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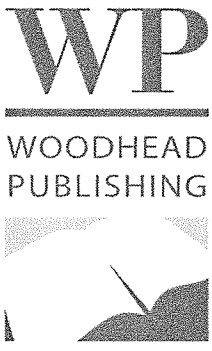

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The psychological needs of city dwellers: implications for sustainable urban planning

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Abstract: Urban living can be polluted, crime-ridden and isolating, or it can be community-oriented, aesthetically pleasing and safe. The psychological needs of urban dwellers should be considered when planning environmentally sustainable cities; after all, cities will only be successful if residents want to live in them. This chapter discusses factors that lead residents to be satisfied and attached to their communities. These factors primarily include individual differences among residents and the needs for pleasant areas, security and social interaction. Many urban design features, such as green spaces, are good for both environmental sustainability and city residents, whereas others, such as elevated density, can have mixed outcomes.

Key words: urban psychology, environmental psychology, psychological needs.

26.1 Introduction

City living provides individuals with access to shared resources and increased opportunities. It can be enjoyable, exciting and potentially more sustainable than rural living. However, when cities do not meet the psychological needs of their inhabitants, they can also be a source of stress, health concerns and other negative effects. For example, in the Netherlands, living closer to downtown has been linked to increased levels of psychosis (van Os *et al.*, 2003) and, in the USA, increased urbanization over time has been related to higher rates of schizophrenia (Torrey and Bowler, 1990). The largest US cities may be the worst in that country in which to raise a child (FEHB, 1995) and urban residents (especially in poor or disorganized neighborhoods) tend to be less trusting than their rural counterparts (Ross

et al., 2002). However, these effects may be attenuated by good design practices and attention to their inhabitants' concerns.

In this chapter, the psychological needs of city dwellers are examined in terms of their satisfaction with, and feelings of attachment to, their neighborhoods. The two concepts are related, yet distinct (Aiello *et al.*, 2010). Neighborhood satisfaction is based on the area's physical condition, social relations, political climate and convenience (Fried, 1984); it is determined in part through residents' comparisons with their previous neighborhoods (Lord and Rent, 1987). Safety and social problems may predict dissatisfaction with a neighborhood better than physical factors (Hur and Morrow-Jones, 2008). When residents are satisfied with their neighborhood, they are more likely to be satisfied with their city (Demick *et al.*, 1985), their psychological wellbeing (Carp and Christensen, 1986) and their life in general (Dittmann and Goebel, 2010).

Place attachment, on the other hand, refers to residents' bonds to their neighborhoods (or other locations) that have special meaning to them (Altman and Low, 1992; Stedman, 2002). Place attachment has been defined as having three to five elements. Scannell and Gifford (2010) consider it to have three dimensions: persons, places and the psychological processes in play. Raymond *et al.*(2010) view it as having five factors: place identity, place dependence, nature bonding, friend bonding and family bonding. Place attachment affects how individuals perceive their neighborhood. This may explain why residents of poor neighborhoods rate their area higher than outsiders do (Cunningham, 1984; Helson, 1964) and why older residents sometimes cling to dying towns (Kaplan, 1985). It may also explain why homeowners and long-time residents perceive fewer incivilities (e.g. graffiti or litter), experience reduced fear of crime and feel an increased sense of community cohesion (Brown *et al.*, 2003). Not surprisingly, individuals who are highly attached to the place where they live find moving very difficult (McAndrew 1998).

In general, satisfaction is based on everyday activities such as shopping or leisure, whereas place attachment is based more on social relationships and affective bonds with a place (Aiello *et al.*, 2010). However, the two concepts are closely linked. For example, feeling at home in a place is associated with greater satisfaction with it (Lord and Rent, 1987). The remainder of this chapter discusses the psychological needs of urban dwellers as reflected by their neighborhood satisfaction and attachment. The development of sustainable cities should take into account the needs of their inhabitants. Therefore, we will begin with a brief exploration of individual differences in resident needs, followed by an overview of the need for pleasant places, security and social interaction. The chapter outlines the physical design features of cities that have psychological impacts on urbanites, with the goal of helping to improve future sustainable urban planning efforts.

26.1.1 Sustainability and urban psychology

Throughout this chapter, factors that influence residents' satisfaction and attachment to their cities will be considered. In general, cities that are designed to promote environmental sustainability also improve satisfaction and attachment. For example, more walkable or cyclable areas reduce greenhouse gas emissions while increasing social interaction and physical fitness among residents (CNU, 2010). In addition, city parks and green spaces improve air quality as well as restoring residents' health (Mitchell and Popham, 2007) and mental capacities (van den Berg *et al.*, 2007).

In rapidly growing cities such as Curitiba in Brazil and high-density cities such as New York, a planning emphasis on environmental sustainability has resulted in positive environmental change *as well as* social and economic benefits (Moore, 1994; Owen, 2004). Indeed, 'liveability', 'social cohesion', and 'quality of life' are often referred to as part of sustainability (Pol, 2002; van Assche *et al.*, 2010). Successful urban development (e.g. in the United Nations' Agenda 21) is defined as achieving sustainability meeting the needs of current and future generations (Pol, 2002; van Assche *et al.*, 2010). Therefore, quality of life is of primary importance and environmental sustainability is required in order to maintain and enhance this objective.

Although environmental sustainability and residents' happiness tend to go hand-in-hand, one aspect of sustainable city life can clash with the goal of residents' satisfaction: population density. High-density living can be unpleasant for community members when it leads to crowding, crime, noise or a lack of natural areas, and is associated with decreased satisfaction and attachment (Hur *et al.*, 2010). On the other hand, increasing city density is good for sustainability because it is efficient and prevents the destruction of surrounding natural areas through sprawl. In summary, careful city planning is important if it is to improve both sustainability and liveability. The remainder of this chapter presents issues and findings that city planners should consider when reshaping cities to increase their environmental sustainability.

26.2 Individual differences in city dwellers' needs

Designing an urban center is challenging because residents have different needs and no single plan will work for every person. For example, female teens differ from male teens; they vary more in their perceptions of traffic flow and the usefulness of crosswalks or pedestrian traffic signals (Yan *et al.*, 2010) and, in inner-city neighborhoods, they are more likely to feel alienated from, and dissatisfied with, their local area than males or older teens (Fagg *et al.*, 2008).

Satisfaction with cities and attachment to them can vary for another

reason: preferences for cities, suburbs or rural regions may be enduring individual traits. Some people are urbanophiles (preferring a more urban lifestyle) and others are urbanophobes (avoiding city life). Urbanophiles tend to underestimate the frequency of negative occurrences associated with living in cities and urbanophobes tend to overestimate them (Félonneau, 2004). One solution to this problem is to create more urban villages – viable small-scale enclaves scattered throughout a metropolis that allow for a smaller-scale feel.

Not surprisingly, urbanophiles grow more attached to cities and suburban- or rural-oriented people grow more attached to suburbs or rural areas (Feldman, 1996). When individuals move from one type of location to another, their sense of attachment is more strongly affected than if they stay within the same type of geographic region (Feldman, 1996). Suburbanites and downtowners also differ in terms of what affects their neighborhood satisfaction. Among downtown residents, distance to green space is a good predictor of satisfaction, whereas for suburban residents access to public transportation and noise are better predictors of satisfaction (Llewellyn, 1981; Michelson, 1977). Thus, sustainable development efforts must consider the *types* of residents to be served. An urban approach to sustainability may not work for individuals with suburban or rural preferences.

Several theories attempt to explain these differences in preference for urban versus rural environments. One theory states that individuals seek environments that are congruent with their personal needs (Kahana *et al.*, 2003). This may be why, for example, people with greater interest in their neighborhood are more satisfied with it (Jirovec *et al.*, 1985). Six areas of congruence are important to consider (Kahana *et al.*, 2003): neighborhood amenities and aesthetics, safety, resources, homogeneity (or heterogeneity), interaction (or solitude) and stimulation (or peacefulness).

Local levels of sensory stimulation can be a particularly important aspect of urban preferences. Some individuals, such as those who are highly anxious, are less able to screen loud noise or other unwanted stimulation than others (Mehrabian, 1977). Noise is generally more annoying for homeowners (as opposed to renters), as well as residents with low perceived behavioral control, more education or high noise sensitivity (Miedema and Vos, 1999). However, residents may accept greater noise levels if they believe that economic benefits will follow (Staples *et al.*, 1999).

Adaptation-level theory builds on stimulation research. It proposes that individuals prefer moving to places that provide a moderately discrepant level of stimulation from their current residential area (Helson, 1964). Thus, a rural dweller might find a small town pleasant and a big-city person might find a smaller city pleasant, but a rural dweller is unlikely to feel comfortable in a big city for long periods, and vice versa. Nevertheless, rural dwellers

who move to the city (or city people who move to rural regions) can still successfully adapt to the new level of stimulation by seeking out the level of stimulation they need within their new environments (a process facilitated by having greater disposable income). Neighborhood satisfaction is associated with this ability to adapt (Geller, 1980).

26.3 The need for quiet, unpolluted, natural and aesthetically pleasing areas

Noise, air pollution, lack of green space and visually uninspiring areas are unfortunately common in cities. These often result from unsustainable energy production, transportation and building practices, so once again the urban quality of life and sustainability are intertwined. Not only are these aspects of the city unpleasant, but they can also have significant negative psychological effects. For example, aircraft noise can be quite stressful (Bronzaft *et al.*, 1998; Evans and Maxwell, 1997) and loud street-level sound has been shown to reduce one's willingness to help others (Mathews and Canon, 1975; Page, 1977). Similarly, the air pollution and bad odors often found in cities can negatively affect the perception of others (Rotton, 1983), increase aggression (Rotton, 1979) and may increase the rate of domestic disputes and psychological disturbances (Rotton and Frey, 1984, 1985). For example, passers-by were less likely to help a blind person who dropped his or her glove if cigarette smoke was in the air (Bennett and Casey, 1989).

The evidence about whether urban residents can adapt to noise and air pollution is mixed. Those who lived near a newly built highway reported being just as annoyed by the new source of noise 16 months after construction as they were after 4 months (Weinstein, 1982). Installing sound-proof insulation in one's home may reduce annoyance from airport noise in the short term, but this effect eventually disappears (Fidell and Silvati, 1991). On the other hand, some proportion of residents can handle – or at least do not complain about – loud sounds. The percentage of residents who lived near a loud road reported that annoyance levels rose with the number of passing trucks, but only up to a point: over this number, the percentage of residents who reported being 'very annoyed' did not increase (Björkman, 1991). Long-time residents are less likely than new immigrants to a city to report a given day as smoggy, despite being *capable* of perceiving the pollution (Evans *et al.*, 1982). However, noise and air pollution may adversely affect resident health and stress levels, despite the apparent ability of some to adapt. Therefore, urban planners must attend to these issues even when complaints cease.

One advantage for residents that cities have over suburbs or rural areas is that they are often better equipped to address the fundamental need for

walking. Commuting by foot may be more common in cities because residences, workplaces and amenities are closer together. Walking is both physically and mentally healthy, and provides increased security and opportunities for social interaction (as will be discussed later). Walking helps people form their thoughts into a direction and moves them from negative states of mind (Hillman *et al.*, 1980).

In contrast, driving is often stressful and can be harmful to mental health; some have claimed that if we continue to increase our use of cars instead of walking we will be 'literally driving ourselves crazy' (Hillman *et al.*, 1980, p. 6). A large US study concluded that driving also can have negative physical health consequences (Frank *et al.*, 2004). Certainly in some urban areas, traffic seriously compromises quality of life (Gifford and Steg, 2007). Areas that are less walkable are associated with more driving and increased rates of obesity (Frank *et al.*, 2004). As city size increases, pedestrian walking speeds also increase (Bornstein, 1979; Bornstein and Bornstein, 1976; Gifford *et al.*, 1977), which has the potential to slightly improve fitness levels. In addition, many large cities have weather-sheltered indoor areas such as malls or downtown inter-building networks, and these can also be surprisingly popular areas for walking (Fletcher and Macauley, 1983).

A city's natural areas or 'green spaces' provide carbon sinks and habitat for local wildlife, and are significant sources of satisfaction and place attachment for residents. Humans, who have evolved to live in nature, prefer natural scenes (van den Berg *et al.*, 2003) and benefit physically and psychologically from the restorative effects of nature (Kellert, 1997; Maller *et al.*, 2006). People who live near natural areas with trees, landscaping and places to walk are more satisfied with their neighborhood and show a greater attachment to it (Catrill, 1998; Hull and Harvey, 1989; Kearney, 2006), although these should be away from the lively retail–residential mix that gives main streets their liveliness (Jacobs, 1961). When residents are able to create or maintain their own garden they also grow more attached to that area (Sime and Kimura, 1988).

Other aspects of neighborhoods and cities, in conjunction with green spaces, also play key roles in satisfaction and attachment. Perceiving an area as more natural increases city dwellers' satisfaction with the area, but high-density living may reduce it (Hur *et al.*, 2010). However, some evidence also suggests that moderate urban population densities are most preferred; areas of Auckland, New Zealand that were too high or too low in population density were rated as less satisfactory (Walton *et al.*, 2008).[1] Critically, the

[1] Low-density areas had 1257–1326 people per square km, medium-density areas had 3089–3109 people per square km and high-density areas had 4294–4351 people per square km. These were calculated from the 15th percentile, the median and the 85th percentile respectively (Walton et al., 2008).

perception of crowding is more important than objective measures of density (e.g. Schaeffer *et al.* 1988). With high-density living contributing to the sustainability of cities, design features should be included that make densely populated regions feel less crowded. For example, in areas with high indoor density (e.g. many people in small apartments), outdoor density can be minimized with green open spaces. Similarly, in urban areas with high outdoor density (e.g. busy downtown streets), indoor density can be minimized (e.g. in well-designed residences, even 'affordable' ones). The reduction of density from between outdoors to indoors can reduce the perception of crowding without reducing overall population density (e.g. Zlutnick and Altman, 1972), while achieving the sustainability benefits of cities.

The level of deterioration of a neighborhood is interesting in that its decay may reduce satisfaction without reducing place attachment (Taylor, 1982; Woldoff, 2002). This is because perceived neighborhood quality includes the neighborhood's social network, and thus differs from objective measures of quality (Bonaiuto *et al.*, 1999), or because the local physical environment does not affect attachment (Aguilar, 2002). Not surprisingly, however, aesthetically pleasing and convenient neighborhoods are generally highly rated (Jirovec *et al.*, 1985; Lord and Rent, 1987; Widgery, 1982), as are those with well-kept yards, interesting buildings and open spaces (García-Mira *et al.*, 1997; Nasar, 1983). Neighborhoods that include schools, workplaces, recreation areas and stores within close distance are more satisfying (Lord and Rent, 1987) which, once again, highlights the sustainability benefits of urban densification.

Neighborhoods should be designed to meet the needs of their residents. Aside from limiting noise and pollution, providing interesting and convenient places to live and including green spaces, people of different ages need different types of areas for 'hanging out' and urban planners should take these into consideration. For children, place attachment can be important to general wellbeing (Jack, 2010), and this process is influenced by the ability to play outdoors. Children's play in outdoor urban environments has declined (Gaster, 1991). One obvious way to encourage more outdoor play is to provide more green space in the neighborhood (Skjaeveland and Garling, 1997) which, again, complements sustainability goals in that green spaces are heat sinks and carbon sequestering places.

Natural areas are also preferred by teens as places they can go to be secluded from everyone other than their friends (Owens, 1981). Teenagers like to spend time in what has been called the 'fourth environment': places other than home, playgrounds or locations meant for children (van Vliet, 1983). Elderly people also enjoy spending time in parks and natural areas, but they prefer areas that are open, well-kept, uniform, not mysterious (Nasar, 1981) and that provide areas to sit out of the sun in order to watch

people go by (Regnier, 1985). The safety and pleasantness of neighborhood open spaces is correlated with life satisfaction for elderly people (Sugiyama *et al.*, 2009), but the mall is also a common location for older adults to 'hang out.' One study found that, although only 9% of a city's population was elderly men, they comprised 50% of the individuals sitting in its malls (Brown *et al.*, 1986).

26.4 The need for security

City residents' need for security can play a large role in their satisfaction with the neighborhood – when residents feel safe they are more satisfied (Baba and Austin, 1989). Residents who feel unsafe are unlikely to consider environmental sustainability as important or appreciate the benefits of sustainable living. Fear of crime or a large influx of 'different' people to the neighborhood may also reduce feelings of attachment for long-time residents (Goodman and Hankin, 1984).

Paradoxically, however, as individuals grow more attached to their neighborhood, they tend to perceive a lower risk of crime and incivilities (e.g. graffiti or litter) (Brown *et al.*, 2004). Thus, one effect of neighborhood attachment is to cause residents to ignore or minimize their neighborhood's faults.

City dwellers' concerns with crime can affect their behavior and wellbeing and this may, unfortunately, be inherent in high-density cities because it is more related to population density than to actual crime rates (Gifford and Peacock, 1979). Thus, increased density may be more sustainable, but may result in more perceived crime. These fears revolve around a number of locations and issues. Aside from a fear of crime in general (Cook, 1988), people living in cities are often concerned about crime on buses (Patterson, 1985) or in areas of college campuses (Kirk, 1988). They are worried that their child might be hit by a car (Gärling *et al.*, 1984) and they are afraid of dark places where an attacker could hide (Nasar and Jones, 1997). All this fear can cause people to change their daily routines (Keane, 1998) and may have detrimental mental health consequences (White *et al.*, 1987).

26.4.1 Defensible space

The design of an area can affect crime rates. For example, streets with more traffic actually seem to experience less crime (Jacobs, 1961; Rand, 1984) and blocks that have fewer street signs experience fewer home burglaries (Brown, 1980). Apartment buildings with less than 5 units per floor and 50 units total have lower crime rates (Rand, 1984). Mixed-use areas, with a diversity of land zonings, may be less aesthetically pleasing (Nasar, 1983),

but result in reduced crime rates (Fowler, 1987) and more environmentally sustainable lifestyles.

A checklist has been produced that includes six elements of a neighborhood that can make it more or less vulnerable to crime (van der Voordt and van Wegen, 1990): visibility of public spaces; presence of residents; social involvement by residents; access and escape routes for criminals or victims; physical attractiveness; and vulnerability of materials (such as walls for graffiti or locks that could be easily broken) (Keizer *et al.*, 2008).

Most neighborhood designs for reducing crime are based on the theory of defensible space in which buildings, roads, parks and other features are laid out in a way that encourages surveillance of public spaces (Newman, 1972, 1975). The three components of defensible spaces that effectively deter crime are territoriality, natural surveillance and a positive image or milieu (Reynald and Elffers, 2009). Neighborhoods that include these elements typically encourage walking (rather than driving) and are, therefore, more environmentally sustainable.

Neighborhood territories are delineated by physical or symbolic barriers (such as walls or signs) and these areas become important to residents. Within the barriers of territories, communities can grow and neighbors can take responsibility for their areas. When territories are designed to include natural surveillance of public spaces (i.e. by residents or pedestrians viewing what goes on in them), residents are further provided with the means to deter crime in their areas. If residents are able to view public spaces from their windows, for example, they can easily tell when an outsider has entered and potential criminals understand that they may be watched. A sense of community is also vital for portraying a positive image or milieu of the neighborhood. A neighborhood that appears neglected or decaying invites crime, whereas one that appears alive and well-kept deters crime. Deterring crime is a necessary part of the design of any community because it is a major concern for residents and could play an important role in the sustainability of the community itself.

The theory of defensible space has been supported by a variety of studies. For example, an increased sense of territoriality seems to have reduced crime in an Ohio community – two years after the community was divided into five sub-communities by closing entrances to neighborhoods, installing speed bumps and putting neighborhood logos on gates, violent crime was reduced by 50% and overall crime was lowered by 26% (Cose, 1994). Improved natural surveillance has also been used to deter crime. Convenience stores that removed posters from their windows and put their cash registers in open view from outside experienced a 30% reduction in crime compared to other stores from the same chain (Krupat and Kubzansky, 1987) and, when monitoring the sale of stolen property or bank robberies, individuals who

were in a more surveillable place appeared more tense and left the scene more quickly (Archea, 1985). Similarly, buildings in a metropolitan city that were more accessible (and thus easily viewed) by passers-by were less often the subject of burglaries (Chang, 2011). Furthermore, a recent review of potential neighborhood security measures found that the use of barricades and street closures in inner-city neighborhoods is an effective crime deterrent (Welsh *et al.*, 2010).

One founder of defensible space theory, Oscar Newman, was able to implement his ideas during the renovation of Clason Point Gardens ('the projects'), an area of South Bronx (New York City) consisting of row-house clusters with 12 to 40 families per cluster (Newman, 1972). Newman attempted to reduce crime in this area using three defensible space techniques: (a) assigning formerly public spaces to particular families using symbolic and physical barriers (territoriality); (b) reducing the number of pedestrian routes through the projects and improved lighting along these routes (surveillance); and (c) improving the image of the neighborhood by resurfacing buildings and giving each residence a different color. Inhabitants responded by planting grass and keeping their areas well-maintained, thus lowering maintenance costs for management. They were also twice as comfortable asking strangers why they were in the neighborhood after than before renovations, and the rates of violent crime (burglary, assault and robbery) dropped 61.5%.[2]

Another founder of the theory, Jane Jacobs, speculates that short city blocks, mixed land use, incorporation of old and new buildings and a concentrated use of space should improve the frequency of interaction and thus reduce crime (Jacobs, 1961). Some evidence supports the notion that diverse districts do have less crime, but this may not be a result of increased social interactions (Fowler, 1987).

26.4.2 Defensible space controversy

Although defensible space theory is well-respected by many academics and urban planners, and has considerable empirical support (e.g. Sommer, 1987), it also has been questioned. Critics note that although surveillable

[2] Follow-up research on this area has not been conducted. However, statistics from the 43rd precinct in New York City (next to Clason Point) report that there were 2384 incidents of the '7 major crimes' in 2011; this is down 74.91% since 1990, but how it compares to 1972 (during the original study) is unknown (NYPD, 2012). One American real-estate website (Neighborhood Scout, 2012) also suggests that Clason Point remains a poor, high-density, minority community. It is more densely populated than 99% of the USA and has a lower average income than 93% of the country. However, property values have also appreciated significantly compared to the rest of New York and the US (258% since 1990). Recent data about willingness to speak to strangers is unavailable.

and well-maintained spaces may lead residents to *feel* safer, they do not always reduce rates of actual crime (Kuo *et al.*, 1998; Tien *et al.*, 1979; Wilson-Doenges, 2000). This may be because defensible space does not reduce crime unless residents are willing to defend it (e.g. by keeping an eye out).

Social coherence within a community is necessary in order to reap the crime-prevention benefits of defensible spaces (Merry, 1981). Some argue that it lacks a sound theoretical link between the social fabric of the community and crime deterrence (Reynald and Elffers, 2009; Tijerino 1998). Furthermore, defensible spaces do not deter criminals who are incompetent, impaired or commit crime for thrills or social approval (Rand, 1984).

Another apparent inconsistency in defensible space theory involves the presence or absence of neighborhood traffic. On the one hand, areas can be made safer by creating barriers that reduce traffic (and increase territoriality). For example, in residential areas, fewer through streets and less public parking result in lower crime rates (Brantingham and Brantingham, 1977; Krupat and Kubzansky, 1987). However, in some areas, such as downtown districts, areas that are less public (have less traffic) actually experience *more* crime (Rand, 1984). In order to address this inconsistency, Reynald and Elffers (2009) proposed that the image or milieu of a neighborhood (e.g. cared-for versus neglected) may mediate the affect of public access to it. That is, if an area has a positive, cared-for image, then accessibility by outsiders may reduce crime, but if an area has a negative, neglected image, then accessibility may increase crime. For example, 'greening' vacant lots in Philadelphia was associated with reductions in gun assaults across four sections of the city and reductions in vandalism in one section of the city (Branas *et al.*, 2011).

26.5 The need for social interaction

Humans are social animals and, consequently, neighborhood social ties are excellent predictors of place attachment (Lewicka, 2010). When a neighborhood elicits positive social interaction and suits its residents' purposes, inhabitants grow more attached to it (Kaplan, 1984; Mesch and Manor, 1998). This attachment is also created through a sense of community, which increases as residents experience more privacy and community involvement, but decreases as a city becomes larger, denser and more ethnically diverse (Bonaiuto and Bonnes, 1996; Wilson-Doenges and Baldassare, 1996). Urban planners interested in increasing city density (for sustainability reasons) should be aware that this could result in decreased social cohesion and, thus, reduced neighborhood attachment. However, as neighborhood confidence increases, so does social cohesion with neighbors and the likelihood of residents remaining in the neighborhood (as opposed

to moving) (Varady, 1986). In short, these considerations may represent a trade-off between sustainability and resident satisfaction.

In Marc Fried's classic study of a Boston neighborhood that was run-down but then redeveloped, planners assumed that residents would prefer newer cleaner homes to replace their old decaying places (Fried and Gleicher, 1961). However, when the neighborhood was demolished and rebuilt, residents grieved their old homes and the community they associated with it. The physical structure of neighborhood buildings, then, are not always as important as social ties in determining place attachment to a neighborhood. However, the reverse may be true for neighborhood satisfaction.

Satisfaction with a neighborhood appears to have less to do with social than physical factors (Fried, 1982; Handal *et al.*, 1981). Although people want their neighbors to be 'good'(Lord and Rent, 1987), the physical neighborhood may be less of a source of friendships and community ties than it once was. Work, school and internet communities often now fill this need, particularly since so many women now work outside the home. The social aspects of a community may be important to the satisfaction of new immigrants, who often prefer to be around similar others (Rivlin, 1982), but even members of minority groups often move out of their traditional neighborhoods when they are wealthy enough and comfortable with the dominant culture (Loo and Mar, 1982).

26.5.1 City friendliness

Research on helping behavior suggests that cities with a higher population density have less helpful citizens (Levine *et al.*, 1994). In fact, it may be the very presence of higher numbers of people in one's immediate proximity that is associated with lower frequencies of helping (Iwata, 1977). For example, a person who has dropped a contact lens in a shopping mall is less likely to receive help finding it if the density of bystanders around is higher (Cohen and Spacapan, 1978). Thus, at the community level, higher population density in the immediate area reduces helping more than does the overall density of the city (Kammann *et al.*, 1979). Once again, this poses a challenge to urban planners interested in increasing the population density of cities for environmental reasons.

According to Milgram (1970), the reduced helpfulness of city dwellers stems from overstimulation. With all of the distractions inherent in city life, one cannot physically pay attention to everything and help everyone that is in need. Famously, the killing of Kitty Genovese in New York occurred within sight of residents of a nearby apartment building (Rosenthal, 1999). Although the claim that 38 witnesses saw the event but preferred not to 'get involved', is now known to have been incorrect (Manning *et al.*, 2007), the

incident contributed to the theories of pluralistic ignorance (Katz *et al.*, 1931) and the bystander effect (Darley and Latane, 1968) that explain the tendency to help less when there are more people around.

Although these effects may be more likely to occur in cities, and city dwellers may be less friendly on public streets, urban residents are nevertheless equally involved with friends and relatives as those outside the city (Franck, 1980; Korte 1980). Therefore, the need for a strong cohesive community may be one that transcends urban–rural differences. An active community with residents that care for one another and enjoy spending time together is pleasant for people to live in and promotes a safe atmosphere within the neighborhood.

26.5.2 Design features that promote social interaction

Certain neighborhood design elements can promote social interaction, improve neighborhood cohesiveness and increase helpfulness. For example, areas that are perceived to be more spacious are associated with more social interaction (Taylor *et al.*, 1998) and more pleasant places, such as one improved by the addition of a shopping area (Amato, 1981), have been associated with increased frequencies of helping. These and other solutions may be useful methods of counteracting the negative effects of high-density city living. On the other hand, neighborhoods with more liquor stores (typically found in poor areas) may also have less-cohesive communities and more crime (Duncan *et al.*, 2002).

Plazas, or open urban spaces, are places that can be used to promote positive social interactions within city centers (Whyte, 1974). New York City, where space is at a premium, was the first city in which developers were offered an incentive for including a plaza outside newly constructed buildings. The incentive, termed 'bonus density', gave developers the ability to exceed normal zoning restrictions. This resulted in a number of new open spaces being built in the city. Unfortunately, however, the initial plazas were empty and therefore rarely used. In order to determine what plaza design features should be included to foster their use, Whyte (1974) analysed video footage of 18 plazas and produced several recommendations. Essentially, the greater the number of amenities a plaza had, the greater its usefulness. Plazas that were most useful included seating as well as water fountains, pools, food stands or outlets, trees or activities to watch (such as busking). When a plaza in a hot city provided shade, or a plaza in a cool city provided sunlight, it was also more likely to be used. Based on Whyte's findings, New York's 'bonus density' incentive was adjusted in 1975 and 1977 to encourage the construction of more useful plazas.

New urbanism is a planning movement created in the 1980s with the intention of promoting communities designed for walkability and social

interaction – these design features increase both sustainability and social cohesion. New urbanist neighborhoods are based on those created before the invention of the automobile. They incorporate a number of design features such as narrow streets, large porches and small lots. These features discourage car use and encourage pedestrian street use, which provides more opportunities for meeting neighbors. Although most of these communities are contrived and built from scratch in exurban areas, and are often treated as secondary residences, which partly defeats their purpose, some new urbanist features have been included in the redevelopment of neighborhoods in established cities such as Baltimore, MD and Washington, DC (CNU, 2010). Elderly inhabitants of new urbanist communities walk significantly more than those in other communities (Patterson and Chapman, 2004), which is sustainability-positive, and residents of new urbanist neighborhoods are generally more attached to their area (Kim and Kaplan, 2004).

Six primary methods for bringing a neighborhood to life and creating a vibrant community have been suggested (Brower, 1988): (a) encouraging people to walk, stroll or play on sidewalks; (b) providing residents with things to do and see (e.g. vendors, libraries or benches); (c) reducing the speed and number of vehicles allowed to pass through the neighborhood; (d) locating house entrances on the street; (e) designing parks that are used by all ages; (f) separating parks from housing areas in order to reduce noise. By implementing these design features, residents will be encouraged to interact with one another, social cohesion may improve and safety may increase. In addition, most of these features are associated with fewer carbon emissions.

26.6 Conclusions

Urban living can be polluted, crime-ridden and isolating, or it can be community-oriented, aesthetically pleasing and safe. Typically, environmentally sustainable neighborhoods are also pleasant to live in. Thoughtful design decisions that cater to the individual needs of residents can transform declining neighborhoods into attractive and productive urban regions. Increased urbanization and high-density living have the potential to be more sustainable than suburban or rural living, but neighborhoods will not succeed if their residents move away in favor of the suburbs or rural areas. Therefore, the needs of urban dwellers are essential to consider when designing a community. The task of increasing city density while reducing the negative psychological consequences associated with it can be a challenge for sustainable city design. It virtually requires the use of high-rise residential buildings, for example, which have mixed impacts on residents (Gifford, 2007). One clear solution to this involves the creation of indoor areas that are well-designed and spacious and which can serve as refuges from higher density outdoor spaces (or vice versa).

In 1998, as an experimental intervention, the World Health Organization (WHO) launched a promising program recognizing the importance of urban planning. The WHO European Healthy Cities Network Healthy Urban Planning initiative was created to help municipalities redevelop their neighborhoods and promote health (Barton *et al.*, 2009). In launching this program, the WHO recognized that city planning had a significant impact on citizen health. Urban centers designed to promote walking (or other exercise), social cohesion, safety, security, and an aurally and aesthetically pleasing environment (along with several other priorities) address urban dwellers' needs and ameliorate their physical health. Beginning in 2002, this program moved from being an experiment to mainstream practice and succeeded in creating a number of cities that are excellent examples of sustainability and healthy city lifestyles. These urban centers demonstrate that future cities can be both environmentally friendly and pleasant places to live.

26.7 References

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