soil measurements (Doyle & Krasny, 2001; Freudenberger, 1999).

The educators then adapted these tools to develop local Garden Mosaics programs, which engaged youth from community centers and other out-of-school summer programs in conducting the research activities with adult gardeners. The educators were affiliated primarily with Cooperative Extension, although in Rochester they were affiliated with a food security/social action, non-profit organization and in Baltimore they were from a cultural center. Youth participants ranged in age from 9 to 16 years, and the youth and community gardeners were predominantly African-American

or Hispanic. The cooperating organization in each city received \$5100 to compensate for staff time and related expenses.

Methods

Because Garden Mosaics was a pilot program with numerous components and diverse sites, we chose a qualitative, naturalistic inquiry approach (Patton, 1990) to the research. To ensure rigor in methods and data quality, we adopted several commonly advocated strategies for qualitative research (Lincoln & Guba, 1999), including:

- Triangulating information collected using different methods and at different times,
- Comparing the results with other studies being conducted on Garden Mosaics (Franz, Gregoire, & Savelyeva, 2001), and
- Discussing results with program participants and colleagues.

The program evaluator (R. Doyle) conducted 20 open-ended, semi-structured, in-depth interviews with 29 of the 31 educators from the six cities at the beginning, middle, and end of the summer program, and a focus group with 10 educators representing the six educator teams after the summer program. In addition, Doyle conducted 30 open-ended interviews with 28 of the 85 participating youth from the six cities, and four interviews with four of the 26 participating gardeners from two program sites. Decisions about whom to interview were based largely on availability at the time of Doyle's site visits, although an attempt was made to get a representative sample of participants.

Interview questions varied for each group, but in general focused on the program activities, the nature of the participants' involvement, participants' conceptions of the program, their motivations, the benefits they received, and any concerns or challenges. The interviews lasted from 45-90 minutes for the educators and from 15-30 minutes for the youth and the gardeners. Doyle taped and transcribed all interviews and took measures to ensure transcript quality (Poland, 1999).

During her three visits to each of the sites, Doyle also took detailed notes on participant roles, program implementation, and program facilitation. Finally, Doyle reviewed documents, including educator reports, youth journals and essays, and e-mail communications among participants, for content relevant to our study objectives. She used Folio Views 4.2, a qualitative data software program, to code interview transcripts, field notes, and documents into categories and themes that emerged from working with the data (Strauss & Corbin, 1990).

Results

Motivations

Educators were more likely to cite their interest in an innovative project than money as motivation for involvement (Table 1). They also were motivated by the opportunity to strengthen their organization and to network with other groups, and by the funding opportunity. Youth were most likely to be in the program because of the influence of an adult, although they also cited interest in the program as a motivation. Gardeners were motivated primarily by the opportunity to work with youth.

Table 1.
Participants' Motivations for Involvement in Garden Mosaics

Participants	Motivations for Involvement	Responses (#)
Educators		
	Nature of the project -- interesting, different	6
	Opportunity to strengthen educator's organization	4
	Funding provided by Garden Mosaics	4
	Opportunity to network with other groups	3

Youth		
	Parent/guardian or teacher recruited them or suggested participation	12
	Interested in program	8
	Incentives (e.g., financial-savings bond, employment)	2
Gardeners		
	Opportunity to help/ work with youth	3
	Incentives (e.g., plants, gardening materials)	2
	Recruited by fellow gardeners	1

Conceptions About Program

The majority of educators conceived of Garden Mosaics as a youth research project, consistent with the characterization of the program by the Cornell directors. However, educators also felt gardening and inter-generational and multicultural programming were important aspects (Table 2). Similarly, youth indicated they saw this as an opportunity to collect information, although many comments related to gardening per se and to the academic skills they were learning. Gardeners seemed to view the program as an opportunity for youth to learn about gardening and did not necessarily distinguish between the data collection and gardening activities.

Table 2.
Participants' Conceptions of Garden Mosaics

Participants	Responses (#)	Example Quotes
Educators		
Garden research	6	<i>They go out there with their clipboard and make the answers and they're the scientists.</i>
Gardening	5	<i>(T)he way we have to evaluate it is do we get more gardens started in the cities? And are they successful gardens? Do we get more gardeners out of this? Do we end up having kids who want to have their own gardens?</i>
Intergenerational/ multicultural	5	<i>I love the aspect of mixing seniors with youth, mixing ethnic diversity with sustainable agriculture.</i>

Alternative approach to programming	3	<i>It was a different approach (to) how we do the science and technology, . . . a different way between the adults and the children versus us directly as educators just going in and educating the youth.</i>
Youth		
Learning about gardens, gardeners, and plants	11	<i>Well we learn about the history of it, we learn about the people who work there, we learn about their hobbies, their habits, we learn about a lot of things. . . . it's mostly planting and learning about vegetables and stuff.</i>
Gardening program	7	<i>...people who ask me where I'm goin' in the morning, and I tell them we got a program called Garden Mosaics and they teach us about gardening.</i>
Drawing and writing program	7	<i>Well, I draw, I write, I see the garden out there.</i>
Gardeners		
Opportunity for youth to learn about gardens and gardening	4	<i>Well the youth of the day, anything that keeps them occupied in something uplifting. Being in the garden is almost...almost spiritual and it keeps them occupied, and see that they're interested and desirous of learning. And so many things that they've never seen or couldn't see anywhere else and we've been more than willing to spend our time and effort to help them out.</i>

Program Outcomes

Educators identified professional development, enhanced ability to develop partnerships with urban audiences and with other organizations, and satisfaction from working with kids and gardeners as important outcomes (Table 3). They also learned about ethnic planting practices and expanded their skills related to gardening, facilitating participatory research, and working with youth.

Table 3.
Outcomes for Educators Participating in Garden Mosaics

Outcome	Responses (#)	Example Educator Quotes
Professional development	7	<i>I benefited by realizing the educational process was just</i>

		<p><i>as important or more important than the actual data collected. I learned more about sociologic aspects of urban gardening than I could have ever anticipated. It has prepared me to be more effective in future urban gardening projects.</i></p> <p><i>And learning the lessons that I think are so important when we're trying to deal on an administrative level with things and wondering why programs do or don't work. . .</i></p>
Networking/ Building partnerships	7	<p><i>In the process of seeking the ethnic diverse gardens, I ended up finding out about and meeting probably 20 different leads and contacts in all these different gardens in Buffalo. And they don't know about Cooperative Extension and we don't know about them.</i></p>
Rewarding experience working with kids and gardening	6	<p><i>The gardening aspect, I feel so strongly that, the gardening kind of takes me away from the hustle and bustle or stress of a day and I wanted to be able to see these kids feel that or understand that, especially in the world the way it is today. But to use it to learn from, as a tool, I think that's why I like children's gardening so much. . .</i></p> <p><i>The relationship with the gardeners and the kids that I developed were the most important benefits to me.</i></p>
Learning about ethnic crops, planting practices	5	<p><i>I've also learned about planting tomatoes and how they grow on a vine and there's different types of tomatoes. I've also learned about different types of flowers being grown.</i></p>
Learning about gardening	4	<p><i>Adult team members learned about growing vegetables and gained greater appreciation for senior gardeners.</i></p>
Learning how to facilitate participatory research	3	<p><i>How to facilitate the question and answer process, and especially where documentation is important, to really help make that happen. There's a lot of knowing skills to bring to that</i></p>

		<i>work. As far as what I learned, I feel like I grew in those skills, that's really why I was in it.</i>
Working with youth	3	<i>I had had a gap for a long time about relating to teenagers so that was good for me to regain that confidence with that age group.</i>
Community participation	2	<i>The presence of the program and associated activities inspired efforts at a community level. At both sites where gardens were created, other members of the community became interested in gardening and have expressed the desire to create additional community gardens in their neighborhood.</i>

The most frequently cited outcomes for youth included enhanced gardening skills and developing positive relationships and learning from gardeners, who came from a variety of cultural backgrounds (Table 4). Youth also developed teamwork, academic, and research skills; responsibility; an interest in and appreciation for gardening, the role of gardens in their community, and the broader environment; and increased knowledge about plants and soils.

Table 4.
Outcomes for Youth in Garden Mosaics

Outcome	Responses (#)	Example Quotes (from educators unless otherwise noted)
Gardening skills	20	<i>Well we plant things and stuff, we watch it grow, we take care of it, water it, pick the weeds out that don't belong there. . . 'Cause if there's too many weeds and the plants ain't got no room and they won't grow right. (youth)</i> <i>(The youth) were really learning how to create a garden and how to keep it going. Real basic things like, how do you get seeds and put them in the ground, and how do you take care of it so it will bear fruit.</i>
Learning from and developing relationships with elder gardeners	14	<i>I think that they have found that there's value in partnership with adults. They've learned that and they've learned that there are some people who are different from them that can work together with them.</i> <i>. . . some of the kids have developed friendships with</i>

		<i>the elders.</i>
Academic/ research (writing, measuring) skills	12	<p><i>I can see some of them are benefiting in basic academic work, just some of the reporting that we do. They're a little more aware of their grammar and spelling and things, finding a reason for writing.</i></p> <p><i>They have to use reading skills and writing skills, and physical skills, measurement skills. They had to use so many skills to do this and beyond anything, all of our children had to talk to total strangers from day one. They had to open up their mouth and say something which is half the battle right there.</i></p> <p><i>I think they learn to maybe process information and to put it in a medium that they can tell others about.</i></p>
Teamwork/ Responsibility	8	<p><i>Today I learned a lot about teamwork and words to use and words not to use. And how to communicate with a person. I feel as if this is a good project. (youth journal entry)</i></p> <p><i>They finally see the light. And even when they come in the morning it's not play anymore; they get their pencils, ruler, whatever they have to do and start doin' something. Somebody finally turned a light bulb on. I think in essence if they don't even learn what a plant is, if they don't learn anything about the garden, they have been instilled some of form or format or structure to them and which is most important. Once you get that you can do anything. (gardener)</i></p> <p><i>They learned about being polite and considerate to elders, how to ask permission for an interview and how to thank them for their time. They learned the value in working together, and how they can each complete parts of a goal to make a finished product.</i></p>
Appreciation for value of gardens	8	<i>Just taking them places too, they noticed more gardens around. Who was it, the one was saying she went bed last night and she says, "You people are getting in my</i>

		<p><i>head. All I could think about was plants and things like that." But they notice other gardens and how other people garden. It's sparked an interest.</i></p> <p><i>Last week we was taking picture of our neighborhood. I took a lot of pictures where our neighborhood is falling apart. There are a lot of drugs dealers out on the corner and they try to destroy little kids' minds. If we try to fix up the neighborhood maybe they will stop trying to mess it up all the time. (youth)</i></p>
Learning about plants, gardening, soils	6	<p><i>I just learned what plants grow here and fruits and vegetables. . . I didn't really know that plants like cure you like that, so they taught me about plants that cure you. (youth)</i></p> <p><i>They were really fascinated by (the) information about some medicinal plants and how they were used . . . 'cause some of them were coming also from the same background so they may have heard some of these medicines but never actually see them grown.</i></p> <p><i>In the Philadelphia Garden Mosaics program one of the things that I learned to do was analyzing soil. (youth).</i></p>

The gardeners felt being appreciated by and interacting with youth were the most important outcomes; several gardeners formed long-term mentoring relationships with youth (Table 5). Less important outcomes included help in the garden and exchanging knowledge with educators.

Table 5.
Outcomes for Gardeners in Garden Mosaics

Outcome	Responses (#)	Example Quotes from Educators
Being appreciated/ listened to	9	<p><i>I think that they're gaining the knowledge of knowing that there's others that are concerned about what they're doing besides themselves. And that there is people out here that's from maybe a different background, or even different city or borough or state that is looking at what they're doing. That they do make a difference, that these things are important, that there's people that really care, can assist if needed. I think that makes them feel good. They felt good when we</i></p>

		<i>was takin' pictures of them and asking them questions about what are they growing and how they can educate us on things that we don't know. That's a pride that you get from that; it's a difference.</i>
Interaction with youth and others	9	<i>I think they're benefiting in a social way. They seem to enjoy when we come, they're friendly, they're saying hello, they're coming out and starting to be curious and looking around. ... the gardeners themselves have become closer because of this project because they spend so much time talking about their respective plots to kids.</i>
Forming relationships with youth	3	<i>Two of our gardeners formed very strong relationships with some of the children. One of these women now has a surrogate "granddaughter" who visits her daily.</i>
Help in garden	3	<i>The kids would be there pulling weeds, or planting or watering or doing whatever the gardener was going to do that day. And I think that was one of the main benefits that the gardeners got out of it. These are elderly people who may not be able to go and spend a day kneeling down in their gardens pulling weeds and they had the kids doing that for them</i>
Exchanging knowledge with educators	3	<i>As we're trying to gather her information of how she does things, we discover that there were things that she didn't know about and really had not composted for example, . . . and was delighted when she found out.</i>
Learning about youth	2	<i>(He) developed a new appreciation of some youth he may not have talked with before.</i>
Documenting gardens	2	<i>I think the guys who are the leaders. . . recognize that it was a positive thing for the garden that there's' this activity there, as well for the Harlem garden because both of the leaders have asked us if we could share with them, not only photographs but like</i>

		<i>a copy of the report because they would like to use this and say, "Well look, our garden is an asset to the community because this is what happened here in the summer 2000.</i>
Material support	1	<i>The things they asked for were provided . . . -- more space for growing -- they built 3 new beds; planted 2 blueberry bushes; and they all used compost provided by the county. They will use fertilizer according to the soil test results in the spring.</i>

Challenges to Program Implementation

The most important challenges faced by educators related to trying to engage youth in facilitating the Participatory Rural Appraisal research activities. Educators experienced difficulties conveying the activities to youth, engaging youth in the research, helping youth conduct the activities with the adult gardeners, and getting youth to document the results of their research. Other challenges related to language differences among participants, logistics (e.g., scheduling times when gardeners and youth could meet at the gardens, transportation of youth to the site), and working with youth with limited academic and social skills.

Discussion

A number of recent monographs have demonstrated the success of a learning community approach to technology development, emphasizing the role that farmers and natural resource managers can play in enhancing our understanding of agricultural and land management practices (Cerf, Gibbon, Hubert, Ison, Jiggons, Paine, Proost, & Roling, 2000; Ison & Russell, 1998; Roling & Wagemakers, 1998). Similarly, our experience with previous programs and with Garden Mosaics indicates that engaging Extension educators in a learning community presents relatively few challenges and results in positive outcomes for educators and program development (Doyle & Krasny, 2003; Krasny & Lee, 2002).

Fundamental to participatory program development is a strong commitment to learning among all participants. Although their organizations received \$5100 for participation in Garden Mosaics, the educators were motivated primarily by their interest in learning new approaches and the opportunities for strengthening their county programs. The outcomes they cited paralleled their motivations; educators gained most from learning new professional skills and the opportunities networking provided to enhance their programs, particularly with urban audiences. Similarly, we have found interest in learning, teaching, and improving natural resources management is more important than financial and other material incentives in programs that used a participatory approach to develop best management and educational practices focusing on invasive species (Krasny & Lee, 2002) and on cultivation of selected maple seedlings (Krasny, Staats, Smallidge, & Winship, 2001).

The Garden Mosaics educators developed and field-tested with youth numerous ways to implement the participatory research activities. Thus, they contributed invaluable to our understanding of how best to conduct a Participatory Rural Appraisal project with youth as facilitators (Doyle & Krasny, 2003; Krasny, 2001). Such learning from local "experiments" is consistent with learning communities.

Engaging youth in participatory research proved more challenging than engaging educators in participatory program development. Initially we thought that because researchers working in urban, multicultural settings in the U.S. face many of the same issues as researchers working in developing countries (e.g., cultural and language differences, defining the role of research in promoting positive social change), we would be able to apply a participatory research approach developed for international settings to our work.

However, we faced challenges related to balancing our interests in collecting information on ethnic gardening practices that would be useful to scientists and community gardening activists with the interests of youth and community gardeners. Thus, the youth and community gardeners had only limited opportunities to help define the research, an important aspect of participatory research. We were more successful in breaking down barriers between outside researchers and community members, by having youth, who were able to form positive relationships with the gardeners, facilitate the research.

Other university researchers have experienced similar difficulties in trying to balance their own

goals with a commitment to including community members as partners in their research and in some cases switched to more directed research after finding that they were not meeting their research objectives using participatory methods (Saldivar-Tanaka, 2001). In contrast, Australian researchers were able to successfully maintain a participatory research approach with sheep farmers, but they were interested in the outcomes of the participatory process and did not have their own research objectives related to sheep production (Ison & Russell, 1999). Similarly, researchers who were interested in the process of youth engagement, as well as educators who did not have research goals, have successfully facilitated participatory research projects in which youth determined the research and action objectives (Mordock & Krasny, 2001; Solomon, 1997).

In addition to the difficulties of trying to balance the researchers' and youths' interests, we faced challenges related to building the youths' facilitation and research skills and to defining the role of the youth and educators. Unlike university researchers conducting participatory research in developing countries, the youth in Garden Mosaics were simultaneously community members and "outside researchers." Similarly, the educators were both outsiders and community members and were less versed in participatory research skills than university researchers would have been.

Finally, because engaging youth in participatory research is a relatively new area, we may not have successfully communicated the program goals and participatory research methods to educators, who in turn may not have communicated them to the youth and gardeners. Complicating the situation was the fact that educators had their own goals, only some of which related to youth research. Although the varying conceptions educators held of Garden Mosaics may have limited our ability to engage youth in participatory research, including a diversity of educators resulted in other positive outcomes for youth, such as the development of gardening and academic skills and positive relationships with gardeners.

Conclusion

Garden Mosaics was most successful in forming a learning community of Extension and other community educators and university faculty who explored how to conduct a youth participatory research program. During a subsequent year of the program, in which we revised our educator training based on what we learned from the first-year participants, we were better able to engage youth in the research activities, but still faced challenges having to do with youth interest and logistics.

Engaging youth in participatory research has great potential to facilitate youth development, science literacy, community development, and community activism, all areas of interest for Extension. However, Extension and 4-H educators, volunteers, and youth may not be familiar with participatory research and may question how such an approach might fit in with their other priorities. Thus, as we look toward the future, it will be important to take into account educator, youth, and gardener interests and motivations, and design ways to better meld them with our interests in engaging youth in participatory research.

Recently, Garden Mosaics received a grant from the NSF Informal Science Education program to expand our efforts to 11 cities across the U.S. We continue to evolve the program based on the insights and experiences of our learning community of faculty and educators from Extension and non-profit gardening organizations.

In light of the challenges we initially faced trying to engage youth and urban gardeners in Participatory Rural Appraisal, we are pursuing a slightly different model, which we call "Youth Action Research." The model attempts to better balance the interests of the adult researchers in collecting useful data, the need to provide guidance to novice youth researchers, and the importance of youth and community members having a voice in defining their local projects.

Under this model, the youth at each site pursue research objectives defined by the Garden Mosaics learning community of Cornell faculty and local educators, but they also have an opportunity to add their own research questions. Based on the results of this initial research, the youth and gardeners then define an "action" to benefit the gardeners and are encouraged to pursue additional research projects based on their own interests (Krasny, Doyle, & Najarian, 2002).

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