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Fear and Misperception of Los Angeles Urban Space

A Spatial-Statistical Study of Communication-Shaped Mental Maps

Imagining urban space as being comfortable or fearful is studied as an effect of people's connections to their residential area communication infrastructure. Geographic Information System (GIS) modeling and spatial-statistical methods are used to process 215 mental maps obtained from respondents to a multilingual survey of seven ethnically marked residential communities of Los Angeles. Spatial-statistical analyses reveal that fear perceptions of Los Angeles urban space are not associated with commonly expected causes of fear, such as high crime victimization likelihood. The main source of discomfort seems to be presence of non-White and non-Asian populations. Respondents more strongly connected to television and interpersonal communication channels are relatively more fearful of these populations than those less strongly connected. Theoretical, methodological, and community-building policy implications are discussed.

Mass communication research on the construction of ethnicity and race (Dixon & Linz, 2000; Entman, 1992; Turk, Richstad, Bryson, & Johnson, 1989) or on the ideological role played by media in constructing social fear (Gerbner, Gross, Morgan, & Signorielli, 1994) are two important

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This article is part of an ongoing research project, Metamorphosis, conducted under the auspices of the Communication Technology and Community Program at the Annenberg School for Communication. The project is funded by the Annenberg School and Annenberg Center for Communication at the University of Southern California. Sandra J. Ball-Rokeach is the director and principal investigator of the program. The authors would like to thank Christopher Williamson, John Wilson, and Robert Figlio for their advice and critical comments, and Miguel Drayton for technical assistance.

COMMUNICATION RESEARCH, Vol. 28 No. 4, August 2001 429-463

contributions to the communication discipline. Yet, similar to studies conducted by sociologists and criminologists (Antunes, Cook, & Skogan, 1977; Baumer, 1979; Clarke & Lewis, 1982; DeFrances & Smith, 1998; Ferraro, 1995; Garofalo, 1979; Myers & Chung, 1998; Stafford & Galle, 1984), their object of study is specified in terms of social groups separated from the geographic spaces they inhabit. This leaves uncovered the issue of how fear is built around specific communities interacting through communication channels in a given social space, such as an urban area.

The present study reveals how fear is constructed in the Los Angeles core urban space and how communication processes organized in a communication infrastructure shape fear in and of ethnically diverse residential communities. Our study takes the view that place-based social groups are central in maintaining a viable social fabric. This perspective springs from a more general concern with community in late-modern urban spaces (Abu-Lughod, 1999; Anderson, 1991; Dear, Schockman, & Hise, 1996; Ethington, 2000; Fulton, 1997; Garcia, 1985; Heer & Herman, 1990; Hise, 1997; Matei, 2000; Myers & Chung, 1998; Rieff, 1991; Sabagh, 1993; Turner & Allen, 1990; Waldinger & Bozorgmehr, 1996). Residential places are where we most sensually experience the conditions of everyday life. The viability of these areas is maintained by a number of social and physical characteristics: economic, social, political, cultural, and communicative. The communicative aspect of the urban infrastructure and its psychological facets are the issues we are most concerned with in this article.

A communication infrastructure is a storytelling system set in its communication action context. Our concept of communication infrastructure builds on the assumptions of media system dependency theory (Ball-Rokeach, 1985), and goes beyond it to more inclusive consideration of the interplay between interpersonal and mediated storytelling systems and their contexts. A communication infrastructure includes two basic components—the communication action context and the multilevel storytelling system. The first element includes the physical, psychological, sociocultural, economic, and technological dimensions of everyday social interactions. For example, physical features include how an area is laid out (e.g., streets and freeways) and the relative presence of communication incipient places or places that bring people together (e.g., parks, quality grocery stores, movie theaters, or libraries). Psychological features concern whether people feel free to engage one another, such as their level of fear or comfort. Sociocultural features include the degree of class, ethnic, and cultural similarity, and inclinations toward individualism or collectivism. Economic features of the communication action context include the time and resources available to engage in everyday

conversation. Finally, technological features include access to communication technologies (e.g., Internet connections).

The storytelling system includes storytelling agents organized at three levels: macro-, meso-, and micro-social. At the macro level are situated large media, political, religious, and other central institutions or organizations that have storytelling production and dissemination resources (e.g., mainstream media and agencies or corporations with public information/relations capacities). At the intermediate or meso level are the smaller and more locally based organizations, whose primary goals concern one or another form of linkage in a particular residential area. These include community media and community organizations targeted to residents. Interpersonal networks constitute the third, micro tier of the storytelling system.

Large-scale social aggregates, and especially those organized as urban communities without propinquity (Webber, 1963), need to tell stories about themselves if they are to emerge as distinct social entities—in Anderson's terms (1991), they need to imagine themselves as communities. The kinds of stories told about an urban/residential area will be incorporated in the way in which people imagine themselves as a community—that is, they will become part of their communicative context. Perception of one's immediately surrounding residential environment is directly affected by the communication infrastructure.

This perception is encapsulated in mental images and maps that often tell residents what areas of the social space in which they live should be avoided or frequented—are friendly or not to neighborly discourse. These maps and perceptions are the product of social interaction, which develops within the storytelling communicative infrastructure. The quality of the exchanges and the linkages between storytelling system components directly reflect on the perception of space. Because communication infrastructures also have, in our view, a central role in enhancing or detracting from collective action and belonging, the social-spatial perceptions they generate will have an equally important effect on the larger economic and social viability of urban areas.

A distinctive characteristic of our approach is the attempt to directly capture the relationship between media and communicative construction of social space. To achieve this, we envision neighborhoods as loci of a complex process of storytelling, including multiple storytellers situated at multiple levels of analysis: individual, ethnic group, and geographic community.

Our communication infrastructure research framework builds on a number of other communication traditions: cultivation (Gerbner et al., 1994; Gerbner, Gross, Morgan, & Signorielli, 1980; Hawkins & Pingree, 1983), agenda setting (Iyengar & Kinder, 1987; McCombs & Shaw, 1972), and the

two-step flow of communication (Katz, 1957; Katz & Lazarsfeld, 1965; Robinson, 1976; Wyatt, Katz, & Kim, 2000). Although cultivation analyses of how mediated stories can inculcate fear and agenda-setting studies of the connections between media and interpersonal agendas both have relevance for this research, an even more relevant theory and research tradition follows from the classical premise that media stories can focus the subject of interpersonal conversations. The most recent incarnation of this tradition is found in the work of Wyatt et al. (2000), who study the media's role in shaping political discourse, building on the classical notions of Gabriel Tarde. Applied to present concerns, we expect to find that one or more media storytellers (e.g., mainstream media) initiates a process of coding some residential areas as safe and others as unsafe, a process that is carried forward through interpersonal conversation.

Due to our more general theoretical concern of understanding how the communication infrastructures of urban residential areas operate to enable or constrain the sense and reality of community, we are particularly sensitive to the interplay of storytelling across macro, meso, and micro levels of analysis. This feature of the approach is discussed in Ball-Rokeach, Kim, and Matei (2001 [this issue]). For present purposes, suffice it to say that we assume that people talking to people about their environs is a necessary element in the construction of fear or comfort. The classical notion that media perform a surveillance function (Lasswell, 1948) is especially germane when considering the impetus for residents of urban areas to construct area-specific images along the dimension of fear to comfort. Surveillance, however, is not likely to be limited to a media function; rather, the concrete salience of having mental maps to guide everyday movements around the urban environment should motivate personal investment in surveillance through interpersonal storytelling. If people discuss political topics in their home and work environments, as suggested by the research of Wyatt et al. (2000), then it is even more likely that they would be motivated to tell stories with family, friends, and coworkers about the safety of their physical and social worlds. Some of these stories may be precipitated by direct experience with danger, whereas others are likely to be precipitated by mediated stories of danger.

In a related study we have developed and tested, using structural equation modeling, a communication infrastructure model of belonging (Ball-Rokeach et al., 2001). The model was successful in predicting belonging to residential neighborhoods. The storytelling agents included in the model were community media, mainstream media, local organization membership, and interpersonal networks. We use two findings of that study to explore how social fear is built into the fabric of the urban experience: First, interpersonal

communication (storytelling) about the neighborhood is a nodal link in the communicative mechanisms that construct community, and second, connection to mainstream media (commercial radio, television, or newspapers) is generally indifferent or even detrimental to community belonging or community participation.

Due to the complexity inherent in manipulating spatial data (see Method section and the appendix for details), we cannot analyze the maps and comfort variables in the same manner, that is, by testing a multivariate model. We propose, however, a reduced model, which is used to determine whether the interaction between different types of communication connectedness enhances fear of other ethnicities more than the singular effect of any single connection. Based on previous literature, we chose to look at the interaction between television and interpersonal communication. This choice allows us to explore in a new way the fear-enhancing effects of commercial television so amply documented in the literature (Shanahan & Jones, 1999). This is also put in the context of our related findings (reported above) that mainstream (commercial) media seems to be disconnected from the workings of civil society as it takes place in residential areas.

Adding interpersonal communication to the equation was informed by our own findings that interpersonal communication is central in the communicative lives of our study areas and by the equally strong tradition in communication research, which emphasizes the mutually reinforcing relationship between interpersonal and mass mediated communication (Katz, 1957; Pingree, Wiemann, & Hawkins, 1988; Wyatt et al., 2000).

While the communication infrastructure approach informs the theoretical vision of this study, its methodological tools draw on cultural and psychological geography and on the recent advances in computerized representation and analysis of geographic space. Substantial work has been done over the past 40 years on mental and perceptual maps (Carter, 1979; Downs & Stea, 1973, 1977; Egenhofer & Golledge, 1998; Golledge, 1999; Golledge & Moore, 1976; Golledge & Rushton, 1976; Golledge & Stimson, 1997; Golledge & Timmermans, 1988; Goodchild, 1999; King & Golledge, 1978; Kitchin, 1997; Lynch, 1960; Murphy & Golledge, 1972). However, these studies usually account for the images people use to orient themselves in space in terms of individual-level or personal characteristics. For example, Carter's (1979) study of the criminal's image of the city, which uses personal construct theory (Kelly, 1955), proposes that perceptual maps are the result of a simple process of instrumental behavior. As such, maps are treated as mental abstractions that organize space only in terms of spatial orientation. The

cultural-affective aspects of mental mapping and spatial information processing are less emphasized.

Along with Lynch (1960), we regard geographic perception as a personal and cultural construct. Geographic images are determined not just by instrumental-personal orientation goals, but they also carry cultural meaning in a discursive community. Thus, mental maps are better seen as reflections of the collective imagination, precipitated by the communication infrastructure.

Research Questions

Starting from the premise that imagining social spaces is influenced by the nature of people's connectedness to the communication infrastructure of the area in which they live, we also assume that the biases present in the communication infrastructure will be stronger than the biases in each medium taken separately.

Yet, before getting to this level of abstraction, one needs to address several basic things, such as: In what areas do residents of Los Angeles fear or feel comfortable being in? and How accurate are these perceptions, relative to presence of presumptive generators of fear, such as crime or social instability?

If perceptions are determined to be inaccurate (i.e., fear is not associated with crime or social instability), we can then proceed by asking, How does people's participation in various media/communication infrastructures influence their misperception of Los Angeles urban space? Thus, our study adopts a two-step strategy, starting with (a) determining presence and degree of misperception of urban space, followed by (b) assessing the role of communication infrastructure in creating this distortion.

Spatial Fear: Perceptions and Reality

We start by asking if fear is or is not associated with one of the justified reasons of concern in urban areas: crime. Various methods have been employed to study the formation of fear of crime (Antunes et al., 1977; Baumer, 1979; Clarke & Lewis, 1982; DeFrances & Smith, 1998; Ferraro, 1995; Garofalo, 1979; Liska & Bellair, 1995; Myers & Chung, 1998; Stafford & Galle, 1984). The usual result of these studies is that people rarely correctly perceive their own risk of being victims of crime. Yet the referent of fear is usually specified in terms of social groups separated from their neighborhoods. When studies are concerned with specific geographic areas, such as in Liska and Bellair's work (1995), attention is paid mainly to how crime reshapes the sociodemographic makeup of residential areas, not on how these areas are perceived under the impact of criminal activity. Thus, our first question asks

what the relationship between crime and perception of fear is as it relates to urban space:

Research Question 1: Is likelihood of crime victimization correctly represented in people's geographic mental maps?

Because we know that, in fact, crime is misperceived in the context of intergroup relations, we expect that this effect will be replicated with respect to social space: Areas most feared are not necessarily those with the highest levels of crime.

Crime is only one of the possible factors generative of fear. Social disorder, manifested as population instability, incivility, or dereliction, can be factors as potent as crime in generating fear (Sampson & Raudenbush, 1999; Wilson & Kelling, 1982). To complete the exploratory part of the study, we considered a number of other area characteristics that take into account the fact that fear might be justified by assessment of social and economic viability of an area. Thus, we also ask:

Research Question 2: Are social indicators of area desirability associated with fear?

Although we expect that these indicators (e.g., decline in real estate value or population instability) are moderately or even modestly associated with fear, we also suspect that they do not account for the shape and distribution of fear areas. Given the violent history of interethnic relations in Los Angeles, including two major episodes of civic disturbance in the past 40 years, we believe that ethnic and racial indicators of neighborhood composition can better explain why people fear/feel uncomfortable about certain areas of the city while feeling comfortable in others. Although immediately intuitive, introducing the issue in our study is not superfluous. We need to pinpoint the most likely cause of misperceptions to explore the way in which they are constructed in the process of communication.

The issue of ethnicity in Los Angeles is a complex one, closely connected to that of immigration. Although we look at relative proportion of new to old immigrants as a possible factor inducing discomfort and fear, we have reason to believe that fear is color-coded (R. L. Allen & Hatchett, 1986; Doob & MacDonald, 1979; Entman, 1992). Areas with dark-skin populations (Black or Latino) are the most likely to elicit fear. Our summary research question asks:

Research Question 3: Are comfort and fear color-coded?

Fear and the Communication Infrastructure

The second cluster of research questions explores the communicative construction of fear. Interethnic fear is not purely an issue of personal prejudice. As the literature seems to suggest, fear is socially constructed in and through the media (R. L. Allen & Hatchett, 1986; Doob & MacDonald, 1979; Entman, 1992; Glassner, 1999). For example, television is a form of communication that is often presented as an atomizer of social formations, reifying human relationships into stereotypes and promoting violence (Gerbner et al., 1994; Signorielli & Morgan, 1990). One would expect that those who have strong connections to television would be more likely to have distorted mental maps along ethnic lines than weak television connectors. We take this proposition one step further, believing that fear and comfort are given not in a single medium (i.e., television) but in its insertion in the communication infrastructure of a community.

Research Question 4: Does the communication infrastructure, as a system, have a stronger influence on mental maps than its communication connection components taken separately?

In trying to understand the way in which the communication infrastructure mediates fear, we need a term of comparison: that of personal experience. If communication processes have the tendency to distort our perception according to their biases, is immediate experience more apt to redress misperception?

Research Question 5: Is direct experience with the areas inhabited by the ethnicities most feared a deterrent of fear in mental maps?

Finally, being anchored in one's community might lead to a more balanced perception. Stronger belonging to local community goes with longer residential tenure and lived experience in the city. These factors, then, should lead to increased feelings of comfort in the urban environment. Yet, we know little about the effect of belonging on intergroup relationships and on fear. The last research question thus asks:

Research Question 6: What is the relationship between belonging to a residential community and fear of areas inhabited by ethnicities other than one's own?

Method

Data Collection

The study relies on 215 comfort maps of the southern third of Los Angeles county colored by research participants using four crayons to indicate the residential communities they feel comfortable about or fear. The maps were collected from respondents to a survey of seven ethnically marked residential areas in Los Angeles county (see Figure 1): (a) South Pasadena, Caucasian origin (largely Protestant); (b) Westside, Caucasian origin (including a significant Jewish component); (c) East Los Angeles, Mexican origin; (d) Koreatown, Korean origin; (e) Pico-Union, Central American origin (mainly Salvadoran and Guatemalan); (f) Greater Crenshaw, African American; and (g) Greater Monterey Park, Chinese origin (Mainland, Hong Kong, Taiwan).[1]

The ethnic groups inhabiting these areas represent 90% of the county population. A methodology combining random digit dialing and focused geographical sampling offered access to between 250 to 320 households in each area, for a total of 1,812 households (for details, see Matei, Ball-Rokeach, Wilson, Gibbs, & Gutierrez Hoyt, in press). Between 31 and 39 respondents from six of the seven areas surveyed (N = 215), selected on the criterion of high involvement in community affairs,[2] were invited to participate in a second phase of the study. Of the respondents, 39% (n = 83) took part in a series of focus groups during which they colored in comfort maps of Los Angeles County and of their neighborhoods. The remainder (61%, n = 132) was contacted postinterview by phone and, if they agreed to participate (cooperation rate = 71%), they received a mail version of the same materials employed in the focus groups. The mapmaker subsample is almost identical in terms of sociodemographic characteristics to the total sample (see Table 1).

A black-and-white map, colored markers, and a self-addressed return envelope, together with instructions identical to those employed in the focus groups, were mailed out. The instructions specified that they should color:

1. In black: their neighborhood area.
2. In green: the areas where they feel comfortable.
3. In orange: the areas they feel somewhat but not completely comfortable.
4. In red: the areas where they feel uncomfortable (or they fear).
5. In blue: the areas they do not know (areas left blank were assumed to be unknown and were assigned the color blue).

Figure 1. Metamorphosis Study Areas Reference Map in Los Angeles County (external black outline indicates area mapped by respondents)

The paper-and-pencil maps were subsequently transformed into computer graphics using ArcView, a Geographic Information System (GIS) software package that allows manipulation and analysis of maps. ArcView stores maps as identical pixel (square cell) grids; that is, each map becomes a mosaic, divided into a similar number of cells of the same size. Each pixel (square cell on the map) is assigned a numeric value according to the color indicated by the respondent for that area: –1 for red, 0 for blue, 1 for orange, and 2 for green. Thus, maps become numeric matrices. They can be manipulated algebraically using arithmetic operations. We can therefore obtain group mental snapshots by combining (averaging) individual maps selected

Table 1
Sociodemographic Characteristics of the Study Samples

Study Samples	All Samples (N = 1,812)	Mapmakers (N = 215)
Household income (%)		
$35,000 or less	52	54
$75,000 or more	18	19
M = $27,500		
Level of education (%)		
High school or less	20	21
College or more	40	40
Median age (years)	43	43
Female (%)	60	61
Years in neighborhood (%)		
Less than 3	22	22
More than 10	50	50
Years in Los Angeles (%)		
Less than 3	7	8
More than 10	74	74
First-generation immigrants (%)	32	34
Own home (%)	39	39

according to ethnic background, media connectedness, travel experience, or interpersonal contact (see the appendix for a full description of GIS methodology).

First, we produced a composite map for all respondents (see Figure 2). Then we generated two pairs of maps for two types of individual media connectedness:[3] television and interpersonal communication. Each pair included a map for weak and another for strong connectors to the respective medium. Two other maps were generated from the mental images of those who strongly or weakly connect to a nodal point of the communication infrastructure, the intersection between television and interpersonal communication. That is, a map was generated for those who connect to television and interpersonal communication and one for those who connect to neither of the two channels of communication—for example, this means that when given a variety of ways of communicating to monitor their environments, respondents did not select either television or interpersonal communication as their first or second choice.

Also, maps were generated from respondents who avoid or travel to two areas (Boyle Heights and South Central) predominantly inhabited by the populations most feared (Hispanics and African Americans), for a total of four maps. Finally, one map was created for respondents who have high and

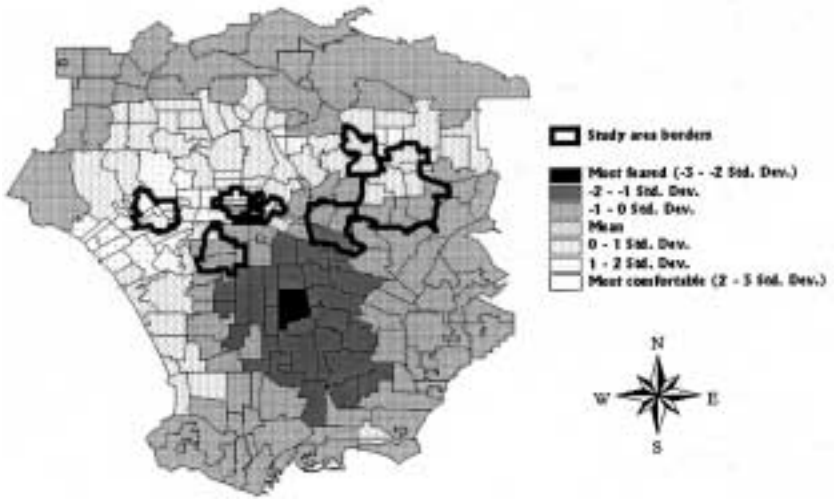

Figure 2. Los Angeles County: Fear (dark) and Comfort (light) Areas at Zip Code Level of Geography (all respondents)

one map for respondents who have low or medium levels of community belonging. For details about belonging, see the appendix.[4]

General Research Strategy

At the core of our analysis are the group (combined) comfort/fear maps representing the affective images of urban space of each group of people. Following our two-step research strategy, our objective is to examine whether the mental images of urban space are justified by sociodemographic realities and then to determine the contribution of the communication infrastructure to identified distortions. This is explored through a series of multivariate spatial regressions, where the cases are geographic units (zip code areas). The dependent variables are the zip code level comfort scores derived from composite (group-level) mental maps. The independent variables are area characteristics including sociodemographics, crime victimization likelihood, and housing desirability.

The central interest of this article is to reveal how connections to the communication infrastructure influence these images. Due to the way in which we have collected our communication data (at respondent rather than area level of analysis), this cannot be directly introduced as an independent variable. Rather, level of communication connectedness is built into the

dependent variables. That is, we divided our 215 respondents into subgroups based on their media-specific level of communication connectedness (weak vs. strong—see the appendix for definition). For comparison purposes, for each subgroup we generated a pair of comfort maps, one for the people who connect strongly to the communication medium and one for those who connect weakly to it.

The communication connectedness effect on fear/comfort is measured by assessing the multivariate effect of each area characteristic on the communication-inflected comfort maps. We ran multiple spatial regressions, using the comfort scores for each type of map as dependent variables. These effects, displayed in the tables as percentage change[5] in beta value, were then assessed for statistical significance using the *t* test for matched pairs (Spence, Cotton, Underwood, & Duncan, 1992).

Dependent Variables

All Los Angeles zip code areas included in the study were assigned a number of comfort scores. These were obtained by averaging the comfort values within each zip code area for each type of media connectedness, travel pattern, or belonging-level map. Thus, each zip code area was assigned multiple comfort values, one for each type of map. These comfort scores were used as dependent variables in the multiple regression models generated for exploring the research questions.

Independent Variables

Population variables. The main population variables were obtained from the U.S. 1990 Census (http://www.census.gov).[6] To control for the independent effect of presence of specific ethnic populations on levels of comfort, we include in all models the percentages of White, Asian, Black, and Hispanic population. In addition, the models include ethnic diversity index scores, obtained using Shannon's formula (White, 1986):

$$H \sum_{K\ 1}^{K} Pk \log Pk,$$

where $Pk = Nk/N$, Nk = number of persons in kth group, and N = total population size.

The groups used for quantifying diversity are Hispanic, non-Hispanic White, non-Hispanic Black, and non-Hispanic Asian population. The index

scores take low values when an area is dominated by one group and high values when the groups are relatively equal in size (Turner & Allan, 1989; White, 1986). Percentage of population foreign-born served as a measure of immigrant population density in each zip code area. Population stability is the percentage of each zip code area's population that has lived in the same house for more than 5 years at the time of the 1990 Census.

Crime victimization likelihood index. Index scores for each zip code area were downloaded from the APBnews Web site (http://www.apbnews.com). They are produced by CAP Index, Inc., a firm specializing in crime prediction reports (http://www.capindex.com). Based on Robert Figlio's work, the index represents the likelihood of violent crime victimization (homicide, rape, and robbery) compared with the national average in 1999 (Figlio, 1991a, 1991b; Figlio & Somerson, 1990). The score is standardized into a scale ranging from 1 to 10, with 1 representing the lowest and 10 the highest level of victimization likelihood.[7] According to Figlio (personal communication, September 6, 2000), preliminary studies in urban areas seem to confirm the predictive model, the correlation between real crime occurrence and predicted values producing multiple R-squares in the 0.7 to 0.8 range.

Although alternative sources for crime data were considered, such as the Federal Bureau of Investigation (FBI) crime index or Los Angeles Police Department reports, these could not be directly used in our study due to their geographic resolution. The FBI data are available only at city level, and the Los Angeles Police Department does not release crime data at levels of detail smaller than reporting districts, which include 10s of zip code areas. CAP Index data have the advantage of being at zip code area level, similarly to the demographics data set employed by the present study. However, to check the validity of the CAP Index against the FBI Crime Index, we ran a simple correlation and a spatial regression between the FBI and the CAP indices.[8] The correlation is moderate and positive ($r = .32$, $p < .05$) and the standardized value of the spatial regression coefficient is also positive ($B = .2$, $p < .01$), although weaker.

Housing desirability. Each year in January, *The Los Angeles Times* publishes a metropolitan Los Angeles zip code area list containing the number of homes sold and median unit sale price (Tamaki, 1999; "Winners and Losers," 1998). The variable used in the models indicates increase or decrease of median price between 1997 and 1998, being a measure of housing desirability in a specific zip code area.

Analysis

Data transformations and methodological concerns. To produce standardized beta values, all variables—dependent and independent—were transformed into *z* scores. The data were tabulated into ArcView 3.0 and statistically analyzed using the Splus Spatial Stats 1.5 module. This program includes a spatial multiple regression routine, a statistical method similar to the least square linear procedure but which controls for spatial position of cases and reduces the likelihood of getting significant effects due to spatial proximity (Kaluzny, Vega, Cardoso, & Shelly, 1998).

Vicinity can create false covariation of variables because neighboring cases are more likely to have similar characteristics. Spatial analysis controls for spatial location of cases/geographic units by employing a neighbor matrix that weighs each case according to geographic position relative to its neighbors (Cressie, 1993; Kaluzny et al., 1998; Ripley, 1981). In the present case, we used a first-order symmetrical matrix that takes into account each zip code area and its immediately contiguous neighbors' mutual relationships, which were considered to be symmetrical.

As expected with ecological data, the variables introduced in this model are highly correlated (see Table 2). High crime victimization likelihood is correlated with presence of minorities (especially Hispanics), whereas presence of White respondents is associated with decreased risk of being a victim of crime. This raises the risk of collinearity. However, the expected effect for multicollinearity is to fail to detect significant relationships. This was less of a concern for us, because as Table 3 shows, the analysis detected a good number of significant relationships even in the presence of high correlation between independent variables. In addition, a separate model (excluding all ethnic group variables) showed that the crime victimization index does not predict crime in the expected direction (more crime, less comfort), the beta value being not significant.

Findings

Spatial Fear: Perceptions and Reality

Research Questions 1 to 3 were explored through a spatial regression model that uses the total sample composite comfort map to generate the dependent variable and area-level sociodemographic and economic characteristics as independent variables.

Table 2
Mapping Area Variables: Zero-Order Correlations

	Asian (%)	White (%)	Hispanic (%)	Population Stability	Home Price Increase (1997-1998)	Black (%)	Foreign Born (%)	Population Diversity	Comfort	Crime Victimization Likelihood
Asian (%)	1.00	–.12	–.09	–.09	–.10	–.24*	.29*	.54*	.12	.007
White (%)		1.00	–.53*	.004	.42*	–.67*	–.40*	–.29*	.43*	–.70*
Hispanic (%)			1.00	–.07	–.41*	–.03	.73*	–.05	–.33*	.58*
Population stability				1.00	.11	.13	–.25*	–.34*	–.21*	–.33*
Home price increase (1997-1998)					1.00	–.18*	–.26*	–.20*	.35*	–.42*
Black (%)						1.00	–.20*	.14*	–.34*	.44*
Foreign-born (%)							1.00	.13	.09	.59*
Population diversity								1.00	.03	.31*
Comfort									1.00	–.15*
Crime victimization likelihood										1.00

*Correlation is significant at the $p < .01$ level (two-tailed).

With respect to Research Question 1 (Is likelihood of crime victimization correctly represented in people's geographic mental maps?), the findings indicate that our initial hunch—that crime is misperceived—is largely accurate. As indicated in Table 3, the positive standardized value for crime victimization likelihood indicates that, in fact, most respondents feel slightly more comfortable in areas with higher crime rates. This relatively surprising finding was explored by examining the map in Figure 2, where it can be noticed that areas where the respondents live are lighter in color, indicating high comfort (in South Pasadena, Pico-Union, Koreatown, and on the Westside) or at least low fear (in Crenshaw and most of East Los Angeles). These areas have, however, a higher level of crime victimization likelihood than the rest of the county. The zip code areas covering the study communities have a mean crime victimization index score of 7.23 (SD = 1.57), more than 1 full point above the average score of the other zip code areas (M = 6.11, SD = 1.9), and the difference is statistically significant (t = –2.7, df = 216, $p < .01$). In other words, our respondents overestimate comfort, relative to crime, in the areas where they live.

In Research Question 2, we ask if social indicators of area desirability (population stability and housing value) are associated with fear/comfort. Hypothetically, fear should increase in highly mobile areas and decrease in high real estate value areas. Table 3 indicates that although comfort slightly increases in high real estate value areas, there is no statistically significant relationship between population stability and comfort. Thus, mental maps seem to accurately reflect, in very broad terms, where good housing areas are, but they fail to associate signs of urban decay with fear.

Research Question 3 proposes that fear might be associated with interethnic tensions; more specifically, that fear is color-coded. Data presented in Table 3 indicate that the answer to this question is *yes*—the presence of a non-White/non-Asian population is associated with increased fear.

The high negative beta values for percentage Hispanic, percentage African American, and, most significantly, for the interaction between the increasing presence of Hispanic and African American populations confirm that fear (or lack of comfort) increases as African Americans, Hispanics, or the presence of both populations increases. In addition, the effect for Hispanic population, which is very high (B = .51), is twice as great as that for African American population.

The color-coding nature of fear perceptions is further supported by the fact that areas characterized by ethnic diversity or high immigrant populations per se are not more likely to be feared. The standardized values for these variables indicate that ethnic diversity is not significantly correlated, and that

Table 3
*Standardized Beta Values for Variables Predicting Overall Los Angeles Comfort Level (*N = *218)*

Area Characteristic	Standardized Coefficients	
	B	*p*
Population Asian (%)	–0.16	.03
Population White (%)	0.07	.45
Population Hispanic (%)	–0.51	.00
Population Black (%)	–0.26	.01
Median home sale price increase (1997-1998)	0.08	.05
Population stability	–0.05	.21
Likelihood of crime victimization	0.15	.05
Population foreign-born (%)	0.35	.00
Ethnic diversity	0.10	.09
Black and Hispanic interaction	–0.13	.02
R^2 = .83		

presence of immigrant population is positively, not negatively, associated with comfort.

Fear and the Communication Infrastructure

The second goal of our research strategy was to reveal the impact of communication connectedness on mental maps. Of particular interest is to show that connectedness to the communication infrastructure has a stronger impact on the mental maps than connectedness to one particular medium. Concretely, Research Question 4 asks if the communication infrastructure, as a system, has a stronger influence on mental maps than its communication connection components taken separately.

Tables 4 to 6 compare predictor beta values for models using comfort values derived from strong and weak connectedness to television (see Table 4), strong and weak interpersonal communication (see Table 5), and strong versus weak connection to television and interpersonal connections maps (see Table 6). Figures 3 to 8 depict the three pairs of maps. The models support in several ways the implicit claims made in Research Question 4. First, strong connectedness to television and interpersonal communication, taken separately, does not always increase fear of non-White ethnicities (see Tables 4 to 5). When it does, the *t* test indicates that the increase is not significant. In contrast, strong connectedness to television and interpersonal communication significantly increases fear of areas inhabited by Hispanics, Blacks, or a high proportion of both populations in the same area (see Table 6).

Table 4
Standardized Beta Values for Variables Predicting Television Connectedness Comfort Maps (zip codes: N = *218)*

	Strong Connectors			Weak Connectors			Model Comparison	
Area Characteristic	*B*	*SE*	*p*	*B*	*SE*	*p*	Delta *B* (%)	*t*
Population Asian (%)	–0.12	0.07	.09	–0.15	0.07	.05	77.2	1.09
Population White (%)	0.13	0.09	.15	0.06	0.10	.53	207.9	1.56
Population Hispanic (%)	–0.41	0.10	.00	–0.50	0.11	.00	83.3	1.73
Population Black (%)	–0.24	0.10	.01	–0.24	0.11	.03	100.4	–0.02
Median home sale price increase (1997-1998)	0.05	0.04	.22	0.08	0.04	.07	60.0	–1.68
Population stability	–0.08	0.04	.04	–0.05	0.04	.29	178.7	–2.07
Likelihood of crime victimization	0.08	0.07	.23	0.16	0.07	.32	50.6	–2.56
Population foreign-born (%)	0.31	0.10	.00	0.33	0.11	.00	93.7	–0.44
Ethnic diversity	0.12	0.05	.02	0.06	0.06	.33	212.5	2.38
Black and Hispanic interaction	–0.13	0.05	.01	–0.11	0.06	.05	117.5	–0.76
R^2		.85			.82			

Note. Delta *B* = (Strong Connector *B*/Weak Connector *B*) * 100. *t* value refers to significant differences when comparing *B* values across models.

Table 5
Standardized Beta Values for Variables Predicting Interpersonal Connectedness Comfort Maps (zip codes: N = *218)*

	Strong Connectors			Weak Connectors			Model Comparison	
Area Characteristic	*B*	*SE*	*p*	*B*	*SE*	*p*	Delta *B* (%)	*t*
Population Asian (%)	–0.15	0.07	.05	–0.16	0.07	.03	95.0	0.26
Population White (%)	0.10	0.10	.32	0.05	0.10	.60	196.1	1.10
Population Hispanic (%)	–0.49	0.11	.00	–0.48	0.11	.00	101.2	–0.12
Population Black (%)	–0.25	0.11	.02	–0.23	0.11	.03	109.2	–0.43
Median home sale price increase (1997-1998)	0.06	0.04	.12	0.09	0.04	.03	69.7	–1.51
Population stability	–0.05	0.04	.30	–0.06	0.04	.21	83.6	0.50
Likelihood of crime victimization	0.15	0.07	.04	0.16	0.07	.03	95.0	–0.26
Population foreign-born (%)	0.35	0.11	.00	0.35	0.10	.00	99.2	–0.06
Ethnic diversity	0.08	0.06	.15	0.09	0.06	.13	95.3	–0.15
Black and Hispanic interaction	–0.14	0.06	.02	–0.11	0.06	.05	122.3	–0.93
R^2		.82			.84			

Note. Delta *B* = (Strong Connector *B*/Weak Connector *B*) * 100. *t* value refers to significant differences when comparing *B* values across models.

Table 6
Standardized Beta Values for Variables Predicting Television and Interpersonal Connectedness Comfort Maps (zip codes: N = *218)*

	Strong Connectors			Weak Connectors			Model Comparison	
Area Characteristic	*B*	*SE*	*p*	*B*	*SE*	*p*	Delta *B* (%)	*t*
Population Asian (%)	–0.14	0.08	.07	–0.08	0.08	.28	165.5	–1.55
Population White (%)	0.06	0.10	.57	0.13	0.10	.22	46.1	–1.54
Population Hispanic (%)	–0.47	0.11	.00	–0.36	0.11	.00	130.7	–2.26
Population Black (%)	–0.29	0.11	.01	–0.20	0.11	.08	150.3	–1.99
Median home sale price increase (1997-1998)	0.01	0.04	.79	0.08	0.04	.06	13.9	–3.80
Population stability	0.06	0.05	.22	–0.03	0.04	.55	–207.4	3.71
Likelihood of crime victimization	0.12	0.08	.13	0.15	0.08	.05	79.1	–0.87
Population foreign-born (%)	0.32	0.11	.00	0.30	0.11	.01	107.3	0.45
Ethnic diversity	0.09	0.06	.13	0.05	0.06	.43	193.5	1.60
Black and Hispanic interaction	–0.16	0.06	.01	–0.10	0.06	.10	157.0	–2.12
R^2		.82			.81			

Note. Delta *B* = (Strong Connector *B*/Weak Connector *B*) * 100. *t* value refers to significant differences when comparing *B* values across models.

As shown in Table 4, none of the beta value increases or decreases for presence of specific ethnicities (White, Black, Asian, Hispanic) in the strong television connectedness model are statistically significant (as measured by the *t* value) when compared with the beta values in the weak television connectedness model. Similarly, when comparing the beta values in the weak with those in the strong connectedness to interpersonal communication models, none is significant (see Table 5).

The only significant changes (see the last column in Table 4 for *t* values) are a decrease of comfort level in areas with high population instability, which is relatively small in absolute terms (from –.05 to .08), and an increase in comfort in high ethnic diversity areas (from .06 to .12). This means that people who connect strongly to television are somewhat more likely to feel comfortable in highly diverse ethnic areas and are more likely to fear socially unstable areas, compared with weak television connectors.

In contrast, those strongly connected to television and interpersonal communication are significantly more fearful of areas inhabited by Blacks, Hispanics, or by African Americans and Hispanics combined. The comfort maps of those who connect by television and person-to-person communication are 31% more negatively correlated with presence of Hispanics, 50% with presence of African Americans, and almost 60% with presence of both ethnicities,

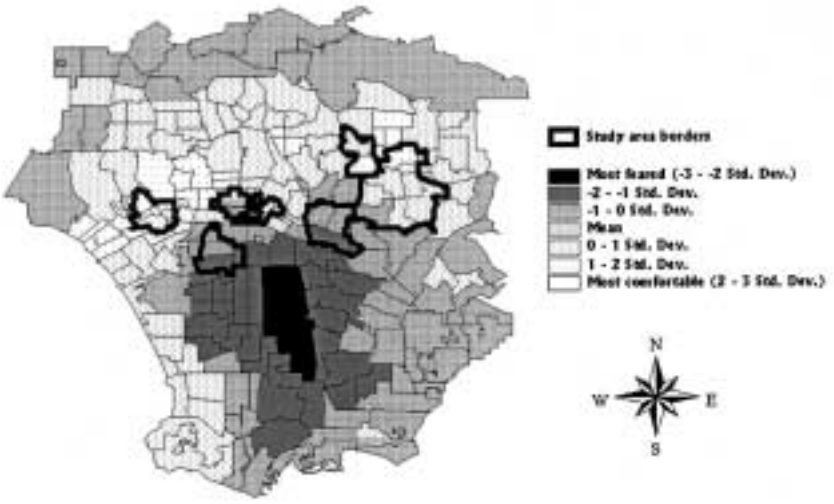

Figure 3. Los Angeles County: Strong Television Connector Comfort/Fear Map—Fear (dark) and Comfort (light) Areas at Zip Code Level of Geography (all respondents)

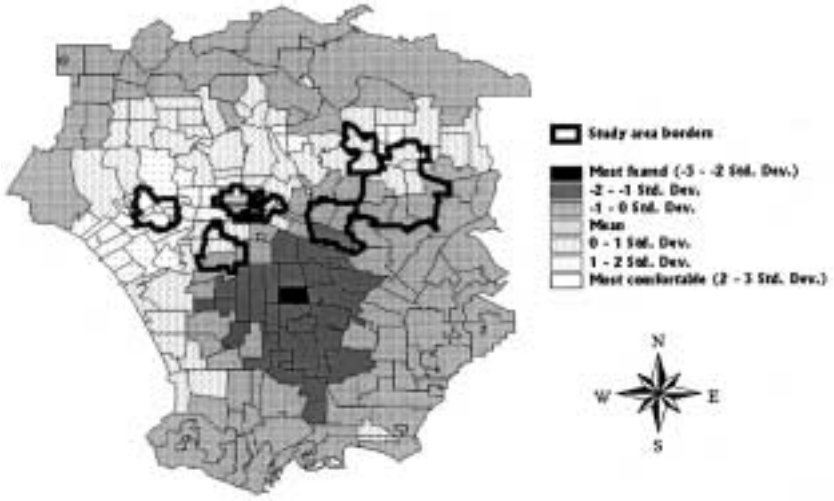

Figure 4. Los Angeles County: Weak Television Connector Comfort/Fear Map—Fear (dark) and Comfort (light) Areas at Zip Code Level of Geography

than those of the people with weak connections to these two channels.[9] As shown in Table 4, all of these increases are statistically significant, the *t* values being greater than ±1.96.

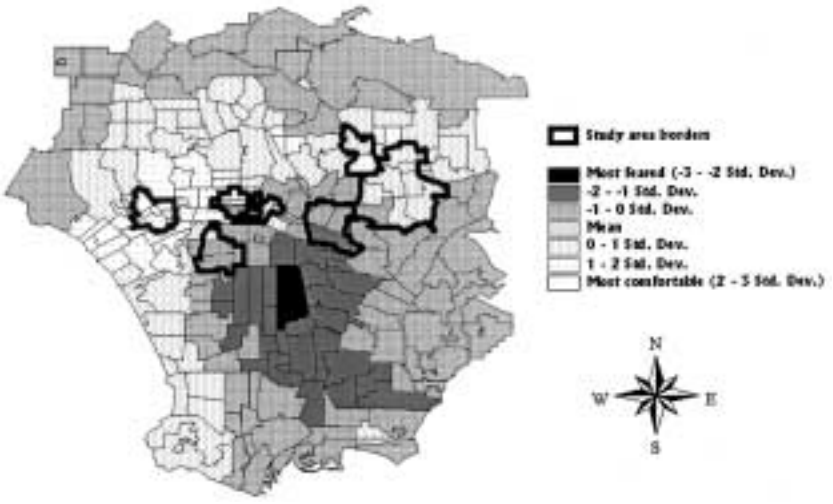

Figure 5. Los Angeles County: Strong Interpersonal Connector Comfort/Fear Map—Fear (dark) and Comfort (light) Areas at Zip Code Level of Geography

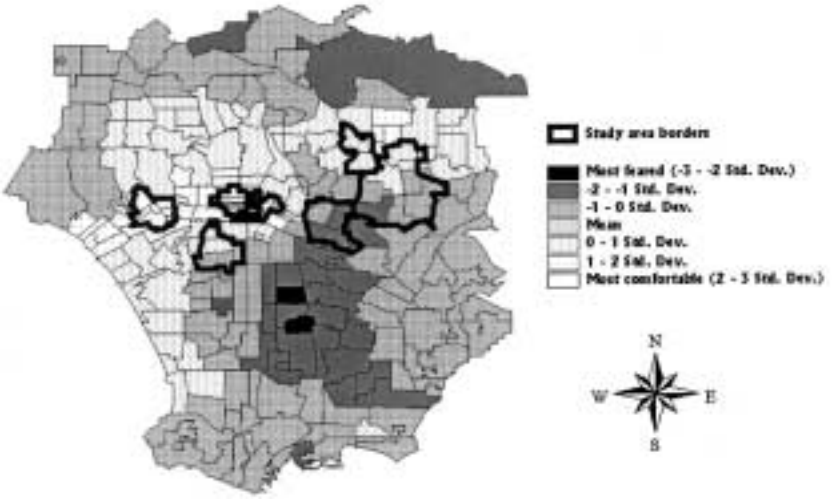

Figure 6. Los Angeles County: Weak Interpersonal Connector Comfort/Fear Map—Fear (dark) and Comfort (light) Areas at Zip Code Level of Geography

Fear and Personal Experience

Research Questions 5 and 6 are posed to tease out the relationships between personal experience and fear. More specifically, Research Question 5 asks if

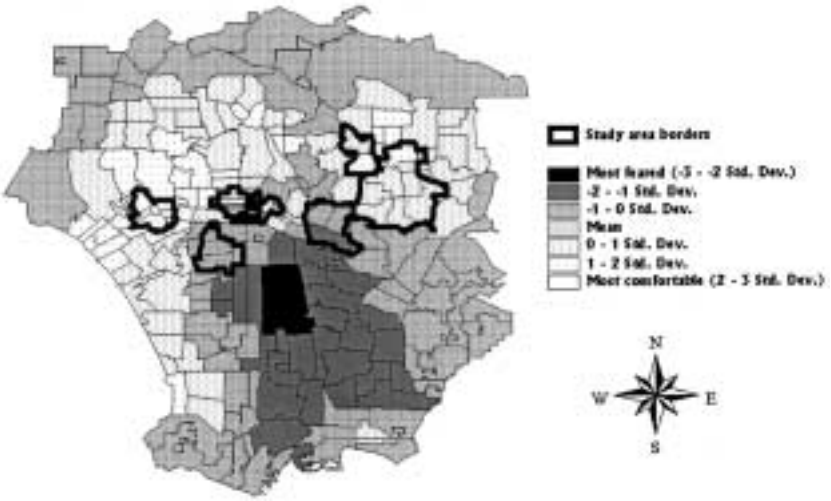

Figure 7. Los Angeles County: Strong Television and Interpersonal Connector Comfort/Fear Map

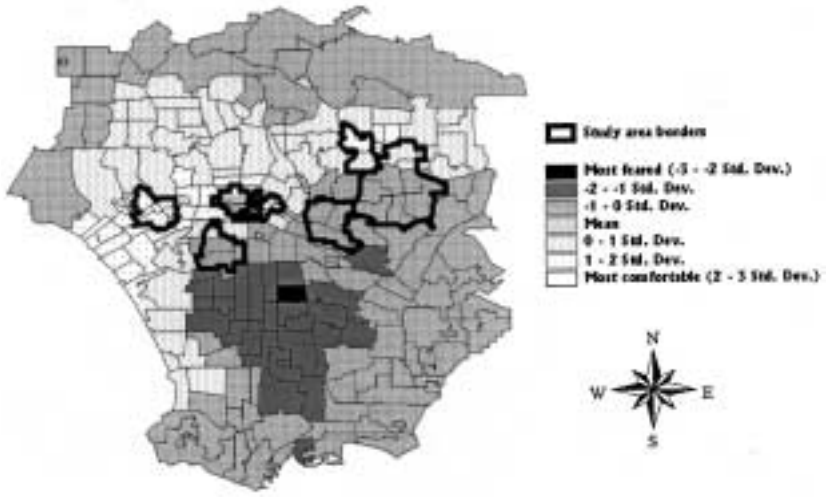

Figure 8. Weak Television and Interpersonal Connector Comfort/Fear Map: Fear (dark) and Comfort (light) Areas at Zip Code Level of Geography

personal experience has the ability to roll back fear, and Research Question 6 asks if level of belonging has a deterrent effect on fear.

The dependent variables were derived from individual mental images of people who go to or avoid traveling to two areas in Los Angeles County, one

predominantly African American and the other of predominantly Mexican origin.[10] Comparing the maps statistically with the sociodemographic reality they overlay and with each other indicates that personal experience does only one thing: Respondents who go to South Central, compared with those who do not go there, are significantly more likely to feel relatively comfortable in areas with higher levels of crime victimization (see Table 7). Those who travel to this African American area seem to be less concerned about crime. It is thus plausible to infer that personal experience with this minority area increases one's area of comfort when it comes to judging crime.

Although there are differences between those who go to or avoid the two areas in terms of ethnicities they fear and how much this fear increases or decreases when one visits their areas, none of these variations is in fact statistically significant.

Finally, the multiple regression results presented in Table 7 indicate that the answer to Research Question 8 (Is belonging a deterrent of fear?) is that strong belonging does not deter fear, because none of the beta values in the high belonging model is significantly different from those in the medium/weak belonging model.

Discussion

The analyses presented with respect to Research Questions 1 to 3 suggest that the culprit for spatial misperception is not crime but color-coded ethnic stereotypes. Paradoxically, people tend to feel more comfortable in higher crime areas, but fear is almost always associated with the presence and especially the copresence of large Hispanic and Black populations. These findings are not surprising. The comfort bias toward high crime areas is at least in part a consequence of the fact that our respondents live proximate to the central area of the city, where crime is more likely to occur. People tend to perceive their own community as more secure while constantly projecting fear into the neighbor's backyard, especially where people of another ethnicity live. This interpretation is buttressed by the findings that concern Research Question 2 regarding the association between fear and area desirability.

A rather paradoxical finding is that although most of our respondents seem to feel comfortable in areas inhabited by foreign-born populations, Hispanics, who constitute the bulk of Southern California immigrants, are the most feared population. This reflects, in part, the complex immigration structure of Los Angeles (J. P. Allen & Turner, 1996; Berry, 1988; Chavez, 1991; Ethington, 2000; Garcia, 1985; Rieff, 1991; Sabagh, 1993; Waldinger & Bozorgmehr, 1996). According to 1990 census data (http://www.census.gov), 30% of the population residing in the area included in our maps and 40% of

Table 7
Standardized Beta Values for Variables Predicting Direct Experience and Belonging Comfort Maps (zip codes: N = *218)*

	Go to South Central		Avoid South Central		Model Comparison		Go to Boyle Heights		Avoid Boyle Heights		Model Comparison		High Belonging Respondents		Low and Medium Belonging Respondents		Model Comparison	
					Delta *B*						Delta *B*						Delta *B*	
Area Characteristic	*B*	*p*	*B*	*p*	(%)	*t*	*B*	*p*	*B*	*p*	(%)	*t*	*B*	*p*	*B*	*p*	(%)	*t*
Population Asian (%)	–0.15	.05	–0.18	.01	80.2	1.15	–0.2	.01	–0.19	.01	105.3	–0.29	–0.13	.08	–0.18	.02	73.7	1.47
Population White (%)	0.07	.49	0.09	.31	73.1	–0.56	0.03	.78	0.08	.09	35.0	–1.19	0.11	.28	0.05	.59	200.0	1.19
Population Hispanic (%)	–0.51	.00	–0.48	.00	106.7	–0.65	–0.52	0	–0.53	0	97.2	0.31	–0.46	.00	–0.52	.00	88.5	1.22
Population Black (%)	–0.28	.01	–0.25	.01	110.8	–0.62	–0.23	.04	–0.21	.04	107.0	–0.34	–0.23	.03	–0.26	.01	87.1	0.76
Median home sale price increase	0.06	.13	0.08	.03	75.9	–1.06	0.08	.04	0.076	.05	107.9	0.34	0.09	.03	0.06	.11	139.7	1.40
Population stability	–0.04	.26	–0.05	.25	83.0	0.45	–0.02	.68	–0.05	.2	35.8	1.90	–0.07	.12	–0.04	.36	169.2	–1.51
Likelihood of crime victimization	0.19	.01	0.08	.27	251.3	3.67	0.14	.07	0.094	.18	147.9	1.44	0.14	.06	0.16	.03	86.5	–0.67
Population foreign-born (%)	0.36	.00	0.37	.00	95.7	–0.36	0.37	0	0.402	0	90.8	–0.77	0.35	.00	0.37	.00	93.3	–0.56
Ethnic diversity	0.08	.17	0.13	.02	60.5	–1.93	0.08	.17	0.104	.05	76.9	–0.91	0.09	.12	0.08	.14	101.2	0.04
Black and Hispanic interaction	–0.12	.03	–0.17	.00	73.9	1.63	–0.08	.2	–0.12	.04	67.0	1.44	–0.14	.02	–0.12	.03	109.8	–0.45
R^2		.83		.85				.82		.84				.84		.83		

Note. Delta *B* = (Go to Area or High Belonging *B*/Avoid Area or Low and Medium Belonging *B*) * 100. *t* value refers to significant differences when comparing *B* values across models.

the populations in the areas from which the respondents were selected were born abroad. The fact that most ethnic subsamples felt comfortable in high foreign-born areas, although fearing Hispanic inhabited areas, may reflect fear of the fact that Hispanics are about to become the new dominant ethnicity in the area.

On the other hand, copresence of Black and Hispanic populations increases fear above and beyond fear of either group separately. This result strengthens the supposition expressed in Research Question 3 that fear is color-coded. The two populations are in essence non-White, and their association creates a feeling of uneasiness due to racial imagery. We can also speculate that the often-noted enmity between African American and Hispanic gangs may play a part in heightening fear of areas where these two ethnic groups live together. Although there is also enmity between Asian or White gangs and these groups, it is less well-known and less often expressed in our study areas than that between Hispanic and African American gangs.

Regarding the central question of our study, we found that the data lend credibility to the relationships proposed in Research Question 4 between the communication infrastructure and fear. The data suggest that a holistic model, which emphasizes the interactive effects of two communication channels, gives a better account for feelings of fear toward other ethnicities. The augmented effect of television on fear—but only in presence of interpersonal communication—suggests that it is not simple exposure to the medium that constructs the mental images, but their elaboration through face-to-face conversation. Obviously, at this stage of our research we can only speculate as to the specific mechanism through which television or interpersonal communication create distortions in the mental maps. This is an important future research agenda item. One way to proceed would be by exploring the content of the media covering Los Angeles and correlating this to mental maps via a complete understanding of media consumption for various types of mapmakers.

Until then, the findings concerning communication connectedness should be qualified in that the maps included in this study come from respondents who exhibit a higher than average level of belonging. All respondents selected for the mapping segment of the study indicated that they talk with their neighbors at least moderately.[11] Although this is a credible indicator of people's likelihood of talking or interacting with their neighbors, this selection criterion biases the sample in several ways. The most important are that people least involved with their communities are excluded from the study. The results reported here thus reflect the mental maps of the relatively more involved people in each neighborhood.

Finally, personal experience and community attachment are not successful deterrents for fear (Research Questions 5 and 6). However, we are not entirely surprised by this finding. In light of our communication infrastructure perspective, we believe that personal experience is framed in our communication environment by interpersonal exchanges and media images that flow and converge over a number of channels. They can often invalidate and distort what our senses tell us through well-known social construction of reality processes (Pingree et al., 1988). This should especially apply to the finding that belonging does affect fear in the way we expected. We would agree with the suggestion made by one anonymous reviewer of this article that, from a communicative point of view, belonging can be a double-edged sword. People who are more involved in their neighborhoods are also more likely to transact more information, although this information need not be accurate. If high belonging means high connectedness to the local interpersonal rumor mill, fear will be nourished instead of dampened.

We hope that our findings can be fruitfully used in strategies designed to ameliorate distorted spatial misperceptions. One strategy, for example, would be to look at individuals' points of insertion in the communication infrastructure (their most important connectedness relationships), correlate them with decisions to avoid or go to a specific area, and then target those connections with redressive messages that motivate people to reconsider their perceptions and their avoidance behaviors.

Refining and concretizing our model is a goal for our future research. One refinement we will pursue in future research is to take full advantage of our rich database that allows us to use cross-street rather than area-level specifications of where people travel. A satisfactory weighting formula is also needed to partial out the effect of age, education, gender, and so forth on communication connectedness because, at present, unweighted media connectedness is the sole grouping criteria used in the maps.

This article represents our initial exploration of the issues. Despite the aforementioned restrictions in data collection and analyses, we have achieved our goal of developing sociospatial mapping techniques and applying them to issues of fear and comfort perceptions, which enrich our knowledge about the relationship between communication connectedness and spatial imagination. Via a novel methodological approach and with the help of geographical statistical instruments, our findings confirm that the mental images of fear in urban spaces are more influenced by communication processes and ethnicity-based stereotyping than more intuitive causes, such as crime victimization likelihood.

This study does not, however, limit itself to replicating existing theoretical arguments found in the media effects literature. It takes a new perspective regarding the spatial perceptions of fear and comfort. This is a holistic approach, relying on the idea of communication infrastructure. This concept includes objective and subjective, mass and interpersonal communication processes extending the traditional approach that stresses the role of a single medium (e.g., television or newspaper).

Our new tools, including the maps, visualize the intensity of misperceptions. They also specify the role of connection to different communication alternatives in shaping spatial perception. Consequently, our findings should not merely stimulate further academic efforts, but also contribute to the dialogue between communication research and urban policymaking. We hope that our work will contribute to more accurate diagnosis and more effective correction of distorted perceptions in any metropolitan region.

Appendix
Map Generation

Respondents from all six areas included in this study were given an identical black-and-white map of Los Angeles County depicting the street grid. They were also given four colored markers and were asked to indicate, using a specific color, their feelings about the Los Angeles urban area. They were asked to color the areas they fear red, areas they feel comfortable about green, areas they feel somewhat comfortable about orange, and neutral or unknown areas blue.

The individual maps, hand-drawn on paper, were digitized using the ArcView 3.0 Geographical Information System (GIS) software package. Digitization was done manually, each map being redrawn on the computer using the street grid as guidelines. Each individual map was transformed into a boundary digital map. That is, for each contiguous area of a specific color (e.g., green, blue, red, or orange), an individual geographic boundary was created. The polygon thus generated was assigned a scale value between –1 and 2, each number corresponding to a color. Thus, –1 represents fear (red), 0 represents unknown (blue), 1 represents somewhat comfortable (orange), and 2 represents entirely comfortable (green).

The maps were then redefined by dividing them into equal-size square cells, similar to a digital photograph. Thus, instead of aggregations of contiguous polygons, different in size and shape, the maps are divided into smaller identical square tiles. The whole area of every map is sliced into a similar grid of 291 rows and 284 columns (defining 82,644 tiles). Each tile inherits the value of the polygon it was generated from. Because each tile in each map has an exact spatial correspondent in the other maps, their values can be combined mathematically. In our case, we added the values across groups of maps and then divided the sum by the number of maps, obtaining a mean value for each tile. For example, the map in Figure 2 is the result of adding all 215 maps available and then dividing them by 215. This map is a mean representation of all of our respondents' vision of Los Angeles comfort or fear areas. Shadings represent the standard deviation of each cell value from the map mean.

In addition to this, a number of other maps were generated using subsamples of respondents. The groups were selected according to three criteria: media connectedness, personal level of attachment to local community, and experience with areas inhabited by ethnicities most feared. As a result, we generated:

1. A pair of maps, one weak (0), and one for strong (1 to 3) connections to three types of communication contexts:
   a. English television
   b. Interpersonal communication
   c. English television in interaction with interpersonal communication
2. A pair of maps for belonging: one for high and one for medium to low levels of belonging
3. A pair of maps, one for those who travel and one for those who do not travel to:
   a. Boyle Heights (majority population Hispanic)
   b. South Central (majority population African American)

Media Connectedness: Definition and Operationalization

Media connectedness is here employed in the terms proposed by Ball-Rokeach (Ball-Rokeach, 1985, 1998; Ball-Rokeach, Rokeach, & Grube, 1984) as a modality of measuring people's involvement with a specific mass medium taking as point of reference, not length of exposure, but scope of goals for which the medium is a resource. Ball-Rokeach's media dependency methodology assumes that media are resources in people's attempts to attain basic goals, including orientation, understanding, and play. In our study we have operationalized these dimensions by asking, What are the two most important types of media you use to learn about your community, to buy products, or to amuse yourself? The dependency variables are obtained by summing up the number of goals attained through each medium. Thus, each respondent can rely on a medium for achieving 0, 1, 2, or 3 goals.

Media connectedness maps were generated by dichotomizing the relative dependency variable at value 1, and then identifying the mapmaking respondents that fall into the 0 (weak) or 1 (strong) connectedness categories. Thus, to illustrate, the weak television connectedness map is averaged from the individual maps of the respondents who did not select television as one of the two most importance resources for learning about their community, buying products, or for entertainment. A strong television connectedness map represents the average view of the respondents who selected television for achieving at least one of the three goals. The same procedure was repeated for the interpersonal, community, or English newspaper and for the combined maps of television and interpersonal connectedness maps.

Belonging: Definition and Operationalization

Belonging is a measure of everyday acts of neighborliness that denote attachment to a residential area (Ball-Rokeach, Kim, & Matei, 2001 [this issue]). It is operationalized as an index score based on 8 items that capture objective behaviors and subjective orientation to residential community (Chavis & Wandersman, 1990; Hui, 1988; McLeod et al., 1996). The Belonging Index, whose reliability is relatively high (Cronbach's alpha = .8), includes equal numbers of items measuring these two dimensions.

BELONGING INDEX: SUBJECTIVE DIMENSIONS

Do you *strongly agree*, *agree*, *neither agree nor disagree*, *disagree*, or *strongly disagree* with the following statements:

1. You are interested in knowing what your neighbors are like.
2. You enjoy meeting and talking with your neighbors.
3. It's easy to become friends with your neighbors.
4. Your neighbors always borrow things from you and your family.

BELONGING INDEX: OBJECTIVE DIMENSIONS

How many of your neighbors do you know well enough to ask them to (respondent specifies a number):

4. Keep watch on your house or apartment?
5. Ask for a ride?
6. Talk with them about a personal problem?
7. Ask for their assistance in making a repair?

The higher the score, the more likely the respondent will be involved and feel attached to residential community. For the purposes of this study, the index scores were divided into three categories: low, medium, and high. The categories were constructed on subsample (residential area) mean, each respondent being categorized in one of the groups relative to his or her score difference from the subsample mean. Scores falling within 0.5 standard deviations around the mean were categorized as medium belonging, scores above 0.5 were coded as high, and those below –0.5 as low belonging.

The comfort maps constructed around travel patterns used as criterion the answer to the question, "Have you ever been to (area name) in the past 2 years?" One map was generated for the respondents who answered *yes* and one for those who answered *no*.

Notes

1. Although the telephone survey of the Chinese-origin respondents was completed, not all maps were collected at the time of this study and are not included in the analyses.

2. Respondents were selected if they chose 5 or higher as an answer to the question, "How often do you have discussions with other people about things happening in your neighborhood? Using a 10-point scale ranging from 1 (*never*) to 10 (*all the time*), where would you place yourself?"

3. See the appendix for explanation of connectedness.

4. The maps are available in color at http://www.metamorph.org/maps/cr.

5. This is represented in the tables as Delta *B*, a percentage increase or decrease in beta values calculated using the formula (Strong Connection Model *B*/Weak Connection Model *B*) * 100.

6. We preferred this data set to other, more recent ones available, such as those produced through mathematical projections by commercial vendors (e.g., Claritas),

because the types of variables we are looking at (ethnic distributions) are quite stable over time (J. P. Allen & Turner, 1997). Because this is also the assumption used by the Claritas projections, we preferred the full count of the 1990 census to projected data. At the time of writing this article, no 2000 Census data were available.

7. The CAP Index measures risk of crime, not actual crime occurrence. It is a predicted level of violent crime (rape, homicide, robbery) in a zip code area. It is generated by fitting crime values—provided by police and victims—through multiple regressions. The predictors are: basic demographics (age, marital status, gender, etc.), housing characteristics (housing occupancy and density), and population mobility (Figlio, 1991b). The index scores are very highly correlated with actual crime rates; the advantage of using it over actual crime rates, according to its author, is that it tells not only how many crimes were committed in a zip code area in the past, but also how likely it is for similar crimes to happen in the future.

8. To bring the data at the same level of resolution, we have assigned each zip code area an estimated FBI crime index value. This was obtained by dividing each municipality FBI crime index—which is an absolute count of Part 1 crimes (homicide, rape, robbery, assault, grand theft auto, burglary, arson, larceny theft)—to the total number of zip code areas in that city, and then by assigning this mean value to each zip code area. This is an imperfect way of estimating zip code area crime levels, because we assume that crime is equal throughout cities. This prevented us from using this estimate of crime in other analyses besides validity checks.

9. No connection here means the respondents did not select television or interpersonal channels among the top two preferred communication alternatives.

10. The exact questions were phrased, "Have you been to the (Boyle Heights/South Central) area more than once in the past 2 years?" South Central is predominantly African American, whereas Boyle Heights is predominantly Latino.

11. See Note 2.

References

Abu-Lughod, J. L. (1999). *New York, Chicago, Los Angeles: America's global cities*. Minneapolis: University of Minnesota Press.

Allen, J. P., & Turner, E. (1996). Spatial patterns of immigrant assimilation. *Professional Geographer*, *48*(2), 140-155.

Allen, J. P., & Turner, E. (1997). *The ethnic quilt: Population diversity in Southern California*. Northridge: The Center for Geographical Studies, California State University.

Allen, R. L., & Hatchett, S. (1986). The media and social reality effects: Self and system orientations of Blacks. *Communication Research*, *13*(1), 97-123.

Anderson, B. (1991). *Imagined communities*. New York: Verso.

Antunes, G. E., Cook, F. L., & Skogan, W. D. (1977). Patterns of personal crime against the elderly. *The Gerontologist*, *17*(4), 321-327.

Ball-Rokeach, S. J. (1985). The origins of individual media system dependency: A sociological framework. *Communication Research*, *12*, 485-510.

Ball-Rokeach, S. J. (1998). A theory of media power and a theory of media use: Different stories, questions, and ways of thinking. *Mass Communication and Society*, *1*(1/2), 5-40.

Ball-Rokeach, S. J., Kim, Y.-C., & Matei, S. (2001). Storytelling neighborhood: Paths to belonging in diverse urban environments. *Communication Research*, *28*(4), 392-428.

Ball-Rokeach, S. J., Rokeach, M., & Grube, J. W. (1984). *The great American values test: Influencing behavior and belief through television*. New York: Free Press.

Baumer, T. L. (1979). Research on fear of crime in the United States. *Victimology*, *3*, 254-263.

Berry, S. H. (1988). *Los Angeles today and tomorrow: Results of the Los Angeles 2000 community survey* (Survey R-3705-LA2000). Santa Monica, CA: RAND Corporation.

Carter, R. (1979). *The criminal's image of the city*. New York: Pergamon.

Chavez, L. (1991, October 21). Demographics at odds with reality; Latinos: A surge of immigration skews the statistics on income and education. *Los Angeles Times*, p. B5.

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*(1), 55-79.

Clarke, A. H., & Lewis, M. J. (1982). Fear of crime among the elderly. *British Journal of Criminology*, *22*, 49-62.

Cressie, N.A.C. (1993). *Statistics for spatial data*. New York: John Wiley.

Dear, M. J., Schockman, H. E., & Hise, G. (1996). *Rethinking Los Angeles*. Thousand Oaks, CA: Sage.

DeFrances, C., & Smith, S. K. (1998). *Perceptions of neighborhood crime, 1995* (Special Report NCJ-165811). Washington, DC: U.S. Department of Justice, Office of Justice Programs.

Dixon, T. L., & Linz, D. (2000). Overrepresentation and underrepresentation of African-Americans and Latinos as lawbreakers on television news. *Journal of Communication*, *50*(2), 131-154.

Doob, A. N., & MacDonald, G. E. (1979). Television viewing and fear of victimization: Is the relationship causal? *Journal of Personality & Social Psychology*, *37*(2), 170-179.

Downs, R. M., & Stea, D. (1973). *Image and environment: Cognitive mapping and spatial behavior*. Chicago: Aldine.

Downs, R. M., & Stea, D. (1977). *Maps in minds: Reflections on cognitive mapping*. New York: Harper & Row.

Egenhofer, M. J., & Golledge, R. G. (1998). *Spatial and temporal reasoning in geographic information systems*. New York: Oxford University Press.

Entman, R. (1992). Blacks in the news: Television, modern racism, and cultural change. *Journalism Quarterly*, *69*, 341-361.

Ethington, P. J. (2000, August 11). *Segregated diversity: Race-ethnicity, space, and political fragmentation in Los Angeles County, 1940-1994* (Final report to the John Randolph Haynes and Dora Haynes Foundation) [Online]. Available: http://www.usc.edu/dept/LAS/history/historylab/Haynes_FR/ index.html

Ferraro, K. F. (1995). *Fear of crime*. New York: New York Press.

Figlio, R. M. (1991a). Analyzing vulnerability. *Bank Management*, *67*, 54-57.

Figlio, R. M. (1991b). The risk where we live. *Security Management*, *35*, 88-95.

Figlio, R. M., & Somerson, I. S. (1990). Fighting crime with statistics and loss reporting. *Risk Management*, *37*, 47-50.

Fulton, W. (1997). *The reluctant metropolis: The politics of urban growth in Los Angeles*. Point Arena, CA: Solano Press Books.

Garcia, P. (1985). Immigration issues in urban ecology: The case of Los Angeles. In L. Maldonado & J. Moore (Eds.), *Urban ethnicity in the United States* (Vol. 29, pp. 73-100). Beverly Hills, CA: Sage.

Garofalo, J. (1979). Victimization and the fear of crime. *Journal of Research in Crime and Delinquency*, *16*, 80-97.

Gerbner, G., Gross, L., Morgan, M., & Signorielli, N. (1980). The "mainstreaming" of America: Violence profile No. 11. *Journal of Communication*, *30*(3), 10-29.

Gerbner, G., Gross, L., Morgan, M., & Signorielli, N. (1994). Growing up with television: The cultivation perspective. In J. Bryant & D. Zillmann (Eds.), *Media effects: Advances in theory and research* (pp. 17-41). Hillsdale, NJ: Erlbaum.

Glassner, B. (1999). *The culture of fear: Why Americans are afraid of the wrong things* (1st ed.). New York: Basic Books.

Golledge, R. G. (1999). *Wayfinding behavior: Cognitive mapping and other spatial processes*. Baltimore, MD: Johns Hopkins University Press.

Golledge, R. G., & Moore, G. T. (1976). *Environmental knowing: Theories, research, and methods*. Stroudsburg, PA: Dowden Hutchinson & Ross.

Golledge, R. G., & Rushton, G. (1976). *Spatial choice and spatial behavior: Geographic essays on the analysis of preferences and perceptions*. Columbus: Ohio State University Press.

Golledge, R. G., & Stimson, R. J. (1997). *Spatial behavior: A geographic perspective*. New York: Guilford.

Golledge, R. G., & Timmermans, H.J.P. (1988). *Behavioural modelling in geography and planning*. London: Croom Helm.

Goodchild, M. (1999). *CSISS—Center for Spatially Integrated Social Sciences*. Santa Barbara, CA: University of Santa Barbara.

Hawkins, R. P., & Pingree, S. (1983). Television's influence on social reality. In E. Wartella, D. C. Whitney, & S. Windahl (Eds.), *Mass communication review yearbook* (Vol. 5, pp. 53-76). Beverly Hills, CA: Sage.

Heer, D. M., & Herman, P. (1990). *A human mosaic: An atlas of ethnicity in Los Angeles County, 1980-1986*. Panorama City, CA: Western Economic Research Co.

Hise, G. (1997). *Magnetic Los Angeles: Planning the twentieth-century metropolis*. Baltimore, MD: Johns Hopkins University Press.

Hui, C. H. (1988). Measurement of individualism & collectivism. *Journal of Research in Personality*, *22*(1), 17-36.

Iyengar, S., & Kinder, D. (1987). *News that matters: Television and American opinion*. Chicago: University of Chicago Press.

Kaluzny, S. P., Vega, S., Cardoso, T. P., & Shelly, A. A. (1998). *S+SpatialStats: User's manual for windows and UNIX*. New York: Springer-Verlag.

Katz, E. (1957). The two-step flow of communication: An up-to-date report on a hypothesis. *Public Opinion Quarterly*, *21*(1), 61-78.

Katz, E., & Lazarsfeld, P. F. (1965). *Personal influence: The part played by people in the flow of mass communications*. New York: Free Press.
Kelly, G. A. (1955). *The psychology of personal constructs*. New York: Norton.
King, L. J., & Golledge, R. G. (1978). *Cities, space, and behavior: The elements of urban geography*. Englewood Cliffs, NJ: Prentice Hall.
Kitchin, R. M. (1997). Exploring spatial thought. *Environment and Behavior*, *29*(1), 123-156.
Lasswell, H. D. (1948). The structure and function of communication in society. In B. Berelson & M. Janowitz (Eds.), *Public opinion and communication* (pp. 172-190). New York: Free Press.
Liska, A. E., & Bellair, P. E. (1995). Violent crime rates and racial composition convergence over time. *American Journal of Sociology*, *101*(3), 578-610.
Lynch, K. (1960). *The image of the city*. Cambridge, MA: MIT Press.
Matei, S. (2000, June). *GIS mapping and modeling mass media influence on perception of urban space in Los Angeles* [Online]. Available: http://www.ucgis.org/oregon/papers/matei.htm
Matei, S., Ball-Rokeach, S. J., Wilson, M., Gibbs, J., & Gutierrez Hoyt, E. (in press). Metamorphosis: A field research methodology for studying communication technology and community. *Electronic Journal of Communication / La Revue Electronique de Communication*.
McCombs, M., & Shaw, D. (1972). The agenda-setting function of the media. *Public Opinion Quarterly*, *36*, 176-187.
McLeod, J. M., Daily, K., Guo, Z. S., Eveland, W. P., Jr., Bayer, J., Yang, S. C., & Wang, H. (1996). Community integration, local media use, and democratic processes. *Communication Research*, *23*(2), 179-209.
Murphy, P. E., & Golledge, R. G. (1972). *Comments on the use of attitude as a variable in urban geography* (Discussion Paper No. 25). Columbus: Department of Geography, Ohio State University.
Myers, S. L., & Chung, C. (1998). Criminal perceptions and violent criminal victimization. *Contemporary Economic Policy*, *16*(3), 321-343.
Pingree, S., Wiemann, J. M., & Hawkins, R. (1988). *Advancing communication science: Merging mass and interpersonal processes*. Newbury Park, CA: Sage.
Rieff, D. (1991). *Los Angeles: Capital of the third world*. New York: Simon & Schuster.
Ripley, B. D. (1981). *Spatial statistics*. New York: John Wiley.
Robinson, J. P. (1976). Interpersonal influence in elections campaigns: The two-step flow of communication hypothesis. *Public Opinion Quarterly*, *40*, 304-319.
Sabagh, G. (1993). Los Angeles, a world of new immigrants: An image of things to come? In L. Gracomo (Ed.), *Migration policies in Europe and the United States* (pp. 97-126). Dordrecht, the Netherlands: Kluver.
Sampson, R. J., & Raudenbush, S. W. (1999). Systematic social observation of public spaces: A new look at disorder in urban neighborhoods. *American Journal of Sociology*, *105*(3), 603-651.
Shanahan, J., & Jones, V. (1999). Cultivation and social control. In D. Demers & K. Viswanath (Eds.), *Mass media, social control, and social change* (pp. 31-50). Ames: Iowa State University Press.

Signorielli, N., & Morgan, M. (1990). *Cultivation analysis: New directions in media effects research*. Newbury Park, CA: Sage.

Spence, J. T., Cotton, J. W., Underwood, B. J., & Duncan, C. P. (1992). *Elementary statistics* (5th ed.). Englewood Cliffs, NJ: Prentice Hall.

Stafford, M. C., & Galle, O. R. (1984). Victimization rates, exposure to risk, and fear of crime. *Criminology*, *22*(2), 173-181.

Tamaki, J. (1999, January 24). Southland's winners and losers in 1998. *Los Angeles Times*, p. K1.

Turk, J. V., Richstad, J., Bryson, R. L., & Johnson, S. M. (1989). Hispanic American in the news in two Southwestern cities. *Journal of Communication*, *66*, 107-113.

Turner, E., & Allan, J. (1989). The most ethnically diverse urban places in the United States. *Urban Geography*, *10*(6), 523-529.

Turner, E., & Allen, J. P. (1990). *An atlas of population patterns in Metropolitan Los Angeles and Orange Counties 1980-1990*. Northridge: California State University.

Waldinger, R., & Bozorgmehr, M. (Eds.). (1996). *Ethnic Los Angeles*. New York: Russell Sage Foundation.

Webber, M. M. (1963). Order in diversity: Community without propinquity. In L. Wirigo (Ed.), *Cities and space* (pp. 22-54). Baltimore, MD: Johns Hopkins University Press.

White, M. J. (1986). Segregation and diversity measures in population distribution. *Population Index*, *52*(2), 198-220.

Wilson, J. Q., & Kelling, G. E. (1982, March). Broken windows: The police and neighborhoods safety. *Atlantic Monthly*, *127*, 29-38.

Winners and losers of 1997. (1998, January 18). *Los Angeles Times*, p. K1.

Wyatt, R. O., Katz, E., & Kim, J.-H. (2000). Bridging the spheres: Political and personal conversation in public and private spaces. *Journal of Communication*, *50*(1), 71-92.