
THE CHANGING NATURE OF THE NEIGHBORHOOD AND NEIGHBORLINESS: URBAN SPACES OF INTERACTION AND SENSE OF COMMUNITY, A CASE STUDY OF IZMIR, TURKEY

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**THE CHANGING NATURE OF THE NEIGHBORHOOD
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Isin Can

This research, derived from a pragmatic approach, concentrates on the problem of segregated urban space and the disconnection between buildings and the street. In Turkey, development plans and policies often neglect the organization of space between indoor and outdoor areas. However, previous research has shown that the organization of space between buildings has an important impact on social interaction. Although modern housing estates, with their lack of in-between spaces (i.e., spaces that are neither completely private nor public) compared with traditional and mixed-use neighborhoods, support introverted lifestyles, the results of this empirical analysis refuted the hypothesis that modern housing estates would exhibit a reduced sense of community. The outcomes of this study support the arguments developed by urban sociologists and environmental psychologists who claim that physical space may provide for social interactions but not necessarily for a sense of community.

INTRODUCTION

This paper aims to determine how different configurations of “in-between space” affect social interaction and a sense of community (SOC) in three neighborhoods in Izmir, Turkey. Nooraddin (1998, 2002) defined in-between space as space formed by the relation between indoor and outdoor space. The term “in-between space” is preferred to “semipublic” or “semiprivate” because it accommodates the overlapping territories of these two dialectical spaces. The term also takes into account the complexity, multifaceted nature (*ibid.*), and “territorial depth” (Habraken, 1998) of spaces.

As emphasized in the literature, new urbanist ideals promote neotraditional settlements and compact neighborhoods, which are within the regulatory power of local authorities, especially regarding sustainability issues. Developers, designers, and individuals in the housing market use SOC as a tool to attract residents, and there are studies revealing the various intermediate variables affecting the development of an SOC (Talen, 1999). Urban form or “spatial configuration” (Hillier, 2007) is only one aspect of it. Urban designers and new urbanist principles may create opportunities for social interaction, but developing social relations relies on a range of complex, interrelated issues (Talen, 2000). Although modern housing estates often lack spaces linking public and private space, it is still possible for an SOC to develop in these communities, depending on safety, homogeneity, and sociodemographic issues.

Researchers from various disciplines have investigated this topic for more than 30 years, particularly through the lenses of environmental and community psychology. While environmental psychology mainly focuses on the attachment to physical place, community psychology deals with social bonds and connections (Tartaglia, 2006). Work has been conducted on physical place, place attachment, and SOC by researchers including Abu-Ghazze (1995, 2000), Altman (1975), Brown and Cropper (2001), Fried (1965), Gifford (1997), Jorgensen and Stedman (2001), Lund (2002), Nasar and Julian (1995), Skjaeveland and Garling (1997), and Zehner and Marans (1973). In the field of community psychology, one can consider the studies by Chavis and Pretty (1999), Chavis and Wandersman (1990), Long and Perkins (2003), McMillan and Chavis (1986), Perkins and Taylor (1996), Sarason (1974), and Tartaglia (2006).

This paper aims to approach the subject of spatial organization and social interaction from the perspective of urban design. Several researchers, such as Alexander, *et al.* (1977); Gehl (1986); Hillier and Hanson (1984); Jacobs (1961); Madanipour (2003); and Whyte (1980), have looked at urban spaces of interaction. The main aims of this paper are to explore the relationship between physical space and social contact in different neighborhoods and determine to what extent near-home environments (NHEs), such as in-between spaces between buildings and streets, impact SOC.

This study compares three neighborhoods — two with a traditional street pattern (street-facing dwellings) and one composed of modern housing units — using various methods to explore the relationship between the organization of in-between space and social interaction. The neighborhoods were selected using the integration values of a space-syntax analysis of Izmir. Space-syntax integration is used to assess the depth of an urban pattern regarding its accessibility. It measures the syntactic relation between spaces, as well as parts and wholes in an urban structure (Hillier, *et al.*, 1987). However, the emphasis of this paper will be on the analysis of a questionnaire given to residents in the selected neighborhoods, rather than on the space-syntax analysis itself.¹

The three selected neighborhoods are all located on the bay in Izmir (see Figure 1). The Kültür neighborhood in the Alsancak district is located in the most integrated part of the city, the Mavisehir neighborhood² is located in a less integrated part of the city, and the Karantina neighborhood is located in an area with an integration value between the other two. In addition to their integration values, it is important to note the different morphological structures of the three neighborhoods. Kültür was the result of the first modernist master plan of Izmir, which consisted of radial

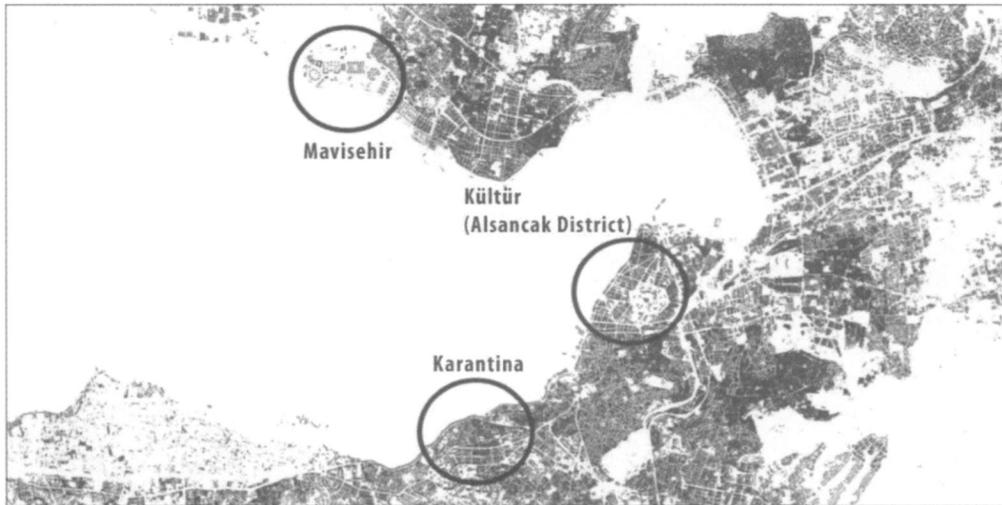


FIGURE 1. Case-study neighborhoods in Izmir.



FIGURE 2. Photographs of the Kültür neighborhood: (left to right) view of Dominik Street, active frontages, and a grocery store.

roads and a grid pattern. As a mixed-use neighborhood, it mainly consists of eight-story, street-facing apartment blocks with commercial uses on the ground floor. The space in front of the apartments is used primarily for cafés or retail purposes (Figure 2). Karantina is more compact than Kültür, partially due to its old, narrow street structure but also to its smaller plot sizes. Though all of the housing is street-facing, like in Kültür, Karantina has a wider variety of housing types (Figure 3), with traditional two-story Izmir houses, three- to five-story houses, and eight-story apartment blocks. Mixed uses can only be seen on the neighborhood's main street, Mithat Pasa Street. Unlike the other two cases, Karantina has steep slopes. This element of urban morphology is a unique characteristic, allowing different forms of spatial organization to be achieved. The third case study, Mavisehir, was developed after the 1990s and reflects changing consumer habits, preferences, and lifestyles. The neighborhood has 20 high-rise blocks interspersed with two-story dwelling units (Figure 4). It is an example of a modern housing estate, with 24-hour security and segregated land uses.

This study hypothesizes that the lack of in-between space results in decreased social interaction. Without niches in which people can stop, there are fewer opportunities for encounters and informal conversation. Contacts and personal relationships may not develop due to the lack of chance encounters. Therefore, SOC can be lower in these types of spaces and neighborhoods, in which the relation between public and private space is reduced. The study defines 11 variables as predictors of SOC. These variables are mostly related to the organization of spaces close to buildings, such as NHEs (*e.g.*, front porches, playgrounds, green spaces, car parking), and interactional



FIGURE 3. Photographs of the Karantina neighborhood: (left to right) Bakkal local grocery on 140th Street, traditional houses on 141st Street, and bay windows on 133rd Street.



FIGURE 4. Photographs of the Mavisehir housing estate: (left to right) view of the canal and a bridge, villas in the Selcuk blocks, and a park in the Selcuk blocks.

places around the neighborhood and buildings. Additional issues considered include length of residence, walking and safety, stationary activities, neighbor visits, frequency of contacts, and acquaintances among neighbors.

NEIGHBORHOODS AND COMMUNITY

Neighborhood and Personal Relationships (Active and Passive Contacts)

As a physiological concept, neighborhood is related to both cognitive and spatial issues. Gifford (1997) classified neighborhoods into three types: the integral neighborhood, which is characterized by lots of face-to-face interaction and participation in outside organizations; the parochial neighborhood, which is similar to the integral neighborhood but features less participation in outside organizations and is more inward-facing; and the anomic neighborhood, which exhibits limited face-to-face contact and participation in outside organizations. Face-to-face contact is conducive to developing positive personal relationships among residents (Ebbesen, *et al.*, 1976).

Creating community through social contact is a self-reinforcing process; as people meet, they attract more people. Additionally, as activities develop, they lead to further activities in a place. This primarily constitutes low-intensity, or passive, contacts (“see and hear” contacts) (Gehl, 2011). Shared access to residences (Fleming, *et al.*, 1985) and paths/stairways (Festinger, *et al.*, 1950) both have an impact on passive or casual contacts, as well as the recurring cycle of forming friendships.

Individuals choose neighborhoods for a variety of reasons, from economic constraints to the character and newness of the neighborhood (Macdonald, 2005). Sometimes their neighborhood

represents a personal choice of a desired living space, and sometimes it represents more of an economic compulsion. When their socioeconomic status increases, people tend to move to better neighborhoods. Stability in residence (length of residence) is the basic element that enhances local sentiment and SOC; thus, an environment with a dramatically changing population will result in fewer opportunities to develop local sentiment (McKenzie, 1921).

Human activities develop through participation and experience. However, the development of social connections and contacts in neighborhoods depends on the extent to which residents have common backgrounds or interests (Gans, 1967; Gehl, 2011; Talen, 1999, 2000). Socioeconomic status can change an individual's requirements. For instance, individuals with higher incomes and more education tend to develop larger social networks in their neighborhoods; people with lower incomes and less education tend to rely on social solidarity, support, and cohesion (Lund, 2002). In the process of developing a sense of belonging to a neighborhood or place, it is likely that common interests play a larger role than geographic features (Dunham, 2006).

Community perceptions and social relations in neighborhoods change in parallel with the backgrounds, lifestyles, and incomes of the people concerned. As some urban sociologists and theorists have discussed (Goist, 1971; Park, 1915; Wirth, 1938), increased mobility and car ownership, different patterns of communication, and varying degrees of specialization have changed the structure of the family and created what Melvin Webber called "nonplaces" (Hall, 1996:7). Shifts within the family structure, women's employment, and household types, as well as economic development and new lifestyles, have led to transformations in spatial configurations, both at the city level and in individual building types (Mills, 2007; Toker, 2010; Toker and Toker, 2003). Since the 1980s, with changes in consumption and rapid urbanization, new types of settlements have formed and developed around the edges of cities. High levels of immigration into cities have stimulated a growth in gated communities, a trend which has not gone unnoticed in the literature. Researchers have cited a number of reasons for both developing and living in gated communities, such as social heterogeneity, fear of crime, security concerns, property values and investment potential, modern facilities, and lifestyle choices (Erkip, 2010; Garde, 2008; Vesselinov, 2008).

NHEs, Encounters, and Safety

Neighborhood design and form can impact the coherence and continuity of an entire region. Successful neighborhoods are being used as tools for place making. As an extension of the community, they influence social and economic aspects of our cities. Usable public spaces, walkable streets, and human-scale blocks are the fundamental physical elements of a neighborhood (Calthorpe, 1995). A neighborhood can be organized through in-between spaces when the private realm is extended so that it coincides with the public realm. In this manner, residents are able to encounter their neighbors and become aware of each other's presence (Madanipour, 2003).

These in-between spaces can also be defined as NHEs and interaction places. As a micro neighborhood space, they can be viewed as either interior or exterior spaces — the immediate surroundings of a residential building or the space between the building and the street. These spaces have various functions (e.g., circulation, parking, greenery) and can be used for a variety of activities, such as sitting, standing, chatting, planting, and playing (Serpil, 1996:20). Residents can appropriate these spaces according to their needs. Users are given the opportunity to personalize the NHE by organizing and rearranging the space between the building and the street. This territoriality and personalization has an impact on sense of belonging and SOC (Abu-Ghazze, 2000; Altman, 1975; Bush-Brown, 1969).

The organization of space is also related to culture in the urban setting. It can be used to differentiate other settings and gives a place a sense of belonging and identity. Human behavior and spatial organization are closely associated, in that the organization of space can encourage or discourage integration (Abu-Ghazze, 1995). However, social integration is also related to the

degree of a society's existing social ties. According to Granovetter (1973:1360), "the strength of weak ties" in a society increases social integration by allowing social contact among diverse groups. Conversely, when people choose to live in homogenous neighborhoods with others whose interests and backgrounds match their own, their preferences also tend to be homogenous.

NHEs are important for the development of social relations and neighborliness among residents, as well as for recurring cycles of friendship. In Giddens's (1984) theory of structuration, communities constantly reproduce their social relations within the space-time context. Both the affordances of the physical environment (Gibson, 1986) and the ability of the agent (Greeno, 1994) contribute to that interaction. NHEs and in-between spaces provide opportunities for inhabitants to socialize and become acquainted.

This socializing is also important in terms of promoting a sense of safety. In-between space acts as a mediator to maintain visual access to public space, helping residents achieve a sense of peace and voluntary control (Jacobs, 1961). Both Jacobs's (1961) concept of "eyes on the street" and Hillier's (2004:31) concept of "natural policing" describe the inherent surveillance system of a community. These are the self-control mechanisms of the neighborhood, part of the probabilistic nature of what Hillier (2007:141) called a "virtual community." "Patterns of co-presence and co-awareness are the distinctive products of spatial design [and] the prime constituents" of the virtual community (*ibid.*). Therefore, the arrangement of space encourages pedestrian movement and creates a virtual sphere for "probabilistic encounters" (Hanson and Hillier, 1987; Hillier, 2007; Hillier, *et al.*, 1987; Major, *et al.*, 1997).

SOC, Walking Environment, and Social Interaction

SOC measures, theories, and studies are constantly developing. Chavis and Pretty (1999:635) described how the field has begun to investigate additional measures, including the effects of SOC on individuals and groups; the complex relationship between neighborhood context and SOC; and the relationships between SOC and community justice, history, attachment, and identity. Unlike prior studies, McMillan and Chavis (1986) developed a comprehensive theory for understanding the nature of SOC. Their starting point was the term "community," classified by Gusfield (1975) into two main types: territorial (related to geographic location) and relational (concerned with the nature of human relationships). McMillan and Chavis (1986) then specified four elements in their SOC definition: membership (a sense of personal relatedness), influence (a sense of mattering), reinforcement (fulfillment of needs by resources), and shared emotional connection (shared experiences, history, places, and time).

Various researchers have conducted studies on SOC in different geographies and revealed distinct correlations between SOC measures and the physical environment, as well as human behavior. As the field has expanded, studies have investigated its various aspects, including housing, neighborhoods, and SOC. Some of these studies are mentioned below.

Plas and Lewis (1996) concluded that front porches, accessory apartments, walkable and active pedestrian streets, commercial and residential mixed uses, shared public spaces, and well-used amphitheaters all provided a sense of closeness and feeling of membership in the new urbanist development of Seaside, Florida. Glynn (1981) compared a greenbelt town with an auto-dependent suburb and found that residents in the greenbelt town had a greater SOC, without controlling for the known differences among the neighborhoods. Other research has also found differences in SOC among different housing types. Weenig, *et al.* (1990) studied eight neighborhoods in The Netherlands and found that neighborhoods consisting of mostly multistory apartment buildings had a weaker SOC and were less cohesive than neighborhoods of single-family houses. Buckner (1988) found that residents of cooperative housing arrangements were more attached to their neighborhoods than transient residents of rental high-rises.

Skjaeveland and Garling (1997) argued that neighborliness is associated with several physical features of neighborhoods, including spaciousness, dwelling density, semiprivate space (in-between space), size of private open space (see also Herzog's [1992] finding regarding individual preferences for "well-structured" urban spaces), and building quality. Proximity has an influence on social interaction, with both good and bad consequences. Increased face-to-face contact can help to create friendships, but as explained by the "environment spoiling" hypothesis posited by Ebbesen, *et al.* (1976), proximity to disliked people creates opportunities for behavior that annoys one another, thus "spoiling" the environment. Zehner and Marans (1973) found that density and the physical environment affect human behavior. In line with other researchers (Brown and Cropper, 2001; Gans, 1991; Nasar, 2003; Talen, 1999), Zehner and Marans reiterated that, although proximity can be important for casual or passive contact, it may not have the same importance for intense social relations. Comparing a moderate-density townhouse neighborhood and a neighborhood of conventional, detached, single-family houses, they determined that those living in single-family houses were more likely to know their neighbors by name and interact with them.

In their study, Nasar and Julian (1995) examined apartment buildings of two different designs: one with an outdoor courtyard and the other with an indoor, double-loaded corridor. They found that the apartment with the courtyard allowed more casual contact and had a correspondingly greater SOC. They also compared residents in single- and mixed-use areas and found that the latter had a much greater SOC. In her comparative study of a traditional neighborhood and a modern suburb, Lund (2002) found that the former had a more developed SOC. In addition to other factors influencing SOC, she added the dimension of a pedestrian-friendly environment, generally absent from previous research. Three crucial elements of a pedestrian-friendly environment are significantly related to a psychological SOC: (1) features that offer opportunities for social interaction, (2) the existence of a safe environment for walking, and (3) the "interestingness" of the walking environment. Lund asserted that people who prefer social interaction and casual contact consider walkable places as a factor when deciding where to live and are, thus, more likely to choose more traditional-style neighborhoods. In contrast, people who prefer privacy and car mobility choose modern suburbs. Similar to Lund, Nasar and Julian (1995) stressed that residents of mixed-use neighborhoods are more likely to walk to places in the neighborhood, which leads to more opportunities for social interaction and casual contact, which contribute to a greater SOC.

CASE STUDIES

The three case studies investigated in this research illustrate how different urban patterns are related to the history of urban areas and how they change over time. Kùltür and Karantina are older neighborhoods with street-facing dwelling units, whereas Mavisehir consists of blocks of free-standing high-rise buildings. Kùltür was established in the 17th century but prospered in the 19th century under the influence of the Levantine culture and trade activities in the nearby harbor. After the Great Fire of Izmir³ and the establishment of the new Turkish Republic, city officials began to encourage modern planning approaches. Most of the Kùltür neighborhood was completely rebuilt in accordance with Danger and Prost's 1925 master plan for the city (Bilsel, 1996).

Karantina started to develop in the late 19th century with the extension of the city along the bay, particularly after the development of transportation systems. In the early period of the Turkish Republic, Karantina consisted of family apartments of four to five stories with gardens, traditional houses with courtyards, and detached mansions surrounded by gardens along the seashore. However, in the 1950s and 1960s, with the passage of the Urbanisation and Condominium Act, most of the two-story bay-window houses and family houses with gardens were replaced by eight-story apartment blocks. The old city pattern shifted from a public/private dichotomy to crowded blocks and an abrupt connection between indoor and outdoor spaces, which resulted in the degradation of privacy and loss of public space. In-between spaces were disrupted by planning

decisions and development. The plot-based approach produced similar types of urban structures, and building regulations at the time made no allowance for the effects of buildings on the environmental and cultural features of the city.

By the 1990s, cars could no longer be accommodated within Izmir's disproportionately crowded, overly compact neighborhoods and city center. Immigration, mobility, changing lifestyles, new economic structures, different employment types, and the expansion of the city caused urbanites to look for other solutions. In the 1990s, Mavisehir emerged as one such solution: freestanding high-rise buildings at the periphery of the city with extensive open spaces and car-parking areas for residents. The rise of Mavisehir represented the increasing significance of the car for the urban elite, as well as the need to feel safe and be in an environment populated by people with a shared background.

METHODOLOGY

Questionnaires

In order to define the size of the sample, sample tables were used with a precision (e) of $\pm 10\%$. Based on the population of 7,000-11,000 residents per neighborhood, the author determined that 100 was an adequate sample size for each neighborhood, with a confidence level of 95%. A random sampling technique could not be used due to safety issues. In Mavisehir and some of the apartments in the other two cases, the surveyors were not allowed to enter the buildings. Instead, concierges were used as mediators between the residents and the surveyors. A cover letter was enclosed with the questionnaires explaining the background of the research and introducing the researcher. The same technique was adopted in all three neighborhoods.

A total of 500 questionnaires were distributed. In each apartment, the surveyors handed out three questionnaires to residents, sometimes with the help of the concierges. The surveyors then picked up the completed questionnaires at a later date. The response to the questionnaires in each neighborhood was inadequate, so the author decided to also conduct face-to-face surveys in each neighborhood using the same questionnaire to gather more responses. Approximately 20 interviews were conducted in each neighborhood. In Karantina and Kültür, these interviews were conducted on the street. In Mavisehir, which has some characteristics of a gated community, the author had to receive permission from the management to conduct the survey in the neighborhood's open spaces. (This had also been the case with the questionnaires distributed in the apartments.) For the face-to-face surveys, the surveyors read the survey questions aloud and recorded the participants' answers. Combining both the questionnaires collected from the apartments and the questionnaires from the face-to-face surveys, 102 total questionnaires were returned from Karantina, 129 were returned from Kültür, and 109 were returned from Mavisehir.

Questionnaire Structure and Data Reduction

The questionnaire used in the research consisted of three parts. The first covered sociodemographic variables, including age, gender, length of residence, ownership status, number of people in the household, number of children, education, and occupation. The second covered spatial variables, such as the configuration of the NHE, activities that took place in front of the building, and spatial characteristics of the neighborhood. The third part was related to social aspects, such as number of people known by name in the neighborhood and building, friendships, and frequency of social interaction.

The questionnaire used three types of questions: open-ended, multiple choice, and five-point scale. The open-ended questions asked respondents about the three main problems they thought

their neighborhood had, whether they were planning to move, and where they would like to live if they did not have any financial constraints. The questions based on the five-point scale were developed from Lund (2002), Nasar and Julian (1995), and Skjaeveland and Garling (1997). Respondents stated whether they agreed with 27 statements on a scale of one (strongly disagree) to five (strongly agree). The five-point-scale questions were divided into three groups — perception of walking and safety (PWS), SOC, and NHE — on which the author conducted a Cronbach's alpha scale reliability analysis to assess the internal reliability of the scale. Eight of the 27 statements were eliminated from the analysis because their Cronbach's alpha was less than .5 (see Appendix).

In order to formulate the model, the author focused on the relation between space and social interaction and how this relation influences SOC. Eleven variables, most of which were significantly different among the three neighborhoods, correlated with the SOC variable using the Pearson product-moment correlation coefficient. Analysis of variance (ANOVA) was used to analyze the differences in the means of the three neighborhoods. Additionally, regression analysis was conducted with SOC as the dependent variable. The proposed regression analysis was based on the following linear model:

$$SOC_i = \alpha + \beta_1 LR_i + \beta_2 NHE_i + \beta_3 INTNeigh_i + \beta_4 INTBuild_i + \beta_5 NPBuild_i + \beta_6 NPNeigh_i + \beta_7 NPVisit_i + \beta_8 FVisits_i + \beta_9 FInteract_i + \beta_{10} PWS_i + \beta_{11} Frontyard_i + \epsilon_i$$

where SOC is the dependent variable and represents the SOC in the three different neighborhoods, and ϵ denotes the error term, which follows an independent and identical normal distribution with a mean of zero and constant variance. The 11 explanatory variables are as follows: LR = length of residence, NHE = near-home environment, INTNeigh = interaction around the neighborhood, INTBuild = interaction in and around the building, NPBuild = number of people known by name in the building, NPNeigh = number of people known by name in the neighborhood, NPVisit = number of neighbors you visit in your neighborhood, FVisits = frequency of visits to people in the neighborhood, FInteract = frequency of social interaction outdoors, PWS = perception of walking and safety, and Frontyard = front-yard use (active front yards; *i.e.*, places for planting, chatting, sitting, playing, etc.).

Furthermore, places in which encounters occurred were grouped into two categories: interaction in and around the building and interaction around the neighborhood. Indices were formed with five variables in each group. In the analysis, the mean of these indices revealed how many places were chosen out of five as an interactional place in and around the building and around the neighborhood.

RESULTS

Sociodemographic Characteristics of the Three Neighborhoods

Table 1 illustrates the sociodemographic characteristics of the case-study respondents. Respondents' average age was between 42 and 48, and they were mainly female (43% male and 57% female in Kültür, 46% male and 54% female in Karantina, and 32% male and 68% female in Mavisehir). As the oldest neighborhood, Kültür was distinguished from the other neighborhoods by having a greater proportion of residents who had lived in the neighborhood for more than 10 years. Forty-eight percent of Kültür respondents had lived there for more than 20 years, while 31% of Karantina respondents had lived there for less than five years, and 47% of Mavisehir respondents had lived there for 11-20 years.

The percentage of residents who owned their homes was greater in Kültür and Mavisehir (71% and 72% respectively) than in Karantina (55%). All of the case-study neighborhoods included nuclear families (a couple with a child or children), as well as single adults and couples without children. Respondents were mainly employed in the service sector, including health services, accounting,

TABLE 1. Sociodemographic characteristics and social aspects of case-study respondents and their responses to the five-point-scale questions.

Questionnaire sections	Kültür	Neighborhood Karantina	Mavisehir	ANOVA Sig.
Population*	9,225	11,058	7,193	
<i>Sociodemographic characteristics</i>				
<i>Age</i>				
Child (0-6)	0%	0%	0%	
Youth (7-18)	2%	7%	8%	
Adult (19-60)	57%	71%	65%	
Elderly (61+)	21%	14%	15%	
<i>Gender</i>				
Female	57%	54%	68%	
Male	43%	46%	32%	
<i>Length of residence</i>				
Less than 5 years	14%	31%	30%	
5-10 years	17%	25%	23%	
11-20 years	22%	20%	47%	
More than 20 years	48%	23%	0%	
<i>Ownership status</i>				
Owner	71%	55%	72%	
Tenant	29%	45%	28%	
<i>Number of people in the household</i>				
1	11%	9%	6%	
2	36%	23%	28%	
3	24%	28%	33%	
4	25%	27%	5%	
5 or more	2%	10%	1%	
<i>Number of children</i>				
0	31%	27%	25%	
1	25%	22%	32%	
2	34%	35%	35%	
3	2%	6%	6%	
4 or more	0%	2%	1%	
<i>Education</i>				
Graduate or postgraduate institution	68%	40%	72%	
High school or undergraduate institution	26%	36%	23%	
Middle school	2%	13%	5%	
Primary school	4%	10%	0%	
<i>Occupation</i>				
Retired	18%	12%	21%	
Housewife	10%	17%	18%	
Student	5%	16%	12%	
Service sector	38%	30%	24%	
Trade/marketing/business	10%	8%	12%	
Manager/director	1%	0%	0%	
Self-employed	8%	7%	5%	
Science/academic/education	8%	7%	8%	
Art and music	3%	3%	0%	
<i>Social aspects</i>				
"I don't know the people living in this neighborhood or district /I don't have many neighbors"	31%	33%	33%	
No. of people known by name in the neighborhood (mean)	66.44	31.61	55.38	
No. of people known by name in the building (mean)	15.45	10.92	18.03	
No. of neighbors you visit in your neighborhood (mean)	11.32	8.43	10.63	
Frequency of visits to people in the neighborhood**	1.95	1.80	1.90	
Frequency of social interaction outdoors**	2.60	2.39	2.37	
<i>Five-point-scale questions***</i>				
PWS	3.75	3.61	3.95	.012
SOC	3.06	2.98	3.40	.008
NHE	2.15	2.19	3.70	.000

TABLE 1 continued. Sociodemographic characteristics and social aspects of case-study respondents and their responses to the five-point-scale questions.

Notes. * Data source: TUIK (2008); ** on a scale from one to three: 1 = never, 2 = sometimes, 3 = a lot; *** on a scale from one to five: 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, 5 = strongly agree. Items in boldface were statistically significant. Percentages may not add up to 100 due to rounding or because some participants chose not to answer certain questions.

banking, and engineering. The education levels in Mavisehir and Kültür were very similar (68% were university graduates or postgraduates in Kültür; 72% were in Mavisehir), but in Karantina, the mean level of education was closer to a high-school graduate. The sociodemographic structure of the respondents in the three case studies did not vary significantly, except with relation to education and homeownership in Karantina.

Knowing and Visiting Neighbors

In each case study, approximately 30% of respondents indicated that they did not know many of the people living in their neighborhood; when asked in a follow-up question why this was, they indicated it was due to a busy lifestyle or personal preference. Respondents in Kültür and Mavisehir tended to have more contacts in both their neighborhood and their building. This might be connected with the issue of homeownership, which is less common in Karantina. The number of neighbors visited and the frequency of visits did not differ significantly across the three neighborhoods, although Kültür had the highest frequency of social interaction (Table 1).

Five-Point-Scale Questions (PWS, SOC, and NHE)

The PWS, SOC, and NHE variables were significantly different in all three neighborhoods (Table 1). Mavisehir had the highest values for SOC, PWS, and NHE, with means of 3.40, 3.95, and 3.70 respectively. All three case studies were neutral in terms of SOC (*i.e.*, they scored around three on the five-point scale). Regarding the NHE, only the residents from Mavisehir agreed that they had enough green space for children and landscaping near their building block.

Interaction Places and Front-Yard Use

The variable concerning where residents interacted was assessed using a multiple-choice question. Places of interaction were grouped into two categories, each with five variables. Interaction in and around the building included the following location variables: entrance of the building, elevator, staircase and hall, windows, and balconies. Interaction around the neighborhood consisted of the following variables: streets and sidewalks, neighborhood open spaces, parking lots, cafés and local shops, and other places. The interaction places with the highest scores are shown in Table 2. As the table shows, two of the variables (entrance of the building and streets and sidewalks) had considerably higher scores across the three neighborhoods, indicating they were places of high interaction. In Kültür, residents indicated they mainly interacted on streets and sidewalks (81%) and at the entrance of the building (80%), followed by cafés and local shops (45%). In Karantina, respondents chose, in order, streets and sidewalks (80%), the entrance of the building (79%), and the staircase and hall (50%). In Mavisehir, the elevator (82%) and the entrance of the building (73%) were selected over streets and sidewalks (57%), neighborhood open spaces (52%), and parking lots (51%).

In Mavisehir, the space in front of the apartment block was generally considered a place for plants, according to 83% of respondents, compared with only 26% for Kültür and 8% for Karantina. Respondents did not think any of these spaces offered seating for adults or playgrounds for children.

TABLE 2. Interaction places with the highest scores in the three neighborhoods.

Indices and variables	Neighborhood		
	Kültür	Karantina	Mavisehir
Interaction in and around the building	1.80	2.18	1.90
Entrance of the building	80%	79%	73%
Elevator	37%	27%	82%
Staircase and hall	31%	50%	26%
Interaction around the neighborhood	1.87	1.78	2.04
Streets and sidewalks	81%	80%	57%
Neighborhood open spaces	28%	38%	52%
Cafés and local shops	45%	27%	36%
Parking lots	26%	28%	51%

TABLE 3. Correlations between explanatory variables and SOC for all three neighborhoods.

Explanatory variables	Neighborhood			ANOVA Sig.
	Kültür	Karantina	Mavisehir	
Length of residence	.286**	.295*	.116	.000
NHE	.216	.288*	.519*	.000
Interaction around the neighborhood	.169	.129	.339*	.215
Interaction in and around the building	.062	-.014	.207	.024
No. of people known by name in the building	.442*	.457*	.322*	.007
No. of people known by name in the neighborhood	.367*	.295*	.092	.033
No. of neighbors you visit in your neighborhood	.328**	.329*	.372*	.415
Frequency of visits to people in the neighborhood	.309**	.443*	.261**	.220
Frequency of social interaction outdoors	.519*	.361*	.433*	.004
PWS	.481*	.401*	.640*	.012
Front-yard use	.162	.262**	.345*	.000

Notes. * Significant at the .01 level (two-tailed); ** significant at the .05 level (two-tailed). Boldface indicates there was a significant difference among the neighborhoods.

Correlations and Predictors of SOC

Table 3 shows the correlations between the 11 explanatory variables and SOC for all three case-study neighborhoods. As the table shows, respondents in Mavisehir showed no relation between SOC and length of residence, unlike the other two cases. It might be concluded from these results that length of residence influences SOC in traditional urban neighborhoods. In all three case studies, correlations were found between SOC and number of people known by name in the building, number of neighbors respondents visited in their neighborhood, frequency of visits to people in the neighborhood, frequency of social interaction outdoors, and PWS. In Kültür and Karantina, SOC was also correlated with the number of people respondents knew by name in their neighborhood, but this was not the case in Mavisehir.

While Karantina and Mavisehir demonstrated a correlation between SOC and NHE, Kültür did not, possibly due to the use of ground-floor space in buildings as cafés. There are few buildings in Kültür that are not for commercial use, so residents cannot personalize their in-between spaces. The variable for front-yard use indicated whether residents had access to places in front of their buildings for planting, playgrounds, sitting, chatting, etc. Sit-able places (*i.e.*, free access to seating) were only available in Karantina and Mavisehir.

In each case study, approximately 50% of the variation in the SOC variable could be explained by the 11 independent variables. The researcher estimated the model in the equation discussed in the

TABLE 4. Regression analyses for determinants of dependent variable SOC.

Explanatory variables	Neighborhood		
	Kültür	Karantina	Mavisehir
Constant	.397	.708	.111
Length of residence	.064	.114***	-.008
NHE	.259***	.167**	.158
Interaction around the neighborhood	-.110	-.002	.051
Interaction in and around the building	-.058	.016	-.038
No. of people known by name in the building	.006	.016***	.004
No. of people known by name in the neighborhood	.000	-.001	-.001***
No. of neighbors you visit in your neighborhood	.022	.002	.004
Frequency of visits to people in the neighborhood	-.240	.258*	.213
Frequency of social interaction outdoors	.573*	.151	.091
PWS	.243**	.140***	.482*
Front-yard use	.006	.312**	.125***
R ²	.52	.54	.57
F-test	3.335*	6.821*	6.453*

Note. * Significant at the .01 level; ** significant at the .05 level; *** significant at the .10 level.

TABLE 5. Transportation use in the three neighborhoods.

Type of transportation	Neighborhood		
	Kültür	Karantina	Mavisehir
Car	69%	53%	64%
Bus	61%	65%	58%
On foot	75%	71%	72%

Methodology section using an ordinary least squares (OLS) approach for each neighborhood. The results are summarized in Table 4, which illustrates several interesting results.

The results for the Kültür neighborhood showed a positive and significant coefficient for the NHE, frequency of social interaction outdoors, and PWS variables. In other words, in Kültür, SOC stemmed from social interaction, facilitated particularly by the arrangement of the NHE and the walking environment. In Karantina, SOC was significantly influenced by several variables: length of residence, NHE, number of people known by name in the building, frequency of visits to people in the neighborhood, PWS, and front-yard use. In Mavisehir, the results showed that SOC arose from the number of people known by name in the neighborhood; front-yard use (sit-able places around the building blocks); and most importantly, PWS.

Problems in the Neighborhoods

As Table 5 shows, in the case-study neighborhoods, respondents reported using private cars, using buses, and traveling on foot at roughly the same rates. (Cycling is not very common in Izmir due to the design of the roads.) There were no significant differences in transportation use (car, bus, or foot) among the three case studies.

According to the Turkish Statistical Institute (TUIK, 2016), car ownership in Izmir increased by 22% between 2009 and 2012, so it is not surprising that respondents in all three neighborhoods indicated car parking was the main problem in their neighborhood (Table 6). In fact, it was the only problem cited in Mavisehir. In Kültür, respondents also mentioned noise and maintenance and management issues. In addition to car parking, respondents in Karantina pointed to physical and design issues, maintenance and management, and environmental issues. Based on these respons-

TABLE 6. Problems reported by residents regarding their neighborhood.

Problems	Kültür	Neighborhood Karantina	Mavisehir
Planning to move			
Yes	19%	30%	15%
No	81%	70%	85%
If no financial constraints, would like to live			
In the same neighborhood	58%	32%	71%
In another neighborhood	36%	64%	26%
Outside of Izmir	6%	4%	3%
Main problems (in order of importance)	- Car parking - Noise - Maintenance and management	- Car parking - Physical and design issues - Maintenance and management - Environmental issues	- Car parking

es, it can be concluded that respondents in Mavisehir were more satisfied with their neighborhood environment than those in Kültür and Karantina. Moreover, when asked where they would like to live if they had no financial constraints, 71% of Mavisehir respondents expressed a desire to stay in Mavisehir. This percentage was slightly higher than that in Kültür (58%). Conversely, in Karantina, 64% of respondents expressed a wish to move to another neighborhood (Table 6).

DISCUSSION

This study hypothesized that mixed-use, street-facing neighborhoods with a topological relation between private and public space would be more conducive to social interaction and neighborliness. However, the hypothesis was refuted by the results, which showed that modern estates, with their high maintenance levels and extensive open spaces, parks, and walking environments, could generate a greater SOC, despite lower frequencies of social interaction. Previous studies have found a significant relation between intense social interaction and SOC; however, it is important to consider all of the predictors of SOC. For instance, studies should take into account the sociodemographic structure of a neighborhood, the personal preferences and behaviors of residents, and residents' level of involvement in neighborhood organizations.

As McKenzie (1921) stated, resident stability is important for developing local sentiment and a sense of belonging. Those who live in a neighborhood by choice rather than by economic compulsion tend to have stronger attachments to the place. From the observations and questionnaires in this study, it appears that Karantina is undergoing a change. The neighborhood included more renters, and residents had a greater desire to move away and were more dissatisfied with the physical environment and the management and maintenance of the neighborhood.

Length of residence is not necessarily significantly related to the development of SOC, especially in modern developments (Lund, 2002). This conclusion is supported by the finding in this study that, although there was a significant relation between SOC and length of residence in Karantina and Kültür, this was not the case in the more recently built Mavisehir.

As Lund (2002), Skjaeveland and Garling (1997), and Zehner and Marans (1973) have emphasized, dwelling density is also an important predictor for personal contact and neighborliness in a neighborhood. Due to other factors mentioned previously, one might expect that people in Mavisehir would know fewer of their neighbors. However, despite the higher population density in Mavisehir, the number of people respondents said they knew by name in their building did not vary

significantly among the three neighborhoods. Mavisehir is not as centrally located as the other two neighborhoods, but it is becoming more integrated through the development of transportation since the 1990s. Therefore, it cannot be classified as a suburb. In contrast with the literature based on studies of Western cities, this study found no major difference in car ownership between Mavisehir and the older, more traditional neighborhoods. Mavisehir might not have an attractive walking environment, but it still has a relaxing one.

Aspects of the NHE variable, such as adequate playgrounds for children, car parking, benches on which to sit and chat, and areas for landscaping and relaxation, were more significantly correlated with SOC in Mavisehir. However, in the regression analysis, NHE only affected SOC in Kültür and Karantina. These findings further support the findings of Gehl, *et al.* (2006); Lund (2002); and Skjaeveland and Garling (1997). Pedestrian environments and outdoor spaces should offer something to the user (Gibson, 1986) and be structured (with features and niches for social interaction), safe, and attractive (Lund, 2002). While Kültür is more attractive, Mavisehir offers its residents more pleasant outdoor spaces for landscaping and relaxation, which is in line with Herzog's (1992) findings regarding well-structured environments.

Cafés and other commercial uses on the ground floor serve an important urban function, encouraging people to have close encounters with both buildings and others on the street (Gehl, *et al.*, 2006). People prefer to stand at the edges of a space, where they are more discreet and can have a clear view of the street or public space (the so-called "edge effect"), and transitional zones — the areas between buildings and the public space — offer opportunities for such activities (*ibid.*:30). In addition, niches, extensions, and corners provide a sense of support for individuals sitting or standing at a fixed point. "It is precisely these edges and transition zones between buildings and city spaces that become the natural place for the wide variety of potential activities that link the functions inside the building with street life in general: recreation, play, seating, standing, exhibitions, trade, banking, smoking breaks and so on" (*ibid.*). The extension of shops and the presence of street vendors encourage interactions between sellers and buyers (Yatmo, 2008). Thus, due to its mixed-use development, the frequency of social interaction outdoors is higher in Kültür. Additionally, the correlation between SOC and frequency of social interaction outdoors was higher in Kültür than in Karantina and Mavisehir. In Kültür, front yards were used as cafés or shops, and there were open green spaces for planting in Mavisehir, but in most parts of Karantina, the building entrances were too narrow for interactions, and there was no gradual connection between the buildings and the street, as buildings opened directly onto the public space. Proximity has an influence on social interaction, and a lack of physical distance can result in "environment spoiling" (Ebbesen, *et al.*, 1976). In Karantina, there were no soft edges, transition zones, or supporting spaces (Gehl, 1986; Gehl, *et al.*, 2006), such as seating areas or niches along building facades. The spatial organization of the entrances to the apartment buildings in Karantina prevents activity and does not encourage lingering in front of the buildings; however, this was not a problem for the traditional houses in the neighborhood.

It should be mentioned that an SOC variable formed by only 11 questions may be inadequate since SOC is considered a much broader phenomenon, encompassing many factors (Lund, 2002). A number of other parameters may also influence SOC, such as changing communication systems and residents' sociodemographic characteristics, backgrounds, lifestyles, income, and family structures (Churchman, 2003; Gehl, 1986; Goist, 1971; McKenzie, 1921; Nasar and Julian, 1995; Park, 1915; Tylor, 1939; Wirth, 1938).

CONCLUSION

This study investigated how spatial configuration affects social interaction and SOC, focusing on three neighborhoods with varying spatial organization in Izmir, Turkey. In new urban developments, traditional gathering places are either disappearing completely or transforming into larger-

scale spaces, such as shopping malls and chain supermarkets (Lund, 2002; Mills, 2007). This study hypothesized that there would be a reduced SOC in the modern estate, Mavisehir, which lacks a traditional street layout and in which there is a general lack of niches or active frontages where neighbors might interact around the buildings. All of Mavisehir's uses and facilities are zoned, and it does not have the vivid life of a mixed-use neighborhood, such as Kültür. Various researchers (especially new urbanists such as Calthorpe [1993] and Duany and Plater-Zyberg [1991], as well as Jacobs [1961], Langdon [1988], and Lund [2002]) have stated that traditional neighborhoods and mixed-use areas have a greater SOC than modern urban developments. Nevertheless, in this study, Mavisehir's SOC was found to be significantly higher than the SOC in the other two case studies.

The results of this study corroborate the findings of a great deal of the previous work in this field. In an important case study from Turkey, Erkip (2010) compared a traditional neighborhood in Ankara's city center with a gated neighborhood. The results revealed that, in both neighborhoods, relations among residents were distant, the residents of both types of neighborhoods had similar values about community, and they did not participate actively in neighborhood associations. The current case study exhibits parallels with Erkip's study, highlighting that, regardless of urban pattern or location, the neighborhoods in this study were generally similar in terms of frequency of visits to people in the neighborhood, number of people known by name in the building, and number of neighbors visited. When the relation between interaction and SOC is examined, it should be noted that SOC parameters change because the community is dynamic. In addition to physical places where people interact, it might be necessary to consider virtual interaction networks within these parameters.

While space and social interaction are important, urban form and spatial configuration should not be considered the only solutions to developing neighborliness and SOC. As this study shows, factors such as the characteristics of neighborhoods (physical and social), residents' sociodemographic characteristics, walkability, safety, maintenance, management, and various other parameters all affect the solidarity, attachment, and SOC in neighborhoods. Every context will have its own unique combination of dynamics and drivers. Further case studies in different contexts will result in more comprehensive SOC variables, increasing the understanding of how different urban structures and places perform both physically and socially.

NOTES

1. An earlier study used the questionnaire data and additional observations of activity patterns to conduct a space-syntax analysis of the neighborhoods (see Can and Heath, 2016).
2. Mavisehir is a large neighborhood that continues to grow and expand. This case study only looked at the neighborhood's first phase (Mavisehir I).
3. After the fall of the Ottoman Empire at the end of World War I, the empire's holdings were occupied and partitioned by different countries. In May 1919, the Greek army occupied Izmir in an attempt to claim its territory, thus igniting the Greco-Turkish War. Three years later, on September 9, 1922, forces organized by the Turkish National Movement arrived in the city. On September 13, 1922, the Great Fire of Izmir (or Smyrna, as the city was then known) began in the Armenian and Greek quarters of the city and spread over almost all of the European quarter of the city (the Alsancak district). Debates continue regarding who started the fire and how. The economic and social hub of the city was completely destroyed (Milton, 2008; Smyrnelis, 2009; Uz and Sakar, 2007). The fire marked a significant milestone in the city's history, as it destroyed three-quarters of the city, killed more than 100,000 people, and left millions homeless (Milton, 2008).

APPENDIX: FIVE-POINT-SCALE QUESTIONS USED IN THE STUDY

A. Perception of Walking and Safety in the Neighborhood (PWS)

1. I often see neighbors I know when I walk.
2. I often see strangers who make me feel uncomfortable when I walk.
3. I feel safe walking in my neighborhood during the day.

APPENDIX continued. Five-point-scale questions used in the study.

-
4. I feel safe walking in my neighborhood during the evening.
 - 5.* I feel uncomfortable walking where there are no sidewalks in my neighborhood.
 - 6.* I feel uncomfortable walking when street vendors or local shopkeepers exhibit their products on the sidewalk.
 - 7.* I like walking on streets where there are shops.

B. Neighborhood Sense of Community (SOC)

1. If I feel like talking, I can generally find someone in the neighborhood to talk to right away.
2. I have made new friends by living here.
3. I know some people living here through my child/children.
4. My friends in this neighborhood are part of my everyday activities.
5. I meet with my friends in the neighborhood mostly in public places.
6. I usually participate in social activities in my neighborhood.
7. If I had an emergency, even people I do not know in this neighborhood would be willing to help.
8. I really care about this neighborhood.
9. I am happy with the maintenance and management of our neighborhood.
10. I feel safe and comfortable in this neighborhood.
11. Noise from the street can occasionally be a serious problem.

C. Environment Near the House and Neighborhood (NHE)

1. We have adequate outdoor spaces for children to play in near our home.
2. There are seats where we can sit and chat near our home environment.
3. We have adequate car-parking areas near our home.
4. We have adequate space for landscaping and planting near our home.
- 5.* We have adequate public-transportation facilities in our neighborhood.
- 6.* I find our neighborhood to be far from the city center.
- 7.* I am happy with the lighting of public spaces at night in our neighborhood.
- 8.* The sidewalks of our streets are convenient for elderly and disabled people.
- 9.* In this neighborhood, there are places for every age group (elderly, adults, teenagers, children).

* Items were eliminated from the analysis because their Cronbach's alpha was less than .5.

Reliability analysis (Cronbach's α)	PWS	SOC	NHE
Kültür	.801	.834	.689
Karantina	.790	.714	.785
Mavisehir	.666	.849	.730

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