

Student Participation in Community-Based Participatory Research To Improve Migrant and Seasonal Farmworker Environmental Health: Issues for Success

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ABSTRACT : Involving students in community-based participatory research is a useful mechanism for engaging the community and helping it build future capacity. This article describes student involvement in a series of community-based environmental health research projects with migrant and seasonal farmworkers in North Carolina. High school, undergraduate, graduate, and professional school students have participated in various aspects of these projects, including planning, data collection, analysis, and reporting results. Students were required to invest time in learning about the farmworker population, as well as in learning to conduct community-based environmental health research. Drawing on these experiences, we offer observations regarding successful student integration in this type of research. Community-based projects benefit from student participation while encouraging the development of future community-oriented environmental health researchers.

Key Words: community-based participatory research, farmworker environmental health, pesticide safety education

Community-based participatory research requires investigators to find meaningful ways to engage members of the community in the research process. Student involvement, particularly of students who are community members, is an important mechanism for

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collaborating with the community and for helping it build future capacity. This article describes student involvement in a series of community-based participatory environmental health research projects that have incorporated students as one means of improving community participation. All the projects address environmental and occupational health issues of migrant and seasonal Latino farmworkers in North Carolina. This article first outlines the model of community-based participatory research that is the foundation of the projects and a model for student participation. It then discusses the various projects and the ways in which community members and students have been active participants. It concludes by reflecting on lessons learned and their implications for successful student-community-researcher partnerships for environmental health.

Community-Based Participatory Research

Conducting community-based participatory research (CBPR) to address public health issues such as environmental or occupational health involves developing partnerships among various stakeholders within and connected to the at-risk community, such as health care providers, community organizations, advocacy groups, and scientific investigators. These stakeholders pool their resources and expertise to understand and address a mutual health-related concern. Advantages of CBPR are an increased likelihood that the project will be conducted in a culturally and educationally appropriate manner, that the format and content of resulting educational programs or interventions will better fit the cultural context of the community and that they will be sustainable and reproducible (Israel, Checkoway, Schulz, & Zimmerman, 1994; Israel et al., 1995; Israel, Schulz, Parker, & Becker, 1998). CBPR is especially well suited for settings in which the researchers and the community have highly disparate cultural backgrounds and the development of rapport and respect is crucial to the success of the project. Success in CBPR requires a continuing investment of time; understanding of and appreciation of the strengths, values, and knowledge of the partners; and flexibility and creativity in working together to achieve common goals. The basic tenets of scientific integrity must also be upheld throughout the process (Arcury, Quandt, & Dearry, 2001).

Despite the benefits, working with the community does add an additional layer of complexity to the conventional research process (Cornwall & Jewkes, 1995). Existing resources and expertise, both of the community and the researchers, must be accurately assessed and matched with an appropriate research question, study design, and methods. Communication problems, contradictory definitions of success, and differing goals, values, and work styles can produce tension and dissension if not recognized and addressed from the outset. This process is time-consuming and requires a certain level of engagement, motivation, and commitment from all members of a developing partnership (Quandt, Arcury, & Pell, 2001; Quandt, Arcury, Austin, & Cabrera, 2001; Arcury et al., 2001).

A broad range of activities can fit into the definition of “community participation” in the research context. Maximum participation has been defined as occurring when the people being studied are full participants, their personal experiences and perceptions are incorporated as research data, empowerment of the community is a focal point of the project, and the outcome of the project is action by the community and its members to change conditions that are causing problems (Plaut, Landis, & Trevor, 1992). In practice, this ideal is rarely achieved because many communities are not in a position to participate fully (Cornwall & Jewkes, 1995). Absence of time, resources, motivation, and interest can limit a community’s capacity to participate in research projects. Even a well-conceived project can be derailed by unexpected changes

of personnel, orientation, or other key issue within the partnership or the community (Arcury, Austin, Quandt, & Saavedra, 1999).

In an effort to formalize the process for developing and maintaining a working community-based partnership, researchers have developed models for building and enhancing participation (Brown & Vega, 1996; Cornwall & Jewkes, 1995). The model that underlies the research program described in this article originates from the position that “community” is a multidimensional concept, not necessarily geographically bounded (Arcury, Austin, et al., 1999). This model recognizes a set of “modes of interaction” that intersects with a set of “domains of participation” (see Figure 1). Interaction between researchers and community members can take place at the individual or the group level. Individuals might include natural leaders or persons who, by virtue of occupation, ethnicity, or other defining characteristic, are representative of the community in general. A group might be an already-existing community organization, or it might be one established as part of the research process. Each individual or group can participate in one or more domains of the project, depending on expertise, interest, and capacity. These domains include (in order of increasing involvement) consultation, planning, and implementation. Ideally, a project would have multiple individuals (e.g., students, health care providers, community leaders) and groups (e.g., advocacy organization, service program) participating in several of the contexts for maximum sustainability (Arcury, Austin, et al., 1999).

Student Involvement in CBPR

Student participation in research is a specific mode of individual involvement that can occur in any of the three domains. Students, particularly those who are community members, often have valuable knowledge and skills they can put to work while helping their community. Students who are trained, or planning to train, in environmental health research have the opportunity to develop their skills in working with the community; those who have not yet decided on a career path can test the waters for themselves. Experiencing community-based work early in their educational careers encourages future researchers to start with a community orientation rather than simply appending it to traditional research training.

Successfully incorporating students into the process of community-based participatory research requires some forethought when deciding whether or not to bring students into a research program. Two questions need to be considered: Whether the overall research program is suited to student participation, and whether a specific student is right for a specific project. General considerations include:

- *Is the overall research program suited to student participation?* Are the goals, activities, content and methods sufficiently well developed that students will be able to grasp the larger picture? Is the research program flexible enough to accommodate students’ needs? Does it offer concrete opportunities to advance students’ academic careers by developing knowledge or skill sets?
- *Is student participation appropriate for the research program?* Are students available who are familiar with the culture and language of the community? Are there students who are planning to base their careers on work with this community?

Questions to consider when matching individual students to specific projects include:

- *Is this project right for this student?* Does the project fit conceptually within the student’s degree program? Is the time frame and learning level appropriate for his or her stage in school? Is he or she socially outgoing and linguistically and culturally competent in this community? Is he or she willing and able to be physically present in the community as required by the research design? Does he or

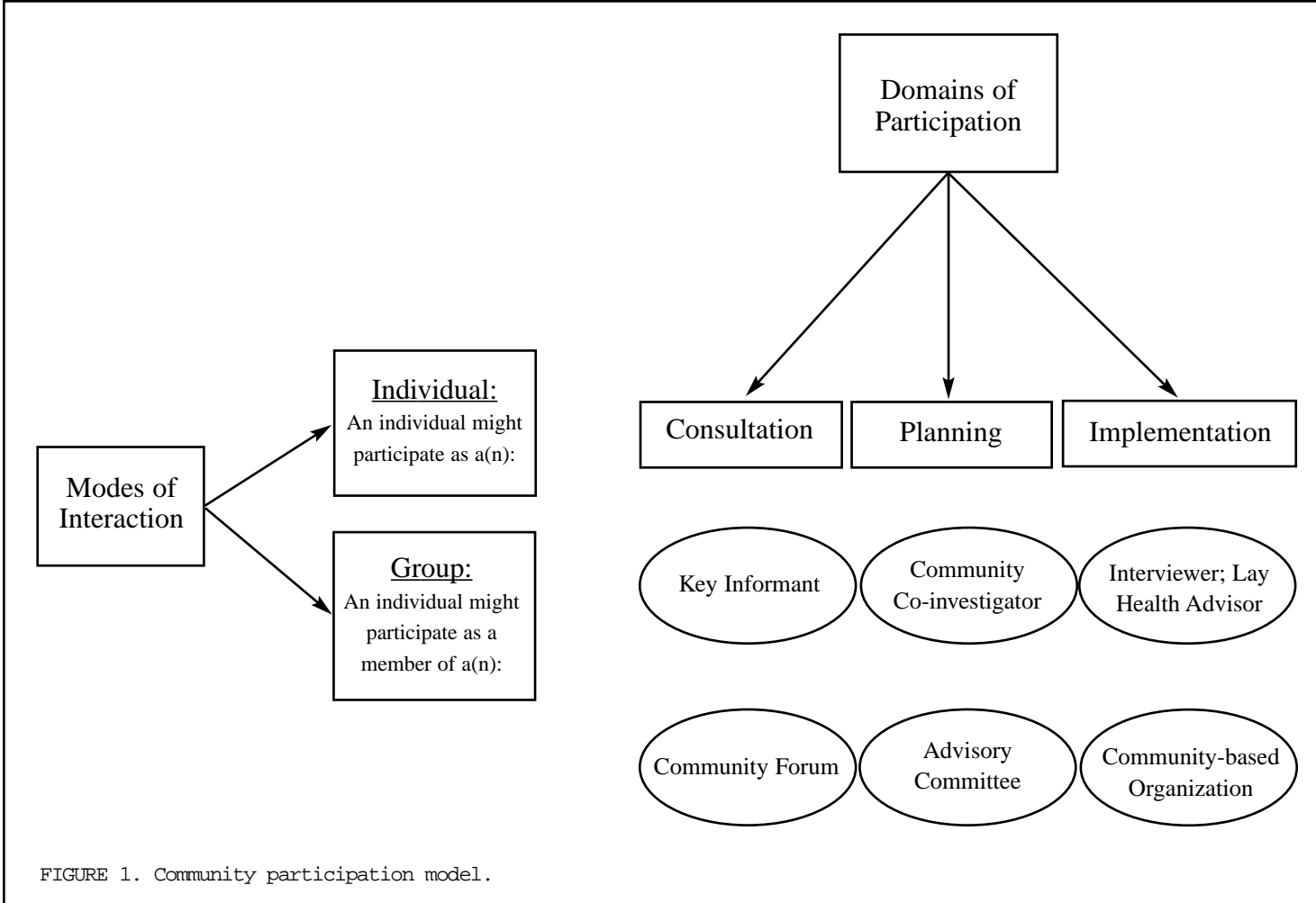
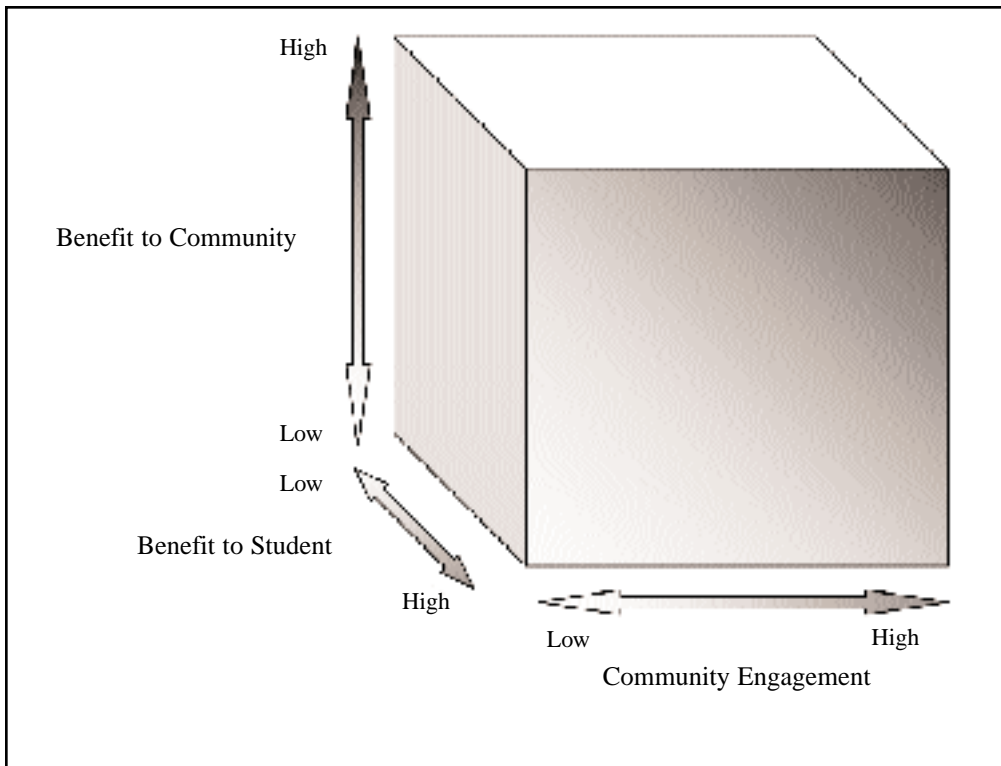


FIGURE 1. Community participation model.



she understand the possible risks and frustrations (e.g., car trouble, difficult people) and know how to deal with them?

- *Is this student right for this project?* Is this student interested in the topic academically or personally? Does he or she have an appropriate background for the proposed activity? Does he or she have the necessary resources and skills (e.g., transportation, writing ability)?

Within these parameters there are many ways in which students can contribute to a CBPR project. A given student's participation can be thought of as occurring along three dimensions reflecting the locus of benefit and the depth of community involvement (see Figure 2). First, what benefits of participation accrue to the student? Second, what benefits of participation accrue to the community? Finally, how willing and able is the student to engage the community? For example, students may be able to fill requirements for their degree programs; in this case, the benefit to the student is significant. Students might conduct a needs assessment required by the community to obtain a new service; in this case, the benefit to the community is significant. Some students may be drawn to community-oriented research but not feel ready for field work (i.e., not as directly engaged with the community). Engagement does not equate with community membership. A student who is not Latino, but who has an active interest in the culture, may be more engaged than a student of Latino heritage whose exposure has been limited for whatever reason. Students who fall anywhere on these three dimensions can make valuable contributions to the research effort as long as there is interest and inclination. However, one would expect that a student who maximizes all three dimensions would have the most positive experience and provide the most benefit to the project.

Environmental Health of Farmworkers

Since 1996, a team of researchers in North Carolina has been investigating ways to reduce environmental exposures within a particularly at-risk and vulnerable population—migrant and seasonal farmworkers, and their families. Of the over 4.2 million migrant and seasonal farmworkers in the United States (HRSA, 1990), more than 80% are foreign born, mostly from Mexico (Mehta et al., 2000). With an estimated 110,000 farmworkers including their family members (Larson, 2000), North Carolina ranks fifth in the country in the number of workers employed (Mines, Gabbard, & Steirman, 1997), almost all of whom are Latino. These workers and their families face numerous environmental and occupational health challenges related to hazardous work (agriculture) and poor living conditions. Compounding the problem is the fact that farmworkers and their families experience many health disparities due to their socially and economically disadvantaged circumstances (Quandt, Preisser, & Arcury, 2002). They are a medically-underserved group due to numerous barriers to health care, such as language differences, lack of health insurance, financial and transportation limitations, and limited power to control their environment. Farmworkers are often neglected in health studies because of the numerous cultural, linguistic, and logistic barriers researchers face in working with them (Arcury, Austin, et al., 1999; Quandt et al., 2002).

The benefit of chemicals to American agriculture is well-established, as is the risk of environmental and occupational exposure to those chemicals (Eskenazi, Bradman, & Castronia, 1999; Fenske, 1997; Kiefer, 1997; Kiefer & Mahurin, 1997; Quandt, Arcury, Austin, & Saavedra, 1998). Although numerous industrial, agricultural, and governmental policies, regulations, and laws (e.g., U.S. Environmental Protection Agency, 1992) exist to protect individuals and the environment, these policies have been inconsistently implemented and enforced (Arcury, Quandt, Preisser, & Cabrera, 1999; U.S. General Accounting Office, 2000). Furthermore, even when those responsible for handling and applying pesticides are in compliance with regulations, chemicals still pose a danger to those who are not educated about the risks, such as hired fieldworkers and members of their households, especially children (Eskenazi et al., 1999; Quandt et al., 1998). These individuals are generally overlooked by official pesticide safety policies, and, therefore, must obtain information from other sources, most likely others within their community. A community-based participatory approach to the problem can expand and organize this process. It also provides an opportunity to give a voice to an otherwise “invisible” population (Arcury, Quandt, & McCauley, 2000) with limited control over their work and living situation (Austin, Arcury, Quandt, Preisser, & Cabrera, 2000).

To begin addressing the needs of this vulnerable and at-risk population, university-based researchers at Wake Forest University School of Medicine (WFUSM) in Winston-Salem, North Carolina, have partnered with a farmworker service and advocacy organization, the North Carolina Farmworkers’ Project (NCFP) located in Benson, North Carolina. The NCFP is a nonprofit organization with the mission to provide a forum in which agricultural workers in North Carolina can work together to address common problems. The partnership has completed one community-based participatory research study addressing pesticide safety for farmworkers in the state and has two more underway. Related studies on other farmworker health issues have also been carried out by this partnership. The NCFP has been an equal partner in all these endeavors, with staff members being paid coinvestigators and taking significant roles in project development, planning, and implementation. Both the NCFP and the WFUSM-based group have involved students in a wide range of their respective activities, as well as in their joint ventures. Results from both completed and ongoing projects have been published in a number of articles, many of which were coauthored by students (e.g.,

Arcury, Quandt et al., 1999; Arcury, Quandt, Cravey, Elmore, & Russell, 2000; Arcury, Quandt, Elmore, & Russell, 2002; Arcury, Quandt, & Simmons, 2003; Quandt et al., 1998; Quandt, Elmore, Arcury, & Norton, 2001).

Student Involvement in Farmworker Environmental Health Research

For the reasons outlined above (i.e., the vulnerability and invisibility of the population) students are often drawn to farmworker advocacy. Activities range from direct action to improve the work and living situations of farmworkers, such as organizing boycotts, to service- and policy-oriented work, including health care and research. The research being conducted by the WFUSM-NCFP partnership has provided an ideal venue for students to be active in a variety of activities related to farmworker health. A total of 24 students ranging from high school through graduate and professional school have participated in these projects to date. The remainder of this article will review the general process of matching and preparing students for community-based research, and then present an overview of specific projects within the WFUSM-NCFP farmworker health research program, including observations made and lessons learned.

Initial connections with students occurred in a number of ways. Students with a predisposition to doing research or working with farmworkers often took the initiative to approach the researchers about a specific project. For others the priority was to meet academic requirements or financial needs. They were, therefore, open to a range of options. Since interest is a necessary but not sufficient condition for a successful student-project match, it was important in all cases to review the available activities and consider the student's situation. For the farmworker-related projects, language ability was the primary determinant of eligibility for many of the community-based research activities, such as recruiting, interviewing, and training. More technical tasks, such as data entry and analysis, required little or no language ability but still offered the opportunity for involvement, albeit from a more removed perspective. Other considerations included the student's relevant skills and previous interviewing or research experience. Each of the projects in the farmworker environmental health research program contained components that could use the skills of students at all levels of experience. The most common activities included conducting in-depth interviews and administering surveys.

All students received training relevant to their activities and to their current level of knowledge of research and of the community in which they would be working. Interviewers received training during sessions that ranged from one to several days depending on the type of data being collected. Sessions covered an overview of the projects and the technical aspects of data collection. Students with a farmworker background were called upon to provide additional, more personal context for the other students. Students practiced interviewing during the training, and then conducted practice interviews in the community that were reviewed by the researchers to ensure consistency of process and product. Students were also instructed on the philosophical, scientific, and ethical underpinnings of the research process in general. This kind of consistent and formalized training is crucial for maintaining the integrity of the results, as well as meeting institutional requirements for the protection of study participants.

Preventing Agricultural Chemical Exposure in North Carolina Farmworkers (PACE)

The first of the series of farmworker environmental health-related projects that incorporated students was the PACE Project (Preventing Agricultural Chemical Exposure in North Carolina Farmworkers), which was conducted between 1996 and 2000. PACE used a community-participa-

tion framework to design, implement, and evaluate interventions to reduce chemical exposure of farmworkers. Community members (i.e., farmworkers and service providers) participated in several domains, including an advisory committee, community forums, and student activities. This 4-year project began with a year of formative research to document the experience, knowledge, and beliefs of farmworkers about pesticides and their possible health effects. Based on the knowledge developed during the first year, a workplace pesticide safety education program (Arcury, Quandt, Austin, et al., 2000) was developed for farmworkers that targeted areas where their knowledge and beliefs differed from scientific evidence (Quandt, Arcury, Austin, et al., 2001). The program consists of a curriculum that can be implemented by any group that wishes to offer direct safety education for farmworkers in their camps. It has already served as the basis for an EPA-funded pesticide safety campaign conducted by NCFP.

In PACE, undergraduate and graduate level students from health and social science disciplines participated in the planning and implementation domains. Planning activities performed by students included participant identification and recruitment and instrument design. Implementation included data collection, training and supervising community interviewers, and conducting and evaluating pesticide safety education sessions with farmworkers and health promoters based on the PACE model (Arcury, Quandt, et al., 2000). The more advanced students took part in the analysis and write-up of the data (e.g., Arcury, Quandt, Cravey, et al., 2000), and two wrote master's papers based on the study outcomes (e.g., Elmore, 1999; Gu, 2000).

In addition to the students who joined the project from local universities, student interns participated through Student Action with Farmworkers (SAF). SAF is a private, nonprofit organization based in Durham, North Carolina with a mission "to bring students and farmworkers together to learn about each other's lives, share resources and skills, improve conditions for farmworkers and build diverse coalitions working for social change" (SAF, 2002). Its overarching goal is to produce the next generation of farmworker advocates. SAF's "Into the Fields" program places college students in internships with farmworker service organizations in North and South Carolina. Interns are required to be bilingual; selection preference is given to students from farmworker families living anywhere in the country. During their 3-month terms they receive valuable work experience and insight into community work that will benefit them in their careers, as well as some financial assistance for school. Their activities on the PACE project included conducting in-depth interviews, assisting with pesticide safety education sessions, and following up with the trained pesticide safety promoters in their camps.

¡La Familia!

¡La Familia! Preventing Farmworker Pesticide Exposure continues and expands the activities of the PACE partnership, but shifts the focus to pesticide safety for children living in farmworker housing. ¡La Familia! is structured similarly to PACE in that formative research was conducted during the first year of the project to document the knowledge, beliefs, and perceptions of pesticide exposure of women living in farmworker housing and how it might affect children. Additional information was gathered on the physical pathways through which pesticides may be carried home from the fields. This information is being used to develop, implement, and evaluate a Lay Health Advisor program during the last three years of the five-year project. As with PACE, individuals from the community have the opportunity to be involved in an advisory committee, community forums, and student activities.

Student participation with ¡La Familia! began with a small supplemental grant (NIH PA-01-079) specifically for the purpose of introducing students from minority populations to environmental

health research with the goal of encouraging them to continue their education in a related field. Two Latino high school students are spending 2 years learning about environmental health issues, assisting in various aspects of the project, and completing small research projects of their own design. The students were selected based on recommendations from their schools and interviews with their parents. They are receiving training in basic research skills, such as computer use and note taking, throughout the two-year project. Activities and level of involvement in ¡La Familia! reflect their youth and newness to the field, and therefore tend to be of more benefit to the students, as they learn about the research process by attending project meetings, assisting with data collection and reviewing results. Perhaps also by virtue of their youth, these students are not presently highly engaged in the community, but one of the goals of the supplemental project is precisely to encourage greater engagement. Ideally, the students' participation should serve to move them closer to the community benefit and high engagement ends of the dimensions in the student participation model.

As this project continues, individuals will be recruited for roles as interviewers and lay health advisors. As appropriate, students will be sought to fill some of those roles. It is also likely that requests will be received from students who need employment, who want to work with the farmworker community, or who want to try their hand at conducting a pilot project.

Casa y Campo

The most recently initiated project, *Casa y Campo: Pesticide Safety for Farmworkers' Families*, again expands the existing community-university partnership between NCFP and WFUSM with the addition of Student Action with Farmworkers. Casa y Campo takes an environmental justice approach to pesticide safety and includes capacity building to develop NCFP's leadership in the community with respect to the identification, assessment, and reduction of environmental health risks. In addition to formative research and the implementation of a pesticide safety program similar to that of ¡La Familia! and PACE, the partnership will also develop medical education materials for health care providers to increase their knowledge of the issues of pesticide exposure faced by this community. Process and outcome evaluation of the community participation in this partnership will be conducted to produce a model of partnership that can be used by similar organizations to reduce environmental health risks in their own communities.

The addition of SAF to the partnership increases and formalizes the service learning aspect of the research program. Casa y Campo will have at least two SAF interns participating in each project year (a total of eight over the life of the project). In the first project year, the two interns, plus another undergraduate student, participated in the planning and implementation domains of Casa y Campo. The undergraduate student learned data management and analysis by entering the quantitative data into a computer database and carrying out data analyses under the direction of the investigators. Interns with farmworker backgrounds conducted interviews on food security and residential lead exposure in farmworker households, and collected dust samples that were analyzed for lead in houses with small children. The SAF interns also participated in other areas of planning and implementation to develop their leadership skills and learn about causes and solutions for environmental health problems and health disparities within their community. As Casa y Campo enters its second year, additional opportunities will be generated for students to participate in identifying, planning, and implementing ancillary research on a variety of issues that affect the lives of farmworker families.

Green Tobacco Sickness in Minority Farmworkers

In related work, WFUSM researchers conducted a study, Green Tobacco Sickness in Minority

Farmworkers, to determine the number of farmworkers in North Carolina who experience green tobacco sickness (GTS), as well as the factors that put workers at risk for the condition. GTS is acute nicotine poisoning that occurs when workers absorb nicotine through their skin from contact with tobacco plants while working. The major symptoms of GTS are nausea or vomiting, plus headache or dizziness. These symptoms are quite similar to those of pesticide poisoning, but the two illnesses have very different causes and treatments. Because it is so easy to confuse the two conditions, an understanding of GTS is an important component of pesticide safety for workers in North Carolina's tobacco fields. This study was developed at the request of a community stakeholder, the North Carolina Migrant Health Program, which had observed large numbers of workers presenting at health centers with symptoms of GTS.

Although the GTS study was not specifically designed for student participation, it drew the attention of students from the undergraduate level to medical and graduate students who eventually participated in many aspects of the project. A component of the study included in-depth interviews with farmworkers to document their understanding of the condition. The interviews were conducted by two geography graduate students and one medical student, all bilingual but not Latino, who identified and recruited participants by traveling to camps and getting to know the community. Another medical student initiated and developed a photonovel (a popular form of health education among Latinos) on GTS that has been printed and distributed throughout the tobacco growing region of the U.S. and Canada (Quandt & Arcury, 2001). This student also coauthored a paper with the investigators based on interviews he conducted with tobacco growers (Arcury, Quandt, & Simmons, 2003). The two medical students asked to participate in the project to fulfill an educational requirement for a service project. Some of the more advanced students helped with analysis and write-up. One master's paper was produced based on the results (Klein, 2000). This project proved especially productive for both the students whose academic programs were advanced and the farmworker community that needed information on recognizing and avoiding a preventable occupational hazard.

Discussion and Implications

Community-based participatory research is an important avenue for engaging students of all levels in environmental health and environmental justice research. CBPR demands commitment, flexibility, and patience on the part of all stakeholders, both those who conduct it and those on whose behalf it is conducted. Involving members of the community in forums and advisory committees adds time and complexity to the research process as individuals with different expectations and perspectives negotiate processes and results that are acceptable to everyone. The most carefully designed project is apt to stall if partners sense that their contributions are being disrespected or ignored. On the other hand, final products will have the widest acceptability if all stakeholders feel their viewpoints have been given serious consideration, regardless of which viewpoint eventually prevails. Flexibility is necessary for handling the inevitable conflicts that occur when groups with disparate starting points and agendas work together, even when they share a common goal. Effective partnerships do not develop overnight. This reality makes the involvement of students, particularly those with a connection to the community in question, all the more vital if community-based participatory research in environmental health is to succeed in the long run.

The students who participated in these projects learned a great deal from the experience, but not always what they expected. Some learned that they were not as prepared for community work as they had thought or at least hoped, finding the frustration of uncooperative interviewees, bro-

ken appointments, and the inevitable miscommunications to be more than they could handle. Others were exhilarated by the immediateness and intensity of working directly with the intended beneficiaries of the research. For a few, the experience solidified decisions to continue their education or to establish a career in community research. Several of the former PACE students have gone on to work with other state and national organizations that support or provide services to the farmworker community.

Students came to these projects with a wide variety of motivations. For some, working on these projects fulfilled a degree requirement (e.g., the medical students in the GTS study). Others, such as the graduate students, sought out the work to gain experience and help prepare for them careers in related areas. For those whose primary motivation was employment, as was the case with some undergraduates, these projects offered a chance to earn an income while doing work that was also educationally and/or personally meaningful. For the SAF interns, participation allowed them to gain experience and provide service to their community while being employed. These different reasons for working with a community-based project are equally legitimate, but do influence the student's level of engagement and the overall locus of benefit (i.e., the student or the community). Awareness of these motivations is helpful for identifying appropriate domains of participation for individual students to ensure the best fit between expectations and outcomes.

The wide range of educational levels of the students, from rising tenth graders to graduating master's students, largely determined the type and degree of participation each could be expected to handle. Our experience has been that graduate students can reasonably be expected to be self-motivated and able to operate with considerable autonomy. High school students, on the other hand, require a significant investment of time and attention from the senior project staff if they are to realize the benefits of participation and play a meaningful role in the overall project. This difference in the amount of supervisory input needed is an important consideration when choosing to work with students, especially less advanced ones, since at least one senior staff member will need to make a significant time commitment to overseeing their activities and ensuring the quality both of their work and of their experience.

Fewer than half of the 24 students who worked on these projects were actual members of the farmworker family community. The SAF interns and the minority supplemental project students were community members, as were several of the data collectors in PACE. Our observation was that the level of engagement and participation was more dependent upon personal factors than upon community membership. Tenacity in completing work and achieving goals, level of comfort with the community, and personal commitment to the philosophical underpinnings of the projects were more important than community membership in determining the quality of the experience for each student. In the projects described above, it was observed that students who chose the work because it fulfilled a need (e.g., employment, educational requirement) rather than because of personal motivation were more likely to struggle with the more trying aspects of community work. Several of the most engaged and committed students who have chosen to pursue community-oriented work for their education or careers were not community members.

It was evident from the students' reports on their experiences during their time with the projects that not all of them benefited equally from or were equally happy with the experience. Some told us they had problems interacting with the community in the field; others did well in the field, but ran into problems handling the research itself. Some took initiative, while others were reluctant to proceed without specific instructions. Students could be given more or less autonomy depending on how they proved and conducted themselves over the course of the project. The ideal situation would be for students to be known to at least one senior researcher who is in a position to evaluate

and assess the student's potential. Again, that is an ideal that cannot always be met. For example, the SAF students are selected and assigned by the agency and so are unknown to the project staff until they are on site. Thus it is not possible to tailor a role for them before the fact, which increases the potential for mismatches in activities or expectations. This is where the flexibility of a well-developed community-based participatory research design can be a deciding factor in the quality of the experience for all parties.

Community-based participatory research in environmental health lends itself to innovative designs in which nearly any motivated individual or group can participate regardless of training or previous experience. Students can play roles ranging from simple interviewing and data entry to in-depth analysis and implementation. When projects and students are suitably matched, not only is the potential for the project to benefit the community enhanced, it also encourages the development of future environmental health scientists and advocates from within the community itself.

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