Framing Photovoice Using a Social---Ecological Logic Model as a Guide.

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Abstract:

Photovoice is a community-based participatory action research method designed to uncover the root causes of community problems and to collectively address them. Individual change and empowerment are desired outcomes of the photovoice process, but more importantly, the process seeks to engage groups and whole communities to foster positive systems change. This article presents a logic model informed by the social-ecological model of health to guide photovoice planners and participants in planning activities that produce individual-and community-level change. The model presented here should help planners and participants plan, implement, and evaluate other photovoice efforts and provide them a visual guide to ensure that all parties are on the same conceptual page and increase the intentionality of their efforts.

Keywords: photovoice | logic model | evaluation | program planning | social-ecological | community based participatory research | CBPR | participatory action research | research | health promotion

Article:

A logic model can provide a visual map to individuals and organizations using the photovoice method of community-based participatory research (CBPR) to bring about community change. Photovoice uses a Freirean-based process to (a) engage people in observing and dialoguing about their communities, (b) create safe environments for critical reflection of why current realities exist, (c) move individuals with increased levels of critical consciousness toward action, and (d) motivate the social power structures to initiate community change (Freire, 1970; Wang & Burris, 1994, 1997). These components of the photovoice process share a common core with CBPR. CBPR emphasizes empowering community voices, co-learning among community members and researchers, using each partner's strengths, sharing decision making, mutually owning outcomes, and advocating for change (Israel, Schulz, Parker, & Becker, 1998; Wang & Burris, 1997). Both CBPR researchers and Freirean practitioners agree that community members must actively analyze community issues to discover their root causes and then work to change the social structures that hold these problems in place (Hann, Kean, Matulionis, Russell, & Sterling, 2004). Similarly, the Institute of Medicine report The Future of the Public's Health in the 21st Century argues that the "health of populations and individuals is shaped by a wide range of factors in the social, economic, natural, built, and political environments" (p. xv). To improve population health, individuals and communities need to make changes in the broader society (Institute of Medicine, 2002).

Photovoice goes beyond photography programs that limit change to program participants (knowledge, attitudes, behaviors). Because the goals of photovoice are critically different, we have chosen to call individually focused programs "photoventions." In this article we focus on photovoice rather than photoventions and present a logic model based on the social-ecological model of health (McLeroy, Bibeau, Steckler, & Glanz, 1988) as a means to more clearly communicate the purpose of photovoice as an intervention aimed at policy and systems change. It is our aim that the proposed social-ecological logic model for photovoice can guide implementers in planning, implementing, and evaluating photovoice activities aimed toward individual-, group-, and community-level changes. We illustrate the model using examples from a North Carolina photovoice project conducted in partnership with African American churches called Picture Me Tobacco Free© (PMTF) PMTF was funded by tobacco settlement funds and formed as a partnership between a university, a church-sponsored health organization, and 17 local churches. University researchers designed the program and curriculum in consultation with the church-sponsored health organization (CSHO). The CSHO recruited churches and implemented the program in partnership with adult facilitators in host churches.

BACKGROUND

Many root causes of health problems are found in the social environment of our communities (Freudenberg et al., 1995; Green, Richard, & Potvin, 1996; McGinnis, 2002; McLeroy et al., 1988; Minkler, 1999; Navarro, Voetsch, Liburd, Giles, & Collins, 2007; Stokols, 1996). For this reason, public health professionals have called for expanding public health's goals beyond individual-level change to targeting community and policy change (Hann et al., 2004; Institute of Medicine, 2002; Schwartz, Goodman, & Steckler, 1995; World Health Organization, 1986). Such changes have greater reach and sustainability because they address factors that hold in place conditions that inhibit health.

Social-Ecological Model

The social-ecological model allows public health professionals to communicate that the health of individuals is influenced not only by their attitudes and behaviors but also by community and social structures. The model illustrates the reciprocal interplay among influences at the individual, interpersonal, organizational, community, and larger societal levels of the social ecology. Individual-level influences on health include characteristics such as an individual's knowledge, attitudes, beliefs, and personality traits. Interpersonal influences on individual health are the groups we belong to and the pressure these relationships place on how we behave. This can include normative pressures such as how we identify ourselves (i.e., smoker or nonsmoker, active or sedentary), the knowledge we are exposed to, the activities we engage in, and the support (i.e., social, emotional, material) we receive from our immediate social network. Individuals and interpersonal groups are nested within a multitude of organizational influences; each has potential to influence individual health. Organizations (e.g., schools, businesses, worksites, places of worship, public agencies, and recreational groups) can and do support or hinder the choices made by individuals. Community influences include relationships between community organizations, institutions, neighborhoods, and networks. Together, these shape a community's policies, standards, and norms. Societal influences include social norms, social structures, policies, and systems (local, state, and national) that can affect communities, organizations, and individual health. These policies and influences directly and indirectly shape our communities and how we function within

society(Green et al., 1996; McLeroy et al., 1988; Stokols, 1996). Public health interventions are more successful when they target causal factors at multiple levels of the social ecology.

Photovoice and CBPR

Photovoice is a CBPR method with foundations in Freirean philosophy, feminist theory, and documentary photography (Wang & Burris, 1994, 1997). It engages community members—whose voices are typically not heard—in a participatory process to identify, represent, and change their community through photography, dialogue, and action. Although it aims to influence the critical consciousness of individuals, its end goal is to address root causes by targeting policy and systems changes.

Even though photovoice is a social change intervention, social change is mediated through changes in individuals' willingness to take action. As a CBPR intervention, photovoice brings together community members, program staff, and researchers as equals to conduct all aspects of a project. Community members bring community knowledge and passion. Researchers bring photovoice knowledge and skills. Staff members bring program implementation skills and community and stakeholder connections (Carlson, Engebretson, & Chamberlain, 2006; Strack, Magill, & McDonagh, 2004; Wang & Burris, 1997). Each partner brings unique strengths to the process.

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Using Logic Models

Communities using a CBPR method, such as photovoice, are more likely to experience success when those involved are committed to a common purpose. An organizing tool such as a logic model is helpful for depicting a program's intended causal chain leading to a goal. Although the form of logic models vary from graphical representations to tables dense with text, their core purpose is to communicate the intended relationship between planned activities, delivery processes, and targeted outcomes (Frechtling, 2007; Julian, 1997; Kaplan & Garrett, 2005; Millar, Simeone, & Carnevale, 2001; W. K. Kellogg Foundation, 2004).

METHOD AND STRATEGY

A Social-Ecological Logic Model for Photovoice In the Picture Me Tobacco Free photovoice project, we used a logic model to connect activities and outcomes at each social-ecological level: individual, interpersonal, organizational, community, and societal (Figure 1). From left to right, the model identifies common input and activity logic model components on the left leading to immediate and longer term outcomes on the right. From top to bottom, the model depicts the levels of the social-ecology beginning with individual-level activities and outcomes at the top and progressing down through interpersonal, organizational, and community-level activities and outcomes. The logic model illustrates a key point that activities and outcomes at lower social-ecological levels (e.g., individual, interpersonal) are needed to achieve activities and outcomes at higher levels (e.g., community). Within the logic model, inputs refer to the resources needed to initiate and sustain a program. These resources are used to carry out activities ranging from individual actions and group discussions to community events. Activities at each level of the social-ecological model are expected to result in an outcome. Logic models are particularly adept at highlighting the sequential and temporal nature of short-term activities and outcomes leading to longer-term activities and outcomes (Frechtling, 2007; Kaplan & Garrett, 2005; W. K. Kellogg Foundation,

2004). Thus, the logic model provides a causal map of how a program proceeds from initial resources to targeted end goals. A carefully constructed logic model can emphasize photovoice's goal to uncover and change root causes of community- identified concerns through changes to systems and policies.

Inputs

Inputs refer to administrative support, program resources, and development steps needed for a successful project. Administrative support includes institutional partners and staff, program facilitators, and researchers or external experts to inform program design and evaluation. Program resources include funding, program manuals or plans, and photovoice materials (e.g., cameras, photo supplies, photo-enlarging resources). Program developers can use input from community partners and the photovoice literature to develop and customize a photovoice program (Carlson et al., 2006; Strack et al., 2004; Wang & Burris, 1994, 1997; Wang & Redwood- Jones, 2001).

Selecting and training program facilitators is a critical step for successful photovoice projects. Because photovoice is based in the principles of CBRP, program facilitators should possess traits that foster trust and build rapport with participants and community partners. As photovoice facilitators gain skills, they will develop as mentors rather than top–down leaders. Trainings for facilitators should ground them in the philosophy of photovoice, and provide them with program steps and needed resources (e.g., print reading materials, presentations, and ongoing technical assistance).

Strong and respectful relationships are a key aspect of the photovoice process. Nurturing and maintaining strong relationships requires ample time and effort. By consistently "showing up, demonstrating cultural humility, and showing a willingness to share power and resources" (Wallerstein, Duran, Minkler, & Foley, 2005, p. 43), program planners and staff will demonstrate their commitment to these relationships. Culturally adapting the program to staff, participants, and community members will help to facilitate the program's delivery and acceptance (Airhihenbuwa, 1995).

Individual-Level Activities and Outcomes

Photovoice begins its process with activities and outcomes at the individual level. Individual-level activities include participant recruitment and introduction to the photovoice process, structured photovoice training (e.g., ethics, photography, advocacy), and education about issues emerging from the project (e.g., health, local politics and structures, tools and resources). In PMTF, a North Carolina tobacco-free advocacy program called "?Y" trained participants on the effects of tobacco (NC Department of Health and Human Services Tobacco Prevention and Control Branch, 2002; Figure 2).

Short-term individual level outcomes include changes in participants' knowledge, attitudes, skills, and behaviors regarding the targeted health issue. In photovoice, participants will share observations, have common experiences, and develop an emotional connection. Individual participants may start to consider themselves community change agents (Carlson et al., 2006). Because photovoice targets policy and systems change, a desired outcome is youth empowerment and an individual's internalized confidence to engage in advocacy (Altman & Feighery, 2004). We predict that participants will be more motivated to take action to change local conditions because of their sense of efficacy for advocacy and the sense of community that develops through the photovoice process.

Interpersonal-Level Activities and Outcomes

Activities and outcomes of each level of the social ecology may influence higher ecological levels. Participants may use their new knowledge and skills (individual-level outcomes) to persuade others (interpersonal-level activity) in their immediate environment to change (interpersonal-level outcomes). For example, a participant might try to get a family member to stop smoking (Figure 2), or through Freirean-based group dialogue and analysis the participant may stimulate group members promote organizational and community change.

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Group activities are an essential component of the photovoice process and are indispensable for building group cohesion leading to local action. Group activities (Figure 1) include photo missions, SHOWeD discussion sessions, caption preparation, advocacy training, and action plan training. Photovoice planners can use photo assignments or "missions" as a way to spark participants' exploration of photographic subject matter and help participants become critical observers of their own community (Strack et al., 2004). As participants build confidence, facilitators should encourage participants to continue to observe and document their world through photography.

Freire used listening surveys and pictures or codes to represent community concerns and stimulate dialogue and analysis. In photovoice, participants use their photography to critically analyze community concerns. They share their favorite photographs with the group and, with the help of facilitators, use SHOWeD, a Freirean-based process, to discuss them. SHOWeD questions are designed to uncover root causes: What do you See here? What is really Happening here? How does this relate to Our lives? Why does this problem, concern, or strength exist? and, What can we Do about it? After critically analyzing the community problems and strengths identified through their photographs, participants craft captions to communicate their sentiments and observations. Eventually, participants develop public photography exhibits that may engage others in actions to address a problem's root causes.

Organizational-Level Activities and Outcomes

It is common for photovoice programs to be administered within a host organization (e.g., school, church, community-based organization). Organizational-level photovoice activities (Figure 1) include planning, preparing, and holding photovoice exhibits, creating a media strategy for public exhibits, and planning actions to bring about community changes. Holding a photovoice exhibit in the host organization serves as a dress rehearsal for public exhibits (e.g., libraries, museums, schools, malls) and may stimulate organizational policy changes. In one PMTF church, youth developed church bulletin inserts with their photovoice images, captions, and tobacco information; convinced the pastor to incorporate healthful messages into worship services; and to establish a tobacco-free Sunday. After that, the church adopted a policy requiring tobacco-free church grounds (Figure 2).

Action planning is a key component of preparing for public exhibits and long-term change. Adult facilitators show youth how to develop an action plan and work with them to develop a targeted local change strategy based on their images and root-cause analysis. As participants work through the steps of action planning, they choose actions and assess the feasibility and likely effectiveness of each action. Finally, they identify potential community partners with similar interests with the aim of enlisting their help on specific actions. Photovoice exhibits are one way that participants recruit partners. As the community becomes aware of the issues highlighted through photovoice exhibits, the host organization

may build relationships and increase its influence with other organizations and policy makers. The success of recruitment efforts will depend on outreach efforts and the salience of the issues identified through photovoice.

Community and Societal-Level Activities and Outcomes

The community and societal levels of the logic model include actions and outcomes outside the host organization and immediate social networks of photovoice participants. The logic model (Figure 1) shows the social (community norms), policy, and physical environments as specific characteristics of the surrounding community targeted by photovoice. Activities might include work toward changing the "built environment" (a community's physical structures and infrastructure that influence health such as housing, transportation systems, recreational resources, etc.; Gostin, Boufford, & Martinez, 2004; Perdue, Stone, & Gostin, 2003), obtaining new or realigning existing resources, improving community systems of care, enforcing existing policies, and/or obtaining new local ordinances and/or state and national laws (Butterfoss & Cohen, 2009; Hann et al., 2004; Smedley, 2006).

Community- and societal-level goals in a tobacco photovoice project might include smoke-free public buildings, smoke-free workplaces, smoke-free restaurants, smoke-free schools, an increase in the tobacco tax, and increased enforcement of laws prohibiting tobacco sales to minors. In Picture Me Tobacco Free, a parent who served as an advisor for her child's youth action team advocated successfully for a smoke-free policy at her workplace, a local manufacturing facility (Figure 2). One team's work to change their church resulted in a smoke-free church grounds movement in North Carolina. Program staff and youth initiated and supported the movement by developing and providing smoke-free church grounds parishioner surveys, bulletin inserts, and a smoke-free church grounds policy toolkit. More than 21 churches used the toolkit to adopt smoke-free church grounds policies. Other photovoice efforts have also successfully stimulated change at community and societal levels and influenced community leaders to address the needs of rural Chinese women (Wang & Burris, 1994), improve a school's physical condition (Strack et al., 2004), and to acquire funding for local violence prevention initiatives (Wang & Redwood-Jones, 2001).

Photovoice Evaluation

The social-ecological logic model is useful for process as well as outcome evaluations because it identifies activities and possible changes at each level of the social ecology. Once program planners and staff members agree on the desired activities and changes at each level, evaluators can identify corresponding progress indicators (Guthrie, Louie, & Foster, 2005) that can be used to used to monitor the causal links between activities and outcomes both within and between the social-ecological levels. Using a theory-driven evaluation approach, photovoice planners can attempt to isolate specific processes that can be credited for changes in measured outcomes. As Weiss pointed out in her work, collecting information on the hypothesized linkages advances our understanding of program design and function (Weiss, 1997). To evaluate the hypothesized connections, evaluators should ask the following questions:

1. Program fidelity. Was each element of the proposed photovoice logic model in place? Were the activities carried out as planned? Was attendance and quality of program elements sufficient for each activity? Were there sufficient physical and personnel resources available to carry out each activity?

2. Systems-level change. Did photovoice activities occur beyond the individual level? What progress or change occurred at each social-ecological level? Was there adequate penetration and saturation of the photovoice efforts within the targeted community? What barriers to carrying out activities existed at each level?

3. Causality. What intended and unintended outcomes were observed? Can causal relationships be drawn between processes and outcomes in each social-ecological level? Did the processes and outcomes at one level influence those at higher levels? Are there alternative explanations for observed changes?

DISCUSSION

Applying a social-ecological logic model to the photovoice process yields multiple benefits. First, the logic model highlights positive systems change as a primary goal of the photovoice method by explicitly indicating potential change at higher social-ecological levels. Second, planners and participants can use the model as a visual tool to keep all parties on the same conceptual page in regard to the program's activities and desired outcomes and can be used to solidify for participants their role as a social change agent or catalysts for community level change. Third, because of the participatory nature of the photovoice process, it is likely that a specific community outcome may not be determined at the project's outset. As participants discuss and define desired community changes, the model's flexibility can be used to help participants strategize new tactics and outcomes. Fourth, the model differentiates between processes and outcomes at each level of the social ecology. This provides a framework for matching planned activities with expected outcomes and is useful in planning and evaluating the depth and intensity of the intervention. Fifth, when a change does occur, the logic model can be used to guide questions about whether project activities are really responsible or whether the change would have happened even in absence of the activity. A carefully constructed logic model can keep staff members, participants, and evaluators focused throughout a project's implementation, enhance communication, and ultimately increase participation in addressing community concerns.

There are some limitations underlying the implementation of a social-ecological intervention such as photovoice. Although photovoice may contribute to systems-level changes, changes in physical environments, social environments, and policies are complex and may require extensive, long-term efforts by multiple community agents and it is often difficult to attribute policy change to a single program (Guthrie et al., 2005; Reisman, Gienapp, & Stachowiak, 2007). For example, during the implementation of the Picture Me Tobacco Free program, the state increased its tobacco tax from 5 to 40 cents, a change for which North Carolina's public health advocacy network had worked for years. Still, photovoice participants contributed to the statewide effort using their photographs and tobacco statistics to mount a postcard advocacy campaign to educate state legislators of the impact of tobacco on their communities. The proposed logic model can be instrumental in helping advocacy programs such as photovoice to target the intermediate steps needed to achieve the desired policy change (Guthrie et al., 2005).

In any participatory process, attention should be given to balancing expectations with local conditions for change. Not all communities will be able to achieve systems-level changes. Effective, sustainable changes will be more likely when advocacy strategies involve appropriate community members and are targeted to the community's readiness and capacity for change (Goodman et al., 1998). Interventions such as photovoice can build community capacity or a community's relative power to initiate and sustain change. Community capacity can include a community's level of participation and leadership, its resources, its

inter-organizational networks, and its sense of community and shared vision (Goodman et al., 1998). Building community capacity is a valuable outcome of advocacy efforts and is often necessary for successful policy change (Reisman et al., 2007). In photovoice, this often occurs through public exhibits and collective dialogue. In public exhibits, community members and policy makers see participants' photographs with captions designed to clarify the issues identified. It is important that photovoice exhibits and the conversations they promote are used to help community members and leaders deepen their understanding of how the issues identified affect the community. Efforts should be made to capitalize on increased awareness as a means for creating action leading to local change.

CONCLUSIONS

The logic model discussed here uses a simplified social-ecological framework to capture the essential elements of the photovoice process. It is the authors' recommendation that photovoice initiatives use a social-ecological logic model for clearly identifying attainable process and outcome goals. The implication for practice is for photovoice projects to increase intentionality of their efforts leading to an increased likelihood of program success. Planners of photovoice efforts may find it useful to incorporate other theories and models into their logic model depending on the targets of their effort. As the public health field expands its efforts to develop strategies for influencing systems-level change, it becomes critical that we carefully plan and evaluate programs such as photovoice that attempt to do so. It is the authors' aim that the photovoice social-ecological logic model will be useful as a planning, implementation, and evaluation framework for other photovoice efforts.

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