Sustaining Interventions in Community Systems: On the Relationship Between Researchers and Communities

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Important goals of research-based community interventions include the long-term maintenance of effects and fostering of collaboration between researchers and community leaders. This article reviews the challenges associated with transferring innovations to community systems, changing program delivery from an experimental context controlled by researchers to program delivery controlled by community organizations, and sustaining long-term effects of interventions. It is suggested that researchers who develop and implement community interventions in diverse health areas need to confront several issues: (a) fostering effective long-term relationships between researchers and the communities they study and in which they intervene and (b) designing and implementing interventions that are useful to community systems after the formal phase of research ends.

Key words: institutionalization, community intervention, sustainability, health behavior

In the past two decades, community health interventions have generated excitement, innovation, and exploration of alternative approaches. This article explores the tensions that community researchers face about transferring innovations to community systems, changing program delivery from an experimental context controlled by researchers to program delivery controlled by community organizations, and sustaining long-term effects of interventions. One of the most important goals of research-based community intervention is the long-term maintenance of effects and the collaboration between researchers and community leaders that is at the root of such maintenance. It is unfortunate that there has been little discussion in the scientific literature about what this entails and how it can be achieved (Goodman & Steckler, 1987, 1989a, 1989b; Mittelmark, Hunt, Heath, & Schmid, 1993).

Historically, researchers involved in community health have served different roles in relationship to the communities in which they work (Kelly, 1988; Mittelmark, 1990). Researchers are perhaps best known by community members for quantifying individual and community health risks (i.e., epidemiology). Substantial research attention has also been applied to the study of how social policy affects resource allocation, particularly in recent years when health care reform was salient. Finally, community health researchers have been involved in developing and evaluating alternative service delivery systems. Although this article raises points relevant to situations that arise in all of these roles, the focus is directed at the sustainability of research demonstrations in which the lead player is the research institution.

Background

Beginning in the early 1970s with the Three-Community Study in California and the North Karelia Project in Finland, researchers have attempted to reduce the morbidity and mortality of chronic diseases through community interventions (D. G. Altman, 1986; Blackburn, 1983; Bracht & Kingsbury, 1990; Brown, 1991; Carleton, Lasater, Assaf, Feldman, & McKinlay, 1995; Elder, Schmid, Dower, & Hedlund, 1993; Farquhar et al., 1990; Farquhar, Fortmann, Wood, & Haskell, 1983; Gallagher, 1987; COMMIT Research Group, 1995a, 1995b; Jackson, Altman, Howard-Pitney, & Farquhar, 1989; Luepker et al., 1994; Mittelmark et al., 1993; Puska et al., 1985; Shea & Basch, 1990; Winett, King, & Altman, 1989; Winkleby, 1994; Winkleby, Flora, & Kraemer, 1994). More recently, models used for chronic disease prevention have been adapted for preventing other problems such as HIV and substance use. These programs are unique in that entire communities are the targets of intervention, and multiple strategies for change (e.g., educational, community organization, and policy) are used.

As these projects matured, investigators became increasingly concerned with what is left in the community once research funding ended (D. G. Altman, 1986; Fawcett et al., 1984; Kaye, 1990; Levine et al., 1992; Mittelmark, 1990; Mittelmark et al., 1993; Murray, 1986; Winett et al., 1989; Winkleby, 1994). This concern is consistent with those expressed by scientists in other fields about lack of utilization of research findings (Weiss & Weiss, 1981).

It is important to ask the fundamental question of whether research demonstrations produce effects that are worth sustaining. With respect to the effectiveness of large community-based chronic disease prevention trials (D. G. Altman, 1986; Carleton et al., 1995; Farquhar et al., 1990; COMMIT Research Group, 1995a, 1995b; Luepker et al., 1994; Mittelmark

et al., 1993; Winkleby, 1994), the results are mixed. There are multiple dimensions to evaluating the effects of these programs, however. A distinction should be made between the effects of an overall program (e.g., risk factor levels in a community) and the effects of a particular intervention (e.g., fitness among individuals participating in an exercise class). In the case of the Minnesota Heart Health Program, for example (Luepker et al., 1994), the investigators concluded that changing the risk levels of the community was more difficult than changing the risk levels of individuals exposed to particular interventions. In the Stanford Five-City Project, there was evidence of a differential response among community subgroups (Winkleby et al., 1994). Thus, although an overall program may not be worth sustaining, particular interventions might well be. Not every program or intervention is worth sustaining, and thus sustainability may be premature when efficacy is not established. It is clear that more research is needed to better understand the most effective strategies for improving individual and community health.

Defining Sustainability

Researchers involved in community work must face the challenging problem of planning for the time when the research and development phase of a program is completed. It is possible and often appropriate for the community to assume control of intervention activities and of the organizational and community infrastructure to intervene successfully. Sustainability is thus defined as the infrastructure that remains in a community after a research project ends. Sustainability includes consideration of *interventions* that are maintained, *organizations* that modify their actions as a result of participating in research, and *individuals* who, through the research process, gain knowledge and skills that are used in other life domains (Bracht et al., 1994; Goodman & Steckler, 1989b; Jackson et al., 1989).

Sustainability is similar to institutionalization, incorporation, viability, and settling (Goodman & Steckler, 1987, 1989a, 1989b). Sustaining interventions is critical because it is interventions that ultimately bring value to communities. Sustainability is more than the continuation of interventions (Bracht et al., 1994; Huberman & Miles, 1984; Jackson et al., 1994). Community development and organization (Chavis & Newbrough, 1986; Kinne, Thompson, Chrisman, & Hanley, 1989; Minkler, 1990), organizational change, and community capacity (Bracht et al., 1994; Davis, 1982; Jackson et al., 1994) are relevant as well. An outcome of sustainability is the exchange of knowledge and resources. This exchange may lead to more effective and sustainable community programs and the development of new scientific questions and methods.

Others have approached sustainability from complementary perspectives. Miller called for "giving psychology away" (Miller, 1969). Rappaport and Zimmerman have documented the importance of empowerment (Rappaport, 1981, 1987; Zimmerman, 1993; Zimmerman & Rappaport, 1988). Wandersman and colleagues argued that citizen participation in research has the potential for improving the lives of individuals and communities as well as increasing the quality of scientific data (Prestby, Wandersman, Florin, Rich, & Chavis, 1990; Wanders-

man, Chavis, & Stucky, 1983). Iscoe (1974) argued for developing competent communities, and Bevan (1970) and Lehman (1971) articulated psychology's role in the community. A widely cited statement on the relationship between applied and theoretical scientists and, by extension here, between scientists and communities came from Lewin (1951): "Many psychologists working today in an applied field are keenly aware of the need for close cooperation between theoretical and applied psychology. This can be accomplished ... if the theorist does not look toward applied problems with highbrow aversion or with a fear of social problems, and if the applied psychologist realizes that there is nothing so practical as a good theory" (p. 169).

Incentives for Scientists and Communities to Sustain Interventions

In considering incentives that may affect the behavior of researchers, it is important not to overlook the more general issue of the politics of research. The research enterprise, and researchers themselves, do not often air in public such political issues. Indeed, few would admit that the incentives underlying research are similar to the incentives underlying other professions. Incentives for scientists are related largely to publications in peer-reviewed journals and financial support for research studies. These incentives and their consequences—money, power, and prestige—play an important role in the conduct of academic research. A compelling reason for scientists to be interested in fostering the sustainability of interventions in community systems is the possibility of maintaining or increasing effects achieved during a research phase. Most researchers would be elated if their research had lasting effects on the quality of community life. In addition, there are other reasons that may be salient. First, involving the community is likely to stimulate the development of valid research questions by forcing researchers to view the community from the perspective of those who live in it. Second, by working closely with communities, scientists increase their knowledge of effective community intervention strategies (D. G. Altman, 1995; D. G. Altman, Balcazar, Fawcett, Seekins, & Young, 1994). Third, working with communities is good for community relations and may ultimately result in greater support for research. Fourth, because funding for intervention research will end eventually, sustaining interventions in community systems allows for assessment of long-term effects. Fifth, sustaining interventions can increase the cost effectiveness of research. Sixth, sustainability is consistent with the goal of improving the health of populations.

There are also incentives for communities to work with researchers. These include (a) gaining access to state-of-the-art interventions; (b) obtaining additional program funding or employing additional community citizens through resources made available by a research grant; (c) increasing knowledge of intervention design, delivery, and evaluation; and (d) increasing organizational skills and status through associating with researchers and research institutions. Research on self- and mutual-help groups, the competent community (Iscoe, 1974), perceived personal control (Janis & Rodin, 1979), learned helplessness (Seligman, 1975), sense of community

(Chavis & Newbrough, 1986; Chavis & Wandersman, 1990; Sarason, 1974), citizen participation (Bracht & Tsouros, 1990; Green, 1986; Wandersman et al., 1983), self-efficacy (Bandura, 1986), and empowerment (Rappaport, 1987; Wallerstein & Berstein, 1988; Zimmerman, 1990a, 1990b, in press; Zimmerman, Israel, Schutz, & Checkoway, 1992; Zimmerman & Rappaport, 1988) point to the important effects of self-determination and collective action. Ideally, the sustainability process results in community ownership of problem definition, intervention goals and objectives, resources to resolve the problem, and solutions.

The Relationship Between Researchers and Communities

It is important to distinguish between second-order change, or change that alters the structure of a system, and first-order change, or change within an existing system (Watzlawick, Weakland, & Fisch, 1974). To achieve meaningful sustainability, we must consider changes in the systems of research in which we participate and in the relationships we establish with research participants. Indeed, sustaining research-based interventions in community systems will probably challenge, and undoubtedly change, the relationship between researchers and communities (I. Altman, 1973; Winett et al., 1989). Although community health is not a priority for research or practice among most psychologists, psychologists willing to expand the repertoire of settings and intervention models on which they work might be in a good position to contribute meaningfully to the design of new community health systems.

Traditionally, there have been at least six roles for researchers involved in community work: (1) program developer and implementer, (2) consultant or advisor to program developers and implementers, (3) program evaluator, (4) program administrator, (5) program funder, and (6) collaborator. The first five roles involve an orientation of *doing to* or *doing for* the community, whereas the sixth role involves an orientation of *doing with* the community. Although it may be justifiable for researchers to *do for* or *do to* communities during the research and development phase of investigation in which hypotheses are tested, a more collaborative, *doing with* orientation is necessary for sustainability to occur. In short, sustainability will be enhanced if research is used to facilitate community change. Facilitating community change will require researchers and community groups to share resources and to collaborate. Achieving this change in orientation is certainly no easy task; for most researchers, it will require a paradigm shift (Kuhn, 1970). Some researchers may argue whether adopting a *doing with* orientation is even appropriate during the research and development stage. This orientation is valid if one believes that sustainability is a process that begins at the initiation of a research effort rather than as the final step.

As noted in the next section, there are numerous barriers that will confront researchers who adopt this orientation toward sustainability. Overcoming these barriers would certainly advance community health research and facilitate the achievement of generalizability, dissemination, and meaningful social change.

1. Ownership and Control

Resolving issues surrounding the ownership and control of programs is often what most threatens the relationship between researchers and communities and subsequently the sustainment of interventions. Resolution of potential conflicts is likely to occur if researchers and communities discuss what each loses or gains when research programs are turned over to the community. In addition, communities must be equipped organizationally, politically, and financially to handle ownership and control of interventions. In some instances, communities may not be interested in or have adequate resources (staff or financial) to assume responsibility. In the absence of a community structure or commitment to assume ownership, interventions are unlikely to be sustained.

At a minimum, involving various community constituencies as partners early in the research process is a precondition to successful sustainability. Fostering participation has been shown to be beneficial in a variety of areas (Green, 1986; Minkler, 1990; Wandersman et al., 1983). One of the more dramatic examples of the negative effects of a top–down, nonparticipatory relationship between experts and community residents occurred in a St. Louis, Missouri, housing project (Pruitt-Igoe) in which thousands of people were relocated and millions of dollars were wasted when buildings were destroyed because they failed to meet the needs of residents. This event and others like it has had a lasting influence on architects and urban planners, who now are more likely to consider the needs of residents early in the design process. In a similar way, involving community groups in the planning and implementation of research-based community health programs will increase the likelihood that interventions will be sustained when the researchers leave.

When analyzing the costs and benefits of researcher participation in the sustainability process, it is important to recognize that researchers do not want to become obsolete as a result of their participation. Thus, it is important to address the question of what is left for the researcher once the transfer of ownership and control occurs. On a positive note, the experience of some Stanford University researchers who participated in the sustainability process in Monterey County illustrated that such participation generated more, rather than fewer, research opportunities.

2. Research Versus Service Delivery

A problem that confronts researchers and community organizations who work together is the underlying philosophy driving their respective efforts, that is, theory development and collection of data for researchers versus delivery of services for community organizations. At times, the quest for data interferes with the delivery of programs (and vice versa). Moreover, many researchers are unaccustomed to relinquishing responsibility to service organizations for research programs designed and implemented within a research protocol. If community organizations and researchers participate in consensus development and collaboration during the transition phase of sustaining interventions, however, these different orientations can be overcome.

3. Time Orientation

Researchers typically emphasize the long-term and the careful study of issues. They seldom arrive at quick conclusions or make decisions on the basis of incomplete information. The typical research protocol is to reserve judgment until sufficient data are available and to continually test, refine, and revise interventions on the basis of data collected. In contrast, because of the dynamic nature of community environments, community organizations are often confronted with issues that require quick decisions based on limited information. Therefore, in community settings, organizations often disregard the need for scientifically valid and reliable information. Rather, they use common sense, incomplete or anecdotal data, "street" advice from others, or strategies that have worked previously to determine the tactics taken. This orientation can be frustrating to researchers. Likewise, community organizations can be frustrated by researchers' inability to make decisions in the absence of complete information. To be fair, researchers are not always guided solely by empirical data. Indeed, researchers who have invested years in developing an intervention approach are as prone as others who have invested time in a particular pursuit to overstate effectiveness. From a behavior analytic perspective, this is consistent with the reinforcement schedule that rewards positive effects with publications, promotions, and research funding. A central issue here is understanding and being sensitive to different time orientations and working within them to achieve a mutually acceptable solution. Collaborative planning that begins during the research and development phase can increase the likelihood that researchers and community groups agree on a compromise time frame that meets the demands of each group. In addition, the exchange and feedback between scientists and communities that occurs during the sustainability process is important to expanding the research and development activities of scientists.

4. Ensuring Program Integrity

Researchers sometimes experience difficulty in relinquishing control of programs they designed and implemented because of their concern for the maintenance of program integrity. As discussed previously, it is likely and often desirable that community organizations adapt or alter programs designed by researchers to meet unique community needs. When community adaptation occurs, however, quality control procedures and tight protocols implemented within a research context may change. Although the integrity of program implementation may not decrease in such situations, researchers should recognize that this is part of the process of sustaining interventions and does not necessarily reflect the loss of program integrity. Rather, integrity may actually increase because a program will address the unique needs of a community or will change over time as a result of experience and new knowledge.

5. Overcoming the Status Quo

The predominant perception of both research organizations and community organizations is that maintaining the status quo is less turbulent and more cost effective than developing new approaches. Thus, there is a natural tendency to replicate existing programs than to spend significant time and resources developing new programs. Because sustaining interventions should ideally involve experimentation with new researcher–community relationships, ways of implementing and administering programs, and tailoring of programs to meet unique community environments, maintaining the status quo may inhibit the successful transition from a research program to a community-run program. Willingness on the part of researchers and communities to entertain new innovations, therefore, will probably facilitate interventions being sustained.

6. Gaining Broad-Based Support

In most instances, sustaining interventions will require broad-based support from a cross-section of community constituencies. For reasons related to limited financial resources, territoriality concerns, local politics, limited time, lack of community interest, or limited skills, community organizations may not be able or interested in providing the support necessary to make a comprehensive community program last. If coalition development is a major goal during the research and development phase of a project, this problem may not be as salient when researchers actually leave. The success of community programs is usually dependent on the collaboration of professionals, paraprofessionals, and volunteers from various community settings. Any one community intervention, because it is just one of many available in the community at any given time, must pay particular attention to the social and political milieu in which it is delivered and attend to what marketers call *positioning*, or determining a program's distinct niche. Broad support and involvement from different community sectors must also be fostered.

7. Reliance on Experts and Being an Expert

It is important for researchers and community organizations to not lose sight of the fact that both have expertise, although usually in different areas. In many instances in which researchers and community organizations work together, there is a natural tendency for the community to perceive the researchers as experts and for the researchers to be willing to serve as experts in their relationships with communities. Assuming that the provision of too much guidance encourages the dependence on guidance, sustaining interventions requires that communities assume ownership and control over programs. Assuming ownership and control requires the development of local expertise and only selected reliance on outside experts. Interventions will not be sustained if the two-class relationship (expert–nonexpert) exists.

8. Funding Priorities Versus Community Priorities

The agenda of researchers is often influenced by the priorities of funders. Indeed, the availability of research dollars is virtually a guarantee that researchers will develop proposals consistent with the desires of funders. A common dilemma that results from this situation occurs when research-

ers obtain support for a topic that the community does not see as a priority. For example, violent crime is often rated by community members as their top health concern. Epidemiological analyses, however, typically find that chronic diseases such as cardiovascular disease, cancer, and cerebrovascular disease contribute far more to premature morbidity and mortality and quality of life in a community than does violence. Resolving the conflicts posed by different priorities, especially in the context of a relationship built on empowerment, is a critical factor affecting sustainability. It is important to note that researcher, funder, and community priorities can overlap when the community is placed in the position of senior partner (Mittelmark, 1990), influencing both the agenda of researchers and the funding priorities of institutions within the community.

9. Competition for Existing Community Resources

Funds for health and social programs have dwindled, resulting in increased competition among community groups for more limited resources. A potential problem for sustaining interventions is a perception among community organizations that a new program would increase the competition for scarce community resources. Therefore, researchers must carefully consider the extent to which their goals for sustaining interventions will negatively alter community resource systems. The more limited the resources, the less likely that a research program will be sustained, although having access to data generated through a collaborative relationship with researchers may help community groups prioritize their activities and resource allocations and help them compete successfully for funds. It is also the case, however, that sustaining interventions will require significant community resources.

Resolution of the nine areas of potential conflict just discussed may be enhanced if a partnership between researchers and community groups is established from the inception of the research and development phase. Embracing a *doing with* philosophy will assist both researchers and community groups in achieving consensus on the vision, goals, objectives, and methods underlying the research program and its eventual postresearch form. As a strategy for community change, however, there is little empirical evidence that a partnership model is more effective than other approaches. Thus, more research is needed on partnership approaches before one adopts them enthusiastically.

In the next section, processes underlying the different phases of sustainability are presented to illustrate the different levels that could be considered.

A Process For Achieving Sustainability: Phases, Processes, and Outcomes

A framework for conceptualizing the antecedent processes and expected outcomes underlying sustainability is presented in Figure 1. The framework consists of five general phases in a community research cycle: (1) research, (2) transfer, (3) transition, (4) regeneration, and (5) empowerment. Schematically, this framework is interactive, with each phase overlapping with other phases. Thus, the phases of sustainability are dynamic and cyclical rather than static and linear.

Phase 1: Research

Sustainability of interventions begins with the design and subsequent implementation of research-based interventions. The typical scenario is for researchers to develop interventions with the intent of achieving changes in such outcomes as health-related knowledge, behavior, and health status. In some cases, these interventions are guided closely by theory. In most cases, unfortunately, they are informed, but not guided, by a potpourri of unconnected theoretical perspectives. Most community intervention research is funded for, and therefore ends with, this phase; that is, after the intervention is implemented and evaluated and project funding ends, the research team becomes involved in another research project. Thus, in most cases, a continued relationship between the research staff and the community does not occur. Indeed, many research projects do not have as a goal such continued interaction. As a result, research-based interventions are rarely sustained beyond grant funding, and effects achieved during the research phase often diminish over time. If effects beyond the research phase are desired, they must be planned for carefully. The planning required to sustain interventions is the responsibility of both researchers and community groups.

Phase 2: Transfer

The second phase of sustaining interventions occurs when plans are made for transferring a project from a research base to a community base. Ideally, the processes and outcomes that occur in this phase are set in motion during the research phase. In more cases than not, however, issues of transfer (and later, transition) occur as an afterthought at the end of the research phase. During the transfer phase, processes of communication, coordination, and collaboration take place. Ideally, these interactions result in diffusion and extend the applicability of the research. Thus, in the transfer phase, researchers and community leaders expand the relationship they established during the research phase.

Phase 3: Transition

Once collaborative processes initiated in the transfer phase are undertaken, the replication, adaptation, or innovation of community health interventions becomes a key outcome. Sustainability outcomes in this phase include (a) the *replication* by community organizations of interventions that were designed or implemented originally in research settings, (b) the *adaptation* of research-generated interventions to meet specific community needs and the local community context, and (c) the development of *innovative* interventions by community organizations that go beyond what was developed by researchers. Innovation by the community does not negate technical assistance processes that occur between researchers and the community. Rather, new interventions could result through the sharing of resources and expertise.

Training and education, or capacity building, are key processes in this phase. Training refers to the transfer of specific skills for particular problems leading to precise performance and predictable outcomes (i.e., a replication focus). Education
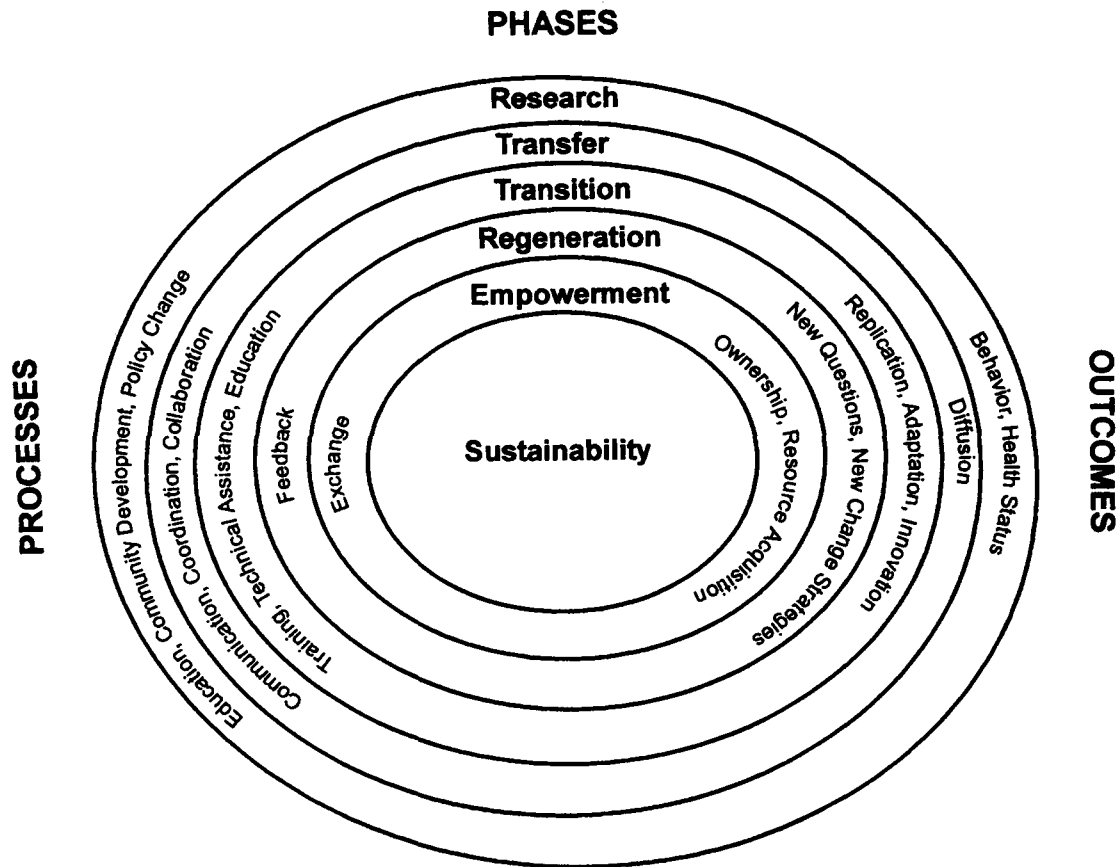
PHASES

Figure 1. The sustainability process.

refers to the transfer of nonspecific competencies leading to the design and implementation of unique interventions (i.e., an adaptation or innovation focus; Doyle, Wilcox, & Reppucci, 1983; Rappaport, 1978). Education and training can be useful in the development of intervention skills among community practitioners.

Phase 4: Regeneration

The fourth phase of sustaining interventions is labeled regeneration. Here, experiences and insights derived by community groups are fed back to researchers. Information exchanged between researchers and communities is an essential feature to the testing of valid hypotheses and theories and to the development of ideas for future research and social action. Feedback from researchers to communities regarding the effects that their efforts have had on community outcomes should also be a feature of the regeneration phase. The outcomes of regeneration are the development of new research questions and areas of investigation for the researchers and information about program effectiveness provided by researchers to communities. These exchanges, if carried out successfully, will result in effective utilization by community systems and, over time, less reliance on researcher resources and expertise. A community that assumes responsibility and authority for program delivery, assuming fidelity of implemen-

tation, increases the potential that interventions will have lasting effects.

Phase 5: Empowerment

The key processes that occur during the empowerment phase are the deepening of collaborative exchanges between researchers and community groups whereby power and control shifts to the community. The key outcomes resulting from this phase are community ownership and the ability to acquire needed resources. Empowerment refers to efforts at multiple levels of analysis to exert control and gain mastery over salient issues (Zimmerman, in press; Zimmerman & Rappaport, 1988). There is a growing empirical database and theoretical justification for considering empowerment as a core, underlying principle guiding the relationship between researchers and communities interested in sustainability. Indeed, it provides an umbrella for disparate bodies of research related to control, competence, mastery, and efficacy. Zimmerman (1993, in press) made a distinction between empowerment as a value and as a theory, both of which are appropriate to sustainability. As a value, empowerment refers to the approach that researchers and interventionists adopt (Zimmerman, in press). An empowering approach includes a focus on client participation in all phases of a project, giving priority to working with rather than to or for clients, multi-level interpretation of the causes of

social problems, consideration of health promotion as a complement to disease prevention or treatment, and equal attention given to process and outcomes.

Case Study:
Monterey County, California Department of Health

The following section ties the framework described earlier to a community-based heart disease program in California. The cities of Salinas and Monterey in Monterey County, California, were the intervention communities for the Stanford Five-City Project (FCP), a community-based heart disease prevention program (Farquhar et al., 1990). A detailed description of intervention maintenance is provided elsewhere (Farquhar et al., 1990; Jackson et al., 1994). The research phase of the intervention lasted approximately 6 years, during which time extensive collaboration with community constituencies occurred. At the end of funding for intervention development and implementation, efforts to maintain the effort in the community intensified. As described by Jackson et al. (1994), the first effort to sustain the FCP, a collaborative community network approach, encountered substantial community resistance and ultimately was abandoned. As described later, the second effort, a capacity-building approach, turned out to be a viable strategy (Jackson et al., 1994).

Community Network (CN) Approach

The CN approach brought together a community advisory board, a newly formed community health promotion center, existing community health organizations, and research organizations, with the goal of organizing this intersectoral group to coordinate sustainability efforts (Jackson et al., 1994). A key priority was ensuring the replication of specific interventions developed during the research phase of the project because many of these interventions were found to be effective in improving the practice of heart healthy behaviors among participants (Albright, Flora, & Fortmann, 1990; D. G. Altman, Flora, Fortmann, & Farquhar, 1987; King, Flora, Fortmann, & Taylor, 1987; King et al., 1988). The CN approach was implemented for 3 years, after which participants deemed it unworkable. The key factors leading to the abandonment of the CN approach included (a) interorganizational competition for limited community resources; (b) lack of consensus on CN goals, particularly with respect to conflicts between CN goals and member organization goals; (c) inadequate resources (time and money); (d) lack of involvement of key community residents and organizations active in the FCP; and (e) overemphasis on high-level policymakers rather than mid-level implementers. These factors prevented community ownership from occurring. After analyzing the failures of the CN approach, plans were made to try again, this time with a community capacity-building approach (Jackson et al., 1994).

Community Capacity-Building (CCB) Approach

The CCB approach differed from the CN approach in several ways (Jackson et al., 1994). First, it focused on strengthening community resources in intervention design,

implementation, evaluation, and resource acquisition. To support this goal, technical assistance, training, and professional development were provided. In contrast, the CN approach had interorganizational coordination as a primary goal. Second, the CCB emphasized working with existing community organizations rather than building a new organization (the community health promotion center). Third, developing skills to adapt existing interventions and to innovate new interventions, rather than replicating those implemented previously, became a priority. Fourth, the benefits of participating in this approach (e.g., publications for researchers, and grant funds and skills development for community organizations) were discussed, and all parties agreed that the exchange was mutually beneficial. The Monterey County Health Department emerged as the community focal point for the CCB approach. This was the result of a confluence of internal and external factors that enhanced the capacity of the health department to take on this role. Key factors included (a) funding from and involvement in the FCP, (b) substantial resources obtained from an increase in the state excise tax on tobacco and risk reduction grants for hypertension control and nutrition education, and (c) policy recommendations issued by the Centers for Disease Control and the Institute of Medicine (Institute of Medicine, 1988) on structuring public health delivery systems. These factors led to the Health Departments forming a Division of Health Promotion.

Lessons Learned

The preceding discussion of the FCP and its interactions with the community illustrates some of the concepts raised in the sustainability process presented in Figure 1. The likelihood of success increases as one progresses through the different phases in the sustainability process. In the failed CN approach, for example, achieving replication of interventions (transition phase) was the primary goal. Obstacles that occurred as a result centered around the lack of attention to processes (e.g., technical assistance, feedback, and exchange) and outcomes (innovation and ownership) that are part of later phases. In addition, some of the key people participating in the CN effort had not developed a sufficiently close relationship with the scientists to work collaboratively to overcome the obstacles the group faced as it attempted to achieve sustainability. In contrast, the successful CCB approach attended explicitly to processes and outcomes that occurred during the transition, regeneration, and empowerment phases.

There is a small body of research on the institutionalization of health promotion programs relevant to this discussion (Goodman & Steckler, 1987, 1989a, 1989b). In a study of a rural health promotion program in Popsville, North Carolina, the authors noted that the program was implemented but not institutionalized (Goodman & Steckler, 1987). The key factors interfering with sustainability were (a) inadequate understanding of and explicit commitment to institutionalization; (b) the short duration of research and development; (c) funder emphasis on the replication of the intervention to other sites, thereby preventing the provision of ongoing resources to the demonstration site; and (d) the absence of shared community ownership of the program. In a similar manner to the CN

approach first taken in Monterey County, this program was not institutionalized in part because it focused on network relationships rather than on shared ownership. Goodman and Steckler argued that because the program failed to find a local "home" or organizational niche (i.e., mutual adaptation), the likelihood of institutionalization was low. In a case study of 10 programs in Virginia, Goodman and Steckler uncovered several factors that influenced institutionalization: (a) standard operating routines; (b) critical precursor conditions (e.g., problem awareness and concern, receptivity to change, availability of solutions and resources, and perception of benefit); (c) mutual adaptation and fit between the program, participants, and organizational norms; and (d) the presence of a program champion (Goodman & Steckler, 1989b). In the successful CCB approach adopted by the Monterey County Health Department, these four factors were evident. There was substantial agreement about the contribution that cardiovascular disease prevention made to the overall health of the community. Indeed, by the middle of the project, researchers and community professionals rarely discussed precursor conditions as there was almost complete consensus on their importance. At the same time, the norms guiding the research staff influenced how community organizations conducted their business, and vice versa. For example, the researchers introduced to communities the need to systematically evaluate their activities. Professionals in the community helped the researchers adapt interventions that looked good on paper but needed modifications to fit with community norms. Finally, there were an abundance of committed program champions, both among researchers and community leaders. Thus, the Health Department sustained specific interventions (not the entire demonstration project), developed intervention skills useful to other Health Department programs, and developed organizational capacity that improved their ability to compete successfully for extramural funding.

Future Research Directions

Studying the long-term relationships between researchers and communities and the sustainability of interventions developed within a research context are areas ripe for scientific inquiry (Acheson, 1970). There are two primary areas in need of research. The first is research about the sustainability process itself. The second is research on the effects of sustainability on individual and community level outcomes. Key questions include the following: (a) To what extent do the integrity and effects of research interventions increase, remain the same, or decrease when communities assume primary responsibility for their delivery? (b) How does community participation in research protocols affect the subsequent design and delivery of community programs? (c) What methods and types of technical assistance from researchers to communities maintain the integrity of research interventions and at the same time foster ownership by communities? (d) What factors increase the diffusion of interventions throughout diverse community systems? (e) What factors (e.g., personal, social, and environmental) affect the long-term adoptability of research interventions by communities? (f) How does community participation in scientific research affect the questions that scientists ask?

Future Policy Directions

As a nation, we have placed high priority on obtaining positive health outcomes. To reach these outcomes, we have made substantial investments in a treatment-oriented health care system. Although community programs have potential for affecting health outcomes, we have generally not been able to sustain these programs or components of these programs. This lack of sustainability can be attributed to a variety of factors, although limited infrastructure support is certainly one of the key reasons. Our knowledge of policy intervention that facilitates infrastructure support and enhances the likelihood of sustainability is rudimentary (Cowen, 1991). Sustainability requires both a commitment to the concept and the provision of financial and in-kind resources. The type, extent, and sources of these needed resources and the framing of community health programs to community residents are critical issues to explore. In most communities, for example, support for police, firefighters, and education is high on the public agenda. Support for community health programs, however, is more uneven and often a lower priority.

There are several types of policy interventions that could be used to facilitate infrastructure support for sustainability: (a) Using revenues derived from increases in tobacco or alcohol excise taxes for funding community interventions over long periods of time, (b) including sustainability as one criterion in the evaluation of research grant proposals and requiring that researchers have a detailed plan for enhancing sustainability, (c) earmarking funds for research on methods to enhance sustainability and to study the effects of sustainability, and (d) including community workers in the review process for research grants to help evaluate the sustainability plan (or the potential sustainability of proposed interventions).

In the case study of the Monterey County Health Department, their efforts to continue and expand cardiovascular disease prevention activities once the research project ended were facilitated by resources derived from an increase in the state excise tax on tobacco. These resources not only expanded their ability to target a single risk factor (tobacco) but also helped build an infrastructure that supported other activities. It is important that the focus on building infrastructure does not result in an overdependence on external funding resources. Without a balanced source of infrastructure support, including a commitment by the community, policy changes in funding priorities can interfere with sustainability (Mann, 1978).

Community researchers must develop more effective interventions and strategies for sustaining them. Most researchers view sustainability as a late phase in the research process, attended to once efficacy data are available. An alternative approach is to consider issues around sustainability as an essential component to all phases of a research project. Indeed, it is reasonable to hypothesize that an early commitment to community capacity building is helpful during all phases of research, not just in relation to sustainability.

A Final Word

Early in the development of health psychology, Iscoe (1982) encouraged the field to include a community perspective. I have argued that one of the key community issues to which health psychologists should devote attention is sustainability. Indeed, Bevan's advice some years ago still rings true (Bevan, 1970): "It is tragic that so many academicians ... are so ignorant of what is going on in the real world beyond the campus gates as to be [un]able to understand to any significant degree what these problems really are" (p. 445). The challenge of sustaining community programs is similar to preventing relapse among individuals attempting health behavior change (Marlatt & Gordon, 1985), although it operates at a different level. Psychologists have something to say about maintenance of behavior, although this knowledge is applied rarely in community systems. As Sarason (1967) noted, "psychologists are as good as anybody else in initiating change and as bad as everybody else in sustaining it" (p. 232).

As educators train the next generations of psychologists, community health scientists, interventionists, and policy makers, we are well advised to require psychologists to venture beyond the hallowed walls of research institutions to the frontlines of communities. Those psychologists willing to apply their expertise to community health will face extraordinary challenges in translating their expertise to the needs of communities. The potential benefits derived from such participation, for both individual researchers and the communities in which researchers work, may well be just as extraordinary.

References

Acheson, E. D. (1970). University, medical school, and community. *British Medical Journal, 2,* 683–687.

Albright, C. L., Flora, J. A., & Fortmann, S. P. (1990). Restaurant menu labeling: Impact of nutrition information on entree sales and patron attitudes. *Health Education Quarterly, 17,* 157–167.

Altman, D. G. (1986). A framework for evaluating community-based heart disease prevention programs. *Social Science and Medicine, 22,* 479–487.

Altman, D. G. (1995). Strategies for community health intervention: Promises, paradoxes, pitfalls. *Psychosomatic Medicine, 57,* 226–233.

Altman, D. G., Balcazar, F. E., Fawcett, S. B., Seekins, T., & Young, J. Q. (1994). *Public health advocacy: Creating community change to improve health.* Palo Alto, CA: Stanford Health Promotion Resource Center.

Altman, D. G., Flora, J. A., Fortmann, S. P., & Farquhar, J. W. (1987). The cost-effectiveness of three smoking cessation programs. *American Journal of Public Health, 77,* 162–165.

Altman, I. (1973). Some perspectives on the study of man–environment phenomena. *Representative Research in Social Psychology, 4,* 109–126.

Bandura, A. (1986). *Social foundations of thought and action: A social cognitive theory.* Englewood Cliffs, NJ: Prentice Hall.

Bevan, W. (1970). Psychology, the university, and the real world around us. *American Psychologist, 25,* 442–449.

Blackburn, H. (1983). Research and demonstration projects in community cardiovascular disease prevention. *Journal of Public Health Policy, 4,* 398–421.

Bracht, N., Finnegan, J. R., Rissel, C., Weisbrod, R., Gleason, J., Corbett, J., & Veblen-Mortenson, S. (1994). Community ownership and program continuation following a health demonstration project. *Health Education Research, 9,* 243–255.

Bracht, N., & Kingsbury, L. (1990). Community organization principles in health promotion: A five stage model. In N. Bracht (Ed.), *Health promotion at the community level* (pp. 66–88). Newbury Park, CA: Sage.

Bracht, N., & Tsouros, A. (1990). Principles and strategies of effective community participation. *Health Promotion International, 5,* 199–208.

Brown, E. R. (1991). Community action for health promotion: A strategy to empower individuals and communities. *International Journal of Health Services, 21,* 441–456.

Carleton, R. A., Lasater, T. M., Assaf, A. R., Feldman, H. A., & McKinlay, S. (1995). The Pawtucket Heart Health Program: Community changes in cardiovascular risk factors and projected disease risk. *American Journal of Public Health, 85,* 777–785.

Chavis, D. M., & Newbrough, J. R. (1986). The meaning of "community" in community psychology. *Journal of Community Psychology, 14,* 335–340.

Chavis, D. M., & Wandersman, A. (1990). Sense of community in the urban environment: A catalyst for participation and community development. *American Journal of Community Psychology, 18,* 55–81.

COMMIT Research Group. (1995a). Community intervention trial for smoking cessation: Changes in adult cigarette smoking prevalence. *American Journal of Public Health, 85,* 193–200.

COMMIT Research Group. (1995b). Community intervention trial for smoking cessation: I. Cohort results form a four-year community intervention. *American Journal of Public Health, 85,* 183–192.

Cowen, E. L. (1991). In pursuit of wellness. *American Psychologist, 46,* 404–408.

Davis, D. D. (1982). Participation in community intervention design. *American Journal of Community Psychology, 10,* 429–445.

Doyle, J. B., Wilcox, B. L., & Reppucci, N. D. (1983). Training for social and community change. In E. Seidman (Ed.), *Handbook of social intervention* (pp. 615–638). Beverly Hills, CA: Sage.

Elder, J. P., Schmid, T. L., Dower, P., & Hedlund, S. (1993). Community heart health programs: Components, rationale, and strategies for effective interventions. *Journal of Public Health Policy, 4,* 463–479.

Farquhar, J. W., Fortmann, S. P., Flora, J. A., Taylor, C. B., Haskell, W. L., Williams, P. T., Maccoby, N., & Wood, P. D. (1990). Effects of communitywide education on cardiovascular disease risk factors: The Stanford Five-City Project. *Journal of the American Medical Association, 264,* 359–365.

Farquhar, J. W., Fortmann, S. P., Wood, P. D., & Haskell, W. L. (1983). Community studies of cardiovascular disease prevention. In N. Kaplan & J. Stamler (Eds.), *Prevention of coronary heart disease* (pp. 170–181). Philadelphia: W. B. Saunders.

Fawcett, S. B., Seekins, T., Whang, P. L., Suarez de Balcazar, Y., Muiu, C., & Johnson, M. (1984). A role for universities in creating and disseminating tools for community development. *Behaviorists for Social Action Journal, 4*(2), 2–8.

Gallagher, J. J. (1987). *Combat leader's field guide* (10th ed.). Harrisburg, PA: Stackpole Books.

Goodman, R. M., & Steckler, A. (1987). The life and death of a health program: An institutionalization case study. *International Quarterly of Community Health Education, 8*(1), 5–21.

Goodman, R. M., & Steckler, A. (1989a). A framework for assessing program institutionalization. *Knowledge in Society: The International Journal of Knowledge Transfer, 2*(1), 57–71.

Goodman, R. M., & Steckler, A. (1989b). A model for the institutionalization of health promotion programs. *Family and Community Health, 11*(4), 63–78.

Green, L. W. (1986). The theory of participation: A qualitative analysis of its expression in national and international health

policies. *Advances in Health Education and Health Promotion, 1*(A), 211–236.

Huberman, A. M., & Miles, M. B. (1984). *Innovation up close: How school improvement works.* New York: Plenum Press.

Institute of Medicine. (1988). *The future of public health.* Washington, DC: National Academy Press.

Iscoe, I. (1974). Community psychology and the competent community. *American Psychologist, 8,* 607–613.

Iscoe, I. (1982). Toward a viable community health psychology: Caveats from the experiences of the community mental health movement. *American Psychologist, 37,* 961–965.

Jackson, C., Altman, D. G., Howard-Pitney, B. A., & Farquhar, J. W. (1989). Evaluating community level health promotion and disease prevention interventions. *New Directions for Program Evaluation, 43,* 19–32.

Jackson, C., Fortmann, S. P., Flora, J. A., Melton, R. J., Snider, J. P., & Littlefield, D. (1994). The capacity building approach to intervention maintenance implemented by the Stanford Five-City Project. *Health Education Research, 9,* 385–396.

Janis, I. L., & Rodin, J. (1979). Attribution, control, and decision-making: Social psychology and health care. In G. C. Stone, F. Cohen, & N. E. Adler (Eds.), *Health psychology* (pp. 487–521). San Francisco: Jossey-Bass.

Kaye, G. (1990). A community organizer's perspective on citizen participation research and the researcher–practitioner partnership. *American Journal of Community Psychology, 18,* 151–157.

Kelly, J. G. (1988). *A guide to conducting prevention research in the community.* New York: Haworth Press.

King, A. C., Flora, J. A., Fortmann, S. P., & Taylor, C. B. (1987). Smokers' challenge: Immediate and long-term findings of a community smoking cessation contest. *American Journal of Public Health, 77,* 1340–1341.

King, A. C., Saylor, K. E., Foster, S., Killen, J. D., Telch, M. J., Farquhar, J. W., & Flora, J. A. (1988). Promoting dietary change in adolescents: A school based approach for modifying and maintaining healthy behavior. *American Journal of Preventive Medicine, 4,* 68–73.

Kinne, S., Thompson, B., Chrisman, N. J., & Hanley, J. R. (1989). Community organization to enhance the delivery of preventive health services. *American Journal of Preventive Medicine, 5,* 225–229.

Kuhn, T. S. (1970). *The structure of scientific revolutions* (2nd ed.). Chicago: University of Chicago Press.

Lehman, S. (1971). Community and psychology and community psychology. *American Psychologist, 26,* 554–560.

Levine, D. M., Becker, D. M., Bone, L. R., Stillman, F. A., Tuggle, M. B., Prentice, M., Carter, J., & Filippeli, J. (1992). A partnership with minority populations: A community model of effectiveness research. *Ethnicity and Disease, 2,* 296–305.

Lewin, K. (1951). *Field theory in social science.* New York: Harper & Row.

Luepker, R. V., Murray, D. M., Jacobs, D. R., Mittelmark, M. B., Bracht, N., Carlaw, R., Crow, R., Elmer, P., Finnegan, J., Folson, A. R., Grimm, R., Hannan, P. J., Jeffrey, R., Lando, H., McGovern, P., Mullis, R., Perry, C. L., Pechacek, R., Pirie, P., Sprafka, J. M., Weisbrod, R., & Blackburn, H. (1994). Community education for cardiovascular disease prevention: Risk factor changes in the Minnesota Heart Health Program. *American Journal of Public Health, 84,* 1383–1393.

Mann, P. A. (1978). *Community psychology: Concepts and applications.* New York: Free Press.

Marlatt, G. A., & Gordon, J. R. (1985). *Relapse prevention: Maintenance strategies in the treatment of addictive behaviors.* New York: Guilford Press.

Miller, G. A. (1969). Psychology as a means of promoting human welfare. *American Psychologist, 24,* 1063–1075.

Minkler, M. (1990). Improving health through community organization. In K. Glanz, F. M. Lewis, & B. K. Rimer (Eds.), *Health behavior and health education: Theory, research, and practice* (pp. 257–287). San Francisco: Jossey-Bass.

Mittelmark, M. B. (1990). Balancing the requirements of research and the needs of communities. In N. Bracht (Ed.), *Health promotion at the community level* (pp. 125–139). Newbury Park, CA: Sage.

Mittelmark, M. B., Hunt, M. K., Heath, G. W., & Schmid, T. L. (1993). Realistic outcomes: Lessons from community-based research and demonstration programs for the prevention of cardiovascular disease. *Journal of Public Health Policy, 4,* 437–462.

Murray, D. M. (1986). Dissemination of community health promotion programs: The Fargo-Moorhead Heart Health Program. *Journal of School Health, 56,* 375–381.

Prestby, J. E., Wandersman, A., Florin, P., Rich, R., & Chavis, D. (1990). Benefits, costs, incentive management and participation in voluntary organizations: A means to understanding and promoting empowerment. *American Journal of Community Psychology, 18,* 117–149.

Puska, P., Nissinen, A., Tuomilehto, J., Salonen, J. T., Koskela, K., McAlister, A., Kottke, T. E., Maccoby, N., & Farquhar, J. W. (1985). The community-based strategy to prevent coronary heart disease: Conclusions from the ten years of the North Karelia Project. In L. Breslow, I. B. Lave, & J. Fielding (Eds.), *Annual review of public health* (Vol. 6, pp. 147–193). Palo Alto, CA: Annual Reviews.

Rappaport, J. (1978, August–September). *Education, training, and dealing with the contingent future.* Paper presented at the 86th Annual Convention of the American Psychological Association, Toronto, Ontario, Canada.

Rappaport, J. (1981). In praise of paradox: A social policy of empowerment over prevention. *American Journal of Community Psychology, 9,* 1–25.

Rappaport, J. (1987). Terms of empowerment/exemplars of prevention: Toward a theory for community psychology. *American Journal of Community Psychology, 15,* 121–148.

Sarason, S. B. (1967). Toward a psychology of change and innovation. *American Psychologist, 22,* 227–233.

Sarason, S. B. (1974). *The psychological sense of community: Prospects for community psychology.* San Francisco: Jossey-Bass.

Seligman, M. E. P. (1975). *Helplessness: On depression, development, and death.* San Francisco: W. H. Freeman.

Shea, S., & Basch, C. E. (1990). A review of five major community-based cardiovascular disease prevention programs: Part 1. Rationale, design, and theoretical framework. *American Journal of Health Promotion, 4,* 203–213.

Wallerstein, N., & Berstein, E. (1988). Empowerment education: Freire's ideas adapted to health education. *Health Education Quarterly, 15,* 379–394.

Wandersman, A., Chavis, D., & Stucky, P. (1983). Involving citizens in research. In R. Kidd & M. Saks (Eds.), *Advances in applied social psychology* (Vol. 2, pp. 189–212). Hillsdale, NJ: Erlbaum.

Watzlawick, P., Weakland, J. H., & Fisch, R. (1974). *Change: Principles of problem formulation and problem resolution.* New York: Norton.

Weiss, J. A., & Weiss, C. H. (1981). Social scientists and decision makers look at the usefulness of mental health research. *American Psychologist, 36,* 837–847.

Winett, R., King, A. C., & Altman, D. G. (1989). *Health psychology and public health: An integrative perspective.* Elmsford, NY: Pergamon Press.

Winkleby, M. A. (1994). The future of community-based cardiovascular disease intervention studies. *American Journal of Public Health, 84,* 1369–1372.

Winkleby, M. A., Flora, J. A., & Kraemer, H. C. (1994). A community-based heart disease intervention: Predictors of change. *American Journal of Public Health, 84,* 767–772.

Zimmerman, M. A. (1990a). Taking aim on empowerment research:

On the distinction between individual and psychological conceptions. *American Journal of Community Psychology, 18,* 169–177.

Zimmerman, M. A. (1990b). Toward a theory of learned helplessness: A structural analysis of participation and empowerment. *Journal of Research in Personality, 24,* 71–86.

Zimmerman, M. A. (1993, June). *The measurement of psychological empowerment: Issues and strategies.* Paper presented at the Fourth Biennial Conference on Community Research and Action, Williamsburg, VA.

Zimmerman, M. A. (in press). Empowerment theory: Psychological, organizational, and community levels of analysis. In J. Rappaport & E. Seidman (Eds.), *Handbook of community Psychology.* New York: Plenum Press.

Zimmerman, M. A., Israel, B. A., Schutz, A., & Checkoway, B. (1992). Further explorations in empowerment theory: An empirical analysis of psychological empowerment. *American Journal of Community Psychology, 20,* 707–727.

Zimmerman, M. A., & Rappaport, J. (1988). Citizen participation, perceived control, and psychological empowerment. *American Journal of Community Psychology, 16,* 725–749.

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