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Chapter 15

NEIGHBORHOOD SENSE OF COMMUNITY AND SOCIAL CAPITAL

A Multi-Level Analysis[i]

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INTRODUCTION

In many ways, social capital (SC) is to political science, sociology, applied economics, and community development what sense of community (SOC) and empowerment have been to community psychology. SC is the norms, networks, and mutual trust of "civil society" facilitating cooperative action among citizens and institutions (Coleman, 1988) and has had considerable influence on political thinking and action over the past decade. It is generally observed and analyzed as a characteristic (or lack) of communities or societies, rather than individuals.

By contrast, SOC has been conceived of and measured by most researchers as an individual-level construct. Some studies have examined it at the group or community level (Buckner, 1988; Fisher & Sonn, 1999; Kingston, Mitchell, Florin, & Stevenson, 1999; Perkins, Brown, & Taylor, 1996; Perkins, Florin, Rich, Wandersman, & Chavis, 1990; Sampson, 1991). A very few have used it in multi-level analyses (Brodsky, O'Campo, & Aronson, 1999; Hyde, 1998; Kingston, et al., 1999; Perkins & Long, 2001; Sampson, 1991). But we found no previous study that analyzed sense of community at multiple levels simultaneously to see whether it operates differently at each level.

We have four main goals for this chapter. One is to inform researchers and program planners in community development, urban policy, and social services that many concepts thoroughly studied by community psychologists (sense of community, collective efficacy/empowerment,

citizen participation, neighboring) are part of SC. Our second goal is to introduce more community psychologists to SC. Third, to both audiences, we expect to show that residential neighborhood sense of community is at least as strongly related to other SC dimensions as are demographics and other widely studied community-focused cognitions (place attachment, community satisfaction, community confidence, and communitarianism -- or community values). In addition to those interdisciplinary aims, our fourth goal is to explore SOC and its relationships to SC using multi-level analysis. The relationship between SOC and SC -- whether they operate together, separately, or nested one within the other -- and on what level(s) they operate are critical to our understanding of both concepts.

Social Capital: Community-Focused Cognitions and Behaviors

In observing that Americans are generally now "bowling alone" rather than in the leagues so popular a generation ago, Putnam (2000) was less concerned with the disappearance of recreational clubs, *per se*, than what he saw as the loss of the glue that binds together the social fabric of our local communities and, ultimately, our society. His obituary for the American community may be exaggerated, but the importance of SC to the functioning and quality of community life seems indisputable.

The bipartisan and multidisciplinary popularity of SC has led to many different, and often vague, definitions. Until recently, psychologists have largely ignored SC despite, or perhaps because of, its being little more than a collection of more specific community-focused behaviors and cognitions long studied by community psychologists. We, therefore, may be skeptical of a term from outside the discipline which seems to cover ground we feel we already know well, and for which there appears to be no clear, precise, and agreed upon meaning. The only advantage we see in SC, as a construct, is that it speaks to economists and policy makers and draws their attention to non-economic assets (Kretzmann & McKnight, 1993). But that is also the danger in SC: as with empowerment (Perkins, 1995), anti-government neo-conservatives are co-opting SC to justify reducing public spending on critical social services under the misguided assumption that the overburdened private community service sector can suffice. As SC seems to have strong appeal and staying power, the challenge to researchers is to try to unpack the construct and make it as useful as possible while being fully aware of the political ramifications: that is, what issues can SC address directly and, where government intervention is required, how can SC be turned into political clout?

Given the expanse of theory and research on SOC over more than a quarter-century,[ii] it may provide the greatest contribution to understanding SC. Yet much of the usage of the term SOC is also vague and

counterproductive. The original subtitle of this chapter was "All the things you are" to make the point that, similar to "community" and "empowerment" (Perkins, 1995), both SC and SOC have meant, if not all things to all people, then too much and too varied to too many.

While there is power in such ambiguity, SC would benefit conceptually, empirically, and practically from a more precise definition. In particular, it is important to measure and analyze the specific behavioral and intrapsychic dimensions of SC separately to gain a clearer understanding of what aspects of SC operate in what ways and under what conditions. There is a critical need to dissect, examine, and understand, not only the differences between various forms of SC, but also the many different factors and processes that make up, and are related to, each form. Only with careful attention to the construct and predictive validity of SC can we develop a more psychological and complex, yet clearly defined, conception of SC.

Dimensions of Social Capital

Saegert and Winkel (1998) were among the first psychologists to study SC, and found that it significantly predicted the successful revitalization and maintenance of distressed inner-city housing. They distinguish two measures of informal SC (neighboring and perceived pro-social norms) and two formal factors (leadership activity and basic voluntary participation). The emphasis on leadership is particularly important, especially for maintaining the momentum and effectiveness of voluntary organizations. Neighboring is the instrumental help we provide, or get from, other community members (e.g., watching after a neighbor's house or child; Perkins, et al., 1990; 1996; Unger & Wandersman, 1985). Ordinary social interaction with one's neighbors, especially as it encourages more community involvement, either formally or informally, may also be included as a form of neighboring.

We appreciate, and generally agree with, the utility of Saegert and Winkel's (1998) and Putnam's (2000) emphasis on behavioral definitions of SC; but as long as the dimensions are analyzed separately, there may be some added utility in considering possible intrapsychic dimensions or predictors. Community psychologists have researched many attitudes, emotions, and perceptions related to SC. The most exhaustive attention has been paid to two constructs: empowerment (Perkins, et al., 1996; Saegert & Winkel, 1996; Speer & Hughey, 1995) and SOC. Empowerment is about perceived control. A primary benefit of SOC is social support from one's community. (Briggs (1998) identified social leverage (information) and other forms of social support as key dimensions of SC. Thus, SC provides at least three forms of social support: communal (SOC), instrumental (neighboring), and informational. The fourth form of support, emotional, may also be involved, depending on the quality of one's relationships with community

members.) Control and social support are two of the strongest and most consistent predictors of positive individual outcomes. The same may be true of community-level outcomes as well.

Thus, we define SC in terms of four distinct components: (1) trust in one's neighbors (SOC) and (2) in the efficacy of organized collective action (empowerment), (3) informal neighboring behavior, and (4) formal participation in community organizations (see Figure 1). This four-part definition adds the idea of formal and informal community "trust" to formal and informal pro-social community behaviors (cf. Saegert & Winkel, 1998). SOC and collective efficacy are the cognitive or intrapsychic components of SC. Citizen participation in grassroots community organizations and neighboring are the behavioral components of SC. Each dimension of SC is consistently related to the others.

	Cognition/Trust	Social Behavior
Informal	Sense of community	Neighboring
Formally Organized	Collective efficacy	Citizen participation

Figure 1. Four Dimensions Of Social Capital

Sense of community is a consistent and widely valued indicator of quality of community life and a catalyst for both behavioral dimensions of SC: organized participation and informal neighboring (Beckman, et al., 1998; Chavis & Wandersman, 1990; Hughey, Speer, & Peterson, 1999; Perkins, et al., 1996; Wandersman & Giamartino, 1980). The link between organized participation and SOC has been found at both the individual and community levels of analysis (Brodsky, et al., 1999; Perkins, et al., 1996). It makes sense that a group of residents must have at least some SOC to be interested in organizing an association and working together to solve common problems (Ahlbrandt, 1984). Chavis and Wandersman (1990) found that, over time, SOC leads to greater self- and collective-efficacy and neighboring, which all increase participation. Their results suggest that participation, in turn, enhances SOC. SOC has also been related to community satisfaction, collective efficacy, neighboring, communitarianism, and informal social control, less fear of crime, litter and graffiti (Perkins, et al., 1990) and better-maintained yards (Varady, 1986).

Interest in SOC has been international as have empirical findings on its psychometric properties (Chipuer & Pretty, 1999: Australia) and its relationship to participation and neighboring (Garcia, Giuliani, & Wiesenfeld, 1999: Venezuela; Itzhaky, & York, 2000: Israel; Prezza, Amici,

Roberti, & Tedeschi, 2001: Italy), type of common land (Li, 1998: Taiwan), investment in home and community building processes (Garcia, et al., 1999: Venezuela), community satisfaction and local friendships (Sampson, 1991: U.K.); life satisfaction and loneliness (Prezza, et al., 2001: Italy), minority community identity (Sonn & Fisher, 1998: Australia), and university residence social climate and well-being (Pretty, 1990; Pretty, Conroy, Dugay, Fowler, & Williams, 1996: Canada).

Collective efficacy, or trust in the effectiveness of organized community action, is closest to the concept of empowerment among all the social capital dimensions and their predictors. Some definitions of individual psychological empowerment are little different from traditional theories of self-efficacy or locus of control. In order to distinguish it from those concepts, we argue that a necessary component of empowerment, even at the individual level, should be its connection to collective action and organizational and community levels of empowerment. Empowerment is thought both to lead to participation in community organizations and to result from it. Perceived efficacy of collective action is important for maintaining participation in a community organization (Florin & Wandersman, 1984; Perkins, et al., 1990; 1996) and may be important for initiating it.

Note that our definition of collective efficacy differs importantly from that of Sampson, Raudenbush, and Earls (1997). They define it as "social cohesion among neighbors combined with their willingness to intervene on behalf of the common good" (p. 918) and operationalize it as a combination of SOC and informal social control (ISC).[iii] We do not adopt this definition because (1) we think it conceptually sound to separate the intrapsychic and more general SOC from the narrower, more behavioral ISC and (2) collective efficacy should be an appraisal of group behavior that is, as the term suggests, both collectively organized and efficacious. ISC is, by definition, unorganized and is undemocratic, unrelated to formal participation (Perkins, et al., 1990), and inconsistently effective in reducing crime (Perkins, Wandersman, Rich, & Taylor, 1993).

Neighboring behavior is informal mutual assistance and information sharing among neighbors. In a stress and coping framework, it can be considered a form of local "instrumental social support." Some researchers include non-instrumental social contact as neighboring (e.g., Brown & Perkins, 2001). All forms of neighboring allow residents to become better acquainted and discuss shared problems (Unger & Wandersman, 1985). Prezza, et al. (2001) found that women, long-term residents, those with more children, those living with a spouse, those with less education, and members of community groups had more neighboring relationships. Unger and Wandersman (1983), using a similar survey measure of neighboring to that used in the present study, found that greater neighboring prior to organizing a block may facilitate subsequent efforts towards forming a block

association. In turn, they found that once a block organized, association members engaged in more social interaction, which may lead to more neighboring. Perkins, et al. (1996) found that neighboring was, generally, the strongest single predictor of participation in community organizations in three cities, cross-sectionally and one year later, at both the individual and block levels of analysis.

It is surprising that, despite the important role of neighboring to the quality of community life, so few studies have related neighboring to other community-focused behaviors and cognitions. Brown and Werner (1985) found neighboring to be related to community satisfaction. In Time-1 of the present data, controlling for demographics, block-level neighboring was related to participation, sense of community, communitarianism, block satisfaction, and informal social control (Perkins, et al., 1990).

Citizen participation in block, neighborhood, and building (tenant or co-op) associations, faith-based community service or advocacy committees and coalitions, school-based associations, and other grassroots community organizations are examples of formal social capital behavior. These organizations address a wide variety of local needs, from housing, planning and traffic issues to cleaning up residential property, vacant lots, and parks to youth and recreation programs and block parties to crime prevention.

Research on civic participation has been a staple of sociology and political science from their beginning (or even longer: Tocqueville, 1935/ 1969). But the emphasis in much of the research has been on demographic predictors. For example, replicating their own 1958 study, Hyman and Wright (1971) found that greater resources (income), investment in the community (home ownership, length of residence) and skills and knowledge (education) motivate or permit greater participation. More recently, poor and middle-class mothers' participation in block clubs, neighborhood or tenant groups, and other community organizations was associated with greater education and income, but not with age, employment, marital status, number of children, or tenure in neighborhood (Rankin & Quane, 2000).

The psychological research on participation generally controls for these demographic differences, but goes beyond them to find that participants, and their organizations and communities, have a greater sense of collective efficacy or empowerment (Florin & Wandersman, 1984; Perkins, et al., 1996; Saegert & Winkel, 1996; Speer & Hughey, 1995), SOC (Chavis & Wandersman, 1990; Perkins & Long, 2001), neighboring (Perkins, et al., 1996; Unger & Wandersman, 1985), community satisfaction (Perkins, et al., 1990), and other positive community attachments and organizational activities (Perkins, et al., 1996).

Psychological Predictors of Social Capital

Place attachment is an important construct in its relationship to SOC

and SC, but one that is often overlooked by community psychologists. It refers to emotional bonding, developed over time from behavioral, affective, and cognitive ties to a particular socio-physical environment (Brown & Perkins, 1992). These bonds are integral to individual and community aspects of self-identity and provide a source of stability and change for individuals and communities alike. Place attachments are a resource that individuals (especially women, minorities, lower-income people, and elders) and communities can draw on to help revitalize all aspects of home and neighborhood environments (Brown & Perkins, 2001; Saegert, 1989).

Politically, place attachment may motivate residents to participate in community organizations (Saegert, 1989). Participation, at both the individual and community levels, also leads to greater community attachment (Zhao, 1996). Socially, place attachment can help bring residents together to address social problems as well as environmental threats (Brown & Perkins, 1992). Economically, where residents, through their history in, and attachments to, a place discover what is unique about their community, they can preserve or develop places and events that generate tourism and other business opportunities. Those who feel no particular attachment to the place they live invest little time, energy, or money in it and are more likely to move (Vinsel, Brown, Altman, & Foss, 1980).

Place attachment and SOC are closely related. The Sense of Community Index includes four items measuring attachment to place (one's block; in the present analyses, these items were removed to create a new place attachment scale). The two constructs were combined with block satisfaction and knowing one's neighbors in an analysis of participation in neighborhood improvement organizations (Perkins, et al., 1996). In all three cities studied, that combination was significantly correlated with participation at the individual and block levels, both cross-sectionally and over a one-year lag. In multivariate analyses, however, it was a significant predictor in two cities and only at the individual level.

Cuba and Hummon (1993) identify three loci of place identity -- home, community, and region -- and find that *formal* organizational participation, not sense of community, is key to community identity. Puddifoot (1996) argues that psychological theory supports the analysis of "community identity," based on a combination of place identity or attachment, SOC, and community satisfaction. Pretty (this volume) expands on that argument, suggesting that SOC and place attachment are part of the same overarching self-in-community psychological framework with emotional, cognitive, spiritual, and behavioral dimensions all contributing to the development of individuals' community identity.

Despite these connections, we view place attachment as distinct from SOC because the former is a spatially-oriented emotional construct (Brown & Perkins, 1992) and the latter is more of a socially-oriented cognitive construct. Furthermore, keeping the concepts separate allows us to

consider how one may lead to the other or whether different community changes might affect place and social attachments differently. For example, there is intriguing evidence that SOC may be encouraged by "New Urbanist" planned communities that minimize the impact of automobile traffic and emphasize walkable, mixed residential/commercial space (Nasar & Julian, 1995; Plas & Lewis, 1996). But more research is needed to determine whether SOC gains are due to increased social interaction in private and public outdoor spaces, increased place attachment, both, or neither (people attracted to New Urbanist communities may be predisposed to more SOC).

Community Satisfaction is also related to place: Brown and Werner's (1985) research showing that block satisfaction and neighboring behaviors are related also found such community ties to be stronger on cul-de-sacs than through streets. Perkins, et al. (1990) found block satisfaction to be higher on blocks with more attached homes as well as SOC, collective efficacy, and neighboring and (surprisingly) *fewer* trees, gardens and shrubs as well as less criminal victimization, disorder, and fear. Block satisfaction was also the strongest predictor of block association (BA) participation in their multivariate analyses. It remains to be seen whether that relationship was as strong at Time 2 and in a multilevel analysis at both times.

Chavis and Wandersman (1990) also found block satisfaction to be associated with BA participation, neighboring, collective efficacy, and SOC. Using data from the same Nashville project, Florin and Wandersman (1984) found perceived community problems and community dissatisfaction to load as one factor and so combined them into "encoding strategies," which was modestly associated with individual BA participation. But satisfaction is very different than a lack of perceived problems. In fact, Perkins, et al. (1990) found that two of the strongest predictors of participation were community satisfaction and *more* perceived disorder (again, a physical environmental concern). Residents who are very attached to their community may have high satisfaction, but because they care about it so much, they are also the most critical of community problems.

Communitarianism is the value placed on one's community and on working collectively to improve it (Perkins, et al., 1990). This is the original meaning before Etzioni (1993) politicized the term as a compromise position among competing ideologies of autonomous individualism *vs.* communal socialism and Liberalism *vs.* Conservativism. If residents participate more in communities they value, a communitarian climate should encourage greater collective participation. Florin and Wandersman (1984) used the cognitive social learning concept of "subjective stimulus values" to encompass a variety of constructs, including communitarianism, self-efficacy, collective efficacy, and SOC. This composite predicted individual participation in BAs far better than any other variable they considered. At the block level of analysis, Perkins, et al. (1990) found communitarianism alone to be related to blocks with more minorities, less income, more home owners,

neighboring, collective efficacy, and to various features of the block physical environment, but only marginally to SOC, and not significantly to participation in BAs.

Community Confidence is another vital cognition, especially in older neighborhoods that may be deteriorating and considered "transitional" due to changes in local businesses or residential demography (income, tenure, racial composition; Ahlbrandt 1984; Varady, 1986). As residents perceive their neighborhood declining, if they still have confidence in its future, they may stay and upgrade their own property and pressure neighbors and the city to do likewise. A lack of community confidence, however, may spell commercial and residential disinvestment and flight and may explain why many urban policies and revitalization projects have failed (Varady, 1986). As other, more objective, development indicators -- such as building permits, residential stability, higher owner occupancy and property values -- are slower to appear, confidence is considered by many to be a benchmark indicator of a community's capacity to revitalize.

Varady (1986) examined the impact of a major federal "urban homesteading" program on neighborhood confidence and property upgrading. Program spillover effects on neighbors' upgrading and confidence were negligible. Nor were home improvements related to confidence at the individual/household level, a result confirmed in a more recent study (Brown & Perkins, 2001). But neighborhoods in better physical condition had residents who were more confident about the future of the neighborhood (Varady, 1986). Confidence was also associated with neighboring, SOC, and resident decisions to move or stay.

MULTI-LEVEL ANALYSIS OF SENSE OF COMMUNITY

Almost all studies of SOC, other community cognitions, or social capital behaviors (as opposed to organizations), while targeting the block, neighborhood, or vaguely defined community level, have analyzed *individual level data*. There is no doubt that we need more and better data collected at the community level (Fisher & Sonn, 1999; Puddifoot, 1996; Shinn, 1990; Theodori, 2000). But another approach to more ecologically valid research is multi-level analysis. Social scientists have long aggregated individual perceptions to the group level to create contextual or social climate variables. With the advent of multi-level analytic statistical programs, this practice is becoming even more common. Yet psychologists' individualistic bias has made us slower to respond to these powerful new techniques. The criteria for validating aggregate individual perceptions as group climate variables are clear and simple, however (Shinn, 1990). Climate variables must (1) exhibit adequate inter-rater agreement among members of the same group, (2) show reliable differentiation, or variance, between groups, and (3) correlate significantly with other variables at the

group or individual level.

There have been just a few recent multilevel studies of SOC. Brodsky, et al. (1999) used multilevel analysis to identify individual- and community-level predictors of *individual* SOC, but they only compared three communities and do not report the extent to which SOC varies at the community level. Kingston, et al. (1999) show that perceptions of neighborhood climate (SOC) vary at the community level. But possibly due to (a) low neighborhood-level variance, (b) low statistical power at that level, and (c) using dichotomous predictors, they fail to find a significant correlation between SOC and either neighborhood organization or the boundedness of the neighborhood by arterial streets. Their results show the importance of an adequate sample size at the group as well as individual level in multi-level analysis. Sampson (1991) used a British nation-wide sample in finding that neighborhood-level social cohesion increases individuals' community satisfaction (independent of personal characteristics).

A multi-level study by Hyde (1998) made, we believe, another important advance by analyzing SOC and place attachment separately. She found significant neighborhood-level variance in both. She also found that both resident perceptions of disorder and independently assessed disorder predicted SOC and place attachment, suggesting that physical and social conditions of place influence community attachments. Similarly, using the present data, Perkins and Long (2001) found that between 9% and 30% of variance in individual-level SOC was due to block-level differences and that SOC was predicted by place attachment and other community-focused cognitions and behaviors at both the block and individual levels.

None of the above, however, has considered SOC at multiple levels simultaneously. Multi-level analysis is critical to determine how, and how much, SC is manifested at the community level vs. the individual level. This could lead to better targeted interventions to encourage the right form of SC for a given community or a particular group of its individual members. In addition, it can identify differences in SC dimensions among individuals with different social attitudes and demographic profiles living in communities with different levels of social cohesion and place attachment. (For example, what does it mean to have a strong SOC in a community where that is not shared versus one where it is?) And it can address the critical question of whether, controlling for individual and/or community demographics, individuals engage in more or less formal SC in communities with more informal cohesion. That is, do communities with more SOC encourage, not only neighboring, but also more collective efficacy and voluntarism, or does it tend to replace and thus lessen the formal forms of SC?

We aim to unpack the broadly defined and loosely understood concept by examining the construct validity of the various dimensions of SC

and other variables that are related to SOC and how they are inter-related. We will present a new analysis of one of the major studies of SOC, blocks, and block associations (Perkins, et al., 1990).

Community Cognitions and Social Capital: Reanalyzing the Block Booster Data

The present data were collected as part of the Block Booster Project, a two-year (1985-86), multimethod, action study of the social effects, organizational dynamics, and viability of urban residential BAs (Chavis, Florin, Rich, Wandersman, & Perkins, 1987). The purposes of the Project were to: (1) examine the role of BAs in community development and crime control and (2) develop an intervention process and set of training materials to help voluntary associations maintain and strengthen themselves. Clustered, resident survey data from 47 street blocks (the homes fronting on the same street between two cross streets or a cross street and dead end) in five neighborhoods in Brooklyn and Queens, New York, permit comparisons over two points in time (T1 n = 1,081, T2 n = 638, panel = 438) using multilevel analyses (HLM) of the constructs as both individual psychological and community climate phenomena. (For details of the site selection, sampling, and survey methods, see Perkins, et al., 1990.)

Measures

The following scales were confirmed in principal components analyses (PCA) as distinct and coherent constructs. All predictors were standardized. To reduce skewness, variables were transformed using either the square root (number of children, neighboring, participation) or the exponential method (length of residence, SOC, place attachment, communitarianism, collective efficacy). This was not done in previous publications of these data (Perkins, et al., 1990; 1993; 1996). All four SC dimension scales (Sense of Community, Collective Efficacy, Participation, and Neighboring), items, and reliabilities are displayed in Appendix A. Most items were dichotomous, which lowered the internal consistency of all scales, we recommend Likert response scales be used in future. (More information on the creation of scales and their descriptive statistics is available from the authors.)

Brief Sense of Community Index (BSCI) is a new eight-item scale adapted in part from the 12-item Sense of Community Index (SCI; Perkins, et al., 1990).[iv] PCAs confirmed SOC as distinct from neighboring behavior, informal social control, block satisfaction, and communitarianism. But a PCA of the SCI alone failed to confirm McMillan and Chavis' (1986) dimensions of emotional connection, group membership, needs fulfillment, and influence. One or two factors, which cut across their framework, is, we

argue, a separate construct, that is, place attachment. After removing four place attachment items, we added three face-valid SOC items to a second PCA. Three of the original items failed to load cleanly on a single factor and were removed. The remaining eight items form the new BSCI and were included in a third PCA resulting in three subscales, confirmed across two surveys: social connections, mutual concern, and community values (Perkins & Long, 2001). Only the total scale was used here.

Place attachment (α (Time 1) = .65, n = 903; α (Time 2) = .63, n = 480) is the mean of four items removed from the SCI (true/false): I think my block is a good place for me to live; I feel at home on this block; it is very important to me to live on this particular block; I expect to live on this block for a long time.

Communitarianism (α = .56, n = 1,053; .62, n = 624) is the value placed on one's community and on working collectively to improve it. Unlike Perkins, et al. (1990), it was measured using the mean of just two items: the importance to the respondent of what their block is like and the importance of neighbors working together rather than alone to improve block conditions (not important, somewhat important, very important).

Community (block) satisfaction (α = .36, n = 946; .39, n = 613) was measured here using the mean of just two items: satisfaction with the block as a place to live (satisfied/dissatisfied) and, compared to adjacent blocks, whether the block is a better or worse place to live or about the same as other blocks in the area. Using the same data, the satisfaction scale by Perkins, et al. (1990) combined these items with the following two.

Block confidence (α = .62 n = 923; .63, n = 567) was measured using the mean of two items: "In the <u>past</u> two years, have the general conditions on your block gotten worse, stayed about the same, or improved" and "in the <u>next</u> two years, do you feel that general conditions on your block will get worse, stay about the same, or improve."

Demographic variables. The present analyses included the following control variables: sex, age, income level, education, race, length of residence, home ownership, and number of children in household.

In order to examine the relationship of SOC, relative to other community-focused cognitions and demographics, to SC, all the above were used to predict each of the other three dimensions of SC (see Appendix A):

Collective efficacy was measured here using the mean of six items: whether it is "not likely, somewhat likely, or very likely" the respondent's BA (or a hypothetical association on unorganized blocks) can accomplish improvement of physical conditions, the persuasion of city officials to provide better services, getting people on the block to help each other more, a reduction in crime, getting people to know each other better, and getting information to residents about where to go for needed services.

Participation in BA activities was a sum of eight items coded zero to one (all but one item were yes/no): membership and participation in a BA,

whether the respondent had attended, spoken in, served as member or officer in a BA meeting, or done work for the organization outside a meeting in the past year, and monthly hours working for the BA outside of meetings.

Neighboring behavior was measured using the mean of five items indicating how many neighbors (none, one or two, or several) asked: to watch their home while they were away, to loan food or a tool, to help in an emergency, to offer advice on a personal problem, and to discuss a block problem. (This differs from the scale by Perkins, et al. (1990) who used block aggregates only, including neighboring received as well as given.)

Individual and Block-Level Bivariate Correlations

Table 1 presents individual and block mean level bivariate correlations at both time points for the four dimensions of SC (collective efficacy, participation, neighboring, SOC), the other four informal community cognitions (place attachment, communitarianism, block satisfaction, block confidence), and eight demographics (number of children, age, education, white ethnicity, income, sex, resident tenure, home ownership). Below the diagonal are individual-level coefficients, above the diagonal are block mean aggregated coefficients; these cells display cross-sectional coefficients at both time points as follows: T1/T2. On the diagonal are displayed the T1 by T2 correlations for the respective variables (for data available at both time points); each cell on the diagonal displays coefficients as follows: individual-level/block-level. Coefficients are displayed only if significant at $p < .05$ for individual-level correlations and $p < .10$ for block-level correlations. (It is common to relax the significance criterion when analyzing group data, which tend to be more stable than individual-level data (Kenny & LaVoie, 1985).

Interestingly, there is virtually no correlation between collective efficacy and neighboring. Otherwise, the correlations among the four dimensions of SC are significant, suggesting some internal consistency to the overarching construct. Participation in BAs (individual $r = .68$, block-level $r = .87$) and SOC (individual $r = .58$, block $r = .77$) were both highly correlated between T1 and T2. The correlations between T1 and T2 for the other SC scales (collective efficacy and neighboring) and other predictors were also significant, with block confidence being the least stable. The five substantive predictors (SOC, place attachment, communitarianism, block satisfaction, block confidence) also showed some intercorrelation. As expected, the relationship between SOC and place attachment was strongest (individual $r = .40_{(T1)}, .51_{(T2)}$; block $r = .73_{(T1)}, .63_{(T2)}$). However, communitarianism was not significantly related to block satisfaction, confidence, or (at the block level) place attachment. SOC was the only predictor to correlate significantly with all the other community cognitions at both levels.

Table 1. Individual- and Block-level Time-1 and Time-2 Psychological Correlates of Social Capital Variables with Sense of Community and Other Predictors: Individual Level Correlations Below Diagonal; Block Level Correlations Above

	DEPENDENT VARIABLES:		**DEMOGRAPHICS:**							**INDEPENDENT VARIABLES:**						
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**
1. Collective Efficacy	**.27**/.28	.29/ns		.38/ns		-.36/ns	-.31/ns					.34/.49	ns/.55	.52/.38	ns/.36	ns/.26
2. Participation	.19/.25	**.68/.87**	.39/.59				ns/-.25	ns/-.23			ns/.21	.54/.54	.25/ns			.34/.23
3. Neighboring	.07/ns	.32/.37	**.38/.56**							.36/.38	.38/.34	.47/.63	.39/.39	.29/ns	ns/.32	ns/.35
4. Children	.09/ns	.07/ns	.10/ns		-.46		-.44	-.27	.26	-.44/-.36			-.35/-.21	.42/.31	ns/-.22	-.28/ns
5. Age	ns/.21	.12/ns		-.28		-.23		.26		.50/.50			.34/.27			
6. Education	-.11/ns		.06/ns		-.22		.40	.36						-.49/-.28		
7. White Ethnicity	-.13/ns	-.07/-.14		-.24	.10	.10		.36	-.24		.-45/-.27		ns/.36	-.59/-.39	.26/ns	.31/ns
8. Income		.13/ns	.15/ns			.34	.15		-.24					-.29/-.23	.28/ns	
9. Sex	ns/.13					-.06		-.18								
10. Length-Residence		.21/.13	.24/.24	-.12/-.16	.45/.42	-.10/ns	.14/.13			**.83/.68**	.47/.55	.52/.26	.59/.34		ns/.29	
11. Homeowner		.26/.24	.30/.25	.09/ns	.21/.23		-.13/ns	.20/.13		.42/.47	**.83/.85**	.36/.22		.25/ns		
12. Sense-Community	.26/.42	.36/.33	.42/.37		.13/.17			.08/ns		.23/.17	.24/.22	**.58/.77**	.73/.63	ns/.29	.37/.49	.29/.28
13. Place Attachment	.12/.33	.15/.14	.18/.19		.20/.27	-.16/-.12	.07/ns			.19/.16	.16/.15	.40/.51	**.37/.50**		.31/.65	.43/.47
14. Communitarian	.30/.37	.14/.19	.16/.20	.06/.10	.13/.15	-.12/-.08	-.17/-.14	-.08/-.10	ns/.12	.09/.09	.09/.16	.27/.36	.17/.23	**.33/.50**		
15. Block Satisfaction	ns/.14	ns/.11	ns/.11				.07/ns		-.06/ns			.17/.29	.23/.37		**.23/.45**	.39/.34
16. Block Confidence	.16/.28	.17/.14	.09/.13		.09/ns		.12/ns					.27/.24	.27/.31		.31/.28	**.26**/.20

Note: For the highlighted diagonal cells, correlations are Time-1 by Time-2 for the respective variable, and are arranged as follows: Individual-evel / Block-level (significant coefficients at p < .05 appear in boldfaced type on diagonal). For demographics, autocorrelations were not possible and intercorrelations are only at one point in time, as they were asked only at T1 or T2. For the off-diagonal cells, correlations are arranged as follows: Time-1 / Time-2. All coefficients printed are statistically significant at p < .05 or better at the individual level or p < .10 or better, block level; empty cells denote no significant correlation at T1 or T2.

Of all the predictors, none showed greater or more reliable (i.e., significant at both T1 and T2) correlations with all three dependent variables than did SOC (individual-level r = .26 to .42; block-level r = .34 to .63). Like SOC, place attachment, communitarianism, and block confidence showed significant and reliable correlations to all three dimensions of SC at the individual level. Due to the much smaller n of blocks than individuals, several of the corresponding block-level correlations, although larger, were nonsignificant at either T1 or T2. Curiously, block satisfaction correlated significantly with the three dimensions of SC at T2, but not at T1. This is particularly surprising given the finding by Perkins, et al. (1990) that block satisfaction was one of the strongest block-level predictors of participation at T1, albeit moreso in multivariate than bivariate analyses. Both variables were computed differently in the present analysis, however. (In Perkins, et al. (1990), participation included items from a BA member survey and satisfaction included block confidence items.)

Among demographics, home ownership and residential stability were the strongest correlates of SC -- both were significantly related to participation, neighboring, and SOC, but not to collective efficacy. Other demographic effects were less consistent. Nonwhite residents and blocks showed more collective efficacy at T1 (only), but more participation at T2. In contrast, individual older residents participated more at T1, but felt more collective efficacy at T2. Individuals and blocks with more children and (unexpectedly) less education felt *more* collective efficacy at T1.

Multilevel Models Predicting Social Capital Dimensions

In a series of HLMs, SOC and four other community-focused cognitions (place attachment, communitarianism, block satisfaction, and community confidence), at block and individual levels, and individual-level demographics were tested for their ability to predict collective efficacy, informal neighboring, and formally organized citizen participation. Each of the three dependent variables was predicted cross-sectionally at two points in time, about a year apart, see Table 2).[v]

Collective Efficacy Time 1. In the HLM predicting collective efficacy at T1, about six percent ($p < .001$) of the total variance in individuals' sense of the efficacy of BAs was due to block differences. The only significant block-level predictors were SOC and communitarianism. At the individual level, communitarianism, SOC, block confidence, block satisfaction, and education were significant. Surprisingly, block satisfaction and education were associated with *less* collective efficacy. The model explains approximately 50% of block differences in collective efficacy and

13% of individual variance. In testing for random effects among the individual-level substantive predictors, SOC was significant ($p < .01$), indicating that the slope of the relationship between efficacy and SOC varies across blocks. In an effort to explain that variation, we tested for significant cross-level interactions with SOC, but none were found.

Collective Efficacy Time 2. At T2, just over 7% ($p < .01$) of the total variance in individual collective efficacy occurred at the block level. SOC and communitarianism were again significant block-level predictors, but this time, so too is block confidence. At the individual level, SOC, communitarianism, block confidence, minority status, and length of residence were significant. Surprisingly, newer residents showed greater collective efficacy. The model explains 99% of block differences in efficacy and 25% of individual variance. There were no random effects.

Table 2. Block and individual-level sense of community and other predictors of three social capital factors at two points in time: Hierarchical linear models

	Collective Efficacy		Participation		Neighboring	
	Time 1	Time 2	Time 1	Time 2	Time 1	Time 2
Block Level: Approx. df	44	40	42	57	42	58
% total variance at block level	5.7***	7.3**	30.5***	40.0***	3.0**	7.2***
% block variance explained	49.4	99.0	40.0	45.4	82.0	95.0
Intercept	13.80***	12.81***	1.01***	0.77***	1.15***	1.12***
Sense of Community	1.23*	2.21**	1.36***	1.32***	0.17*	0.29***
Place Attachment			-0.96**	-0.93***		
Communitarianism	2.71***	1.98*			0.11#	
Block Satisfaction			-0.45#		-0.17*	
Block Confidence		2.62***	0.80**	0.56**	0.14*	0.14#
Individual level: Approx. df	1,022	303	996	555	1,060	625
% individual variance explained	13.0	25.2	20.6	16.4	20.9	15.9
Children			0.09***		0.05*	
Age			0.10**			-0.09***
Education	-0.31*		0.07*	0.09**	0.06***	
White Ethnicity		-0.53*				
Income			0.08*			
Length of Residence		-0.58*	0.12***		0.07**	0.10***
Home Owner			0.13***	0.18***	0.08***	0.08**
Sense of Community	0.87***	1.84***	0.24***	0.20***	0.22***	0.16***
Place Attachment						
Communitarianism	1.23***	1.14***	0.06*	0.12**		0.05*
Block Satisfaction	-0.46*				-0.04*	
Block Confidence	0.86***	0.83**				

Note: Fixed effects unstandardized coefficients. #$p<.10$, *$p\leq.05$, **$p\leq.01$, ***$p\leq.001$.

Participation Time 1. In the HLM predicting T1 participation, about 31% ($p < .001$) of the total variance in individuals' participation in BAs is due to block differences. Significant block-level predictors include SOC, place attachment, block satisfaction, and block confidence. Unlike the

bivariate correlations, which were modestly positive or nonsignificant, in the HLM, block-level place attachment and satisfaction were associated with *less* participation. At the individual level, SOC, communitarianism, number of children, age, education, income, resident tenure, and home ownership were significant. The model explains 40% of block differences in participation and 21% of individual variance.

In testing for random effects, individual-level SOC was significant ($p < .01$), with four significant cross-level interactions emerging. On blocks with more children, more educated residents, more long-term residents, and low communitarianism, the positive relation between SOC and participation was stronger than elsewhere.

Participation Time 2. In the HLM predicting participation at T2, 40% ($p < .001$) of the total variance in individuals' participation in BAs was due to block differences. Significant block-level predictors again included SOC, place attachment, and block confidence, but block satisfaction was nonsignificant at T2. Block-level place attachment was again associated with *less* participation. At the individual level, SOC, communitarianism, education, and home ownership were significant. The model explains approximately 45% of block differences in participation and 16% of individual variance.

In testing for random effects, individual-level communitarianism emerged as significant ($p < .05$). Four significant cross-level interactions were identified to help explain the variation in slopes across blocks. Communitarianism and participation were virtually unrelated on most blocks (even marginally negatively related on some). However, on blocks with few children, blocks with younger residents, blocks with more ethnic minority residents, and those with more long-term residents, the relation between communitarianism and participation was positive and much stronger.

Neighboring Time 1. In the HLM predicting neighboring at T1, three percent ($p < .01$) of the total variance in individuals' neighboring behavior is due to block differences. Significant block-level predictors included SOC, communitarianism, block satisfaction and block confidence. Surprisingly, in the multivariate context, higher block-level satisfaction was associated with *less* neighboring. At the individual level, SOC, block satisfaction, number of children, education, resident tenure, and home ownership were significant. Like at the block level, block satisfaction was associated with less neighboring. The model explains 82% of block differences in neighboring and 21% of individual variance. None of the random effects were significant.

Neighboring Time 2. In the HLM predicting neighboring at T2, about seven percent ($p < .001$) of the total variance in individuals' informal neighboring behaviors is due to block differences. Significant block-level predictors included SOC and block confidence. At the individual level, SOC, communitarianism, age, length of residence, and home ownership were significant. Neighboring behaviors decrease with age. The model explains

95% of block differences in neighboring and 16% of individual variance. No random effects were significant.

CONCLUSIONS

This study represents a new, multi-level analysis of the original Sense of Community Index data (Chavis, et al., 1987; Perkins, et al., 1990). The BSCI used in the present analyses is shorter than previous scales and has adequate psychometric properties (Perkins & Long, 2001). The data and analyses we present meet the three criteria for validly deriving contextual or social climate variables from group-aggregated individual responses. Although, for all variables, block-level variances were less than individual-level variances, the significance of all six HLM unconditional models, and the many significant block-level predictors (between two and four out of five in each model), confirm the existence of: (1) substantial within-block agreement as to community-focused attitudes and behaviors, (2) significant block differentiation in those variables (and in half the models, significant block-level variation in slopes), and (3) predictable relations with other block-level constructs (above diagonal, Table 1), as well as predictable effects on individual-level SC outcomes in our HLM models. The variable showing the most block-level variance was participation, which is not surprising given that the sample included blocks with BAs of varying activity, and about a third of the blocks had no BA. What is more noteworthy is that at T2, SOC was as much a block level variable (30%; Perkins & Long, 2001) as participation was at T1.

Strong evidence was shown for our four-component definition of SC. Each dimension was significantly correlated with at least two other dimensions at the individual and block-aggregate levels. The only exception was the nonsignificant link between collective efficacy and neighboring. This is not surprising given that efficacy is the formal-intrapsychic dimension and neighboring is the informal-behavioral dimension. The fact that SOC (informal-intrapsychic) and participation (formal-behavioral) are so highly correlated, particularly at the block level, is perhaps more impressive. SOC emerged as the strongest and most consistent predictor (at both levels) of the other three dimensions of SC. In fact, it was the only individual-level predictor, including demographics, that was significant in all six models and the only block-level predictor that was significant in all six. Living on a block with higher mean SOC *and* (whether block SOC is high or low) having higher individual SOC relative to one's neighbors was related to more collective efficacy, more neighboring, and more participation in block organizations.

Our findings that SOC positively relates to neighboring and participation in grassroots community organizations corroborate numerous other studies (Beckman, et al., 1998; Brodsky, et al., 1999; Brown &

Werner, 1985; Chavis & Wandersman, 1990; Hughey, et al., 1999; Itzhaky & York, 2000; Perkins, et al., 1996; Prezza, et al., 2001; Wandersman & Giamartino, 1980). What is new, in addition to finding the effects to be significant at both the individual and community levels simultaneously, are the cross-level interaction effects at T1: SOC and participation being most closely linked on blocks with more children, more educated residents, more long-term residents, and low communitarianism may help community organizers and leaders target their organizing strategies accordingly. (The T2 cross-level interaction, in which communitarianism and participation were slightly *negatively* related on blocks with more new residents but had a clearly positive slope on more residentially stable blocks, may be due to communitarians feeling alienated or frustrated on blocks with high turnover).

The link between SOC and collective efficacy (Perkins, et al., 1990) had not been well established. Thus, the significance of SOC at both levels and time points represents a major contribution to the literature. There are a number of publications that deal with SOC and empowerment. But with very few exceptions (e.g., Itzhaky & York, 2000; Speer, 2000), most of those are either non-empirical or use both constructs as either independent or dependent variables, rather than relating the two, which is surprising given the prominence of both empowerment and SOC in community psychology.

Several other reliable effects (i.e., present at T1 and T2) were noted, especially for community confidence, a construct that has been largely ignored by psychologists. Individual and block mean communitarianism and individual confidence in the block's future related positively to perceptions of collective efficacy. Individual resident tenure, home ownership, and a block climate of community confidence related to higher rates of neighboring. More confidence and *less* place attachment at the block level, as well as individual home ownership and more education, related to higher participation.

The negative coefficients for block-level place attachment should be discounted as suppression effects as the bivariate correlations were modest, but positive. Place attachment was strongly correlated with SOC at both levels. It likely would be less so if the measures did not derive from items taken from the same scale, as was necessary here. Place attachment is clearly an important construct independent of SOC (Brown & Perkins, 1992; Cuba & Hummon, 1993; Hyde, 1998; Li, 1998; Manzo & Perkins, 2001). Even discounting the negative suppression effects, however, one of our most surprising multivariate findings is that place attachment was largely unrelated to collective efficacy, participation, and neighboring at both the block and individual levels. It is not surprising that social attachments would be more closely related to SC than are place attachments. In light of all the evidence that place issues are critical to community participation and development (Manzo & Perkins, 2001), however, place attachment deserves further scrutiny in this context with a stronger measure than we had available

to us.

The following effects were significant ($p < .01$), but were less reliable (i.e., appearing at just one time-point). Higher block-mean community confidence related to higher individual perceptions of collective efficacy. Greater resident tenure, more children in the home, and age were associated with higher rates of participation in organizations. Neighboring behaviors decreased with age, but increased with education. The correlations with race suggest the possibility that nonwhite residents and blocks felt more collective efficacy at T1, which may have resulted in higher participation at T2. But the racial difference in efficacy was no longer significant at T2, which may imply a degree of disappointment or frustration with their organizations.

Collective efficacy has been shown in past research to be related to organizational participation, both as an effect (Schultz, Israel, Zimmerman, & Checkoway, 1995) and as a cause (Perkins, et al., 1996). Thus, policies encouraging collective efficacy will have a positive impact on behavioral dimensions of SC. In this study, individual perceptions of communitarianism, SOC, and confidence in the future of the block were strongly associated with increased collective efficacy. Living on a block with high average SOC and communitarianism was related to higher individual perceptions of collective efficacy. Although less reliable findings, collective efficacy was also shown to increase with higher block mean confidence in the future of the block, but decrease with individual education, length of residence, and the proportion of white residents living on the block. This may be due to longer-term, white, and more educated residents having more personal ties to power and thus not needing as much formal collective efficacy.

Like Rankin and Quane (2000), we also found a positive association between greater education and participation in grassroots organizations. However, where Rankin and Quane found no relation between participation and number of children, age, employment status or tenure in the neighborhood, we found that participation was greater among older, better off (i.e., higher income), more tenured residents, and those with more children. Our finding for age and participation is supported in another recent study (Prezza, et al., 2001). Also like Prezza, et al., we found that neighboring behavior increased with education and number of children in the household. Unlike Prezza, et al., we found no relation between neighboring behavior and sex. Controlling for other predictors, younger residents engaged in more neighboring which, coupled with the above age-participation link, suggests a possible developmental strategy for community organizing: facilitate neighboring among young families (e.g., semi-formalized baby-sitting co-ops), and later, as residents grow older and have more time, they may participate in more formal organizations.

There are some constraints on the generalizability of the present

findings. Comparisons between organized and non-organized blocks (not reported) suggest that there may be unique social processes occurring on the two types of blocks. The data are now 15 years old and social capital and political processes may have changed. There are some important cultural, political and economic differences between the neighborhoods selected for this study. It may be questionable, therefore, to draw conclusions about the entire sample (across all three neighborhoods) based on block and individual-level data. It would be even more questionable to infer anything about communities unlike those represented here. Some of the exceptional features of the sample include: (a) two out of three areas being low-income or working-class and minority yet with a large proportion of homeowners, (b) all neighborhoods experiencing increasing rates of reported crime while city-wide rates were holding steady or declining, and (c) a housing density and architectural style that is more crowded and "urban" than most suburban areas but less so than most of the rest of New York City or other large inner-city residential areas. The sample is not unique, however. Each of these characteristics describes the growing "inner ring" of poor and working-class neighborhoods that are surrounding the gentrifying city cores throughout the U.S. and other countries. The inhabitants of these ring neighborhoods have either moved up and out of poorer inner-city areas or have been forced out of neighborhoods with rapidly increasing housing costs.

Possibly the greatest concern with the present data is the relatively weak internal consistency of the predictor scales due to a combination of few items per scale and limited response options (dichotomous for many items). SOC's being most consistently related to the other SC dimensions may be partly due to its having the most items (thus more variance) and highest α. But given that its α is substantially higher than only block satisfaction, we doubt that is the only explanation. With better scales, the already impressive results would likely have been even stronger.

Puddifoot (1996) and others recommend the use of qualitative methods. Clearly, the ideal study combines both qualitative and quantitative methods. But as valuable as ethnographic data are, they have their own reliability and validity limitations, including the fact that they generally represent a small sample of individuals. New, truly community-level (not aggregated individual-level) measures of sense of community and other social capital constructs are needed (Shinn, 1990). They could be used in multilevel analyses and provide descriptive or comparative context in qualitative studies.

Our task was to search for more sharply defined and ecologically valid conceptual, psychometric, and analytical "needles" in the haystack of research and vague rhetoric on SC and SOC. We believe the dimensions and predictors, measures, and multi-level analyses used here, while not perfect, can only enhance the construct validity of SC and SOC. Both concepts clearly have individual and community-level (not to mention organizational)

properties. Multi-level analysis gives us a sense of *how much* each concept operates at the community, as well as individual, level and how they operate at different levels simultaneously. The fact that SOC was such a strong and consistent predictor at both levels suggests, not only that people with SOC are more likely to help their neighbors, to join a BA, and to be empowered by it, but that *blocks* with more SOC enjoy those same results even for residents who may not share that SOC, but who get involved for more selfish reasons. In future studies, we plan to use the other SC dimensions (collective efficacy, neighboring, and participation) and other community-focused cognitions, at the individual and block levels, to predict the BSCI and its subscales. We hope the needles we have identified will help researchers and community leaders and organizers knit tighter, more politically effective neighborhood social fabrics.

NOTES

[i] Collection of the data reported was funded by the Ford Foundation (Co-Principal Investigators: David Chavis, Paul Florin, Richard Rich, and Abe Wandersman). We thank Chavis, Adrian Fisher, David McMillan, and Chris Sonn for their comments on the study that developed the Brief Sense of Community Index (Perkins & Long, 2001) and Fisher and Jo Lippe for editorial assistance with this chapter.

[ii] A PsycINFO search of "sense of community" found 398 publications through November, 2001, starting with a 1930 article. Sarason's 1974 book was the 15th record and thus something of a watershed. The 398 do not include works referring to "social cohesion," "community spirit" or other near synonyms.

[iii] ISC is the degree to which residents spontaneously regulate everyday public behaviors and physical conditions within the bounds of their community. Although SOC and ISC are highly correlated at both the block (r = .65; Perkins, et al., 1990) and neighborhood (r = .80; Sampson et al., 1997) levels, other studies have generally treated them as separate constructs. There is also a methodological/conceptual problem with ISC in that it is often thought of as a behavior but typically measured as a cognition (e.g., prediction of how neighbors would act in hypothetical situations, e.g., youths painting graffiti). Clearly more work needs to be done measuring actual ISC behaviors and comparing them to perceived ISC. Given the high correlations between measures of SOC and ISC, Sampson may be justified in combining the two, but should perhaps add neighboring items and call it "informal collective efficacy."

[vi] The SCI is often incorrectly cited. It was developed in 1985 by Chavis and colleagues for use with the present dataset and published in the appendix of Perkins, et al. (1990). Although it was ostensibly based on McMillan and Chavis' (1986) theory, their four dimensions have not been found in the SCI factor structure in these and other data. Furthermore, McMillan had nothing to do with creating the SCI and has challenged its validity. Chavis, Hogge, McMillan, and Wandersman (1986) used a 46-item scale (including component scale items) called the Sense of Community Profile, which is much broader than the SCI and includes many other constructs, such as participation and neighboring behaviors, collective efficacy, community satisfaction, perceived block conditions, and even demographics, such as home ownership and length of residence.

[v] Each procedure began with an "unconditional" model indicating the amount of variance in the dependent variable due to differences in groups (blocks). In step two, demographic control variables (income, age, race, sex, education, children, home ownership, length of residence)

were added at the individual level. (Sex was not a significant predictor in any model.) In step three, all nonsignificant demographics were removed and the five cognitive predictors were added at both the block and individual (block-mean centered) levels. (Cognitive predictors at the individual level are each deviations from the mean of one's block so as to be independent of their block-level counterparts.) In multi-level analysis, degrees of freedom are more limited both within groups and across groups. Therefore, in step four, all remaining nonsignificant (block-level $p > .10$; individual-level $p > .05$) predictors were trimmed to produce the most parsimonious model (Bryk & Raudenbush, 1992). As this increases the risk of Type-I errors, each step-four model was compared with the corresponding step-three model and the correlations in Table 1. In step five, each remaining individual-level cognitive predictor was tested, one-by-one, for a significant random effect, which would indicate a cross-level interaction. First, block-level demographic variables were modeled in interaction with the significant random individual-level predictor. Second, all nonsignificant (at $p < .10$) interactional demographics were trimmed before modeling the five block-level cognitive predictors. Third, any nonsignificant block-level interactional predictors were trimmed from the model. Interpretation of cross-level interactions used a strategy exemplified by Watson, Chemers, and Preiser (2001) in which the relation between the individual-level interactional predictor and the outcome variable was compared differentially between high and low (one SD above and below the mean) status on the block-level interactional predictor.

REFERENCES

Ahlbrandt, R. S. (1984). *Neighborhoods, people and community*. New York: Plenum.

Beckman, P. J., Barnwell, D., Horn, E., Hanson, M. J., Gutierrez, S., & Lieber, J. (1998). Communities, families, and inclusion. *Early Childhood Research Quarterly, 13*, 125-150.

Briggs, X. S. (1998). Brown kids in white suburbs: Housing mobility and the many faces of social capital. *Housing Policy Debate, 9*, 177-221.

Brodsky, A. E., O'Campo, P. J., & Aronson, R. E. (1999). PSOC in community context: Multi-Level correlates of a measure of psychological sense of community in low-income, urban neighborhoods. *Journal of Community Psychology, 27*, 659-679.

Brown, B. B., & Perkins, D. D. (1992). Disruptions in place attachment. In I. Altman and S. Low (Eds.), *Place attachment* (pp. 279-304). New York: Plenum.

Brown, B. B., & Perkins, D. D. (2001). *Neighborhood revitalization and disorder: An intervention evaluation*. Final Report to the National Institute of Justice. Salt Lake City: University of Utah.

Brown, B. B., & Werner, C. M. (1985). Social cohesiveness, territoriality, and holiday decorations: The influence of cul-de-sacs. *Environment and Behavior, 17,* 539-565.

Bryk, A. S., & Raudenbusch, S. W. (1992). *Hierarchical linear models: Applications and data analysis methods.* Newbury Park, CA: Sage.

Buckner, J. C. (1988). The development of an instrument to measure neighborhood cohesion. *American Journal of Community Psychology, 16*, 771-791.

Chavis, D. M., Florin, P., Rich, R. C., Wandersman, A., & Perkins, D. D. (1987). *The role of block associations in crime control and community development: The Block Booster Project.* (Final Report to Ford Foundation). New York: Citizens Committee for New York City.

Chavis, D. M., Hogge, J., McMillan, D., & Wandersman, A. (1986). Sense of community through Brunswik's Lens. *Journal of Community Psychology, 14,* 24-40.

Chavis, D. M., & Wandersman, A. (1990). Sense of community in the urban environment: A catalyst for participation and community development. *American Journal of Community Psychology, 18,* 55-82.

Chipuer, H. M., & Pretty, G. M. H. (1999). A review of the sense of community index:

Current uses, factor structure, reliability, and further development. *Journal of Community Psychology, 27,* 643-658.

Coleman, J. S. (1988). Social capital in the creation of human capital. *American Journal of Sociology, 94,* S95-S120.

Cuba, L., & Hummon, D. M. (1993). A place to call home: Identification with dwelling, community, and region. *Sociological Quarterly, 34,* 111-131.

Etzioni, A. (1993). *Spirit of community: Rights, responsibilities, and the communitarian agenda.* New York: Crown.

Fisher, A. T., & Sonn, C. C. (1999). Aspiration to community: Community responses to rejection. *Journal of Community Psychology, 27,* 715-725.

Florin, P., & Wandersman, A. (1984). Cognitive social learning and participation in community development. *American Journal of Community Psychology, 12,* 689-708.

Garcia, I., Giuliani, F., & Wiesenfeld, E. (1999). Community and sense of community: The case of an urban barrio in Caracas. *Journal of Community Psychology, 27*, 727-740.

Hughey, J., Speer, P. W., & Peterson, N. A. (1999). Sense of community in community organizations: Structure and evidence of validity. *Journal of Community Psychology, 27,* 97-113.

Hyde, M. M. (1998). *Local sentiments in urban neighborhoods: Multilevel models of sense of community and attachment to place.* Unpublished Doctoral Dissertation. University of Maryland-Baltimore County.

Hyman, H., & Wright, C. (1971). Trends in voluntary association memberships of American adults: Replication based on secondary analysis of national sample surveys. *American Sociological Review, 36*, 191-206.

Itzhaky, H., & York, A. S. (2000). Sociopolitical control and empowerment: An extended replication. *Journal of Community Psychology, 28,* 407-415.

Kenny, D. A., & Lavoie, L. (1985). Separating individual and group effects. *Journal of Personality and Social Psychology, 48*, 339-348.

Kingston, S., Mitchell, R., Florin, P., & Stevenson, J. (1999). Sense of community in neighborhoods as a multi-level construct. *Journal of Community Psychology, 27,* 681-694.

Kretzmann, J. P., & McKnight, J. L. (1993). *Building communities from the inside out: A path toward finding and mobilizing a community's assets*. Chicago: ACTA.

Li, C. (1998). The contribution of common land to sense of community. In J. Sanford & B. R. Connell (Eds.), *People, places and public policy*. (pp. 57-70). Edmond, OK: Environmental Design Research Association.

Manzo, L. C., & Perkins, D. D. (2001, July). *Neighborhoods as common ground: The importance of place attachment to community participation and development*. Paper presented to the Environmental Design Research Association, Edinburgh, Scotland.

McMillan, D. W., & Chavis, D. M. (1986). Sense of community: A definition and theory. *Journal of Community Psychology, 14,* 6-23.

Nasar, J. L. & Julian, D. A. (1995). The psychological sense of community in the neighborhood. *Journal of the American Planning Association, 61,* 178-184.

Perkins, D. D. (1995). Speaking truth to power: Empowerment ideology as social intervention and policy. *American Journal of Community Psychology, 23*, 765-794.

Perkins, D. D., Brown, B. B., & Taylor, R. B. (1996). The ecology of empowerment: Predicting participation in community organizations. *Journal of Social Issues, 52,* 85-110.

Perkins, D. D., Florin, P., Rich, R. C., Wandersman, A., & Chavis, D. M. (1990). Participation and the social and physical environment of residential blocks: Crime and community context. *American Journal of Community Psychology, 18,* 83-115.

Perkins, D. D. & Long, D. A. (2001). *Neighborhood sense of community and social capital: "All the things you are."* Paper presented at the Biennial Conference on Community Research & Action, Atlanta, June.

Perkins, D. D., Wandersman, A., Rich, R. C., & Taylor, R. B. (1993). The physical environment of street crime: Defensible space, territoriality and incivilities. *Journal of Environmental Psychology, 13,* 29-49.

Plas, J. M., & Lewis, S. E. (1996). Environmental factors and sense of community in a planned town. *American Journal of Community Psychology, 24,* 109-143.

Podolefsky, A. (1983). *Case studies in community crime prevention.* Springfield, IL: Thomas.

Pretty, G. (1990). Relating psychological sense of community to social climate characteristics. *Journal of Community Psychology, 18*, 16-65.

Pretty, G. M. H., Conroy, C., Dugay, J., Fowler, K., & Williams, D. (1996). Sense of community and its relevance to adolescents of all ages. *Journal of Community Psychology, 24,* 365-379.

Prezza, M., Amici, M., Roberti, T., & Tedeschi, G. (2001). Sense of community referred to the whole town: Its relations with neighboring, loneliness, life satisfaction, and area of residence. *Journal of Community Psychology, 29,* 29-52.

Puddifoot, J.E. (1996). Some initial considerations in the measurement of community identity. *Journal of Community Psychology, 24,* 327-336

Putnam, R.D. (2000). *Bowling alone: The collapse and revival of American community.* New York: Simon & Schuster.

Rankin, B. H., & Quane, J. M. (2000). Neighborhood poverty and the social isolation of inner-city African American families. *Social Forces, 79,* 139-164.

Saegert, S. (1989). Unlikely leaders, extreme circumstances: Older Black women building community households. *American Journal of Community Psychology, 17*, 295-316.

Saegert, S., & Winkel, G. (1996). Paths to community empowerment: Organizing at home. *American Journal of Community Psychology, 24,* 517-550.

Saegert, S., & Winkel, G. (1998). Social capital and the revitalization of New York City's distressed inner city housing. *Housing Policy Debate, 9,* 17-60.

Sampson, R.J. (1991). Linking the micro- and macrolevel dimensions of community social organization. *Social Forces, 70,* 43-64.

Sampson, R. J., Raudenbush, S. W., & Earls, F. (1997). Neighborhoods and violent crime: A multilevel study of collective efficacy. *Science, 277,* 918-926.

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

Schultz, A. J., Israel, B. A., Zimmerman, M. A., & Checkoway, B. N. (1995). Empowerment as a multi-level construct: Perceived control at the individual, organizational and community levels. *Health Education Research: Theory & Practice, 10,* 309-327.

Shinn, M. (1990). Mixing and matching: Levels of conceptualization, measurement, and statistical analysis in community research. In P. Tolan, C. Keys, F. Chertok, & L. Jason (Eds.), *Researching community psychology: Integrating theories and methods* (pp. 111-126). Washington, DC: American Psychological Association.

Sonn, C. C., & Fisher, A. T. (1998). Sense of community: Community resilient responses to oppression and change. *Journal of Community Psychology, 26,* 457-472.

Speer, P. W. (2000). Intrapersonal and interactional empowerment: Implications for theory. *Journal of Community Psychology, 28*, 51-61.

Speer, P. W., & Hughey, J. (1995). Community organizing: An ecological route to empowerment and power. *American Journal of Community Psychology, 23,* 729-748.

Theodori, G. L. (2000). Levels of analysis and conceptual clarification in community attachment and satisfaction research: Connections to community development. *Journal of the Community Development Society, 31,* 35-58.

Tocqueville, A. de (1935/1969). *Democracy in America*. (G. Lawrence, Trans.; J.P. Mayer, Ed.). New York: Doubleday.

Unger, D. G., & Wandersman, A. (1983). Neighboring and its role in block organizations. *American Journal of Community Psychology, 11*, 291-300.

Unger, D. G., & Wandersman, A. (1985). The importance of neighbors: The social, cognitive,

and affective components of neighboring. *American Journal of Community Psychology, 13,* 139-170.

Varady, D. P. (1986). Neighborhood confidence: A critical factor in neighborhood revitalization? *Environment and Behavior, 18,* 480-501.

Vinsel, A., Brown, B. B., Altman, I., & Foss, C. (1980). Privacy regulation, territorial displays, and the effectiveness of individual functioning. *Journal of Personality and Social Psychology, 39*, 1104-1115.

Wandersman, A., & Giamartino, G. A. (1980). Community and individual difference characteristics as influences on initial participation. *American Journal of Community Psychology, 8,* 217-228.

Watson, C. B., Chemers, M. M., & Preiser, N. (2001). Collective efficacy: A multilevel analysis. *Personality and Social Psychology Bulletin, 27,* 1057-1068.

Zhao, L. (1996). *Community attachment in rural Iowa: Multilevel test of a theoretical model with intervening variables.* Unpublished doctoral dissertation, Iowa State University.

APPENDIX A: Social Capital Survey Scales

Brief Sense of Community Index (overall scale α Time 1 (T1) = .65, n = 713; α Time 2 (T2) = .74, n = 422):
Social Connections Subscale (α = .55 (T1), .50 (T2)):
Instructions for items 1-5: "I am going to read some things that people might say about their block. For each one, please indicate whether it is mostly true or mostly false about your block" (coded 1 = "false", 2 = "true"; Note: Likert scale recommended for future research).

1. Very few of my neighbors know me. (Reverse)
2. I have almost no influence over what this block is like. (Reverse)
3. I can recognize most of the people who live on my block.

Mutual Concern Subscale (α = .50 (T1), .64 (T2)):

4. My neighbors and I want the same things from the block.
5. If there is a problem on this block people who live here can get it solved.
6. In general, would you say that people on your block watch after each other and help out when they can, or do they pretty much go their own way? (coded 1 = "go own way", 2 = "a little of both", 3 = "watch after")

Community Values Subscale (Face-valid SOC; α = .51 (T1), .61 (T2):

7. Would you say that it is very important, somewhat important or not important to you to feel a sense of community with the people on your block? (coded 1= "not", 2= "somewhat ", 3= "very")
8. Some people say they feel like they have a sense of community with the people on their block; others don't feel that way. How about you; would you say that you feel a strong sense of community with others on your block, very little sense of community or something in between? (coded 1 = "very little", 2 = "in between", 3 = "strong")

Collective Efficacy Scale (α (T1) = .82, n = 918; α (T2) = .82, n = 270):
"The following are things a block association might try to do. For each one, indicate whether you think it is very likely, somewhat likely, or not likely that the association on your block can accomplish that goal" (coded 1 = "not likely" to 3 = "very likely").

1. Improve physical conditions on the block like cleanliness or housing upkeep.
2. Persuade the city to provide better services to people on the block.
3. Get people on the block to help each other more.
4. Reduce crime on the block.
5. Get people who live on the block to know each other better.
6. Get information to residents about where to go for services they need.

Citizen Participation Scale (α (T1) = .78, n = 384; α (T2) = .80, n = 184):

1. Are you currently a member of the block association?

2. Have you ever taken part in an activity sponsored by the block association?
3. Thinking about work you might do for the block association outside of meetings, how many hours would you say you give to the association each month, if any?

"We would like to know what kinds of things people have done in the association. In the past year have you:"

4. Attended a meeting,
5. Spoken up during a meeting,
6. Done work for the organization outside of meetings,
7. Served as a member of a committee,
8. Served as an officer or as a committee chair?

Note: Each item was coded 1 for participation and 0 for no participation (#3 was recoded to match this scale, from 0 = "none" to 1 = "8 or more hours").

Neighboring Behavior Scale (α (T1) = .78, n = 1,037; α (T2) = .77, n = 615):

"The following is a short list of things neighbors might do for each other. Please indicate how many times in the past year, you have been asked to do each one for a neighbor on this block" (coded 0 = "none", 1-7 = "exact number", and 8 = "eight or more").

1. Watch a neighbor's home while they were away.
2. Loan a neighbor some food or a tool.
3. Help a neighbor in an emergency.
4. Offer a neighbor advice on a personal problem.
5. Discuss a problem on the block with a neighbor.