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Toward a Social Ecology of Scale

Collective Action, Design for Health, and Landscape Praxis

Michael Rios

ABSTRACT Alliances among public health, planning, and design disciplines illustrate the use of scale-based approaches to mobilize actors across space and time. Obesity prevention efforts demonstrate the use of strategies across organizational and geographical boundaries to change policies and environmental determinants that affect the level of physical activity in community settings. One framework for landscape praxis based on a social ecology of scale centers on three interrelated processes: place imaginaries, place narratives, and place politics. This trialectic highlights the possibilities for transdisciplinary practice that: (1) creates social imaginations to produce identities and give meaning, (2) produces discursive framings to legitimize particular imaginaries and identities, and (3) facilitates the formation of political communities where project identities are formed, negotiated, and mobilized toward specific goals. The obesity prevention program of the Pennsylvania Advocates for Nutrition and Activity (PANA) draws attention to social ecological approaches sensitive to various scales of social and spatial production and the possibilities for professional engagement ranging from design to policymaking.

KEYWORDS scale, social ecology, placemaking, obesity prevention

INTRODUCTION

As a response to public health attention to obesity, healthy lifestyles have risen in importance as a contemporary focus for disease prevention (Figure 1). *Healthy lifestyles* refers to the integration of physical activity and nutrition in the everyday activities of individuals, neighborhoods, and communities. The increasing mobilization around preventable diseases such as obesity signals a shift away from health problems as a result of individual choice and towards the framing of health as a byproduct of a wide array of choices and factors at multiple scales (Rios 2006). Measurable declines in public health are paralleled by land use, transportation, and agricultural policies that have affected living patterns. The claim is that dispersed settlement patterns necessitate increasing dependence upon the automobile as a primary means of travel to and from school, work, shopping, and recreation. Over the past 40 years in the United States, the collective result of federal, state, and municipal policies has fragmented land-use patterns, degraded natural systems and depleted public lands for private development (Benfield et al. 1999; Roodman 1996).

The recent focus on healthy lifestyles converges on a specific dual crisis—the rise of obesity related to sedentary behaviors on the one hand and a physical environment resulting from poor policies, planning, and design on the other. At the national level, the public health sector, federal agencies, philanthropic foundations, and national organizations representing planning, architecture, and landscape architecture interests are developing new partnerships, agreements, and programs. The aim is to promote community designs that foster healthy lifestyles while reducing land consumption and dependence on the automobile.

Alliances among and between planning and design disciplines and public health exemplify novel approaches that not only cut across geographical scales and temporal horizons but also have implications for landscape architecture and planning practice. This article draws from the field of geography to consider how a social ecological approach sensitive to various scales of social and spatial production can inform practice and presents a framework of landscape praxis centering on three interrelated processes of placemaking: (1) imaginaries, which are used to create common visions, produce identities, and give meaning; (2) narratives, which produce discursive framings to legitimize particular imaginaries and identities; and (3) politics, in which project identities are negotiated, formed, and mobilized toward specific goals.

The article is organized into five sections:

1. a brief overview of trends that have led to the convergence of health and the built environment and to the emergence of transdisciplinary coalitions in response to these trends
2. the introduction of a theoretical framework based on theories of scale to inform a social ecological approach to practice
3. the case of the Pennsylvania Advocates for Nutrition and Activity (PANA) to demonstrate the use of strategies across organizational and geographical boundaries to change policies and environmental

Figure 1. Obesity in U.S. newspaper reporting (Courtesy of the author).

- determinants that affect the level of physical activity in community settings
- 4. a critical evaluation of transdisciplinary collaborations such as PANA
- 5. some implications for practice and the argument for more theoretically informed, multiscalar, and negotiated forms of practice.

TRANSDISCIPLINARY COLLABORATIONS: THE CONVERGENCE OF HEALTH AND THE BUILT ENVIRONMENT

Given the emergence of obesity as one of the leading causes of preventable death, the fact that disease prevention efforts are focusing on healthy lifestyles is not surprising. Settlement patterns and community design play a role in increasing physically active lifestyles and, as such, signal an increasing number of partnerships and collaborations among public health, planning, design, and related professions.

Trends related to health, land use, and transportation are key to understanding the impact of community form on sedentary lifestyles (Frank, Engelke, and Schmid 2003; Frumkin, Frank, and Jackson 2004). The Centers for Disease Control and Prevention (CDC 2004) estimates the annual cost of obesity in the United States at \$117 billion. Contributing to these costs, U.S. land-use policies and subsidies to real estate interests have fueled the growth of suburban areas, with negative

consequences related to municipal finance, public infrastructure, and a shifting of the tax burden to the middle class and the poor (Orfield 1997).

The recent environmental turn in public health is due in part to a growing concern about the links between chronic health problems and settlement patterns. There is evidence that the built environment has a significant impact on public health (Ewing et al. 2003; Frank et al. 2006; Huston et al. 2003). Land-use and transportation policies have affected living patterns at the same time obesity and related chronic diseases have been on the rise (Pollard 2003). Between 1969 and 1995, for example, the rate of increase in drivers was more than three times that of population growth. In addition, the rate of increase in household vehicles was six times the rate of population increase for the period (USDOT 1997).

A shift from focusing only on the health of the individual to an examination of community, environment, and policy factors has led to recent mobilization and coordination among health, planning, design, and policy entities. New partnerships, agreements, and programs are being developed among the health professions and national organizations such as the National Recreation and Parks Association (NRPA), the American Planning Association (APA), the American Society of Landscape Architects (ASLA), and the American Institute of Architects (AIA). These and other partnerships are part of a growing national network supporting obesity prevention. Still, policy and environmental interventions at multiple scales will be needed to achieve

changes in individual behavior (Mercer et al. 2003; Warner 2005). Thus, that federal agencies and foundations such as the CDC and the Robert Wood Johnson Foundation are funding both statewide and local partnerships that target obesity prevention is no surprise, and the Leadership in Energy and Environmental Design rating system for Neighborhood Development (LEED-ND), released in 2009, requires that design disciplines recognize the public health impacts of sustainable development projects.

An increasing number of issue-based movements such as tobacco use and obesity prevention have targeted government to bring about change in the public health policy arena. For health-based movements, coalitions have emerged as a predominant organizational form. These coalitions often center on health promotion, education, and the implementation of related programs in contradistinction to oppositional forms of collective action prevalent in much of the literature on social movements. Health-based coalitions focus not only on the delivery of services and programs by health-based organizations but also on alliances with other civil-society groups and professionals such as architects, planners, and landscape architects working on related community improvement strategies. By definition, coalitions embody conflict and coordination in a codependent relationship and express collective activity involving the resources of multiple actors (Hinckley 1981). Some argue that the interventionist orientation of contemporary coalitions that are issue-based, goal-oriented, and highly structured call for greater participation by civil society (Butterfoss, Goodman, and Wandersman 1993). As such, these cooperative alliances reflect many of the characteristics of transdisciplinary collaborations that bring together multiple sectors, researchers, and practitioners from various disciplinary fields. In addition, transdisciplinary collaborations operate among and between various levels of policy formation and community mobilization. In this way, transdisciplinary collaborations represent a social ecological model of interdependency among multiple levels ranging from individual behaviors to policy and

environmental factors. An examination of the concept of scale and how it has been theorized in the field of geography will shed light on the conception and coordination of different levels of action.

A SOCIAL ECOLOGY OF SCALE: OVERVIEW OF THEORIES OF SOCIOSPATIAL CONSTRUCTION

As new scales emerge and/or existing scales gain institutional thickness, social forces also tend to develop mechanisms to link and coordinate them.

—Bob Jessop (2003, 4)

The topic of scale, and in particular its social construction, has received increasing attention over the past decade (Herod and Wright 2002; Marston 2000; McCarthy 2005; Sheppard and McMaster 2003). Scale provides a relational understanding of how social activity is organized in spatial terms. Some of the key theoretical contributions have focused on political economy, governance, and social movements. Some scholars define scalar struggles over territoriality in terms of state/non-state or global/local discourse, where the former in each instance dominates the latter (Jessop 1994; Jones 1997; Swyngedouw 1997; Taylor 1996). Others view scale as a site of resistance, struggle, contestation, and capital accumulation (Brenner 2004; Cox 1998; Miller 2000; Smith 1992; Staeheli 1994).

Definitions of scale include metrics that quantify, with varying degrees of precision, the extent or significance of a phenomenon; the formal, hierarchical, and jurisdictional levels of the state in which the power of the state is territorialized at different levels that are areal in extent; and multiple forms of social activity imagined and produced in ways that assume, require, refer to, or seek particular geographical relationships. Given that most social actors use multiple senses of scale in fluid and overlapping ways, each sense of scale mentioned is directly relevant to transdisciplinary forms of planning and design practice that aim to link public policy, institutional capacity-building, and environmental change. What unifies them, and what makes them important to

transdisciplinary action research and practice, is that scale in each of these senses plays an important role in the spatial structuring of social activity. Examining actual social relations *in place* provides important analytical insight into how forms of transdisciplinary practice facilitate collaboration and coordinate collective action across space and time. This is not to suggest that practitioners avoid scale or do not capitalize on *a priori* territorialized jurisdictional levels but rather that they incorporate these conceptualizations of scale into discursive strategies depending on the constraints and affordances available.

A FRAMEWORK FOR TRANSDISCIPLINARY PRAXIS

Theories of scalar production are consistent with a social ecological model of environment and behavior change often used as an approach to modify policies and physical settings to promote healthy lifestyles. This model of health behavior begins with the individual at the center of a series of concentric rings and moves outward towards intrapersonal, sociocultural, policy, and physical-environmental factors (Sallis and Owen 1997, 463). Alcalay and Bell (2000) suggest that social ecology is an appropriate model for disease prevention and that it “provides a way of thinking about the planning of health promotion interventions that places a spotlight on the relationship between the environmental and behavioral determinants of health” (22).

Social ecological approaches employing scalar strategies parallel the way in which transdisciplinary action research (TDAR) has been conceptualized inasmuch as scale is a defining characteristic of TDAR, especially for intersectoral partnerships defined by their focus on policy design and implementation encompassing large geographic regions (Stokols 2006). While this approach may provide utility for researchers in conceptualizing social phenomena across space and time, it offers practitioners little guidance to engage in complex projects across different scales involving multiple institutions and actors. The following builds on a social ecology of scale to consider how projects might be

Figure 2. A framework for landscape praxis.

imagined and mobilized among different interests and across multiple scales of intervention. Revealing knowledge, linking imaginations, and mobilizing multiple narratives to create a place for transformative politics are challenging but important functions of practice.

The following framework centers on three interrelated processes of landscape: place imaginaries, place narratives, and place politics (Figure 2). *Imaginar-ies* may be described as social imaginations that produce identities and give meaning to a particular place whether defined as a neighborhood, city, or region. *Nar-ratives* are discursive framings used to legitimize particular imaginaries and identities. *Polities* are the political communities in which project identities are formed, negotiated, and mobilized toward specific goals.

Imaginar-ies

Central to imaginaries is the idea of *becoming* that originates in the philosophy of Aristotle, which signifies any change from lower levels of potentiality to higher levels of actuality. In this context, imaginaries serve a vital role in moving beyond expected outcomes to consider possibilities that change existing relations. Noel Castree argues:

Rather than asking whose geographical imaginations are “correct,” we need instead to ask: who has the power to construct what geographical imaginations and with what effects? This does not—or should

not—lead us into a flabby relativism where each and every geographical imagination has equal validity. Instead, it encourages those whose geographical imaginations are dominant, emergent, or subordinate to actively justify the kind of world those imaginations are designed to create (2004, 139).

Thus, one aim of practice is to facilitate the creation of new place imaginaries that challenge dominant representations.

At the core of place imaginaries is the construction of identity as the source of meaning and experience. Castells (1997) identifies three forms and origins of identity building. These include (1) a legitimizing identity introduced by dominant institutions meaning to rationalize their hegemony through social actors, (2) a resistance identity emerging as opposition to this dominance and from a position of little or no power, and (3) a project identity comprising social actors who create new identities, changing their position in society and aiming to transform social structures. All three identities are present in place imaginaries. Of the three, however, only project identities hold potential for transformative relations through the negotiation of power. An explicit focus on imaginaries as the basis for project identities is also evident in the work of David Harvey (1996). Drawing from Anderson (1983) and Lefebvre (1991), Harvey identifies the power of the imaginary through place construction as a “fertile source for all sorts of possible spatial worlds” (1996, 265).

The work of Castells and Harvey clearly demonstrate the importance of the imaginary in social transformation. But what are the implications for practice? An orientation toward facilitating the creation of imaginaries suggests a shift from predetermined and functionalist representations of social reality to creatively considering the “thoughts, fantasies, and desires” inherent in place imaginaries (Harvey 1996, 265). These imaginings should be a radical departure from actually existing relations, toward imageabilities of place that redefine social, political, and physical space.

Narratives

One tension inherent in the envisioning of different imaginaries is the circulation of discourses reproducing dominance or challenging powerful interests through alternative representations of place. These place narratives serve a legitimizing function (from above and below) where various imaginaries compete for the hearts and minds of people. The discursive production of knowledge(s) may be described as the cultural frames, or shared meanings and definitions brought to a situation or problem that mediate between the possible and the actual, the future and the present. In linking place imaginaries with narratives, Harvey argues: “We need to understand not merely how places acquire material qualities . . . The evaluation and hierarchical ranking of places occurs, for example, largely through activities of discourse and representation that connects deeply held beliefs, values, and desires” (1996, 321).

The activities of place framing, action framing, and discourse building serve the purpose of legitimacy through the framing of imaginaries as well as of problems, solutions, and motivations—whether at the scale of neighborhood (Hou and Rios 2003; Martin 2003), city (Rios 2008), or region (Shibley, Schneekloth, and Hovey 2003). As Shibley and Schneekloth, argue: “All place-making activity in the practice of planning is about the process of action framing, and action framing is always about the use (and abuse) of power—who can play, what are the boundaries for action, and how the players shall act” (1995, 143).

While place narratives operate in the realm of representation, they also have material consequence. When place narratives achieve local hegemony, they inform the shared social imaginary about a place and inform (in a dialectical sense) the production of material boundaries (Driscoll-Derickson and Rios, n.d.). Historically, for example, the designation of urban renewal areas, or the decision to redline neighborhoods, producing *de jure* and *de facto* boundaries, was informed by the discursive and political production of “blighted” places. The perception (and, in the United States, the

policy position) of places as blighted has had important implications for the ways in which property owners, banks, public agencies, and financial institutions invest or disinvest in land, as well as for the type and quality of federal and city services directed to an area.

In sum, place narratives have both social and material consequences, but they do serve a core function in framing the activities of collective actors at different scales. They provide a space of narrative fidelity in which common understandings may be produced—an essential prerequisite for coalition building and the collaboration of different social groups and networks.

Polities

If imaginaries of place serve the basis for identity formation and place narratives provide legitimacy for specific actions to follow, the political realm provides for the negotiation of power. To engage in negotiations of power necessitates the formation of place polities in which to develop project identities. The reference to polities and the political does not imply the exercise of power or authority over social relations but rather focuses attention on temporary ensembles of individuals and groups seeking to organize and transform their contingent co-existence. Politics, as such, means reaching beyond existing social and material relations towards new, open, and non-essentialized imaginations of place. According to Doreen Massey:

Reconceptualizing place in this way puts on the agenda a different set of political questions. There can be no assumption of pre-given coherence, or of community or collective identity. Rather the thrown-togetherness of place demands negotiation. In sharp contrast to the view of place as settled and pre-given, with a coherence only to be disturbed by “external” forces, places as presented here in a sense necessitate invention; they pose a challenge. . . . They require that, in one way or another, we confront the challenge of negotiation of multiplicity (2005, 141).

This “progressive sense of place” includes not only the political space within a territorial community but

also that among various places as a form of translocal politics cutting across space and territory (Amin 2004). This and other forms of transformative politics do not focus on the conflictive processes among deeply entrenched groups within communities but rather on the spaces where differences are recognized and negotiated. This does not exclude the potential for competition, conflict, and disagreement among adversaries, but rather it is guided by identification of the space between these differences to arrive at democratic solutions (Hillier, 2003). As such, place polities open up new spaces for citizenship.

Place as a space for citizen claims draws attention to the types of political communities available for practice. Specifically, facilitating the formation of place polities creates the political will to forge relationships between various social groups and institutional actors. A focus on place polities also acknowledges a growing interdependency of different networks of power in applying their various capacities toward reaching mutual goals.

PROMOTING HEALTH THROUGH COMMUNITY DESIGN: THE CASE OF PANA

The following example of PANA, an obesity-prevention program, illustrates these elements of landscape praxis through a purposeful framing of problems and solutions using the social ecological model of health promotion. PANA applies this approach to identify scalar relationships of health problems as well as to serve as a conceptual framework in addressing these problems more systematically (PDH 2003).

From 2002 to 2007, PANA focused on disease-prevention initiatives and community-health partnerships at the state and local levels, ranging in organizational size and scope. With the support of a multiyear grant from the Centers for Disease Control and Prevention (CDC), PANA was created “to build state-wide capacity for developing an environment to support and promote active lifestyles and healthy food choices through collaboration and coordinated

Obesity Trends* Among U.S. Adults BRFSS, 2007

(*BMI ≥ 30 , or ~ 30 lbs. overweight for 5' 4" person)

Figure 3. Statewide obesity among U.S. adults, 2007 (Courtesy of Behavioral Risk Surveillance System, Centers for Disease Control and Prevention).

communication" (PANA 2005). PANA included the participation of multiple public agencies, nonprofit organizations, institutions of higher education, trade associations, and private companies operating at the municipal, county, regional, state, and even federal levels. For example, at the local level, PANA provided research, education, and technical assistance to change policies so as to promote active lifestyles in school and community settings. As of 2006, PANA recognized more than 80 organizations as partners and 400 individuals as "community champions" receiving training to facilitate local health campaigns. These individuals had enlisted more than 1,600 schools statewide to participate in PANA's assessments and educational programming.

Imagining healthy lifestyles

Critical to redefining obesity was a different imaginary, attributing health problems and solutions to broader environmental factors rather than seeing obesity as an individual medical condition. PANA staff members employed scalar frames to mobilize various constituents around a collective identity of healthy lifestyles. For example, PANA framed obesity as a national epidemic and used a series of maps produced by the CDC to paint a picture of obesity as a pandemic and national health crisis (Figure 3). Used in presentations, the geography of obesity was effective as PANA framed its own

work in national terms. As an executive team member commented:

You just thrown it up there graphically for them to see since mid-1980s until now; you watch that epidemic sweep across the country in very colorful graphic terms. People are shocked and they are like "wow" . . . Unfortunately I have come to realize that we have to startle people out of complacency. So it takes a graphic image.

Such maps and other framings of obesity served the purpose of instigating a collective awareness of the failure of traditional disease prevention approaches and of the need for a new vision of obesity prevention.

PANA explicitly created a vision of healthy lifestyles supported by active community environments to promote physical activity in community and school settings. This included presenting local parks, trails, and other forms of leisure recreation as fun, safe, and accessible. The imaginary of healthy lifestyles was meant to be inclusive enough to assimilate mixed motives into a shared representation of obesity prevention, incorporating the views of various public agencies, nonprofit associations, university researchers, and professional and industry groups. These shared representations allowed the coalition to collapse various and contrasting

associations of obesity into a collective identity of physical activity in local settings that aligned with prevention efforts.

PANA was able to bridge varying diagnoses of problems, constructions of shared representations, and motivations to collective action through the use of complementary frames reaching across different scales. In doing so, the coalition served as an intermediary by facilitating interaction among national, state, regional, and local discourses. PANA's framing of issues and construction of a collective identity around obesity prevention were consistent with theories of collective action associated with social movement organizations (Benford and Snow 2000; Buechler 2000; Melucci 1996). The target, however, was not solely state or corporate interests; rather it included groups with the greatest potential to engage in collective action (Marwell and Oliver 1993).

Disseminating knowledge to legitimize healthy identities

PANA's role as a convener was also part of a larger strategy to create a brand identity through which statewide organizations, schools, and local communities would seek information and support for obesity-prevention efforts. Specific state campaigns were created to further the idea of healthy lifestyles. For each campaign, PANA staff members and leadership team partners identified target populations, strategies, and settings to promote physical activity. They then developed a series of programs with specific narratives and messages to promote healthy lifestyles with settings commensurate with the scale of projects. The PANA executive director noted:

I think most of the coalitions, both at the community level and the state level and even the national level, assembling ideas is great. I think where we take it a step further is capturing ideas and really trying to package it and put it into something where we do get mutual benefit, where different ideas are put together and put out there for dissemination and practice.

Some of PANA's constituents had the capacity to act alone, but it was through their association with PANA and its other members that they were able to expand their grassroots support for an array of policy issues and related funding programs:

Certainly national, federal regulation and attention is also directed at schools, so that was helpful to build on some of that momentum, media, and press . . . So we chose schools as a center, but we think they are a powerful influence on other institutions, parents, families, media within a community. So it was more of a leveraging point. (PANA staff member)

As a cooperative strategy, PANA was able to reach beyond its core constituency and embed its interests in networks representing various sectors and scales of intervention. By reaching into these networks to provide resources, PANA convinced its partners that the interests of the coalition and those of participating organizations were one and the same. By stretching its organizational boundaries, PANA was able to expand its influence over a larger territory.

As was the case with the epidemic frame, PANA localized national trends and statistics with evidence from the Commonwealth of Pennsylvania. The coalition highlighted the connection between community and school environments. For example, PANA created the campaign *Keystone Healthy Routes*, which focused on improving pedestrian and bicycle routes to schools and set out to create a demand for infrastructure and regulatory changes making community environments, in particular streets and sidewalks, safe and comfortable for students to walk and bicycle to and from school.

Given PANA's diverse and geographically dispersed network, information technology served as a primary vehicle to communicate the program's message to regional networks, to organize campaigns, and to solicit feedback on a regular basis. Regular meetings and topic-specific training were facilitated through satellite hook-ups connecting PANA's content and messaging with local communities.

Redesigning institutional landscapes of health

As a way to enlist the participation of nontraditional health partners and broaden its political base, PANA brought together public agencies with regulatory and budgetary control over parks and recreation, transportation, and land use. Although most decision making takes place at the municipal level in Pennsylvania, statewide agencies have considerable leverage in their ability to create model policies (for example, the 2001 Greenways Action Plan) and target funding programs (the Home Town Streets and Safe Routes to School programs) responding to priorities at the local level. In each instance, PANA worked closely with these agencies to incorporate physical activity and wellness objectives into policy documents. Institutional relationships with PANA were not one-sided, however. Participating organizations saw equal value in associating with PANA. Even national organizations such as the American Heart Association knew they could use the coalition to leverage their own agendas:

We have 20 public-policy items; obesity and nutrition and physical activity [are] two of them. PANA staff get me excited, so when I walk out of a meeting [with them], obesity prevention just moved up my agenda, and I am going to go get it done. It has led to positive things. . . . Obesity and physical activity moved right up to the top of the legislators' agenda, and we are actually talking model legislation. (American Heart Association policy analyst)

By appealing to various organizational and agency interests, PANA was able to secure the resources and expertise needed to implement its programs at the local level. For example, PANA staff members were instrumental in shaping criteria for funding programs, which influence physical activity at the community level. To facilitate the formation of place polities, PANA also provided training and tools to help position local community stakeholders to receive related funding.

A parallel strategy involved teaming up with non-profit organizations and professional associations with

the expertise, membership base, and/or political power needed to successfully implement PANA's goals related to active community environments:

We believe on the strength of coalitions that you can accomplish more by combining resources—working together. In terms of policy, for example, you multiply your grassroots network by thousands when you work together as a coalition. So as we move forward on any kind of nutrition or physical activity legislation or policy, we have tremendous grassroots reach. That is very powerful. That is what I appreciate about PANA. (PANA executive team member)

This also enabled PANA to leverage action at several governmental levels. Some of these groups represented the interests of national organizations such as the Rails to Trails Conservancy, the American Society of Landscape Architects, and the American Planning Association. Additionally, PANA had enlisted the expertise of several universities to provide technical assistance, research, and evaluation related to land use, transportation, and parks and recreation.

These and other efforts were aimed at creating place polities at various levels so as to redesign the institutional landscape of obesity prevention. Specifically, scalar strategies were used to:

1. facilitate resource-sharing to create an interdependent web of organizational relationships resulting in institutional thickness and ties between coalition members
2. redefine existing networks and create new ones to build a governance infrastructure to facilitate the sharing and dissemination of resources
3. control the flow of resources to change institutional behavior and create a demand for healthy lifestyles in school settings.

TRANSDISCIPLINARY COLLABORATIONS: MARKETING OR CREATING SOCIAL CHANGE?

In a relatively short time, PANA was able to shift the institutional landscape of obesity prevention in Pennsylvania, which resulted in statewide policy change, the formation of new collaborations, and interventions in local school and community settings. No longer active, PANA has evolved into the nrgBalance program housed at The Pennsylvania State University's Center for Nutrition and Activity Promotion (CNAP). The purpose of nrgBalance is to provide school and community health leaders with resources and programs to encourage youth and their families to eat healthfully and be active (CNAP 2010).

While the case of PANA may be viewed as a successful example of transdisciplinary collaboration, its efforts spanned only a handful of years, and there is no indication that policy and environmental changes achieved through PANA will remain in the long term. Moreover, the case of PANA brings the complex nature of collective action and public participation in transdisciplinary collaborations to the fore. One example is PANA's reliance on the integration of market-based tactics within an ecological model of obesity prevention that may have served some populations over others. An orientation toward consumer choice, audience segmentation, communication channels to reach target audiences, and product development were some of the marketing repertoires of collective action employed by PANA.

PANA's use of marketing aimed at driving demand around a set of institutional and individual behaviors; however, it is also necessary to interrogate these marketing claims and how the marketization of collective action affects different segments of the population, targeted or otherwise. As a case in point, PANA targeted its resources toward primarily rural and suburban whites as an unreflexive strategy, despite that African American, Hispanic/Latino, and other minority populations have a higher prevalence of obesity, leading to equally higher rates of mortality. These minority groups also

have limited access to quality healthcare and the types of health-promotion services offered by groups like PANA. Complicating the issue further are the environmental barriers existing in low-income communities of color. Crime, safety, and food security are just a few examples that can nullify the obesity-prevention strategies adopted in these environments.

As these issues are not easily reducible to market-based approaches, that PANA avoided targeting this segment of the population is not surprising. The emphasis on urban communities and people of color would have posed a political risk for the coalition given the polarization of region and race in Pennsylvania. The reliance on coalition member resources, helpful in leveraging government funding, was a major factor in determining PANA's programmatic focus. This had the effect, though not intentional, of reinforcing the values and goals of member organizations and associations whose constituents represented an almost exclusively white, middle-class base of power and influence among Pennsylvania's legislators. Thus, the institutional relationships expressed in PANA could also serve to reproduce existing social relations. These examples raise serious doubts about approaches to transdisciplinary collaborations that divide the public into various market segments. Such practice may lead to the reinforcement of existing discrimination, clearly limiting this form of collective action so long as structural inequalities exist. More inclusive collaborations solicit the participation of organizations and groups representing marginalized populations and invest the resources of the state and civil-society groups responsive to their claims.

CONCLUSION: IMPLICATIONS FOR TRANSDISCIPLINARY PRACTICE

The increasing mobilization around preventable disease such as obesity signals a shift away from health problems being seen as a result of individual behavior and toward a conception of health as a byproduct of a wide array of choices and conditions defined by larger political, economic, institutional, and social

relationships (Glanz, Lewis, and Rimer 1997). From this vantage point, the framing of public-health discourse is increasingly equated with environmental, lifestyle, and citizen-rights issues. While clinical approaches to obesity treatment have historically focused on the individual, over the past few years a movement toward preventative approaches and identification of causes beyond this scope has occurred.

What are the implications for transdisciplinary collaborations and practice? As the planning and design professions inherently address problems beyond the individual, the case of PANA offers insight into the need to define problems and solutions at multiple scales in the physical and social environment. In a short time, PANA enabled others to reimagine the problems and solutions to obesity, produced a range of products and services to implement healthy lifestyle approaches, and organized a new constituency to advocate for policy reform and changes in the built environment. Social ecological approaches such as that utilized by PANA may provide practitioners with a conceptual framework for identifying appropriate levels of intervention depending on project goals—from communitywide intervention to statewide legislation. Contemporary practice is increasingly defined by transdisciplinary collaborations that purposively, and often of necessity, target multiple scales of intervention involving public agencies, nonprofit organizations, and community groups. Conceptualizing projects in terms of place imaginaries, narratives, and politics enables practitioners to create visions that bridge between present conditions and future possibilities, produce prospective representations to legitimize new claims, and facilitate the mobilization of collective action toward those ends.

The use of cross-scale strategies by transdisciplinary collaborations such as PANA is a critical component in linking policy objectives with community mobilization. What allowed PANA to engage in these diverse activities was its interdependent relationship with multiple partners, constituted through the sharing of resources, an extended reach to coalition member constituents, and the ability to fashion easily communicated responses to

complex, multifactoral problems such as obesity. The ability of PANA to tap into a range of member resources was due in part to its broad approach to obesity prevention—including not only health professionals but also environmental groups, transportation agencies, parks and recreation member organizations, planning and design professionals, academic researchers, and many others. PANA acknowledged that, to support individual behavior change, the participation of many different professions and disciplines was needed so as to change the policy and environmental context. Given PANA's dual emphasis on policy and environmental change, its efforts seem to reside somewhere between statewide decision making and local implementation—that is, its operation was that of a hybrid organization whose purpose was to create linkages among various networks. Clarification of what constitutes a coalition such as PANA is critical in light of the increasing number of cooperative alliances defined by their transdisciplinary, intersectoral, and cross-scalar character.

With respect to transdisciplinary action research, PANA combined elements of intersectoral partnership and community coalition (Stokols 2006). This included partnerships among sectors including public health, transportation, environmental protection, and community development entities focusing on policy design and implementation “spanning local, state, national, and international levels” encompassing a “broader array of scientific, institutional and organizational agendas” (Stokols 2006, 72). As mentioned earlier, PANA was inclusive of groups working at jurisdictional levels varying from local to federal—on issues related to physical activity and nutrition, land use and transportation, and parks and recreation. PANA also gave voice to the major goals of community coalitions that include the participation of researchers and practitioners. In these collaborations, research was translated and applied to the development and implementation of programs and interventions in local community settings. In the case of PANA, several university-based research centers provided guidance and technical assistance in the conceptualization and development of programs and products

delivered in local community and school settings. For example, several faculty members from The Pennsylvania State University's Hamer Center for Community Design participated in satellite training related to walkable communities, workshops with municipal officials and planning staff on neighborhood design, and the development of web-based tools such as the Keystone Healthy Routes to School Toolkit.

PANA provides an example of transdisciplinary collaboration in its employment of research, practice, and collective action not only to address policy and environmental issues but also to instigate institutional change at the state, regional, and local levels. Only through new institutional designs can greater democratic participation take place. In addition to the unique and separate challenges existing within its community coalitions or intersectoral partnerships, however, the case of PANA exposes tensions resulting from the linking of policy formation with community mobilization across scales and between varying communities of interest. Cognitive dissonance and competing frames of environment and/or social problems and solutions, confusion over jurisdictional boundaries and regulatory decision making, plus varying levels of resource contribution among participants are just a few examples. Despite these challenges, this governance coalition was able to create a coherent identity among various disciplinary perspectives, to coordinate policy and programmatic decisions at the state and local levels, and to distribute resources to participating coalition members in an equitable and efficient manner.

In practice, this systemic transdisciplinarity requires a more explicit approach to creating new imaginations of place and representations that align with these imaginations and to facilitating the formation of polities toward these goals. Creating alternative futures and advocating for those visions through design and planning representations are already common practice. There is a need, however, to introduce greater awareness about the potential social and political implications of proposed physical interventions. At the core of practice is reflexivity, as the purpose of practice is to translate

ideas into action. Reflexivity is an internal conversation about what matters—clarifying where one stands—and it considers the consequences of each organization's actions in relation to others in particular settings.

Transdisciplinary practice also focuses professional attention on how the political relationships of various social groups and institutional actors are constituted in public process. This approach acknowledges a growing interdependency of allied disciplines and sectors in applying their various capacities toward reaching mutual goals. Transdisciplinary practice may ensure greater participation at the local level and safeguard against the managerial instrumentality of state bureaucracies often disconnected from the interests of local communities. Inasmuch as public agencies often fail to incorporate meaningful outreach and dialogue in public process, the ability of design and planning practitioners to produce a more inclusive and egalitarian political community is in large part contingent on their ability to provide leverage for social groups *vis-à-vis* government agencies, nonprofit organizations, and private interests. As such, methods and techniques of transdisciplinary research and design must be employed as tools to engineer more democratic outcomes. At the same time, the effective use of participatory and collaborative methods to improve personal welfare will ensure that public resources are efficiently utilized toward social good.

PANA's comprehensive approach and extension into a variety of disciplines and government services suggests applicability beyond public health, especially where landscape architecture professionals take a leading role. Smart growth, sustainable development, watershed management, ecological urbanism, and other place-based approaches will make significant strides by following the lead of health-based coalitions. Transdisciplinary collaborations are worthy of consideration, especially where there is a convergence of interests around identifiable issues that necessitate coordination among policy, planning, and design entities across geographical scales. A focus on multiple scales is an inherent part of landscape architecture practice as landscapes, by nature, are multiscalar. The move toward regionalism

in many fields provides opportunity for landscape architects to assume leadership roles in bringing together the varied interests that comprise a region.

Specific considerations for practice include:

- Enlisting the participation of allied disciplines from different networks and levels of organization
- Developing the facility to negotiate social processes inclusive of different actors, sectors, and other interests to produce common imaginaries and identities
- Communicating the value of design through prognostic frames (for example, quality of life, lifestyle issues, public and ecosystem health, and so forth) that address particular social issues or problems
- Stretching limited research, educational, and promotional resources through coordinated and shared communication channels
- Ensuring equal and balanced representation between various sectors, institutions, and interest groups when forming partnerships that link public policy to project planning, design, implementation, and management

Approaches that strategically frame the interests of the profession from the standpoint of community, environmental, and policy factors will pay dividends in terms of new partnerships and resources, increased visibility, and a greater perception of the value that land planning and design add in promoting public health and welfare.

NOTES

1. Data was collected through personal observations, retrieval of documents, and interviews. Thirty participant observations of the population took place during face-to-face meetings, conference calls, satellite training sessions, and advocacy campaign events between 2001 and 2005. Collection of archival data included hard copy and electronic documents such as reports, grant proposals, meeting agendas and minutes, promotional materials, presentation slides, web pages, and so forth. More than 200 documents

were collected in digital and hard copy format. Formal interviews were conducted with 12 key informants to record the perceptions and participation of individual coalition members. A stratified, purposeful sampling method was used to identify research participants. Line-by-line coding and content analysis was used to answer research questions, with a social movement's approach to scalar constructions. Specific questions included how PANA: (1) framed problems and solutions related to obesity; (2) enlisted the resources of different agencies, organizations, and individuals under the goals of obesity prevention; and (3) seized political and policy opportunities related to obesity to inform the strategies pursued.

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