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Conceptual Approach

Increasing the Health Promotive Capacity of Human Environments

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Synopsis

This article offers an integration of two different perspectives on health promotion research and practice: one emphasizing the concept of community capacity for health improvement and the other focusing on the notion of health supportive environments. These two approaches generally have emphasized different kinds of community assets for health promotion. Specifically, community capacity research has focused on the cultivation of human resources (e.g., collaborative coalitions, participatory decision-making, health education strategies) for health promotion, whereas environmentally oriented research has underscored the influence of material resources (e.g., the built environment, natural resources, technological infrastructure) on important health behaviors and outcomes. Combining these two streams of health promotion research yields a broader understanding of the health promotive capacity of human environments and suggests several “best process” guidelines for enhancing health promotion practice. (Am J Health Promot 2003;18[1]:4–13.)

INTRODUCTION

During the past two decades, researchers and practitioners have given increasing attention to the substantial role played by environmental contexts in supporting or constraining health promotion goals and activities.^{1–3} Social ecological analyses of health promotion, for example, highlight the pervasive influence of physical and sociocultural environments on personal and collective well-being and on the effectiveness of efforts made by individuals, organizations, and communities to reduce illness and improve health outcomes.^{4–8} At the same time, practitioners emphasize the importance of building community capacity for sustained health promotion by cultivating collaborative partnerships among local organizations and stakeholders.^{9–15} These collaborative endeavors among local organizations and interest groups create a supportive context for health improvement and provide a crucial adjunct to health promotive policies and programs enacted at regional, national, and international levels.

The goals of this article are twofold. First, we develop an integrative typology of supportive environments that incorporates multiple environmental dimensions, health processes, and outcomes. Whereas prior studies have identified several environmental factors that influence personal and collective health and safety,^{16–20} we have yet to develop more integrative conceptualizations of health supportive environments that encompass diverse categories of etiologic factors and the interrelations among them. With that goal in mind, the proposed typology of environmental dimensions is intended to serve as a broad-gauged programmatic framework for future health promotion research and practice.

In an effort to bridge conceptual and practical concerns, our second goal is to develop specific guidelines for health promotion practice based on our typology of supportive environmental dimensions. Consistent with the overall theme of this special issue, we consider the extent to which our proposed guidelines constitute evidence-based “best practices” for creating and maintaining health supportive environments.^{21–23} Our effort to derive guidelines for health promotion practice is guided by Green’s thoughtful discussion of the differences between developing best practices in a field such as medicine compared with community health promotion.²¹ In the former case, pharmaceutical and therapeutic approaches can be

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confirmed through clinical trials and confidently applied across a wide range of populations and settings. In the field of disease prevention and wellness promotion, however, health promotion strategies must be tailored to the unique sociocultural and environmental contexts of particular groups and communities. Thus, the best practices derived from our typology of environmental dimensions are essentially process guidelines for analyzing the health supportive capacity of particular environments and formulating strategies to enhance that capacity based on the unique health concerns, practices, and priorities found among the members of those settings.

THEORETICAL CONCEPT AND LITERATURE REVIEW

The enormous complexity and variety of people's environments suggest that efforts to categorize environmental settings neatly into two groups—those that support and those that do not support health—would be far too simplistic and misleading as a basis for research and practice. The capacity of any environment to promote good health is influenced by multiple physical, interpersonal, organizational, and sociocultural circumstances that exist within a setting, some of which may be health enhancing and others not. Moreover, the impact of environmental conditions on health can be considered in relation to different criteria of well-being, ranging from physiological and emotional indices to social, spiritual, and intellectual health outcomes.^{2,24} Thus, within an environment such as a workplace, high levels of interpersonal support among coworkers can lead to enhanced levels of social and emotional well-being, whereas, simultaneously, long-term exposure to carcinogenic chemicals can undermine the physiological health of team members.^{25–27}

Given the multifaceted nature of both environmental conditions and health outcomes, researchers and practitioners are faced with the challenge of identifying the most important or pivotal features of environments that exert the greatest influence on a specified set of behaviors and health outcomes. To date, the health promotion literature reveals several different “visions” of the essential attributes associated with healthy or health supportive environments. Some analyses focus on the physical layouts of neighborhoods and buildings and the ways in which they facilitate or hinder residents' efforts to be physically active.^{28,29} Others emphasize the pervasive influence of socioeconomic status and levels of environmental justice on population health and the ways in which these sociocultural factors account for the disproportionate exposure of minority and low-income groups to physical toxins and stressors within their immediate surroundings.^{16,30} Still others highlight the influence of ambient environmental conditions and safety hazards on health status^{18,19} or the significant health gains attainable by a community through the direct participation of its members in local decision-making^{4,11,31} and the enactment of strategic health policies and regulations.^{32–34}

Although the health promotion field offers several different visions of the most essential environmental sup-

ports for health and safety (the examples cited herein comprise only a small subset of those perspectives), it currently lacks an integrative conceptualization that brings together multiple dimensions of environmental supportiveness and addresses their joint influence on a variety of health outcomes. As a starting point for developing an integrative typology of health supportive environmental dimensions, we first consider the concept of community capacity for health promotion discussed in several previous analyses.^{9–11,35,36}

Community Capacity for Health Promotion

Community capacity is an inherently broad and integrative construct, in the sense that it subsumes many different resources mobilized by a community to improve population health. The MacArthur Foundation, for example, defines community capacity as “the ability to mobilize the energy and talents of its members and to secure outside resources, such as capital investment and public services, to foster individual growth and improve the quality of life.”³⁷ Often, efforts to mobilize community resources for health improvement rely heavily on interpersonal and organizational strategies of technical assistance, professional development, and the exchange of knowledge among expert consultants and local residents and intentional efforts by health advocacy groups to foster greater collaboration and the development of coalitions among existing organizations (including public, private, and non-profit entities) within the community.^{9,12,13,36,38}

Building community capacity for health promotion entails at least three closely related processes: (1) the *mobilization and channeling* of existing community assets (e.g., individuals' expertise, energy, creativity, and material resources) into productive investments that bring about desired returns, such as improved health outcomes; (2) the *enlargement and diversification* of a community's existing pool of assets over time; and (3) the *empowerment of community members to sustain health improvement efforts* throughout extended periods through their continuing investments of time, energy, and other resources in pursuit of collectively defined health priorities. The first process entails the mobilization and conversion of disparate community resources from a relatively unorganized and unproductive state into a more focused and productive form. We refer to this activation process as the capitalization of community assets into more focused investments (e.g., of time, energy, and economic resources) that promote intended health benefits. The second process of enlarging and diversifying existing assets involves the importation of new resources into the community from outside sources and/or the reinvestment of returns on initial investments back into the community's pool of material and human resources. The third process, empowerment, encompasses active efforts among community members to gain a sense of mastery and actual control over important health problems and priorities.^{9,39–41} These processes of community capacity building are closely intertwined, in the sense that an empowered community is better able to mobilize and enlarge its assets for achieving and sustaining important health benefits and priorities.

Previous analyses of community capacity for health promotion have focused on the development of at least three kinds of assets: financial or *economic capital*, informational or *human capital*, and *social capital*.^{42–45} For instance, Coleman⁴³ notes that just as financial resources can be used to change material goods into tools that facilitate production,⁴⁶ “. . . human capital is created by changes in persons that bring about skills and capabilities that make them able to act in new ways. Social capital, however, comes about through changes in the relations among persons that facilitate action.” Furthermore, whereas Bourdieu⁴² conceptualizes social capital as a personal asset residing in an individual’s network of supportive relationships, Putnam⁴⁵ emphasizes the community benefits of social capital, which he defines as “features of social organization such as networks, norms, and social trust that facilitate coordination and cooperation for mutual benefit.” In recent years, health promotion researchers and professionals have become increasingly interested in examining the important links between social capital within a community and the health status of its members.^{15,47–49}

Capitalization Strategies for Health Promotion

To date, analyses of community capacity building for health promotion have focused primarily on the cultivation of social and human capital through mechanisms such as knowledge exchange among technical consultants and local citizens, participatory engagement of residents in local decision-making, the enactment of health supportive policies, and the formation of collaborative coalitions among multiple organizations and stakeholder groups in the community. The capacity of an environment to support health, however, also depends on a variety of material assets, including the stock of a community’s natural and geographic resources (e.g., clean air, water, and fertile soil), the physical features of its built environments (e.g., residential, workplace, educational, health care, recreational facilities), and the availability of technological infrastructure and connectivity to enable the sharing of information via the Internet. The first category of material assets constitutes *natural capital* or those resources produced through nature-based rather than human-initiated processes, including geochemical, geophysical, and solar power.^{50–53} We refer to the second category of material assets as *human-made environmental capital* (i.e., physical resources designed and produced by people, including their buildings, vehicles, and a variety of other tools used in creating particular products). The impacts of built environments on a wide array of physical and mental health outcomes have been documented in several recent studies and reviews.^{18,25,54–57} An increasingly important subcategory of human-made environmental assets is the *technological capital* (e.g., computing and mobile communications equipment, telephone, and fiberoptic infrastructure) required for the rapid exchange of information across digital communication networks.^{58–60}

The categories of community assets mentioned herein, including economic, human, social, natural, physical environmental, and technological capital, are summarized in

Table 1 Typology of Community Assets for Health Promotion	
Material Resources	
Economic Capital—financial assets for enhancing productivity and health	
Natural Capital—resources produced through nature-based rather than human-initiated processes	
Human-made Environmental Capital—physical resources designed and produced by people, including buildings, vehicles, and tools	
Technological Capital—computing and communications equipment and infrastructure	
Human Resources	
Social Capital—changes in relations among persons that facilitate action	
Human Capital—changes in persons, including acquisition of skills and information that enable them to act in new ways	
Moral Capital—investment of personal and collective resources toward the cultivation of virtue and justice	

Table 1. We have included one additional human resource in Table 1 that can be distinguished from the other categories of community assets, namely, *moral capital*—the investment of personal and collective resources (e.g., time, energy, social support) toward the cultivation of virtue and justice. Some scholars have noted that social capital (e.g., high levels of civic engagement and trust among groups of community members) does not necessarily presuppose moral capital.^{61–63} In some instances, social support and group cohesiveness can be channeled toward immoral goals, as in the case of a cohesive gang or political clique that acts violently toward outsiders. Moral capital is a community asset that, like access to knowledge and other forms of human capital, can be used to ensure that community resources, such as natural, social, and technological capital, are used wisely and for the benefit of all citizens. High levels of moral capital would be evidenced by the existence of widely shared and consensually validated ethical guidelines for the mobilization and distribution of community resources (for instance, public policies to ensure that high-quality health services are made available to all members of a population) or that instances of environmental injustice are identified and effectively redressed.³⁰

The categorization of community assets summarized in Table 1 offers a useful foundation for developing an integrative typology of health supportive environmental dimensions and a series of guidelines for health promotion practice based on the proposed framework. Some researchers have called for a closer integration between social capital perspectives, on the one hand, and ecologically oriented analyses of how geographic and physical environmental factors influence population health, on the other.^{47,49,64} Following their lead, we take a closer look in the remaining sections of the article at how the multiple assets of a community, including its diverse material and human resources, exert a combined and cumulative influence on personal and collective well-being.

A Typology of Health Supportive Environmental Dimensions

The categories of community assets shown in Table 1 are essential facets of a health supportive environment. These varieties of community assets can be grouped roughly into two basic categories: (1) *material resources*, including economic, natural, human-made environmental, and technological capital, and (2) *human resources*, including social, moral, and human capital. Although alternative and more exhaustive inventories of environmental supports for health are imaginable, an advantage of the proposed categorization is that it highlights opportunities for bridging behavioral science and environmental approaches to health promotion—research perspectives that have remained relatively distinct in their emphases on human and material resources, respectively.⁶⁵ For instance, behavioral approaches to health improvement typically focus on “active” interventions, whereby individuals are encouraged to undertake intentional efforts to modify their health behaviors and risk factors, whereas environmental approaches emphasize “passive” interventions or changes in the individual’s surroundings that foster improved health behaviors and outcomes without requiring voluntary effort on his or her part.⁶⁶

Dimensions for Characterizing and Comparing Community Health Resources. The community assets outlined herein can be characterized and compared along several conceptual dimensions. These dimensions are useful for considering key differences among various health supportive facets of community environments and the relative advantages and disadvantages of alternative strategies for mobilizing human and material resources to address health promotion goals.

First, a basic difference between material and human resources is that the former are more directly or objectively observable to community members, whereas the latter are more abstract and less immediately visible to the participants in a particular environment. Yet, the conceptual boundaries between material and human resources are partly overlapping rather than entirely distinct. For example, technological capital in its material form (e.g., computer equipment, electronic wiring systems) is rendered useless if community members lack the technical know-how (a form of human capital) to operate the equipment effectively. Also, social capital or a high level of engagement and trust among community members is sometimes manifested in the development of “visible” organizational structures (e.g., public health agencies, professional associations, nonprofit organizations), each equipped with its own by-laws, membership rosters, and other tangible products of social relations. Although certain human resources (e.g., levels of social trust, feelings of empowerment, tolerance for diversity, creativity, knowledgeability) are not always visible to observers in material form, they nonetheless comprise important facets of a community’s environment. The unseen but powerful influences of existing social, moral, and human capital significantly strengthen a community’s capacity to address health priorities and promote health at both individual and collective levels.

Second, the health supportive assets categorized in Ta-

ble 1 are manifested at both *individual* and *collective* levels. For example, personal “holdings” of economic and informational (human) capital among individual citizens contribute to a community’s aggregate endowment of material and human resources.⁶⁷ Similarly, community assets such as well-staffed and well-equipped schools provide the basis for enriching individuals’ supplies of human, economic, and technological capital. Also, the ethical values endorsed by individual citizens contribute to cultivation of collective moral capital, just as a community’s moral capital mutually influences the development of individuals’ ethical standards of conduct. It is thus reasonable to posit bidirectional influences among different kinds of assets for health promotion across individual and aggregate levels of analysis.

Third, community resources can be characterized according to the kinds of health outcomes they influence. For example, individuals’ exposure to degraded natural resources (e.g., polluted water and air) impairs not only their subjective perceptions of environmental quality but also their physiological (e.g., respiratory, gastrointestinal) health status.¹⁸ On the other hand, the architectural design of human-made environments may be more directly linked to psychological stress associated with residential exposure to noise and high density or patterns of physical activity and obesity in the population.^{1,55,68,69} Certain community circumstances, such as the depletion of economic and social capital (e.g., low socioeconomic among subgroups of the population; substantial income inequalities within the community as a whole), may influence a wide rather than narrow range of illness outcomes.^{16,48,70,71}

Fourth, the categories of health supportive assets outlined previously can be compared in terms of their relative centrality or peripherality to specified health promotion goals. The effectiveness of a community’s efforts to improve health depends on the ability of its members to identify their highest priority health problems and to mobilize the resources most crucial for ameliorating those concerns. Assuming, for example, that a community is heavily affected by soil, water, or air pollution, its most pressing health concerns may be elevated cancer rates and other physical maladies associated with residents’ long-term exposure to toxic substances.⁵⁴ These same health problems, however, may be indirectly or negligibly related to community levels of social and human capital. Yet in other environments where natural resources are less contaminated, citizens may be more immediately concerned about rising crime rates associated with deficiencies in social, moral, and economic capital than physical illnesses spread through exposure to tainted natural resources. In the former case, efforts to decontaminate and protect natural resources are more pivotal or central to the community’s health priorities than those focusing on the cultivation of social capital. However, in the latter instance, strategies for safeguarding the healthfulness of natural resources are more peripheral to the community’s health promotion agenda than those aimed at enhancing social, economic, and moral capital.

Fifth, investments of community assets for health promotion can be characterized in terms of their resource

and labor intensity over time. The design and development of neighborhood environments to promote physical activity may require a sizable funding commitment during the construction phase, but the economic resources necessary to maintain this environmental capital decrease over time as the health benefits derived from it increase cumulatively during the same period.⁶⁹ On the other hand, establishing collaborative partnerships for health promotion and citizen empowerment may require relatively modest financial resources but necessitate greater investments of community members' time and energy to sustain high levels of collaboration over time.⁹ Alternative strategies of health promotion, thus, can be compared in terms of their relative financial and human resource requirements and the extent to which health benefits promoted by those strategies accumulate over time and require increasing or decreasing investments of funding and labor to ensure that they are sustained.

Sixth, investments of community resources for health promotion reflect varying degrees of *leveragability*, the capacity of those investments to mutually reinforce each other so that they engender an expanding array of health benefits over time. For instance, the investment of financial resources to establish an electronic network (technological capital) for sharing health information among residents may foster the subsidiary benefits of expanded health awareness (human capital) and increased social capital among community members.⁶⁰ Similarly, the allocation of funding toward the design of crime-resistant and aesthetically enhanced neighborhood environments to promote physical activity may also encourage higher levels of informal interaction and social capital among neighbors. In these examples, specific human and material resources form *recursive clusters* of community assets that reinforce each other and jointly promote a variety of health benefits.

Seventh, alternative investments of resources to promote health improvements can be compared with respect to their self-sustaining potential. Some health promotion strategies require initial investments of material and human resources for their implementation, yet they continue to sustain health benefits over time without consuming additional resources once they are in place. Examples of these self-sustaining interventions are efforts to equip office buildings with proper heating, ventilation, and cooling systems and injury-resistant stairwells at the time of construction. These environmental design technologies, once installed, continue to promote improved air quality and lower rates of building-related illnesses and injuries during the extended life of the facility.^{72,73} On the other hand, many health education programs (e.g., school-based tobacco control programs aimed at adolescents) require renewed funding commitments and investments of human resources each year to ensure their sustainability over time.^{74,75} In the former instance, the self-sustaining potential of the resource investments for health improvement is greater than in the latter case.

These dimensions for characterizing health supportive environmental resources are summarized in Table 2. Taken together, the categories of material and human resources for health improvement outlined in Table 1 and the con-

Table 2

Conceptual Dimensions for Characterizing Community Health Resources

1. Observable or Invisible Quality
2. Personal or Societal Manifestation
3. Kinds and Range of Health Outcomes Affected
4. Centrality or Peripherality to Key Health Promotion Goals
5. Resource and Labor Intensity
6. Leveragability or Recursive Quality
7. Self-sustaining Potential

ceptual dimensions for drawing comparisons among them shown in Table 2 provide a basis for deriving "best process" guidelines for health promotion practice. These guidelines suggest certain steps that community members can take to enhance the health supportiveness of their environment (i.e., its capacity for health promotion).

PRACTICAL APPLICATIONS OF CONCEPTS

The health supportive capacity of an environment will be greater to the extent that a community is able to mobilize and target its diverse resources for purposes of resolving major health problems and priorities. The processes of identifying and mobilizing community resources for health promotion involves at least two decision-making phases: (1) targeting high-priority health problems and the most appropriate resources for resolving them and (2) formulating and implementing high-leverage health promotion programs—those that have the greatest potential to promote and sustain significant health improvements in the most cost-effective fashion.^{8,76}

Targeting Key Resources for Community Health Promotion. Health improvement efforts are shaped through a targeting process in which the most relevant resources for resolving community health concerns are identified and mobilized.⁷⁶ The great variety of health and safety outcomes associated with particular kinds of community resources suggests that health promotion efforts must be *prioritized* in relation to the following questions.

First, which health problems are considered to be most prevalent and severe within a particular community? On the basis of these criteria (prevalence and severity), each community must identify its highest priority health concerns.⁷⁷ The specific health priorities identified by residents often vary considerably across different communities.

Second, which features of a community's social and physical environments are most directly associated with the occurrence of its pivotal or highest priority health problems? In addressing this question, community members must strategically match particular resources with targeted health concerns.^{4,11,31} That is, they must mobilize those community assets that are most pertinent or centrally related to their highest priority health problems.

Third, to what extent have the presumed links between certain environmental factors and a community's major health concerns been demonstrated through prior re-

search, and if such empirical evidence exists, is that evidence generalizable and applicable across multiple settings or is its generality limited by the unique circumstances of the settings in which the data originally were gathered?²¹

The impacts of environmental stressors and toxins on physiological health outcomes, for example, have been documented across a variety of cultural and environmental contexts.^{54,55,78} Accordingly, the empirical links between those variables can be assumed to generalize across multiple communities. On the other hand, the links between low socioeconomic status and poor health outcomes may be moderated and mediated by a host of context-specific cultural, social, and physical environmental factors.^{16,79,80} The strategies used by a community to mobilize its resources for health promotion, thus, may vary according to whether its designated health priorities are highly context specific on the one hand or relatively independent of contextual moderators and mediators on the other.

Developing “High-Leverage” Strategies for Health Promotion. Once a community has identified its major health concerns and the environmental circumstances most closely related to them, collective decisions can be made about which resources to mobilize for purposes of improving health outcomes. Those decisions will depend partly on the considerations mentioned herein, namely, the availability of empirical evidence for the causal links between certain environmental resources and health outcomes.²⁷ Preexisting empirical evidence for the effects of various environmental conditions on specified health outcomes enables practitioners to quickly identify and apply “tried and proven” strategies for achieving community health goals. When such evidence is lacking, however, health decision makers must spend more time early on assessing alternative programming strategies (e.g., through stakeholder surveys, focus groups) and tailoring those that are chosen for implementation to the unique circumstances of their community.²¹

The causal status and contextual specificity of alternative health promotion strategies are valuable criteria for determining which environmental resources should be mobilized for purposes of improving population health. However, there are several other practical guidelines for establishing high-leverage, effective health promotion programs that should be heeded by community decision makers as well. These guidelines are derived from the conceptual dimensions used earlier to characterize community assets for health promotion (Table 2).

First, it is important at the outset for community members to identify key individuals whose personal expertise, ethical orientation, access to social networks, and economic resources can play a pivotal role in promoting improved health outcomes for the community as a whole. These persons might be recruited to serve as members of focus groups to help identify community health priorities, as fundraisers or advisory group members who guide the development and implementation of new programming ideas, or as “program champions” who collaborate with fellow citizens to sustain health promotion efforts throughout extended periods.⁹ The identification and co-

ordination of individual-level assets within the local community are crucial steps for enhancing aggregate-level (i.e., population) health outcomes.

Second, once citizens identify their highest priority health concerns and the range of community assets available for addressing them, they then must decide on the specific content or focus of proposed health interventions, for instance, deciding to initiate programs that bolster the economic, social, natural, and/or technological capacity of a community for sustaining positive health outcomes. When designing these interventions, it is important to incorporate parallel or complementary forms of material and human resources within the same program. Thus, if a designated health priority is to create technological (material) capital for disseminating updated health information in a timely fashion (e.g., by constructing an online community network or a public computing center), then it becomes crucial to offer concurrent training programs (i.e., investments in human capital) to educate community members about how best to use the new equipment and participate effectively in health information networks. Similarly, if a community goal is to reduce levels of obesity in the population, then a multicomponent program that incorporates health education strategies and the creation of new fitness facilities and outdoor recreational space is likely to be more effective in achieving that goal than a single-component intervention that focuses on either human or material resources for health promotion but not both.⁶⁹ Thus, it is advantageous to combine active and passive interventions that mutually reinforce each other’s effects on important health behavior and outcomes.^{65,66}

Third, the preceding example of physical activity promotion highlights the value of maximizing the *leveragibility* or *joint influence* among multiple program components on key health behaviors and outcomes. The provision of on-site fitness facilities, along with corporate policies that encourage employees to be physically active at the workplace, may passively support individuals’ intended and actual efforts to comply with health educators’ recommendations that they exercise more often. The provision of health supportive environmental resources and policies, thereby, leverages the positive effects of health education programs aimed at promoting higher levels of physical activity within the local population.⁸¹

As noted previously, passive interventions that rely heavily on health supportive changes in the physical environment underscore a fourth “best process” guideline for community health promotion (i.e., the importance of reducing the resource and labor intensity of health improvement programs relative to the cumulative benefits that are derived from them). The development of environmentally based health improvement strategies requires an initial outlay of financial resources, but once they are implemented, their maintenance costs decrease disproportionately relative to their cumulative health benefits throughout extended periods. By selecting program components that have a favorable ratio of resource and labor intensity relative to the value of their long-term health

benefits, the cost-effectiveness of community health promotion programs is enhanced.⁸²

Fifth, and closely related to the cost-effectiveness issue mentioned herein, it is important for community health planners to design intervention programs that have self-sustaining potential. Public policies that impose stiff taxes on cigarette sales, for example, are more easily sustained once they are enacted than school-based smoking prevention programs that require annual budgetary appropriations for their renewal and continuation.^{32,33,75} This is not to suggest that school-based tobacco control programs are ineffective in reducing adolescent smoking rates but rather that their continuation and effectiveness throughout an extended period depend on the yearly budgetary deliberations and decisions of school administrators. In that respect, public policy initiatives can be considered to have greater self-sustaining potential than school-based health education programs.⁸³ Similarly, the sustainability of environmental interventions to encourage physical activity, improve indoor air quality, or reduce injuries may be less dependent on continuing investments of community resources once they are implemented than alternative programming strategies such as media campaigns to increase individuals' awareness of the health benefits associated with physical activity or voluntary efforts to reduce their susceptibility to injury (e.g., by using seat belts or safety equipment at the workplace).

Sixth, it is essential that community health planners carefully consider and mitigate any potentially negative side effects that might result from their programs. For instance, information campaigns promoting individuals' participation in strenuous activities, such as running or "jogging," may inadvertently trigger an upsurge in orthopedic injuries. Similarly, wellness programs that create unrealistic expectations about individuals' power to avoid illness through lifestyle change (e.g., irrespective of their genetic constitution or exposure to environmental carcinogens) may promote unnecessarily high levels of anxiety or "victim blaming" when poor health outcomes occur.^{84,85} Health improvement programs, thus, should be carefully screened for potentially adverse side effects before their implementation.

The process guidelines for developing effective community health promotion programs, mentioned herein, are summarized in Table 3. Considered together, these guidelines reflect an overarching principle of health promotion practice, namely, the importance of developing health interventions and policies that have high levels of social validity.⁷⁷ Whereas *scientific validity* refers to the methodological and theoretical quality of a particular intervention, *social validity* emphasizes the societal value or significance of research and interventions. Social validity depends in part on the scientific validity of research and interventions but also encompasses a broader range of considerations, including whether or not a particular study or intervention (1) addresses health problems that are nontrivial (i.e., those that are prevalent in a community and have serious consequences for large segments of the population); (2) avoids unintended, negative side effects of community interventions; (3) is economically feasible; and (4) is consistent with community priorities and commitments. The six

Table 3
Process Guidelines for Community Health Promotion*

1. Assess the causal status and contextual specificity of alternative health promotion strategies.
2. Recruit pivotal individuals from the local community to help identify health priorities and serve as program champions.
3. Incorporate complementary forms of material and human resources (e.g., active and passive interventions) within the same program.
4. Maximize the leveragability or joint influence of multiple program components on important health behaviors and outcomes.
5. Reduce the resource and labor intensity of intervention programs relative to their cumulative health benefits throughout extended periods.
6. Maximize the self-sustaining potential of health improvement programs.
7. Identify and mitigate potentially negative side effects of community interventions for health promotion.
8. Maximize the social validity and the scientific validity of health promotion programs.

* In the absence of definitive confirmatory studies, the authors recommend that these guidelines be considered as "best processes" currently available for use in most program settings. They represent core or minimal guidelines for programming strategies that are generally considered to be efficacious, in light of the extant theoretical and empirical literature on health promotion research and practice.

guidelines for enhancing the health promotive capacity of communities, outlined herein, are encompassed by the concept of social validity, and all contribute toward the development of socially valid health programs and interventions.

RECOMMENDATIONS FOR FURTHER RESEARCH

The preceding analysis offers a typology of health supportive environmental dimensions and an accompanying set of process guidelines for combining material and human resource development (capitalization) strategies within future health promotion programs. By integrating previously separate perspectives on community capacity for health improvement and health supportive environments, more comprehensive and effective strategies for increasing the health promotive capacity of human environments can be achieved. For instance, this integrative approach highlights the value of developing multicomponent health programs that combine passive (environmentally structured) and active (behaviorally focused) health improvement strategies. The development of broader intervention programs, however, poses an important logistical challenge, namely, the necessity of representing and coordinating multiple disciplinary and professional perspectives within health planning and decision-making teams.

The diverse categories of material and human resources for health promotion (outlined in Table 1) encompass a wide array of academic and professional fields. Considering the enormous complexity of human environments, it is clear that future efforts to enhance the health pro-

motive capacity of communities should be undertaken in a transdisciplinary fashion.^{86–88} Partnerships among scholars based in several different fields and among community decision makers, lay citizens, and health professionals should be established to more adequately understand and expand the health supportive qualities of our surroundings.^{9,76} As a case in point, Australian health promotion foundations (such as the Healthway Foundation in Western Australia) formed close working relationships with private corporations, government agencies, and university researchers in an effort to change community-wide norms and behaviors related to smoking, alcohol abuse, and sunscreen use. These “health sponsorship” coalitions have been enormously effective in lowering community rates of tobacco use and alcohol consumption.⁸⁹ Similarly, many health risk behaviors (e.g., smoking, physical inactivity) can only be understood and modified by confronting the diverse mix of biogenetic, dispositional, interpersonal, environmental, and cultural factors that render some individuals more susceptible to nicotine addiction or obesity than others.^{29,90–92}

Prior health promotion programs aimed at increasing environmental supports for health improvement often have focused on a few setting-specific factors that seem most relevant to a particular health problem and corresponding behaviors (e.g., removal of cigarette vending machines from workplaces as a strategy for reducing individuals’ use of tobacco products).⁹³ More comprehensive programs that address multiple health concerns (e.g., smoking prevention, physical activity promotion, injury prevention) and incorporate diverse community assets (e.g., natural resources, the built environment, social, moral, and technological capital) remain to be developed, implemented, and evaluated for their efficacy. Ideally, efforts to enhance the health promotive capacity of environments should target multiple health risks, behaviors, and outcomes (e.g., smoking, sedentary lifestyle, exposures to toxic or stressful environments) within the same intervention. Program evaluation studies undertaken from a transdisciplinary perspective, which assess changes in the health promotive capacity of environments following the implementation of multiplex community interventions, remain a high priority for future research.

CONCLUSIONS

The analysis offered herein brings together two previously separate streams of health promotion research and practice: one emphasizing the concept of *community capacity* for health improvement and the other focusing on the notion of *health supportive environments*. Earlier research on community capacity has focused on the development of human resources (e.g., establishing community networks and coalitions, providing health education programs to community members, encouraging citizen participation in health decision-making), while giving considerably less attention to the cultivation of material assets for health promotion (e.g., natural resources, built environments, technological capital). In the present analysis, the health promotive capacity of human environments is broadened to

include a variety of material and human resources for improving population health based on the typology of health supportive environmental dimensions shown in Table 1. Moreover, a set of conceptual dimensions for characterizing different categories of community assets for health promotion and a corresponding set of “best process” guidelines for enhancing community health programs are proposed. It is hoped that the conceptual analysis and practical guidelines presented herein will serve as a useful framework for future health promotion practice and research.

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Appendix

Internet Resources for Health Supportive Environments and Community Capacity for Health Promotion

Active Living by Design

<http://www.activelivingbydesign.org/>

Best Environmental Directories

<http://www.ulb.ac.be/ceese/meta/cds.html>

Center for Health Design

<http://www.healthdesign.org/>

Community Capacity Building/The Colorado Trust

<http://www.coloradotrust.org/pdf/publications/ComCapSum.pdf>

Community Coalitions

<http://www.helpyourcommunity.org/>

Community Toolbox

<http://ctb.lsi.ukans.edu/>

Congress of the New Urbanism

<http://www.cnu.org/>

Conservation Economy/Sustainable Society

<http://www.conservationeconomy.net/>

Creating Community

http://www.sustainable.org/creating/community_index.html

Creating Defensible Space

<http://www.huduser.org/publications/pdf/def.pdf>

Cyberbia

<http://www.cyberbia.org/>

Division of Population and Environmental Psychology/APA

<http://www.apa.org/about/division/div34.html>

<http://web.uvic.ca/~apadiv34/>

Ecological Design Institute

<http://www.ecodesign.org/edi/>

EnviroLink

<http://www.envirolink.org/>

Environmental Design Research Association

<http://home.telepath.com/~edra/>

Environmental Design Research Sites

<http://www.humanics-es.com/recc-ed.htm>

Environmental Health Center/National Safety Council

<http://www.nsc.org/ehc.htm>

Environmental Justice Resource Center

<http://www.ejrc.cau.edu/>

Environmental Psychology

<http://eee.uci.edu/03w/50690>

Environmental Psychology in Canada

<http://www.psych.ubc.ca/~enviropsych/>

Environmental Psychology/International Association for Applied Psychology

<http://www.psy.gu.se/iaap/envpsych.htm>

Ergonomics Society

<http://www.ergonomics.org.uk/resources/links/ergonomics.htm>

Ergonomics Web Sites

<http://www.humanics-es.com/recc-erg.htm>

Federal Poverty Guidelines (USDHHS)

<http://aspe.hhs.gov/poverty/03poverty.htm>

Global Environmental Change

<http://www.globalchange.org/>

Global Ozone Depletion, EPA

<http://www.epa.gov/ozone/>

Global Warming, EPA

<http://yosemite.epa.gov/oar/globalwarming.nsf/content/index.html>

Green Building Links

<http://www.usgbc.org/Resources/links.asp>

Guide to Community Preventive Services/CDC

<http://www.thecommunityguide.org/>

Health Impacts of Airport Noise and Air Pollution

<http://www.elloroairport.org/issues.html#noise>

Healthy Cities/Healthy Communities

http://www.well.com/user/bbear/hc_articles.html

Healthy Cities Programs/World Health Organization

<http://www.who.dk/healthy-cities/>

Healthy People 2010

<http://www.healthypeople.gov/default.htm>

Homelessness (USDHHS)

<http://aspe.os.dhhs.gov/progsys/homeless/>

Homelessness (USDHUD)

<http://www.hud.gov/homeless/index.cfm>

Housing and Urban Design/USDHHS

<http://www.hud.gov/>

Indoor Environments Program/NRC Canada

<http://irc.nrc-cnrc.gc.ca/ie/index.html>

Institute on Aging and Environment

<http://www.uwm.edu/Dept/IAE/>

International Association for the Study of People and Their Physical Surroundings

<http://www.bwk.tue.nl/iaps/>

Lighting Research/NRC Canada

<http://irc.nrc-cnrc.gc.ca/ie/light/>

Love Canal Environmental Disaster

<http://ublib.buffalo.edu/libraries/projects/lovecanal/>

Mean Streets/Pedestrian Safety

<http://www.ewg.org/pub/home/reports/meanstreets/meanstreets.pdf>

Meltdown at Three Mile Island

<http://www.pbs.org/wgbh/amex/three/>

Microbial Menace

<http://www.hhmi.org/biointeractive/museum/exhibit99/index.html>

National Low Income Housing Council

<http://www.nlihc.org/>

National Trust for Historic Preservation

<http://www.nthp.org/>

Natural Capital

<http://www.conservationeconomy.net/content.cfm?PatternID=17>

Natural Resource Management/University of Texas, Austin

<http://www.utexas.edu/courses/resource/>

NIMBY

<http://www.ruralhome.org/pubs/development/nimby/intro.htm>

NIMBY Principle

<http://ecoethics.net/tufts/UEP-293c/Research-Profile/Daley.htm>

Northridge Earthquake

<http://www.scecdc.scec.org/northreq.html>

Project for Public Spaces

<http://pps.org/>

Resource Center for Cyberculture Studies

<http://www.com.washington.edu/rccs/>

Sierra Club

<http://www.sierraclub.org/>

Smart Growth America

<http://www.smartgrowthamerica.com/default.html>

Social Entrepreneurship/Ashoka Home Page

<http://www.ashoka.org/home/index.cfm>

Socioeconomic Impacts of Information Technology, NSF

<http://srsweb.nsf.gov/iLsite/index.htm>

Society for Community Research and Action

<http://www.apa.org/divisions/div27/>

Sprawl Watch

<http://www.sprawlwatch.org/>

Sustainable Development/United Nations

<http://www.un.org/esa/sustdev/conprod.htm>

Task Force on Community Preventive Services

<http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5101a1.htm>

Third Places

<http://user.gru.net/domz/third.htm>

Three Mile Island Nuclear Power Plant Accident

<http://www.wowpage.com/tmi/>

UCI Health Promotion Center

<http://www.healthpromotioncenter.uci.edu>

US Census Bureau

<http://www.census.gov/population/www/>

Worldwatch Institute

<http://www.worldwatch.org/>